

3 1 JAN 1996

## WELL COMPLETION REPORT

## **LANGLEY-1**

## PPL 1

## OTWAY BASIN, VICTORIA

compiled/by

Kevin Lanigan

January, 1996

## **VOLUME** 1

## THEXT & APPENDICES 1-4

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## PETROLEUM DIVISION 31 JAN 1996 GFE RESOURCES LTD PPL1

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submitted ...

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## CONTENTS

### VOLUME 1

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i

SUM	MAR	Y SHEE'	Т		
1.	INTI	RODUC	ΓΙΟΝ		1
2.	WEI	LL HIST	ORY		3
	2.1	Locatio	on		3
	2.2	Genera	al Data		3
	2.3	Drillin	g Data		4
		2.3.1	Drilling (	Contractor	4
		2.3.2	Drilling F	Rig	4
		2.3.3	Casing ar	nd Cementing Details	4
		2.3.4	Drilling F	Fluid	5
		2.3.5	Drilling <b>F</b>	Bits	5
		2.3.6	Water Su	pply	5
		2.3.7	Drilling H	History	7
	2.4	Forma	tion Sampl	ing and Testing	7
		2.4.1	Cuttings		7
		2.4.2	Cores		7
			2.4.2.1	Conventional Cores	
			2.4.2.2	Sidewall Cores	
		2.4.3	Testing		10
			2.4.3.1	Drill Stem Testing	
			2.4.3.2	Wireline Formation Testing	
		2.4.4	Sample A	Analyses	12
	2.5	Loggin	ig and Surv	veys	15
		2.5.1	Mud Log	ging	15
		2.5.2	Wireline	Logging	15
		2.5.3	Bottom H	Iole Temperature	17
		2.5.4	Deviatior	·	17
		2.5.5	Velocity	Survey	19

\_ ii

						Page
3.	GEC	DLOGY				20
	3.1	Stratig	raphy			20
	3.2	Lithology				
		3.2.1	Heytesbu	ry Group (Su	rface - 420.8 metres)	24
			3.2.1.1	Port Camp	bbell Limestone (Surface - 109.0 metre	s)
			3.2.1.2	Gellibrand	l Marl (109.0 - 410.0 metres)	
			3.2.1.3	Clifton Fo	rmation (410.0 - 420.8 metres)	
		3.2.2	Nirranda	Group (420.8	3 - 555.0 metres)	24
			3.2.2.1	Narrawatu	ırk Marl (420.8 - 505.0 metres)	
			3.2.2.2	Mepunga	Formation (505.0 - 555.0 metres)	
		3.2.3	Wangerri	ip Group (555	5.0 - 897.2 metres)	25
			3.2.3.1	Dilwyn Fo	ormation (555.0 - 790.4 metres)	
			3.2.3.2	Pember M	ludstone (790.4 - 842.0 metres)	
			3.2.3.3	Pebble Po	int Formation (842.0 - 897.2 metres)	
		3.2.4	"K-T Sha	ale" (897.2 - 9	917.0 metres)	26
		3.2.5	Sherbroo	k Group (917	7.0 - 1826.0 metres)	26
			3.2.5.1	Paaratte F	ormation (917.0 - 1344.0 metres)	
			3.2.5.2	Skull Cree	ek Mudstone (1344.0 - 1517.0 metres)	
			3.2.5.3	Nullawarr	re Greensand (equiv.) (1517.0 - 1555.8 m	etres)
			3.2.5.4	Belfast M	udstone (1555.8 - 1715.8 metres)	
			3.2.5.5	Waarre Fo	ormation (1715.8 - 1826.0 metres)	
				3.2.5.5.1	Unit D (1715.8 - 1730.4 metres)	
				3.2.5.5.2	Unit C (1730.4 - 1770.8 metres)	
				3.2.5.5.3	Unit B (1770.8 - 1802.5 metres)	
				3.2.5.5.4	Unit A (1802.5 - 1826.0 metres)	
		3.2.6	Otway G	roup (1826.0	- 2007.0+ metres)	29
			3.2.6.1	Eumeralla	a Formation (1826.0 - 2007.0+ metres)	
	3.3	Hydro	carbon Ind	lications		30
		3.3.1	Mud Gas	Readings		30
		3.3.2	Fluoresco	ence		33
			3.3.2.1	Cuttings		
			3.3.2.2	Core		

Page

			3.3.2.3	Sidewall Cores	
		3.3.3	Drill Stem	Test Gas Samples	34
	3.4	Geocher	nistry		34
		3.4.1	Analyses		34
		3.4.2	Results		35
	3.5	Palynolo	ogy		35
	3.6	Structur	·e		36
	3.7	Log Ana	-		41
4.		CLUSIO		erformance	45 45
	4.1 4.2	U		ological Knowledge & Hydrocarbon Prospectivity	
TABI	LES				
1.	Bit Re	ecord			6
2.	DST (	Gas Analy	vses		11
3.	Analy	ses of Sid	lewall Cores	and Cuttings	14
4.	Wireli	ine logs ru	ın in Langle	yy-1	16
5.	TOTC	CO Deviat	ion Surveys	in Langley-1	18
6.	Langl	ey-1 Forn	nation Tops	and Thicknesses	21
7.	Basic	Input Par	ameters For	Log Analysis	43
8.	Log A	analysis R	esults Sumr	nary	44
FIGU	RES				
1.		ion Man -	PPL1 and I	anglev-1	2
2.		-	ing Curve		8
3.	-	•	Pressures		13
<b>4</b> .	U	•		Depths and Times (Predicted Versus Actual)	22
ч. 5.	U	•	-	t C Time Map	 37
	•			-	38
6. 7	*		smic Inline 7	it C Depth Map	30 39
7. o					
8.	waari	re 3D Seis	smic Crossli	IIE 4000	40-3

iii

#### APPENDICES

- 1. Rig Specifications
- 2. Drilling Fluid Recap
- 3. Drilling Operations Summary
- 4. Lithological Descriptions
  - **A.** Cuttings Descriptions
  - B. Geological Descriptions From Daily Reports

#### **VOLUME 2**

- 5. Core #1 Description and Analyses
  - A. Wellsite Core Description
  - B. Slabbed Core Photographs
  - C. Routine Core Analysis
  - **D.** Special Core Analysis
- 6. Sidewall Core Descriptions
- 7. Drill Stem Test Data\*
  - **A.** DST-1
  - **B.** DST-2
  - **C.** DST-3
- 8. Tabulated Mud Gas Data
- 9. Petrography Report
- 10. Geochemistry Report
- 11. Palynology Report
- 12. Log Analysis Data

\* Note: a disk containing ascii files for electronic gauges run during Drill Stem Tests is included inside the cover of Volume 1.

v

## **VOLUME 3**

#### ENCLOSURES

1	COMPOSITE LOG	1:1000
2	FORMATION EVALUATION LOG (MUD LOG)	1:500
3a	DLL-MSFL-GR-CALS	1:200
3b	DLL-MSFL-GR-CALS	1:500
4a	BHC(AS)-GR-SP-CALS	1:200
<b>4b</b>	BHC(AS)-GR-SP-CALS	1:500
5a	LDL-CNL-GR-CALI	1:200
5b	LDL-CNL-GR-CALI	1:500
6	SHDT-GR	1:200
7a	RFT-GR LOG	
7b	PRESSURE TEST REPORT SHEET	
8	CHECKSHOT SURVEY	
9	SIDEWALL CORES	
10a	MEAN SQUARE DIP	1:200
10b	MEAN SQUARE DIP	1:500
11	ARRAY SONIC STC PROCESSING REPORT	1:200
12	LOG ANALYSIS	1:500

### **VOLUME 4**

#### WELL SEISMIC PROCESSING REPORT

# Summary

SUMMARY

Permit: PPL1 Otway Basin, Victoria							ton Weath		
Lat./Long.:	38° 35' 51.089"S / 142° :		"Е		Pre-drill Status: Exploration Well				
AMG:	668619.8mE 5726092.31				Post-drill	Status: Plugged	and Abandon	ed	
Seismic:	Waarre 3-D In-line 7875		ne 4660		Participar	its: GFE Res	ources Ltd	100%	
Elevation:	Ground Level: 64.0m AH					(Operato	r)		
Total Depth:	Kelly Bushing (well datur Driller 2006.0mKB	m): 69./m	AHD		Spud Date		12 May, 1994	L.	
Total Deptil:	Logger 2007.0mKB				TD Reach		2 June, 1994		
Rig:	Century Rig 11				Rig Releas		9 June, 1994		
	,,								
		Casing	1	Engineerin	ıg				
Hole Size         C           12¼" to 340mKB         8½" to 2006mKB			7	4- 10-CT	(	Plugs	0	、	
				to 12mGL	to 334.43mKB		Om (not tested		
8½" to 2	UU6MKB	9/8	30ID/IL 5	IC K55 K5 I	10 334.43MKB		0m (not tested	)	
							n (not tested)	0)	
							n (tagged at 30	9m)	
			· · ·	·		5. Surface (*	*30 sacks)		
		1		tratigrapl			TT: 1 /7	<u> </u>	
Group	Formation/Unit		•••••	pth	Thickness	Two-Way Time	••••••	to Prognosis	
	Dent Oncort all T		(mKB)	(mSS)	(m)	(milliseconds)	Depth	Time	
Heytesbury	Port Campbell Limestone Gellibrand Marl		5.7 109.0	+64.0	103.3	43			
	Clifton Formation		410.0	-39.3	10.8	45 368.9	24m Low	••••••	
Nimondo	Narrawaturk Marl		420.8	-340.3	84.2	376.7	7.2m High		
Nirranda			505.0	-435.3	50.0	458.4	18m High	6.6ms High	
Wangerrin	Mepunga Formation Dilwyn Formation		555.0	-485.3	235.4	504.6	16m High	5.6ms Low	
Wangerrip	Pember Mudstone		790.4	-720.7	51.6	682.3	12.6m High	5.0m3 L0W	
	Pebble Point Formation		842.0	-772.3	55.2	720.0	3m High	llms Low	
	"K-T" Shale		897.2	-827.5	19.8	755.5	Jin Ingii	11113 150 W	
Sherbrook	Paaratte Formation		917.0	-847.3	427.0	769.2	14m High	9.2ms Low	
Sherbrook	Skull Creek Mudstone		1344.0	-1274.3	173.0	1063.0	50m High	19ms High	
	Nullawarre Greensand (eq		1517.0	-1447.3	38.8	1174.2	26m Low	42.2ms Low	
	Belfast Mudstone		1555.8	-1486.1	160.0	1198.5	9.2m High	15.5ms Low	
	Waarre Formation Uni		1715.8	-1646.1	14.6	1304.7		••••••	
	Uni	it C 1	1730.4	-1660.7	40.4	1312.8	9.4m Low	34.8ms Low	
•••••••••••••••••••••••••••••••••••••••	Uni	it B 1	1770.8	-1701.1	31.7	1337.5		••••••	
********************************	Uni	it A	1802.5	-1732.8	23.5	1353.5			
Otway	Eumeralla Formation	1	1826.0	-1756.3	181.0+	1366.1	17m Low	14.1ms Low	
	Total Depth (logger)	2	2007.0	-1937.3					
			Key Hyd	rocarbon Ir	ndications				
Waarre Formatic Waarre Formatic	ation: gas $(C_1 - C_4)$ readings	ngs up to $2_{4}$ ) reading: mostly 2 -	20.5 units s up to 21 5 units w	, patchy to c units, trace ith peaks up	common dull whit to sparse pinpoin	te and yellow-oran	ge fluorescenc rescence in SW	/C's.	
	pinpoint dull yellow	nuorescen		J W C 3.		~ •			
DI L MODI CI	Logging	(CP +^			Como #1	Corin	<u>g</u>		
	R-SP-Cal: 2002.5 - 312.0m ( 2002.5 - 312.0m	UNC IO SUITE	100)		<u>Core #1</u>	Cut: 19m (	(1745 - 1764m	driller)	
	$\cdot$ Cal: 2006.0 - 1360.0m						m (83.9%)		
	ometer): 2006.5 - 1432.0m				1				
· •	0 - 1731.5m (27 pre-tests - 1	13 good, no	o samples	taken)					
	(27  protosts): 2005.0 - 350.0m (2	-		,					
	wall cores): 1990 - 836 (Sh		overed 53	3)					
	ay Sonic 1340 - 2000m Mea								
				rmation T	ests				
	2-1745m Conventional b	ottom-hole			and the second secon	ΓS in 3 <sup>1</sup> / <sub>2</sub> minutes i	nto Main Flow		
DST-1: 1715.22									
DST-1: 1715.22	Final Flow 4.7	mmcfd (tv	vo uniras i	$CO_2$ ). Iteleo					
						roperly on Pre-Flo	w and packer	seat failed on	
DST-1: 1715.22 DST-2: 1875-19		r bottom-h	nole test.	Misrun. To	ol did not open p		w and packer	seat failed on	

## INTRO DUCTION

## **1. INTRODUCTION**

The Langley-1 exploration well is located in the south of Petroleum Production Licence One (PPL1), approximately 7.5 kilometres northwest of Port Campbell and 1.8 kilometres southwest of the Grumby-1 gas discovery (Figure 1). The prospect was delineated and the well location pin-pointed as a result of the 1993 Waarre 3D Seismic Survey, the first onshore 3D seismic survey acquired in Victoria.

Commercial gas was first discovered in the Port Campbell area in 1979 (North Paaratte-1) and subsequent drilling has resulted in delineation of the the North Paaratte field and discovery of the Wallaby Creek and Grumby gas fields in what is now PPL1 and the Iona gas field in the adjacent PPL2.

The Langley structure is an elongate tilted fault block (ENE-WSW) with crests at either end. The western crest, the site of Langley-1, is fault bounded to the southeast and southwest with no fault independent closure. The main objective, the Waarre Formation, is interpreted to be juxtaposed against the Belfast Mudstone in hanging wall block and, therefore, laterally sealed to the south. The eastern crest is down thrown relative to the northern bounding fault and therefore perceived as having a higher associated lateral seal risk.

A bright amplitude anomaly is apparent on seismic data associated with the Waarre Formation over the western crest, possibly indicating the presence of gas. The main risk associated with this prospect was the presence of  $CO_2$ . Hydrocarbon charge was not considered a high risk due to the abundant intersections of both gas and oil in the region. Reservoir quality was also considered low risk based on the intersection at Grumby-1, where the Waarre Formation is at a similar depth and thickness. The Belfast Mudstone was interpreted to provide an excellent seal, as indicated by nearby discoveries reservoired in the Waarre Formation.

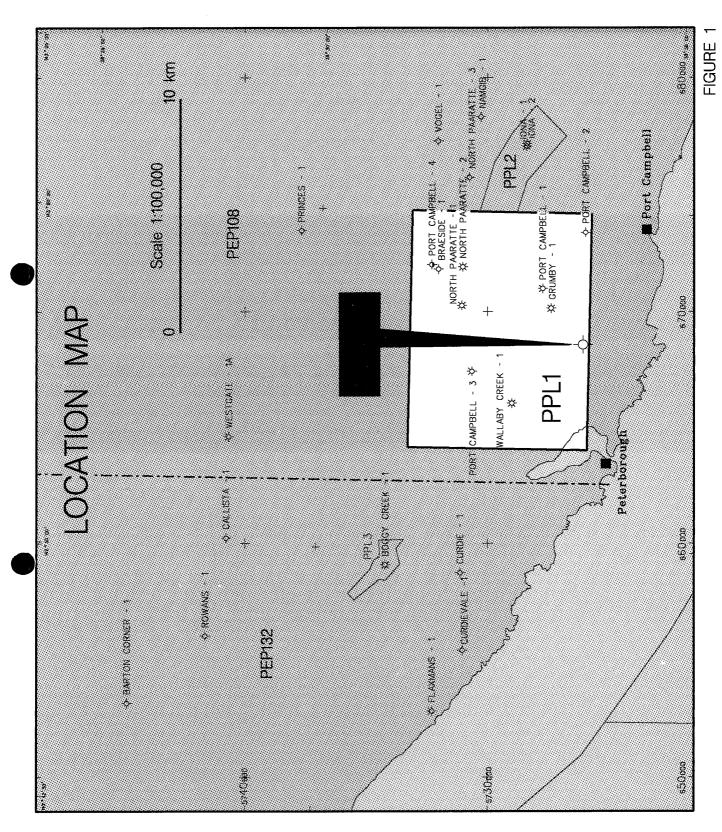
In the pre-drill interpretation the closing contour for the Langley structure at top Waarre Formation Unit C level was interpreted to be in the range 1680 - 1690 metres SubSea, with areal closure ranging 0.46 - 1.68 square kilometres, and possible recoverable reserves of between 6.3 and 23 BCF.

#### PE906683

1

This is an enclosure indicator page. The enclosure PE906683 is enclosed within the container PE900949 at this location in this document.

The enclosure PE90 ITEM_BARCODE = CONTAINER BARCODE =	
	Location Map
BASIN =	-
PERMIT =	
	GENERAL
SUBTYPE =	
DESCRIPTION =	Location Map, Figure 1(enclosure from
	WCR vol.1) showing Langley-1
REMARKS =	
DATE CREATED =	
DATE_RECEIVED =	31/01/96
W_NO =	W1099
WELL NAME =	LANGLEY-1
CONTRACTOR =	
CLTENT OP CO =	GFE RESOURCES LTD
<u> </u>	
(Inserted by DNRE -	Vic Govt Mines Dept)





# WELL HISTORY

LANGLEY-1

WELL COMPLETION REPORT

#### WELL HISTORY 2. **LOCATION** 2.1 Latitude: 38° 35' 51.089"S **Surface Location:** 142° 56' 10.625"E Longitude: AMG: 668619.8mE 5726092.3mN Waarre 3D In-line 7875 Seismic: Cross-line 4660 Heytesbury County: **Property Title:** Parish: Paaratte Section: 6 15 Allotment: M.J. & T.M. Smith **Property Owner:** 2.2. **GENERAL DATA** Langley-1 Well Name: PPL1 Otway Basin, Victoria **Permit:** GFE Resources Ltd **Operator:** Level 6, 6 Riverside Quay South Melbourne Victoria 3205 GFE Resources Ltd 100% **Participants: Elevation:** Ground Level (GL): 64m AHD\* Kelly Bushing (KB): 69.7m AHD\* (datum) \* AHD = Australian Height Datum (All depths are Drilled/Measured Depths relative to KB unless otherwise stated) **Total Depth:** Driller: 2006.0mKB 2007.0mKB Logger:

	Drilling	commenced:	1330 hours, 12 May, 1994
	Total D	epth Reached:	2100 hours, 2 June, 1994
	Rig Rel	eased:	0830 hours, 9 June, 1994
	Well St	atus:	Plugged and Abandoned
2.3.	DRILL	ING DATA	
	2.3.1	<b>Drilling Contractor</b> Century Drilling Limit	ed
	2.3.2	<b>Drilling Rig</b> Century Rig 11 (see Aj	opendix 1)
	2.3.3	<b>Casing and Cementing Detail</b> A 16" Conductor pipe	s was cemented at 12mGL prior to rig up.
		<u>Surface Casing</u>	
		Size:	9 <sup>5</sup> / <sub>8</sub> "
		Weight & Grade:	36 lb/ft STC K55 R3 (29 Joints)
		Centralizers:	331m, 311m, 299m and 288m
			55 m, 51 m, 27 m and 200m
		Float Collar:	322.6m
		Float Collar: Shoe:	
			322.6m
		Shoe:	322.6m 334.43m
		Shoe: Hole Depth:	322.6m 334.43m 340m

<u>Cement plugs</u>		
Plug No.1	Interval: Cement:	
	Method:	Balanced
	Tested:	No
Plug No.2	Interval:	1760-1700m
	Cement:	87 sacks class "A" cement
	Method:	Balanced
	Tested:	No
<u>Plug No.3</u>	Interval:	940-880m
	Cement:	84 sacks class "A" cement
	Method:	Balanced
	Tested:	No
Plug No.4	Interval:	366-306m
	Cement:	84 sacks class "A" cement
	Method:	Balanced
	Tested:	Yes (tagged at 309m)
Surface Plug	30 sacks cl	ass "A" cement

#### 2.3.4 Drilling Fluid

The drilling fluid program was designed and recommended by Baroid after consultation with GFE representatives. Details of the mud system and assessment of its performance is contained in the Drilling Fluid Recap (Appendix 2).

#### 2.3.5 Drilling Bits

Six drilling bits were used during the drilling of Langley-1, and a record of their pertinent details is shown in Table 1.

#### 2.3.6 Water Supply

Water for the drilling operations was obtained from an existing dam down hill from the lease and stored in a pit dug near the wellsite.

·	
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WELL COMPLETION REPORT

#### **2.3.7 Drilling History**

A detailed account of the drilling of Langley-1 is provided by the compilation of daily drilling operations reports in Appendix 3, which is also summarized graphically in Figure 2.

#### 2.4 FORMATION SAMPLING AND TESTING

#### 2.4.1 Cuttings

No cutting samples were collected from surface to 110 metres. Cutting samples were then collected at ten-metre intervals from 110 to 340 metres  $(9^{5}/_{8}"$  casing depth) and thereafter at 2.5-metre intervals to total depth. Each sample was washed and air dried and divided into four splits, three of which were stored in labelled plastic bags and the fourth in "Samplex" trays.

Additionally, one set of 500 gram unwashed samples were collected at tenmetre intervals from 340 metres to total depth and stored in labelled cloth bags. All samples were retained by the operator, except for one set of washed and dried cuttings which were sent to the DEM (Petroleum Division) core store.

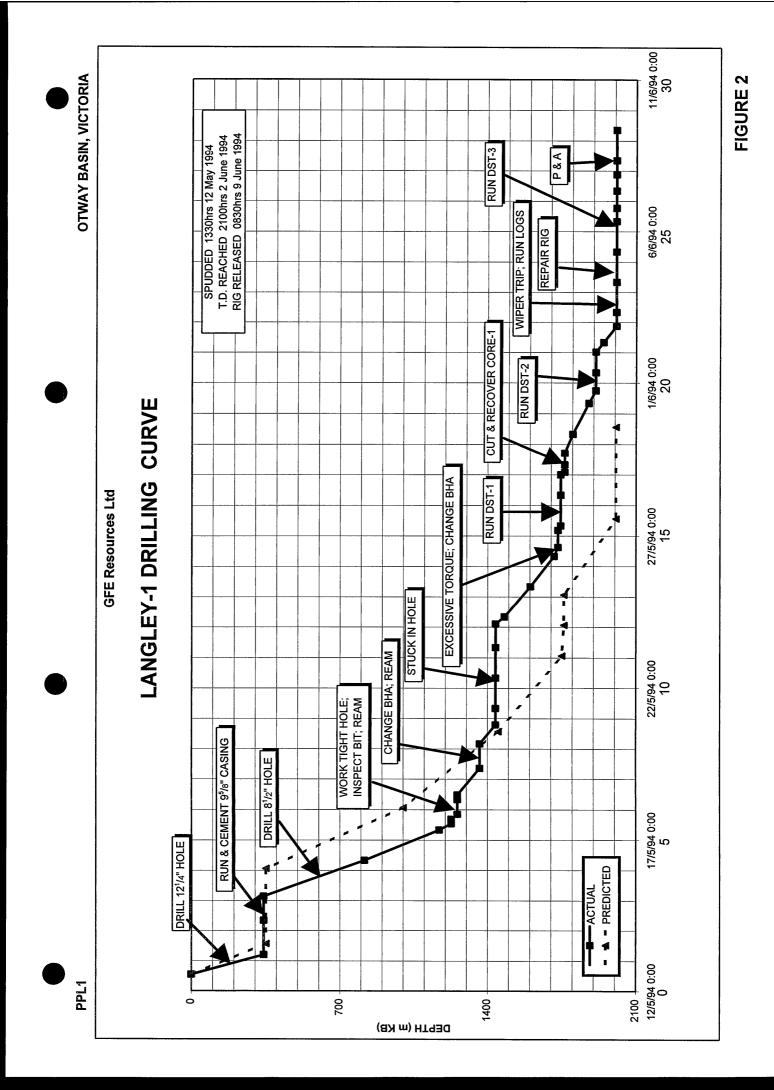
Lithological descriptions of cuttings by the wellsite geologist during the drilling of Langley-1 are compiled in Appendix 4A, along with a compilation of the lithological descriptions from daily reports issued during the drilling of the well in Appendix 4B.

#### 2.4.2 Cores

#### 2.4.2.1 Conventional Core

One conventional core was cut in Langley-1 (by Australian DST Co.) over the interval 1745-1760m (driller's depth) within the Waarre Formation Unit C following a drill stem test (DST-1).

The core was cut without a sleeve and the barrel was emptied on the



drilling floor, with the recovered core then laid out on the pipe racks where it was cleaned, measured, examined and briefly described (Appendix 5A) before being packaged and despatched to the laboratory. Of the 19.0 metres cut 15.94 metres (83.9%) was recovered. No scent or trace of hydrocarbons was detected in the core, despite chips being taken at regular intervals and inspected under UV light. As a routine measure selected samples were wrapped in foil and 'seal peeled' to help preserve them for possible future work.

Upon arrival at ACS Laboratories (Adelaide) the core was reassembled, a core gamma log was recorded and plugs were cut for porosity/permeability analyses (Appendix 5C). The core was then slabbed  $\frac{1}{3}-\frac{2}{3}$  for photography (Appendix 5B). The  $\frac{1}{3}$  portion was sent to the DEM (Petroleum Division) core store and the  $\frac{2}{3}$  portion was retained by the GFE Resources Ltd.

Subsequent comparison of the core gamma log, core photographs and the down-hole wireline gamma ray log suggests a depth correction is necessary to match the observed sharp sandstone-mudstone contacts, such that a given point on the core log is about 0.25m higher than on the core photos, and about 1.85m higher than on the down-hole log. Thus, to match core plugs to their equivalent position on down-hole logs it is recommended that 1.6m be added to the depths reported from the laboratory.

Selected core plugs were subsequently sent for special core analysis (SCAL) a report of which is contained in Appendix 5D.

#### 2.4.2.2 Sidewall Cores

A total of 60 sidewall cores were attempted (Enclosure 9), of which 53 were recovered.

All recovered sidewall core samples were checked for lithology and hydrocarbon shows and then stored in sealed glass jars. Descriptions of the sidewall cores are contained in Appendix 6 and a summary of subsequent analyses is given in Section 2.4.4.

#### 2.4.3 Testing

#### 2.4.3.1 Drill Stem Testing

Three Drill Stem Tests (DSTs) were run in Langley-1 using Australian DST Co. Data for these tests is included in Appendix 7.

#### DST-1 1717.22 - 1745 mKB

DST-1 (Appendix 7A) was a conventional bottom-hole test conducted to evaluate the top of the Waarre Formation Unit C, in which a 5-10 fold drilling break and mud gas readings of up to 19 units were recorded (over a background of 1.5-2 units). After an eight-minute Pre-Flow and 47-minute Initial Shut-In, the well was flowed for an hour and achieved a stabilised flow of non-combustible gas (dominantly  $CO_2$ ) at an estimated rate of 4.7mmcfd through a  ${}^{3}_{/4}$ " down-hole choke and  ${}^{1}_{/2}$ " surface choke. Subsequent analyses of the gas sampled during this test (Table 2) indicated that it was two-thirds carbon dioxide.

#### DST-2 1875 - 1910 mKB

DST-2 (Appendix 7B) was a conventional bottom-hole test conducted to evaluate gas shows at the top of an intra-Eumeralla Formation sand interval in which ROP and mud gas readings increased substantially. After a nearly seven-minute Pre-Flow and 63-minute Initial Shut-In, the well was flowed for just over 14 minutes in the Main Flow before the packer seat failed and the test was aborted.

#### DST-3 1883.07 - 1909.13 mKB

DST-3 (Appendix 7C) was an inflate straddle test conducted after wireline logging to evaluate the intra-Eumeralla Formation sand interval which DST-2 had sought to test. Due to the expectation that the interval would comprise tight formation this test was conducted as a Closed Chamber DST.

#### TABLE 2

#### DRILL STEM TEST GAS ANALYSES

	DST-1		DST-3
	amdel	GFCV	GFCV
Component	Mole Percent Concentration	Mole Percent Concentration	Mole Percent Concentration
Methane	31.26	30.6	87.1
Ethane	0.98	0.907	4.18
Propane	0.35	0.313	1.73
Iso-Butane	0.06	0.061	0.405
Normal-Butane	0.08	0.073	0.472
Neo-Pentane	-	0.001	0.009
Iso-Pentane	0.03	0.027	0.179
Normal-Pentane	0.02	0.022	0.147
Hexanes	0.04	0.056	0.215
Heptanes+	0.08	0.116	0.241
Carbon Dioxide	66.05	66.7	0.245
Oxygen + Argon	-	0.010	
Nitrogen	1.05	1.08	}5.1
Helium	-	0.023	0.017
Total	100.00	99.989	100.040

Calculated Properties for the dry gas at M.S.C.								
Gross Heating Value	13.25 MJ/m <sup>3</sup>	13.0 MJ/m <sup>3</sup>	39.75 MJ/m <sup>3</sup>					
Wobbe Index	11.95 MJ/m <sup>3</sup>	11.8 MJ/m <sup>3</sup>	49.40 MJ/m <sup>3</sup>					
Relative Density	1.211	1.22	0.647					

full reports in Appendix 7

After a seven-minute Pre-Flow (in which the closed-in surface pressure rose by 16.4psi) and a 72-minute Initial Shut-In, the well was flowed for 80 minutes and achieved a closed-in surface pressure increase of 24.8psi. This rise was due to an influx of gas at an estimated rate of 8-10mcfd through a 3/4" down-hole choke.

LANGLEY-1

Subsequent analysis of the gas sampled during this test (Table 2) indicated that it was relatively dry hydrocarbon gas, devoid of carbon dioxide. (Note: the  $CO_2$ ,  $N_2$  and  $O_2$  detected is attributed to air in the pipe at the start of the test).

The Main Flow was stopped due to the gradually declining rate of gas influx and, after a 157-minute Final Shut-In, the test was terminated and the tool pulled from the hole. Liquid recovery above the shut-in tool comprised 2.2bbls of mud with no indication of liquid hydrocarbons.

#### 2.4.3.2 Wireline Formation Testing

Repeat Formation Tester (RFT) pressure readings were carried out at 27 points spanning the Waarre and Eumeralla Formations (Enclosure 7). Thirteen good tests were obtained, all within the Waarre Formation, and a plot of pressures recorded at these points (Figure 3) indicates a Gas/Water Contact around 1755.7mKB. Sample chambers were run on the RFT tool, but no samples were attempted.

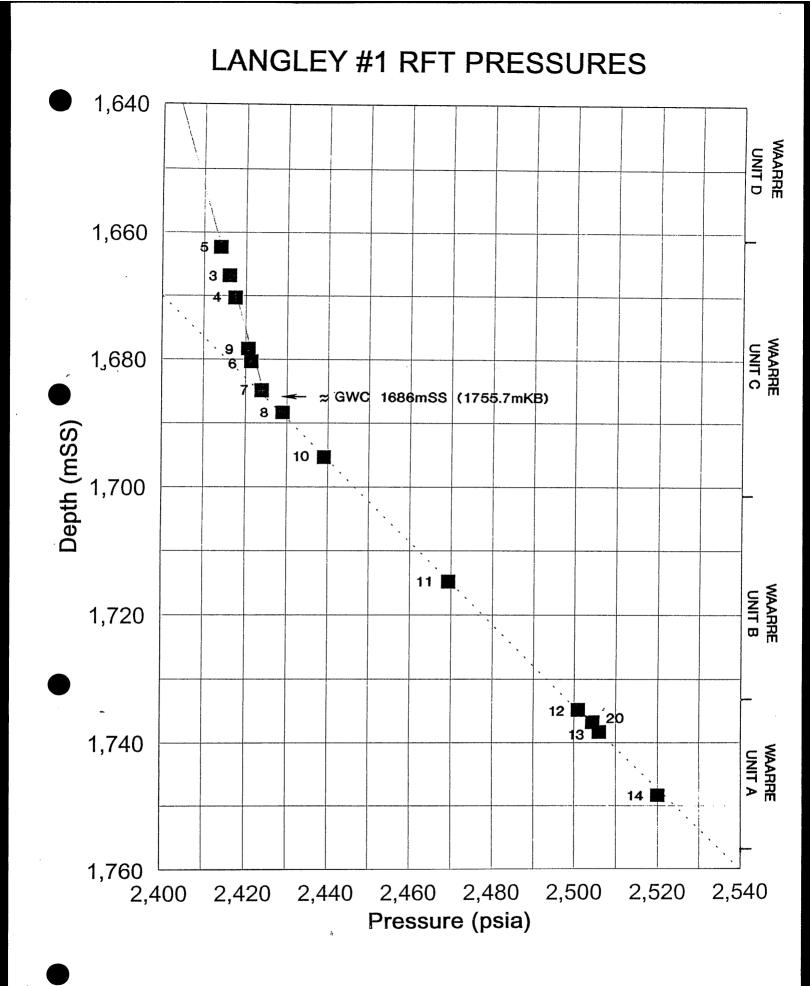
#### 2.4.4 Sample Analyses

Laboratory work on Core #1 comprised a core gamma log and colour whitelight photography. All plugs cut from Core #1 were subjected to routine core analysis (porosity, permeability and grain density) and a subset of these were then selected for special core analysis (formation factor, resistivity index and trapped gas saturation).

In addition to the above, analysis of selected cuttings, sidewall core and core samples from Langley-1 comprised organic geochemistry, palynology and petrography. Table 3 lists the analyses performed on each sample (excluding work on the core plugs), details of which can be found in the appropriate Section/Appendix.

<b>Core Analysis</b>	see Section 2.4.2.1	and Appendix 5
Petrography	see Section 3.2	and Appendix 9
Geochemistry	see Section 3.4	and Appendix 10
Palynology	see Section 3.5	and Appendix 11

12



WELL COMPLETION REPORT

#### LANGLEY-1

#### TABLE 3

#### SIDEWALL CORES AND CUTTINGS ANALYSES

		SWC					
Sample	Depth	Recovery	Palynology	Geochemistry	TOC	Rock-Eval	Petrography
	(mKB)	(mm)					
SWC#59	895.0	40	✓				
SWC#58	916.0	50	1				
SWC#56	1291.0	15	✓	1			
SWC#55	1325.0	45	✓				
SWC#52	1516.0	35	✓				
SWC#51	1518.5	12		✓			
SWC#50	1522.0	25			·		✓
SWC#49	1541.0	30	1				
SWC#48	1579.0	50	1				
SWC#47	1634.0	30	✓				
SWC#46	1677.0	35 50	✓ ✓		·		
SWC#45 SWC#44	1692.0 1701.0	47	× 				
SWC#44 SWC#43	1701.0	47	× ×				
SWC#43 SWC#42	1712.5	35	✓ ✓				
SWC#42 SWC#41	1728.0	40	✓ ✓				
SWC#41 SWC#40	1729.5	40					
SWC#40 SWC#39	1732.0	25		✓		1	
SWC#38	1733.5	35	✓		1		
Core sample	1745.4	plug end			1	1	✓
Core sample	1746.3	plug end					1
Core sample	1748.6	plug end					1
Core sample	1749.6	plug end					✓
Core sample	1750.2	-	✓				
Core sample	1754.15	plug end					✓
Core sample	1758.8	-	✓				
SWC#37	1768.2	30	✓				
SWC#36	1770.0	30		✓			
SWC#35	1772.0	30	×				
SWC#34	1776.5	30	✓				
SWC#33	1778.5	40	↓ ↓ ↓				
SWC#32	1781.0 1783.0	30 25	×				
SWC#31 SWC#30	1783.0	25					✓
SWC#30 SWC#29	1789.0	25					
SWC#29 SWC#28	1785.0	30	~			[····	
SWC#20 SWC#27	1798.0	30	· · · · · · · · · · · · · · · · · · ·	····		· · · · · · · · · · · · · · · · · · ·	
SWC#26	1799.5	32	✓ ✓				
SWC#25	1802.0	25	✓				
SWC#24	1803.5	45		1			
SWC#23	1804.5	30					
SWC#22	1808.0	30					✓
SWC#21	1810.5	40					
SWC#20	1814.5	30					
SWC#19	1818.5	30		I			<u>√</u>
SWC#18	1821.0	35	×				
SWC#17	1822.5	15	✓		<u> </u>		
SWC#16	1824.0	35	1			~	1
SWC#15 SWC#14	1825.5	20 30	✓ ✓		<b>↓</b> ✓	· · · · · ·	
SWC#14 SWC#13	1827.0 1836.5	40	· · · · · · · · · · · · · · · · · · ·				✓ – – – – – – – – – – – – – – – – – – –
SWC#13 SWC#12	1853.0	30					· · · · · · · · · · · · · · · · · · ·
SWC#12 SWC#11	1855.5	35	✓ ✓			<u> </u>	
SWC#11 SWC#10	1870.0	30			†	<u> </u>	
SWC#10	1878.5	40				1	
SWC#6	1884.0	35		· · · · ·		1	1
SWC#5	1924.5	40		· · · · · · · · · · · · · · · · · · ·	~		
Cuttings	1936			√	1		
Cuttings	1945	İ		✓	1	1	
SWC#4	1957.0	30					
SWC#3	1969.0	45			1		
SWC#2	1989.0	20	√		1	1	

Note: core analyses on plugs cut from Core #1 not listed here - see Appendix 5

#### 2.5 LOGGING AND SURVEYS

#### 2.5.1 Mud Logging

A standard skid-mounted unit supplied by Baker Hughes-Inteq (BHI) and equipped for continuous recording of depth, penetration rate (ROP), mud gas, pump rate and mud volume data, as well as intermittent mud and cuttings gas (blender) analysis was operative from 110 metres until the well was plugged and abandoned. The lithological, gas and engineering data collated by the BHI crew is presented on the 1:500 scale Formation Evaluation Log (i.e. "Mud Log") in Enclosure 2. A tabulated listing of the gas data is provided in Appendix 8 and the ROP and gas data are also included on the 1:1000 scale Composite Log (Enclosure 1).

#### 2.5.2 Wireline Logging

Wireline logging was performed by Schlumberger Seaco using a standard truck-mounted unit. Only one logging suite was conducted (at Total Depth) comprising six separate runs into the hole (with a wiper trip after the first three) between 0830 hours on June 3 and 1400 hours on June 5. These runs are listed in Table 4 in the sequence in which they were acquired.

From the array sonic tool run in Langley-1 a standard Bore Hole Compensated (BHC) sonic curve was produced at the time of logging (Enclosure 4). The full array sonic waveforms data (which includes Stoneley, Shear and Compressional curves) was subsequently processed at Schlumberger's Melbourne processing centre and the report and logs produced from this work are contained in Enclosure 11.

Similarly, the raw checkshot data (Enclosure 8) was submitted to the processing centre and a Well Seismic Processing Report was produced (Volume 4).

The raw dipmeter data (Enclosure 6) was also subsequently sent to Schlumberger's Melbourne processing centre and a Mean Square Dip plot was produced (Enclosure 10).

#### LANGLEY-1

#### TABLE 4

#### WIRELINE LOGS RUN IN LANGLEY-1

Log	Interval (mKB)	Enclosure Number 3	
Dual Laterolog - Micro-Spherically Focussed Log - Gamma Ray - Caliper (DLL-MSFL-GR-SP-Cals) <sup>1</sup>	2002.5 - 312 (GR T.D Surface)		
Sonic - Gamma Ray - Spontaneous Potential - Caliper (AS <sup>2</sup> /BHC-GR-Cals) <sup>1</sup>	2002.5 - 312 (GR T.D Surface)	4	
Lithodensity Log - Compensated Neutron Log - Gamma Ray - Caliper (LDL-CNL-GR-Cali)	2006.0 - 1360	5	
Checkshot Survey <sup>3</sup> (WST-A)	2005.0 - 350.0	8	
Repeat Formation Tester (RFT - GR)	1920.0 - 1731.5	7	
Dipmeter Log <sup>4</sup> (SHDT - GR)	2006.5 - 1432	6	
Sidewall Core Sampler (CST)	1990.0 - 836.0	9	

Notes:

1 Provided as separate logs but recorded on the same logging run.

2 BHC sonic was produced from data collected by array sonic tool. Processed array sonic data is provided in Enclosure 11.

3 Raw checkshot survey data was subsequently processed and presented in a Well Seismic Processing report which is provided in Volume 4.

4 Raw dipmeter data was subsequently processed to produce a Mean Square Dip plot, which is provided in Enclosure 10.

#### 2.5.3 Bottom Hole Temperature

In order to obtain an estimate of true formation temperature, a Horner-type method using temperatures and times from the first three wireline log runs was adopted, with the following input data;

$\Rightarrow$ .:. Circulation T	Sime $(t_c) = 5.5$ hours
Time when circulation ended	0230hrs on 3/6/94
Time when drilling stopped (reached T.D.)	2100hrs on 2/6/94

Maximum temperatures recorded during the first three wireline logging runs were as follows:

Log	Depth	Temperature [T]	Time since end of circulation	log <u>tc+∆</u>	t
	(mKB)	(°C)	$[\Delta t]$ (hours)	$\Delta t$	<u>•</u>
Resistivity / Sonic	2002.5	65.6	7.9	0.2295	
Density / Neutron	2006.0	2006.0 70.0 16.7		0.1236	
Checkshots	2005.0	73.3	20.7	0.1023	

Note: after these first three logging runs a wiper trip was run, so temperature data from the last three runs were not used in the true BHT estimate.

Running a linear regression on the temperature versus  $\log(t_c+\Delta t)/\Delta t$  data to find the intercept (or, equivalently, by plotting these on linear axes and extrapolating a straight line back to the Temperature axis) yields an estimated stabilized bottom hole temperature of 77.9°C. Assuming a mean surface temperature of 18°C, this stabilized bottom hole temperature indicates a temperature gradient of about 3.0°C per 100 metres.

#### 2.5.4 Deviation Surveys

Totco surveys were conducted frequently during the drilling of Langley-1 to monitor well bore deviation. Using this deviation data maximum horizontal and vertical distances from the initial location were obtained by summing the components of horizontal distance [*interval length*  $\times$  sine(*deviation angle*)] and vertical distance [*interval length*  $\times$  cosine(*deviation angle*)] for each interval (Table 5). The results of this are;

• at the depth of the primary target (1730 metres) the hole location was within a 34-metre radius of the surface location and the true vertical depth was less than half a metre short of the measured (drilled) depth.

LANGLEY-1

WELL COMPLETION REPORT

TABLE 5

#### **TOTCO** Deviation Surveys in Langley-1

Depth	Interval	Deviation	Horizontal	Cumulative	Vertical	Cumulative
(m)	(m)	Angle (°)	Distance (m)	Horizontal (m)	Distance (m)	Vertical (m)
30	30	0.75	0.39	0.39	30.00	30.00
67	30	0.75	0.16	0.55	37.00	67.00
128	61	0.25	0.10	1.09	61.00	127.99
128	63	0.5	0.55	1.64	63.00	190.99
248	57	0.25	0.25	1.88	57.00	247.99
335	87	0.25	1.14	3.02	86.99	334.98
335	56	1	0.98	4.00	55.99	390.98
468	77	0.75	1.01	5.01	76.99	467.97
525	57	0.75	0.50	5.51	57.00	524.97
660	135	1	2.36	7.86	134.98	659.95
708	48	1	0.84	8.70	47.99	707.94
870	48	0.5	1.41	10.11	161.99	869.93
870	134	1.5	3.51	13.62	133.95	1003.89
		1.5	<u> </u>	13.62	28.98	1003.89
1033	29	1.75	0.89	14.63	28.98	1052.87
1062	29			15.52		1090.85
1091	29	1.5	0.76	16.28	28.99	
1129	38	1.5	0.99	_ : : _ :	37.99	1128.83
1158	29	0.5	0.25	17.53	29.00	1157.83
1196	38	1	0.66	18.19	37.99	1195.83
1228	32	1.5	0.84	19.03	31.99	1227.82
1244	16	1.25	0.35	19.38	16.00	1243.81
1273	29	1	0.51	19.88	29.00	1272.81
1305	32	1.75	0.98	20.86	31.99	1304.79
1331	26	1.75	0.79	21.65	25.99	1330.78
1360	29	1.75	0.89	22.54	28.99	1359.77
1390	30	1.25	0.65	23.19	29.99	1389.76
1524	134	2	4.68	27.87	133.92	1523.68
1610	86	1.5	2.25	30.12	85.97	1609.65
1706	96	1.75	2.93	33.05	95.96	1705.60
1808	102	0.75	1.34	34.39	101.99	1807.59
2000	192	1	3.35	37.74	191.97	1999.57
		Total	37.74	Total	1999.57	

• the bottom hole location was within a 38-metre radius of the surface location and the true vertical total depth was about half a metre short of the measured (drilled) total depth.

#### 2.5.5 Velocity Surveys

A Checkshot survey was carried out by Schlumberger Seaco during the wireline logging program. The field data for the checkshots is included as Enclosure 8 and a Well Seismic Processing Report (including a Drift Corrected Sonic Log, Seismic Calibration Log and Synthetic Seismograms) is included as Volume 4.

GEOLOGY

GEOLOGY

## 3. GEOLOGY

#### 3.1 STRATIGRAPHY

The section penetrated in Langley-1 is interpreted to have formation tops as shown in Table 6 based on consideration of rate of penetration, cuttings descriptions, palynological analyses and wireline logs. A schematic comparison of the predicted and actual formation tops is shown in Figure 4.

No samples above 110 metres were collected or described. Based on the gamma ray curve the contact between the Port Campbell Limestone and the Gellibrand Marl is inferred to be at 109 metres.

Selection of formation tops from the Clifton Formation down to the Belfast Mudstone involved a relatively straightforward comparison of wireline logs with other wells in the Port Campbell region, with palynology providing supporting data where it is available.

The contact between the Tertiary Pebble Point Formation and the Cretaceous Paaratte Formation is consistently marked by a shaly interval, which is 19.8 metres thick in Langley-1. In previous wells the Cretaceous-Tertiary boundary has been placed at either the top or bottom of this shaly interval, apparently dependent on whether it was preferred to have a sandy top to the Paaratte Formation or a sandy base to the Pebble Point Formation.

Palynological data points through this interval are rare, but the few datings of sidewall cores which are available (e.g. Iona-1, Boggy Creek-1, Langley-1) suggest that this shale is partly Maastrichtian and partly Palaeocene in age. Therefore, in Langley-1 this shaly interval is (for the first time in the Otway Basin) proposed as a separate and distinct stratigraphic entity (see palynology report in Appendix 11), herein referred to informally as the "K-T Shale". Given its ubiquity in wells across much of the Otway Basin, it may eventually be formally recognised as a separate stratigraphic entity.

The cuttings and log character over the Nullawarre Greensand equivalent in Langley-1 do not differ markedly from sandy intervals in the overlying Skull Creek Mudstone, but it has been differentiated with the aid of palynology from sidewall cores.

### TABLE 6

#### LANGLEY-1 FORMATION TOPS AND THICKNESSES

Stratigraphic Unit	Dej	Thickness	
	(mKB)	(mSS)	(m)
Heytesbury Group	5.7	+64.0	414.3
Port Campbell Limestone	5.7	+64.0	103.3
Gellibrand Marl	109.0	-39.3	301.0
<b>Clifton Formation</b>	410.0	-340.3	10.8
Nirranda Group	420.8	-351.1	134.2
Narrawaturk Marl	420.8	-351.1	84.2
Mepunga Formation	505.0	-435.3	50.0
Wangerrip Group	555.0	-485.3	362.0
Dilwyn Formation	555.0	-485.3	235.4
Pember Mudstone	790.4	-720.7	51.6
<b>Pebble Point Formation</b>	842.0	-772.3	55.2
"K-T Shale"	897.2	-827.5	19.8
Sherbrook Group	917.0	-847.3	909.0
<b>Paaratte Formation</b>	917.0	-847.3	427.0
Skull Creek Mudstone	1344.0	-1274.3	173.0
Nullawarre Greensand (equiv.)	1517.0	-1447.3	38.8
Belfast Mudstone	1555.8	-1486.1	160.0
Waarre Formation	1715.8	-1646.1	110.2
Unit D †	1715.8	-1646.1	14.6
Unit C	1730.4	-1660.7	40.4
Unit B	1770.8	-1701.1	31.7
Unit A	1802.5	-1732.8	23.5
Otway Group	1826.0	-1756.3	180.0+
<b>Eumeralla Formation</b>	1826.0	-1756.3	180.0+
Total Depth (Driller)	2006.0	-1936.3	
Total Depth (Logger)	2007.0	-1937.3	

† Also known as the Flaxman Formation

#### PE906684

This is an enclosure indicator page. The enclosure PE906684 is enclosed within the container PE900949 at this location in this document.

The enclosure PE90	6684 has the following characteristics:
ITEM_BARCODE =	PE906684
CONTAINER_BARCODE =	PE900949
NAME =	Formation Tops Table
BASIN =	OTWAY
PERMIT =	PPL1
TYPE =	WELL
SUBTYPE =	STRAT_COLUMN
DESCRIPTION =	Formation Top Depth and Times for
	Langley-1
REMARKS =	
$DATE\_CREATED =$	
DATE_RECEIVED =	31/01/96
W_NO =	W1099
WELL_NAME =	LANGLEY-1
CONTRACTOR =	
CLIENT_OP_CO =	GFE RESOURCES LTD
(Inserted by DNRE -	Vic Govt Mines Dept)



## LANGLEY-1 FORMATION TOP DEPTHS AND TIMES

### Predicted

### Actual

(mss)	Two-Way Time (milliseconds)	(mKB)			(mss)	Two-Way Tin (millisecond	ne (mKB s)	))
			PORT CAMPBELL L	ST	+64.0	· · <u>- · · · · · · · · · · · · · · · · ·</u>	5.7	7
			GELLIBRAND	MARL	-39.3	43	109.0	5
200					240.0	222.2	440.0	
-322		386 428	CLIFTON FM. —— NARRAWATURK MAR	3/	-340.3 -351.1	<u> </u>	410.0	24m LOW 7.2m HIGH
								18m HIGH
-453 -501	465 499	523	MEPUNGA FM.		-435.3 -485.3	458.4 504.6	505.0	
-501	433	571	DILWYN FM.	i	-400.0	504.6	555.0	(5.6ms LOW)
-733		803	PEMBER MDST.		-720.7	682.3	790.4	12.6m HIGH
775	709	845	PEBBLE POINT FM.		-772.3	720	842.0	3m HIGH (11ms LOW)
-861	760	931	<u>"K-T SI</u> PAARATTE FM.	HALE"	- <u>827.5</u> -847.3	755.5 769.2	<u>897.2</u> 917.0	14m HIGH (9.2ms LOW)
					-1274.3	1063.0	1344.0	50m HIGH
1324	1082	1394	SKULL CREEK MDST	•	127 4.0	1000.0	1344.0	(19ms HIGH)
421	1132	1491	NULLAWARRE GNSD (equi	v) -	1447.3	1174.2	1517.0	26m LOW (42.2ms LOW
1495	1183	1565	BELFAST MDST.		1486.1	1198.5	1555.8	9.2m HIGH (15.5ms LOW
1651	1278	1721				<u> </u>		9.4m LOW <i>(34.8ms LOW)</i>
739	1352	1000		NITB - NITA -	1701.1 1732.8	1337.5 1353.5	1770.8	. ,
1739	1302	1809	EUMERALLA FM.		1756.3	1366.1	1826.0	17m LOW (14.1ms LOW)
FOTAL	DEPTH 2005m	ıKB	DEPT. NAT. RES & ENV	Ĺ	TOTAL I	DEPTH 2007. (Lo	0mKB gger)	
TOPS			PE906684				F	GURE 4

The nomenclature used by GFE Resources for the sub-Belfast Mudstone Late Cretaceous section follows the Beach Petroleum scheme outlined by Buffin  $(1989)^1$ , in which the otherwise named Flaxman Formation and Waarre Sandstone are subdivided into the Waarre Formation Units A, B, C and D (with Unit D = Flaxman Formation). This subdivision is largely based on log character, as Buffin  $(1987)^2$  "defined" with a "General Type Section" from an unidentified well and then exemplified in 26 wells from the Port Campbell region. The top of the Waarre Formation (i.e. top of Unit D) is taken to be where a sharp jump in the resistivity curve occurs. Beneath this marker Unit D can be of variable character (mostly shaly), Unit C comprises well developed orthoquartzites, Unit B is dominantly shaly/silty with occasional "medial" sands, and Unit A is dominated by lithic sandstones in a commonly upward fining sequence.

Application of this subdivision can be somewhat subjective and problematic, especially in wells where the Waarre Formation is not completely developed or preserved. Also, its utility in conjunction with biostratigraphic data remains unclear. That notwithstanding, the subdivision was successfully applied to a reasonably complete Waarre Formation section in the well preceding this one (Iona-2 in PPL2) and appears to be applicable in Langley-1 also.

The relatively detailed palynological sampling in Langley-1 has allowed a far more useful correlation between the lithostratigraphy and biostratigraphy in the lower Sherbrook Group section than has been undertaken in any other recent wells in this region, which is likely to make this well an important reference or correlation point for future wells.

#### **3.2 LITHOLOGY**

The following is a summary of the lithological units observed in Langley-1. More detailed descriptions are included in Appendix 4, as well as on the Mud Log (Enclosure 2). Additional lithological information can be found in the Sidewall Core Descriptions (Appendix 6) and the associated Petrography Report (Appendix 9).

<sup>1</sup> APEA Journal, 1989, p.299-311.

<sup>2</sup> A Depositional Model and Facies Analysis of the Waarre Formation, Port Campbell Embayment (Unpublished report, Beach Petroleum NL).

#### **3.2.1** Heytesbury Group (Surface - 420.8 metres)

#### 3.2.1.1 Port Campbell Limestone (Surface - 109.0 metres)

This unit could not be described in Langley-1 because no cuttings samples were collected above 110 metres. Based on the gamma ray log response the base of this formation is interpreted to be at 109 metres.

#### 3.2.1.2 Gellibrand Marl (109.0 - 410.0 metres)

**Marl**: medium grey to medium brown grey to medium green grey, very soft, sticky, abundant fossil fragments including foraminifera, bivalves and gastropods, trace pyrite, slightly silty in part, occasionally common very fine quartz sand grains, occasional carbonaceous specks, non-fissile.

#### 3.2.1.3 Clifton Formation (410.0 - 420.8 metres)

**Marl**: medium to dark brown, soft to firm, trace very fine sand in part, occasional sucrosic texture, common glauconite, trace pyrite, non-fissile, interbedded with and grading to

**Coquina**: white, buff, cream, becoming red brown with depth, oxidised shell, skeletal and fossil remains, abundant glauconite in part, trace pyrite, friable to moderately hard, non-fissile.

#### 3.2.2 Nirranda Group (420.8 - 555.0 metres)

#### 3.2.2.1 Narrawaturk Marl (420.8 - 505.0 metres)

**Marl**: medium to dark brown grey, occasionally medium to dark grey, trace glauconite, trace to common dispersed silt and quartz sand grains, very argillaceous in part grading to claystone, trace disseminated pyrite, common coquina, non-fissile, in part grading to **Siltstone**: medium brown grey, very argillaceous, moderately calcareous, often very finely arenaceous, trace white fossil specks, firm, non-fissile.

#### 3.2.2.2 Mepunga Formation (505.0 - 555.0m)

**Sandstone**: light to medium dark brown; occasionally red brown grey, medium to coarse, occasionally very coarse, dominantly medium, poorly sorted, subangular to rounded, common iron oxide cement and staining, trace to common silt and argillaceous matrix, common glauconite, common pyrite, unconsolidated, poor visual porosity.

#### 3.2.3 Wangerrip Group (555.0 - 897.2m)

#### 3.2.3.1 Dilwyn Formation (555.0 - 790.4m)

**Sandstone**: light to medium brown grey, dominantly light grey, becomes dominantly very light grey with depth, medium to coarse grained, dominantly coarse, becomes fine to medium grained with depth, subangular to subrounded, poor to moderately sorted, weak silica cement, trace to occasionally abundant light brown silt matrix, trace altered feldspars, trace black coaly detritus, common pyrite, friable to unconsolidated, poor to fair visual porosity, interbedded with and in part grading to

<u>Siltstone</u>: light to dark brown grey, moderately argillaceous, common carbonaceous flecks, common glauconite in part, slightly calcareous, soft to firm, non to slightly subfissile.

#### 3.2.3.2 Pember Mudstone (790.4 - 842.0m)

**<u>Claystone</u>**: medium to dark brown grey, medium to dark olive grey, very silty in part grading to siltstone, common black carbonaceous flakes, common dark green glauconite, common micromica, moderately dispersive, moderately sticky, soft, non-fissile with minor interbedded

**Sandstone:** very light grey, common very light brown staining, fine to coarse grained, dominantly fine, angular to subrounded, moderately sorted, weak silica cement, common light brown silt matrix, common glauconite, common pyrite, friable, poor visual porosity.

#### 3.2.3.3 Pebble Point Formation (842.0 - 897.2m)

**Sandstone**: light brown grey, very light red brown, medium to coarse grained, subangular to rounded, poor to occasionally moderate sorting, weak silica cement, common weak iron oxide cement, trace argillaceous and silt matrix, common iron oxide staining on quartz grains, trace pyrite, occasional dark grey silty carbonaceous lithics, unconsolidated, poor to dominantly fair visual porosity, interbedded with minor

<u>Claystone</u>: medium to dark brown, medium to dark olive grey, moderately to very sticky, soft to firm, moderately to very dispersive, common black carbonaceous flecks, very silty often grading to siltstone, common dark green glauconite, common micromica, nonfissile.

#### 3.2.4 "K-T Shale" (897.2 - 917.0m)

<u>**Claystone</u>**: medium to dark brown grey, medium to dark olive grey, very sticky, soft to firm, moderately dispersive, trace to common black carbonaceous flecks, very silty often grading to siltstone, common dispersed very fine quartz sand grains, common micromica, trace to common pyrite, non-fissile, with minor interlaminated</u>

**Sandstone**: light brown grey, very light red brown, medium to coarse grained, subangular to rounded, poor to occasionally moderate sorting, weak silica cement, common weak iron oxide cement, trace argillaceous and silt matrix, common iron oxide staining on quartz grains, trace pyrite, occasional dark grey silty carbonaceous lithics, unconsolidated, poor visual porosity.

#### 3.2.5 Sherbrook Group (917.0 - 1826.0m)

#### 3.2.5.1 Paaratte Formation (917.0 - 1344.0m)

**Sandstone**: light grey to off white, clear to colourless quartz grains, very fine to very coarse, dominantly medium grained, subangular to subrounded, poor to moderately sorted, weak silica cement, nil to trace light brown grey argillaceous and silt matrix, trace nodular and disseminated pyrite, occasional dark grey carbonaceous lithics, abundant coal detritus in part, trace grey green lithics, trace orange

volcanic lithics in part, trace amber, unconsolidated to moderately hard, poor to good dominantly fair visual porosity, interbedded with **Claystone**: medium to dark olive grey, soft to occasionally firm, very silty grading to siltstone in part, common very fine sand grains in part, non to slightly calcareous, occasionally micromicaceous, common very fine to fine black coal flecks, very dispersive, non-fissile, and minor detrital

**<u>Coal</u>**: dark brown to dominantly black, firm to brittle, subconchoidal fracture, moderately silty, trace pyrite.

#### 3.2.5.2 Skull Creek Mudstone (1344.0 - 1517.0m)

<u>Claystone</u>: medium to dark grey, occasionally medium brown grey, common carbonaceous lithics and laminae, common to abundant micromica, trace pyrite, moderately to occasionally very silty and grading to siltstone in part, very dispersive, sticky, firm, non-fissile, interbedded with thin

**Sandstone**: very light grey, off white, occasionally medium grey, very fine to fine gained, angular to subrounded, moderately to dominantly well sorted, moderate dolomite cement, trace to common carbonaceous lithics, trace micromica, trace pyrite, friable to hard, poor visual porosity.

#### 3.2.5.3 Nullawarre Greensand (equiv.) (1517.0 - 1555.8m)

**Sandstone**: very light to medium grey, occasionally medium olive grey, very fine to fine grained becoming fine to very coarse with depth, dominantly fine grained, subangular to subrounded, poor to well sorted, common calcareous and dolomite cements at top otherwise weak silica cement, trace to common off white to light brown grey to medium grey argillaceous and silt matrix, common pyrite in part, trace glauconite, trace black carbonaceous flecks, friable to occasionally hard, very poor to fair visual porosity, with minor finely interbedded

**<u>Claystone</u>**: medium to dark olive grey, often very finely arenaceous, common very fine black carbonaceous flecks, trace dolomite, non calcareous, trace pyrite, trace glauconite, common micromica, soft to firm, slightly subfissile, with (especially at top)

**Dolomite**: medium brown, tan, moderately argillaceous, common very fine black to dark brown flecks, firm to dominantly hard.

#### 3.2.5.4 Belfast Mudstone (1555.8 - 1715.8m)

**Claystone**: medium to dark grey, medium to dark olive grey, occasionally light to medium brown grey, moderately to very silty, very finely arenaceous in part, common to abundant glauconite in general increasing with depth, trace to common carbonaceous flecks, trace medium brown cryptocrystalline dolomite, trace to common pyrite, trace micromica, trace *Inoceramus*, soft to firm, slightly subfissile.

#### 3.2.5.5 Waarre Formation (1715.8 - 1826.0m)

#### 3.2.5.5.1 Unit D (1715.8 - 1730.4m)

<u>Claystone</u>: medium grey to medium brown, moderately silty, carbonaceous, abundant glauconite, rare to common pyrite, trace fossil fragments, soft, subfissile.

#### 3.2.5.5.2 Unit C (1730.4 - 1770.8m)

**Sandstone**: very light grey, colourless to occasionally pale yellow quartz grains, fine to coarse, dominantly medium, angular to occasionally subrounded, moderate to strong silica cement in part, trace pyrite cement, no visible matrix, occasional carbonaceous staining and specks, common red brown amber, rare shell fragments, friable, fair to good inferred porosity, interbedded with minor

<u>Claystone</u>: medium grey to medium brown, moderately silty, carbonaceous, abundant glauconite, rare to common pyrite, trace fossil fragments, soft, subfissile, with minor detrital

**Coal**: black, often very argillaceous, subconchoidal to platy fracture, common pyrite inclusions, subvitreous to earthy texture, brittle.

#### 3.2.5.5.3 Unit B (1770.8 - 1802.5m)

<u>Claystone</u>: light to medium olive grey, occasionally light brown grey, common to abundant carbonaceous lithics and laminae, often very silty and grading to siltstone in part, trace to common disseminated pyrite, moderately dispersive, moderately hard, subfissile, interbedded with thin

**Sandstone**: very light grey, clear quartz grains, fine to very coarse, subangular to occasionally subrounded, very poorly sorted, moderate to strong silica cement, common moderately strong to strong calcareous cement, occasional dolomite cement, occasional pyrite cement, trace off white to light grey argillaceous matrix, trace carbonaceous lithics, friable to hard, poor visual porosity, fair inferred porosity.

#### 3.2.5.5.4 Unit A (1802.5 - 1826.0m)

**Sandstone**: off white, light brown, fine to dominantly medium, subangular to subrounded, dominantly subangular, quartzose, well sorted, weak calcareous cement, abundant argillaceous matrix, friable to moderately hard, no visual porosity, with minor interbedded

<u>**Claystone</u>**: light to medium olive grey, occasionally light brown grey, common to abundant carbonaceous lithics and laminae, often very silty and grading to siltstone in part, trace to common disseminated pyrite, moderately dispersive, moderately hard, subfissile.</u>

#### 3.2.6 Otway Group (1826.0 - 2007.0+m)

#### 3.2.6.1 Eumeralla Formation (1826.0 - 2007.0+m)

**Sandstone**: light to medium green grey, off white to medium blue grey, very fine to medium, dominantly fine to medium, moderately sorted, subangular to subrounded, weak to occasionally moderate silica cement, common to abundant green grey argillaceous and silt

matrix, common green and orange red lithics, trace amber, common carbonaceous lithics, trace to common pyrite, trace micromica, friable, poor visual porosity, interbedded with

<u>**Claystone</u>**: very light green grey, very light blue green grey, slightly silty, rarely very finely arenaceous, occasional carbonaceous laminae, trace pyrite, trace micromica where silty, moderately dispersive, firm to moderately hard, slightly subfissile.</u>

#### 3.3 HYDROCARBON INDICATIONS

#### 3.3.1 Mud Gas Readings

The mud gas detection equipment was operational from a hole depth of 110 metres until the cement plug at the casing shoe was tested. Gas levels detected during drilling are plotted on the Composite Log (Enclosure 1) and the Mud Log (Enclosure 2) as well as being tabulated in Appendix 8 and summarised as follows:

- $\triangleright$  Down to 500 metres no gas was detected.
- Over the interval 500 1344 metres (top Mepunga Formation to base Paaratte Formation) mud gas readings ranged;

Total Gas	:	Trace - 0.2 units
C <sub>1</sub>	:	1 - 30 ppm
C <sub>2</sub>	:	BDL*

- \* Note: BDL denotes Below Detection Limit.
- From 1344 metres down to 1555.8 metres (Skull Creek Mudstone and Nullawarre Greensand equivalent) mud gas readings ranged;

:	0.1 - 5.5 units
:	6 - 1037 ppm
•	BDL - 11 ppm
:	BDL
	•

#### 3.3 HYDROCARBON INDICATIONS

#### 3.3.1 Mud Gas Readings

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Total Gas	:	Trace - 0.2 units
C <sub>1</sub>	:	1 - 30 ppm
C <sub>2</sub>	:	BDL*

- \* Note: BDL denotes Below Detection Limit.
- From 1344 metres down to 1555.8 metres (Skull Creek Mudstone and Nullawarre Greensand equivalent) mud gas readings ranged;

- . .

Total Gas	:	0.1 - 5.5 units
C <sub>1</sub>	:	6 - 1037 ppm
C <sub>2</sub>	:	BDL - 11 ppm
C <sub>3</sub>	:	BDL

From 1555.8 metres down to 1715.8 metres (Belfast Mudstone) mud gas readings ranged;

Total Gas	:	1.0 - 3.9 units
C <sub>1</sub>	:	183 - 705 ppm
C <sub>2</sub>	:	6 - 24 ppm
C <sub>3</sub>	:	BDL - 6 ppm
$C_4$	:	BDL

➢ From 1715.8 metres down to 1730.4 metres corresponding to the Warre Formation Unit D gas readings remained low and ranged;

Total Gas	:	1.3 - 1.6 units
C <sub>1</sub>	:	231 - 302 ppm
C <sub>2</sub>	:	8 - 12 ppm
C <sub>3</sub>	:	1 - 2 ppm
C <sub>4</sub>	:	BDL

➢ From 1730.4 metres down to 1771 metres (corresponding to the Waarre Formation Unit C) mud gas rose and throughout the interval remained in the range;

Total Gas	:	3 - 20.5 units
C <sub>1</sub>	:	519 - 3477 ppm
C <sub>2</sub>	:	14 - 96 ppm
C <sub>3</sub>	:	1 -44 ppm
C <sub>4</sub>	:	1 - 35 ppm
C <sub>5</sub>	:	BDL

Across the interval 1771 - 1802 metres (corresponding to the Waarre Formation Unit B) gas readings ranged;

Total Gas	:	1 - 5.5 units
C <sub>1</sub>	:	162 - 793 ppm
C <sub>2</sub>	:	7 - 125 ppm
C <sub>3</sub>	:	1 - 16 ppm
C <sub>4</sub>	:	BDL - 1 ppm
C <sub>5</sub>	:	BDL

 $\succ$ 

Through the interval 1802 - 1826.0 metres (corresponding to Waarre Formation Unit A) gas readings mostly ranged;

Total Gas	:	2.8 - 8.3 units
C <sub>1</sub>	:	421 - 1464 ppm
C <sub>2</sub>	:	10 - 72 ppm
C <sub>3</sub>	:	4 - 22 ppm
C <sub>4</sub>	:	BDL - 1 ppm
C <sub>5</sub>	:	BDL

with a peak at 1802 metres of;

Total Gas	:	21 units
C <sub>1</sub>	:	3111 ppm
C <sub>2</sub>	:	262 ppm
C <sub>3</sub>	:	104 ppm
C <sub>4</sub>	:	38 ppm
C <sub>5</sub>	:	BDL

Gas readings across the interval 1826 - 1890 metres (corresponding to the upper portion of the Eumeralla Formation) ranged;

Total Gas	:	2 - 16.3 units
C <sub>1</sub>	:	366 -2928 ppm
C <sub>2</sub>	:	12 - 101 ppm
C <sub>3</sub>	:	BDL - 21 ppm
C <sub>4</sub>	:	BDL - 20 ppm

➤ Gas reading across the interval 1890 metres to 1907 metres (intra-Eumeralla Formation sandstones) rose sharply and ranged;

Total Gas	:	7 - 87 units
C <sub>1</sub>	:	1345 - 14030 ppm
C <sub>2</sub>	:	32 - 513 ppm
C <sub>3</sub>	:	7 - 130 ppm
$C_4$	:	1 - 192 ppm
C <sub>5</sub>	:	BDL

➢ Below 1907 metres until T.D. at 2006 metres (driller) mud gas readings ranged;

Total Gas	:	1.3 - 15 units
C <sub>1</sub>	:	238 - 2623 ppm
C <sub>2</sub>	:	6 - 53 ppm
C <sub>3</sub>	:	2 - 53 ppm
C <sub>4</sub>	:	BDL - 20 ppm
C <sub>5</sub>	:	BDL

with a peak at 1976.7 metres (corresponding to a tight sandstone unit) of;

Total Gas	:	48 units
C <sub>1</sub>	:	6405 ppm
C <sub>2</sub>	:	240 ppm
C <sub>3</sub>	:	53 ppm
C <sub>4</sub>	:	52 ppm
C <sub>5</sub>	:	BDL

#### 3.3.2 Fluorescence

Cuttings samples and sidewall cores were routinely inspected for shows with the following results;

#### 3.3.2.1 Cuttings

No oil fluorescence or oil staining was observed in any cuttings from Langley-1.

#### 3.3.2.2 Core

No fluorescence was observed in Core #1 (1745 - 1764m).

#### 3.3.2.3 Sidewall Cores

Small amounts of fluorescence were observed in 21 sidewall cores from Langley-1, mostly from the Waarre Formation. At least some of this fluorescence, especially in the sidewall cores above the Waarre Formation, is suspected to be contamination. Descriptions of the observed fluorescence are included with the lithological descriptions of the sidewall cores in Appendix 6.

#### 3.3.3 Drill Stem Test Gas Samples

Gas samples were collected and analysed for DST's 1 and 3, which tested the Waarre Formation Unit C and intra-Eumeralla Formation sandstones, respectively. Laboratory reports for these analyses are included in Appendix 7 and summarized in Table 2. The most significant difference between the gas produced from these two intervals is that the sample from the Waarre Formation Unit C is two thirds carbon dioxide while the intra-Eumeralla Formation sample contains little or no  $CO_2$  (the small amount reported is thought to be part of the air "contamination" in the test string due to this being a low flow-rate test which was kept closed at surface).

The hydrocarbon components of the two sampled intervals have similar relative proportions, suggesting (among other things) that the hydrocarbon gas may have generated and migrated into the Waarre and Eumeralla Formation sands at around the same time and that  $CO_2$  subsequently migrated into the Waarre Formation, but not into the Eumeralla Formation interval (posibly due to the lower permeability of the latter).

The DST-3 gas sample was also submitted for carbon isotope analysis of the light hydrocarbons and the results are provided in Appendix 7C.

#### **3.4 GEOCHEMISTRY**

#### 3.4.1 Analyses

A total of 11 samples (9 sidewall cores and 2 cuttings) from Langley-1 were submitted for various geochemical analyses.

The two cuttings samples were submitted during drilling of the well for thermal extract GC analysis. Three sidewall cores were analysed for Total Organic Carbon (TOC) content to determine their suitability for Rock-Eval pyrolysis. The other six sidewall cores were selected from those which reported fluorescence and were submitted for extraction to identify and characterise their hydrocarbon content.

#### 3.4.2 Results

Thermal extraction on the two cuttings samples (1936 and 1945 metres) yielded nothing. Of the three sidewall cores submitted for TOC only one (1825.5 metres) had enough to perform Rock-Eval pyrolysis. This sample produced reasonably good S1 and S2 results, the latter of which prompted Pyrolysis GC anlysis which indicated only very poor oil source potential.

Of the six extracted sidewall cores, the two deepest (1803.5 and 1884.0 metres) produced too small a yield to analyse adequately, so no further work was attempted on them. For the other four a saturates fraction was separated and analysed by gas chromatography. The resulting GC traces suggest that the samples from 1291.0 and 1518.5 metres (and possibly also 1732.0 metres) are probably diesel contamination, based on their lack of  $C_{22+}$  compounds. The sample at 1770.0 metres appears to be a very waxy terrestrial/coaly sample depleted in light ends.

#### 3.5 PALYNOLOGY

Thirty-three sidewall cores and two core samples were submitted to Biostrata (Alan Partridge) for palynological analysis and the resulting report comprises Appendix 11. The samples ranged from 895.0 metres (basal Pebble Point Formation) down to 1989.0 metres (Eumeralla Formation) and were determined to span from the basal Paleocene to the Late Albian.

This number of samples is unprecedented in an exploration well in this region and has consequently provided a relatively closely sampled interval which will provide an important tie to future wells in the region, particularly over the Waarre Formation where additional subzones within the *P. infusorioides* Zone have been recognised.

The oldest zone penetrated in Langley-1 is the *P. pannosus* Zone, which conforms to the youngest age known from the Eumeralla Formation. As in the nearby Iona-2 development well (which preceded Langley-1), the *A. distocarinatus* zone (and thus the Cenomanian) is not present in Langley-1, its absence comprising part of the mid-Cretaceous unconformity between the Eumeralla and Waarre Formations. The base of

the Waarre Formation (and hence base of the Sherbrook Group) is clearly identified by the first indications of marine microplankton and all of the Sherbrook Group samples analysed are considered to be marine. Above 1516 metres sample density is insufficient to distinguish all the zones known to occur in this part of the sequence.

The distinctive shale unit spanning 897.2 - 917.0 metres appears to be a local equivalent of the Cretaceous/Tertiary boundary shale observed widely in the Gippsland Basin and supporting evidence for this correlation is provided by samples in Langley-1 and some earlier wells. Therefore, this unit is herein proposed as a separate entity (provisionally labelled the "K-T Shale") with the recognition that much more work needs to be done before it can become a formal stratigraphic entity. On wireline logs this unit is evident in many previous wells in this region, but (presumably due to a lack of appropriate sampling and dating) its chronostratigraphic significance has not been previously identified and it has been placed either at the top of the Paaratte Formation or the base of the Pebble Point Formation.

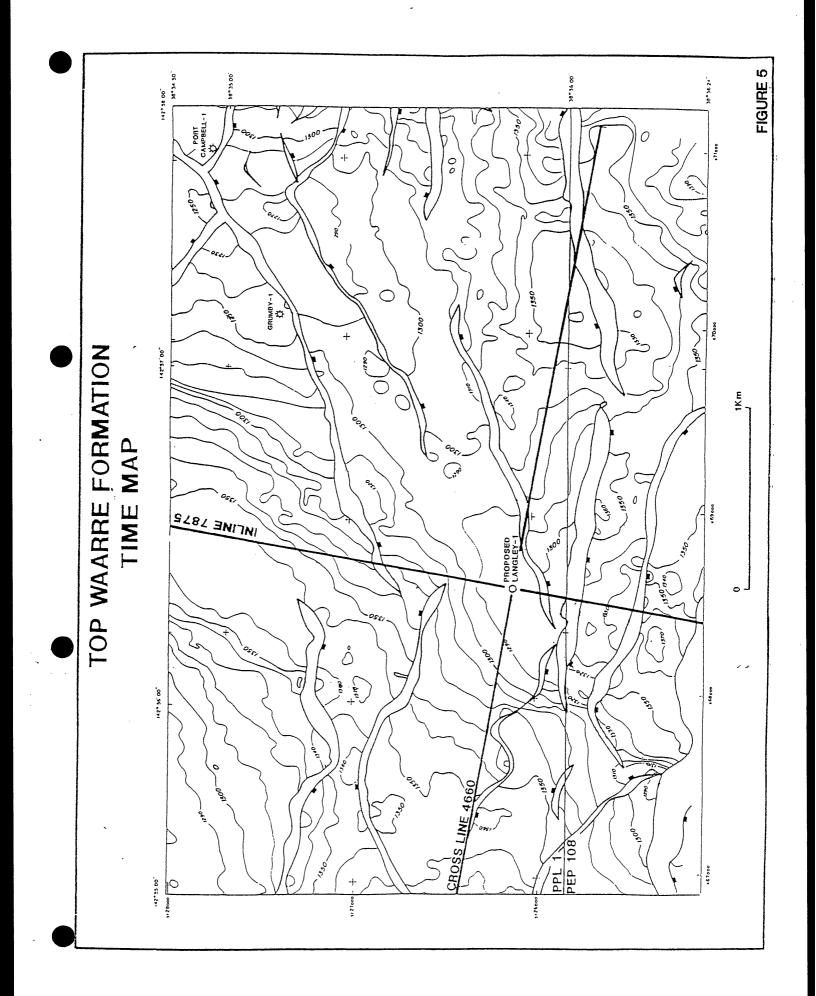
#### **3.6 STRUCTURE**

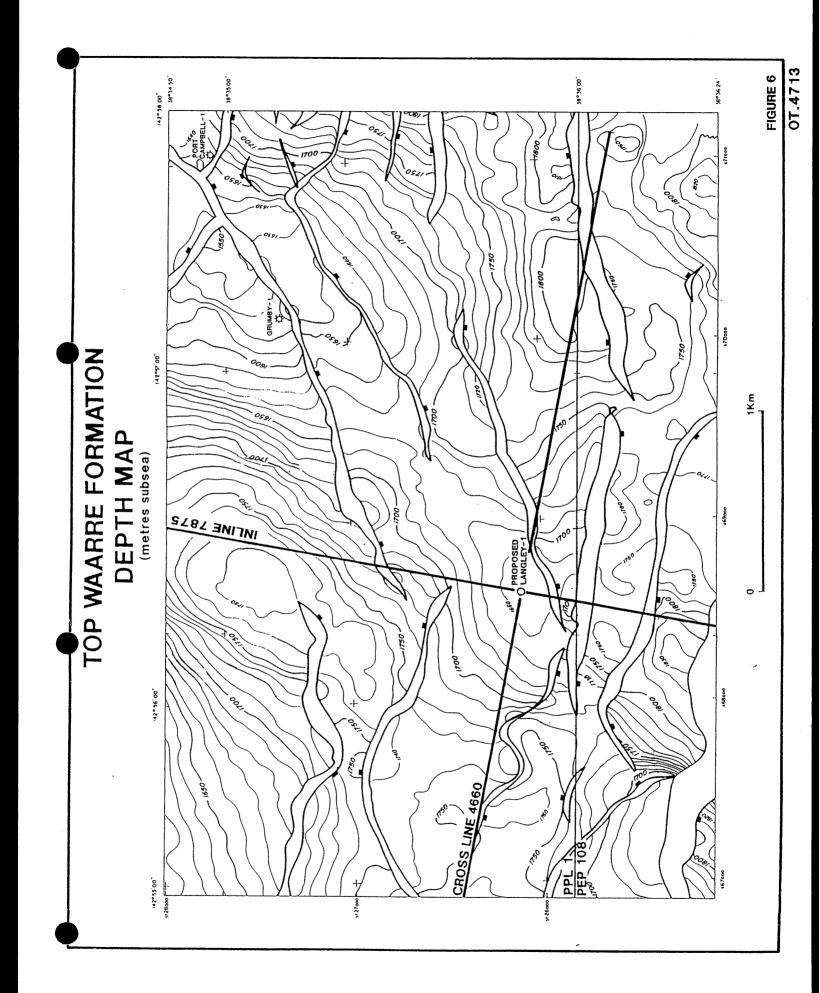
Within PPL1 two regional structural grains are evident in the interpretation of the Waarre 3D Seismic Survey. The dominant WNW-ESE trend of generally Late Cretaceous age (with occasional Tertiary reactivation) overprints a more subtle older ENE-WSW trend, probably no younger than mid-Cretaceous in age. Similar to other structures in the area, the Langley prospect is formed by the intersection of these two fault trends.

As shown on the pre-drill maps and seismic sections in Figures 5-8, the Langley structure at Waarre Formation level is an elongate (ENE-WSW) tilted (north-westerly dipping) fault block with crests at either end. The western crest, the site of Langley-1, is fault bounded to the southeast and southwest with no fault-independent closure. The eastern crest is down thrown relative to the northern bounding fault and, therefore, perceived as having a higher associated lateral seal risk.

Langley-1 constitutes the first test of the interpretation of 3D seismic data in this moderately to intensely structured area.

The drilling of Langley-1 has not necessitated any significant modification of the predrill interpretation. Most of the differences between the prognosed and actual





#### PE906685

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formation tops (Figure 4) are within the resolution of the data, and many of the variations in depth are due to differences between the regional velocity model used for depth conversion and the actual velocities at Langley-1. The biggest differences between actual and prognosed horizons occur beneath the Paaratte Formation. Apart from the Skull Creek Mudstone top, which came in 19 milliseconds high, all of the sub-Paaratte horizons came in between 14 and 42 milliseconds low to prognosis, which equates to around half to one and a half cycles. With regard to the top of the Waarre Formation in particular this discrepancy appears difficult to improve on, since the top of the marked change in seismic character which had been taken to be the top of the Warre Formation Unit C occurs well up into the Belfast Mudstone (around 1675 mKB). This change may equate to sonic and density changes in the basal Belfast Mudstone (below 1685 metres) and/or the Waarre Formation Unit D top.

#### 3.7 LOG ANALYSIS

Log analysis was undertaken on the Langley-1 wireline logs using Crocker Data Processing's PETROLOG software. The Waarre Formation was divided into five zones, one each for Units A, B and D and two for Unit C (above and below the gas/water contact). (A lack of sand in the zone spanning Unit D precludes it from the following discussion and summary). The Eumeralla Formation was only analysed as a single zone.

For each of the sand-bearing zones basic input parameters are given in Table 7 and a summary of the results is provided in Table 8. A listing of input parameters, environmental corrections and complex lithology results can be found in Appendix 12 and a 1:500 scale analysis log is provided as Enclosure 12.

The overall quality of the logs in the zones analysed is regarded as good to very good.

As shown in Table 8, Zones 2 - 6 all contained significant proportions of sand, with Units C and A having the highest net-to-gross and best reservoir properties (as expected). After running the wireline logs a cursory look at the neutron-density curves suggested that the only interval containing significant gas pay was the upper part of the Waarre Formation Unit C sand (Zone 2), over most of which DST-1 was conducted. This was confirmed by the log analysis, in which Zone 2 was estimated to comprise about 88% net sand with an average  $V_{clav}$  of around 10-11%, average effective porosity

around 18-19%, and average water saturation around 28-30%, yielding 18.7 metres of net pay.

The sands in the lower part of Unit C, as well as those in Units B and A, do all seem to contain gas, but in lower proportions (water saturations range 63-71%).

The Eumeralla Formation section analysed (Zone 6) also reports as being entirely water wet, with an average water saturation in the sands of around 87%. This result is somewhat contradicted by DST-3 (1883.07-1909.13mKB driller) which flowed very low-rate gas without co-producing water. While a more lengthy and detailed analysis of the logs over the Eumeralla Formation might ultimately be able to reconcile this difference, it is well recognized that this formation is notoriously difficult to analyse confidently with standard petrophysical logging tools, especially in tight sands.

Based on the log analysis results, a Gas/Water Contact (GWC) in Langley-1 would be inferred to occur close to (or within) the shale band at 1751.8-1752.3mKB (logger).



#### LANGLEY-1

#### **BASIC INPUT PARAMETERS FOR LOG ANALYSIS**

ZONE #	2	3	4	5	6
FORMATION	Waarre C	Waarre C	Waarre B	Waarre A	Eumeralla
From (m)	1730.0	1752.9	1772.0	1798.9	1826.5
To (m)	1752.9	1772.0	1798.9	1826.5	1985.0
Interval (m)	22.9	19.0	27.0	27.6	158.5
Average Zone Temperature (°C)	64.1	64.6	65.1	65.7	67.8
Rw at Av. Zone Temp. (ohm.m)	0.225	0.224	0.223	0.221	0.442
Rw at 23.9 °C (ohm.m)	0.425	0.425	0.425	0.425	0.870
Salinity (Kppm)	14.0	14.0	14.0	14.0	6.5
Mud Filtrate Salinity (Kppm)	22.8	22.8	22.8	22.8	22.8
Assumed Matrix Density (g/cc)	2.65	2.65	2.65	2.65	2.67
GRclean (API units)	20	20	25	35	40
GRclay (API units)	115	115	115	115	126
Rclay (ohm.m)	8.0	8.0	9.0	9.0	14.9
Saturation Equation	Indonesian	Indonesian	Indonesian	Indonesian	Indonesian
Tortuosity (a)	1.0	1.0	1.0	1.0	0.62
Cementation Exponent (m)	1.7	1.7	1.7	1.7	2.15
Saturation Exponent (n)	2.0	2.0	2.0	2.0	2.0

#### TABLE 8

#### LANGLEY-1

#### LOG ANALYSIS RESULTS SUMMARY

ZONE #	2	3	4	5	6
FORMATION	Waarre C	Waarre C	Waarre B	Waarre A	Eumeralla
From (m)	1730.0	1752.9	1772.0	1798.9	1826.5
To (m)	1752.9	1772.0	1798.9	1826.5	1985.0
Interval (m)	22.9	19.0	27.0	27.6	158.5
Net Sand <sup>†</sup> (m)	20.1	16.2	6.7	21.3	38.1
Net/Gross (%)	87.8	85.3	24.8	77.2	24.0
Sand Average $\emptyset_{\text{eff.}}^{\dagger}$ (%)	18.2	22.0	18.3	23.2	16.1
Sand Average S <sub>w</sub> <sup>†</sup> (%)	29.8	71.3	65.1	63.3	86.8
Sand Average V <sub>clay</sub> <sup>†</sup> (%)	10.8	5.7	14.5	14.1	27.5
For net pay:					
Average Ø <sub>eff.</sub> Cut off	0.05	0.05	0.05	0.05	0.05
S <sub>w</sub> Cut off	0.50	0.50	0.50	0.50	0.50
V <sub>clay</sub> Cut off	0.40	0.40	0.40	0.40	0.40
Net Pay (m)	18.7	0.6	1.1	0.2	0.0
Pay Average $\emptyset_{\rm eff}$ (%)	18.7	17.1	19.3	19.1	n/a
Pay Average S <sub>w</sub> (%)	27.5	45.5	39.0	49.8	n/a
Pay Average V <sub>clay</sub> (%)	10.2	23.6	16.0	15.3	n/a

<sup>†</sup>Obtained using cut offs of  $S_w = 100\%$ ;  $\emptyset_{eff.} = 5\%$ ;  $V_{clay} = 40\%$ 

# CONCLUSION

### 4. CONCLUSIONS

#### 4.1 OBJECTIVES VERSUS PERFORMANCE

The main objective in drilling Langley-1 was to evaluate the hydrocarbon potential of the structure mapped at the top Waarre Formation level and the section beneath it into the Eumeralla Formation. Since Langley-1 was the first well drilled on a prospect identified from the Waarre 3D Seismic Survey it was also the first test of the worth of 3D seismic data in this region.

The top Waarre Formation sandstone (Unit C) was evaluated by DST-1, wireline logs and RFTs, and shown to contain a trapped gas column of very similar extent the minimum predicted case (ie. prognosed minimum closing contour at 1680mSS, actual GWC appears to be around 1683mSS) indicating that the structure is probably filled to its spill point. In addition to this, DST-3 established the presence of a gas zone (which could not be identified on wireline logs or RFT data) within a tight Eumeralla Formation sandstone interval. Thus, Langley-1 can be said to have at least adequately fulfilled its intended purpose, and to be a "technical" success in terms of the ability of the 3D seismic to improve the delineation of prospects in this area.

However, Langley-1 was plugged and abandoned because the 23-metre gas column encountered at the top of the Waarre Formation Unit C was found to contain a mix of one-third dry hydrocarbon gas and two-thirds carbon dioxide (CO<sub>2</sub>), making it uncommercial for exploitation of either commodity. Prior to drilling, the possibility of the reservoir containing CO<sub>2</sub> had been identified as the greatest risk associated with the Langley prospect due to the presence of CO<sub>2</sub> in variable proportions in nearby wells, most notably Grumby-1. Previous work had suggested that proximity to major northeast trending faults increased the likelihood for a structure to contain significant CO<sub>2</sub> and the result in Langley-1 appears to support this.

With regard to the Eumeralla Formation, obtaining a gas flow (albeit low-rate) without co-producing water was a positive (but also uncommercial) result for the Langley-1 well. Not being able to better define this gas column with RFTs or wireline logs leaves this result somewhat intangible, but may also indicate that the occurrence of low-rate gas sands in the Eumeralla Formation is more common than previously thought.

Assessment of performance in terms of time (and thus cost) is less favourable. As shown in Figure 2, Langley-1 took about ten days longer than the prognosed 18 days to drill, due to a variety of causes, including;

- drilling assembly differentially stuck in hole (just over three days lost)
- tight hole problems requiring wiper trips, BHA changes and reaming (total of about two and a half days lost)
- two extra (unanticipated) drill stem tests (DSTs 2 and 3) were conducted to evaluate shows in the intra-Eumeralla sandstone unit (two and a half days extra)
- longer time to prepare for and run wireline logs, partly due to running more logs than anticipated (about one and a half days extra)
- unexpected repairs to rig clutch and draw-works sub-frame (about half a day lost).

Another parameter which pertains to performance during drilling of the well is hole deviation. As outlined in Section 2.5.4, the horizontal component of hole deviation was kept within a 34-metre radius of the proposed location at the primary target (top Waarre Formation sandstone, 1730 metres) level, which equates to a maximum overall deviation of just over one degree.

With regard to the prognosis of geological and geophysical parameters the results obtained in Langley-1 were generally in line with expectations. Formation tops were mostly within 20 milliseconds two-way time of prognosis, with the two exceptions being the Nullawarre Greensand equivalent and Waarre Formation Unit C tops, which came in low by 42.2 and 34.8 milliseconds, respectively. In terms of depth, most horizons were within 20 metres of prognosis, except the Clifton Formation (24m low), the Skull Creek Mudstone (50m high) and the Nullawarre Greensand equivalent (26m low). Thus, the time-depth relationship observed in Langley-1 indicates that the actual velocity profile is broadly similar to the pre-drill regional velocity model used.

#### 4.2 CONTRIBUTION TO GEOLOGICAL KNOWLEDGE AND HYDROCARBON PROSPECTIVITY

In addition to the basic information that drilling a petroleum exploration well adds to the geological knowledge and hydrocarbon prospectivity of an area (eg. depth to formation tops, cuttings samples, sidewall cores, wireline logs, etc.) the drilling of Langley-1 and analysis of the technical data from it has;

- confirmed the technical worth of using 3D seismic data in this moderately to intensely structured area to improve the delineation of structural features (the commercial worth has yet to be proven).
- provided (by virtue of relatively closely spaced sidewall cores) a higher density of biostratigraphic sample points over the lower Sherbrook Group (especially the Waarre Formation) and the upper part of the Eumeralla Formation than has been available in previous exploration wells in this area. This has enabled an unprecedented level of biostratigraphic resolution within this interval, which has resulted in some new subzones being recognized and provided further confirmation (c.f. Iona-2 WCR) of the absence of Cenomanian strata in this area. Thus, Langley-1 has provided a better understanding of the juxtaposition of the biostratigraphy with the lithostratigraphy and will be a very useful well for correlation work over this interval into the future.
- provided (again by biostratigraphic work on sidewall cores) sufficient biostratigraphic evidence to propose the establishment of a new entity in Otway Basin stratigraphy, provisionally labelled the "K-T Shale", which is equivalent to the Cretaceous/Tertiary boundary shale observed in the Gippsland Basin.
- confirmed the migration of hydrocarbons and carbon dioxide into sands of the Waarre Formation in the Langley structure. (The presence of such a high proportion of carbon dioxide in this structure might be construed as supporting the proposed relationship between the occurrence of that gas in structures which are proximal to north-east bounding faults).
- identified tight (but hydrocarbon gas-bearing) potential reservoir sandstones within the Eumeralla Formation. It is also of interest to note that this hydrocarbon gas is very similar to that encountered in the Waarre Formation, but has no carbon dioxide reservoired along with it. To what extent this difference may be controlled by factors such as timing of generation/migration and/or relative permeability remains unclear.

Additional items acquired in Langley-1 which provide a contribution to geological knowledge of the area include the core cut in the Waarre Formation Unit C, the routine and special core analysis done on plugs from this core, the dipmeter data and the array sonic data, all of which are relatively sparse in wells in this region.

# APPENDIX 1

**GFE RESOURCES LTD** 

# **APPENDIX 1**

## **RIG SPECIFICATIONS**

### **LANGLEY-1**

**INVENTORY - RIG #11** 

CARRIER	Cooper LTO 750 Carrier with triple front and rear axles 54000lb front and 70000lb rear. All necessary highway equipment. Unit levelled with hydraulic jacks when stationary.
SUBSTRUCTURE	17' floor height - 14' below table beams with plates in base.
DRAWWORKS	Cooper 750 H.P. Drawworks. 42" x 12" main drum with Fawick 28VC 1000 clutch and 3000 metres $\frac{9}{16}$ " sandline. Driven by 2 each Cat D3406TA Diesel Engines.
ROTARY TABLE	National Rotary Table Model C-175.
DERRICK	Cooper Derrick Model 118-365. Ground height 118'. Maximum rated static hook load 350000 lbs with 10 lines. Mast raised, lowered and telescoped hydraulically.
CROWN BLOCK	Cooper Crown Block with 4 working sheaves. Fast line sheave and dead line sheave. All grooved for $1 - \frac{1}{8}$ " line. Sandline sheave grooved for $\frac{9}{16}$ " line.
HOOK BLOCK	National Hook Block Model 435 G-175. 175 ton capacity. 4-35" sheaves grooved for $1-\frac{1}{8}$ " line.
SWIVEL	P-200 National.
KELLY SPINNER	Foster Model K-77
SLUSH PUMPS	No. 1: National 8-P-80 Slush Pump. $6^{1}/_{4}$ " x $8^{1}/_{2}$ " Triplex single acting driven by Cat. D398TA Diesel Engine. No. 2: National 7-P-50 Slush Pump driven by Cat D379TA Diesel Engine.
PULSATION DAMPENER	1 each Hydril Pulsation Dampener type K20-3000.
MUD SYSTEM	$2 \ge 300$ bbl tanks incorporating 80 bbl pill tank and 40 bbl trip tank.
SHAKERS	Triton NNF Screening Machine (Linear Motion).
DEGASSER DESANDER	Drilco Atmosheric Degasser Standard Pit. $7^{1}/_{2}$ H.P. 60 Hz 230v. Demco Model 122. Two, 12" cone with Warman 6" x 4"
	Centrifugal pump driven by 50 H.P. Electric Motor.

DESILTER	Pioneer Economaster Model T12-E4. 12 x 4" cones with Warman 6" x 4" Centrifugal pump, driven by a 50 H.P. Electric Motor.
MUD MIXING PUMP	Warman 6" x 4" Centrifugal pump driven by a 50 H.P. Electric Motor.
MUD AGITATORS	4 only Brandt Mud Agitator Model MA 7.5.
B.O.P'S & ACCUMULATOR	10" x 3000 P.S.I. Shaffer Double Gate B.O.P. with $2^{3}/_{8}$ ", $2^{7}/_{8}$ ", $3^{1}/_{2}$ ", $4^{1}/_{2}$ ", $5^{1}/_{2}$ ", 7" and Blind. 10" x 3000 P.S.I. Hydril GK Annular B.O.P. Koomey B.O.P. Control Unit. Accumulator Unit Model 100-11S.
CHOKE MANIFOLD	Cameron 5000 psi.
SPOOL	10" x 3000 x 10" x 3000 Flanged Drilling Spool with 3" x 3000 flanged choke and kill outlets.
INSTRUMENTATION	Martin-Decker 6 pen Record-O-Graph Martin-Decker Weight Indicator Type F.S. Martin-Decker Mud Pressure Gauge Martin-Decker Rotary R.P.M. Indicator Martin-Decker Stroke Indicator (2 off) Martin-Decker Rota Torque Indicator Martin-Decker Tong Torque Indicator Martin-Decker Mud Flow Sensor Martin-Decker Mud Flow Fill System Martin-Decker Mud Flow Fill System
AUTOMATIC DRILLER	Satellite Automatic Driller Model SA100-50-1500.
WIRELINE STRIPPER	Guiberson Oil Saver Type H-4.
SURVEY UNIT	Totco 8 Deg Recorder.
MUD LAB	Baroid Rig Laboratory Model 821.
KELLY	$5^{1}/_{4}$ " HEX Kelly. $2^{13}/_{16}$ " I.D. x 40' long with $6^{5}/_{8}$ " API Reg. L.H. Box up 4" I.F. Pin down.
UPPER KELLY VALVE	Upper Kelly Cock. 10000 test $6^{5}/_{8}$ " API Reg. L.H. Connections.
LOWER KELLY VALVE	Hydril Kelly Guard. $4^{1}/_{4}$ " - 10000 P.S.I. 4" I.F. Pin and Box.
KELLY DRIVE BUSHING	Varco Type 4 KRS Kelly Drive Bushing.
DRILL PIPE	7000' Drill Pipe $4^{1}/_{2}$ " O.D. 16.60 lb. Grade E Range 2 with 4" I.F. x 18 degree taper tool joints.
DRILL COLLARS	20 each Drill Collars $6^{1}/_{4}$ " O.D. slick $2^{13}/_{16}$ " I.D. x 30' long with $4^{1}/_{2}$ " XH pin and box connections.

FISHING TOOLS	To suit pipe, collars and tubing.
SUBSTITUTES	To suit drill string.
HANDLING TOOLS	Farr Hydraulic Power Tongs, 13 <sup>3</sup> / <sub>8</sub> " Varco SSW-10 spinning wrench. Manual tongs, elevators and slips to handle pipe, collars, casing and tubing.
WELDING EQUIPMENT	Lincoln Electric Welder Model 400AS.
AIR COMPRESSORS	Sullair compressor Package Model 10-30.
AC GENERATOR	2 each Caterpillar 3408TA AC Generator model SR-4. 1800 rpm 60 hz 275 kw.
FUEL TANKS	2 each 10,000 litre - Skid Mounted.
WATER TANK	400 bbl tank with two Warman 3 x 2 pumps driven by 24 hp electric motors.
PIPE RACKS	5 sets 30 feet in length.
CATWALKS	2 piece Catwalk drill pipe construction 42" height.
RADIO	Codan Mobile Transceiver.
TRANSPORTATION	International 530 Payloader. Toyota 4 x 4 Pickup. Toyota 4 x 4 Crew Vehicle.
<b>RIG ACCOMMODATION</b>	2 Skid Mounted Toolpusher/Company Man Units.

#### <u>CAMP</u>

1- Camp Generator House 31' long x 10' wide skid mounted complete with 2 -3304 T 80 Kw, 50 Hz, 200 - 400 volt generators, camp distribution panel. 6,794 litres fuel storage, 12,000 litres fresh water storage and 24,000 litres shower water storage.

1 Kitchen/Dining Room	40' x 10' x 10'
1 Recreation Room	40' x 10' x 10'
1 Ablution/Laundry	40' x 10' x 10'
3 12 Man Bunkhouses	40' x 10' x 10'
1 Cooler/Freezer	20' x 8' x 8'

# APPENDIX 2

**GFE RESOURCES LTD** 

## **APPENDIX 2**

### DRILLING FLUID RECAP

**LANGLEY-1** 

GFE RESOURCES LTD DRILLING FLUID RECAP LANGLEY-1 OTWAY BASIN VICTORIA



Prepared by : Date

M. Olejniczak, C. DaSilva June 1994

"All information, recommendations and suggestions herein concerning our products are based on tests and data believed to be reliable. However, it is the user's responsibility to determine the safety, toxicity and suitability for their own use of the products described herein."

#### TABLE OF CONTENTS

- 1. WELL SUMMARY SHEET
- 2. INTRODUCTION
- 3. DISCUSSION BY INTERVAL

#### 4. APPENDICES

- FORMATION TOPS
- 8 1/2" HOLE CALIPER
- 5. DAILY ACTIVITY RECORD

#### 6. RECAP TABLES

- MATERIAL RECAP BY INTERVAL
- MATERIAL INVENTORY & RECONCILIATION
- SOLIDS CONTROL AND MUD VOLUME ANALYSIS
- MUD PROPERTIES
- BIT RECORD
- DIRECTIONAL SURVEYS

#### 7. GRAPHS

.

- DILUTION & CONSUMPTION
- PROGRESS & COST
- PV-YP & FILTRATE-MBT
- WEIGHT-SOLIDS & CHLORIDES-KCI

#### 8. DAILY MUD REPORTS

## WELL SUMMARY

Operator	:	GFE Resources Ltd
Well Name	:	Langley-1
Average Angle & Direction	:	Vertical
Location	:	Onshore Otway Basin, Victoria
Contractor/Rig	:	Century, Rig 11
Start Date	:	12 May 1994
RKB Elevation	:	5.2 m
Total Depth	:	2006 m MD
Date Reached T.D	:	2 June 1994
Total Days Drilling	:	22 Days
Rig Released	:	8 June 1994
Total Days On Well	:	28 Days

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Drilling Fluid Type		Interval			Hole S	ize	Cost (A\$)
Flocculated Native Clay FW/AQUAGEL/CMC KCl/Polymer		5 m - 34 340 m - 1400 m -	1400 r		12-1/4 8-1/2" 8-1/2"		658.00 6,394.28 23,621.05
Mud Materials Charged To Drilli	ng		i.	ΤΟΤΑΙ	_	A\$	30,673.33
Engineer On Location From : Drilling Fluid Engineering :		ay 94 to 7 ays @ \$ 5:			days)		14,310.00
Total Cost Of Drilling Materials	& Engineer	ing				A\$	44,983.33
Mud Materials Not Charged To	Drilling					A\$	Nil
Casing Program	9-5/8'	. (	0	334.4	4 m		
Drilling Supervisors	Ken S	Smith					
Baroid Engineers	M. OI	ejniczak, (	C. DaS	Silva			

#### INTRODUCTION-SUMMARY

Langley-1 was spudded on 12 May using Century rig 11.

The 12-1/4" hole was drilled through the surface limestone to 50 m with water only. 1% KCl was then added to inhibit dispersion through the Gellibrand Marl and reduce water consumption. The system was then maintained as a Flocculated Native Clay to the 340 m casing point. There were some problems with unexpected caving of the Gellibrand Marl and minor mud rings during the wiper trip at 340 m. The 9-5/8" casing was run and cemented to 334.4 m, but a surface top up cement job was required.

The same Flocculated Native Clay was used to drill out the casing shoe and continue in 8-1/2" hole through to the top of the Dilwyn Formation at 560 m. The mud system was then converted to an AQUAGEL/CMC to provide improved hole stability and reduced filtration control through the sands of the Dilwyn and Paaratte Formations.

From 1400 m the mud system was again converted to a 3%KCI/Polymer system to provide increased inhibition and improved log separation through the lower part of the Sherbrook Group and into the Eumeralla Formation to the TD of 2006 m.

There were some problems with increasing deviation and tight hole on trips while drilling through the Paaratte Formation. The major problem of the well also occurred in the lower part of the Paaratte Formation. The pipe was differentially stuck pipe at 1438 m, with 3 days lost before drilling resumed. This was a direct result of a draw-works clutch failure while drilling with intermittent high torque.

The well was then drilled to the 2006 m TD, reached on the 2nd June, without any more hole or mud problems. Three drill stem tests, one core and the wireline logs were successfully run. The final caliper log showed the 8-1/2" hole to be in very good gauge with only a few washouts.

The final cost of \$30,673.33 for materials used for drilling, (not including cementing and completion) was only 7.5% higher than programmed, despite the stuck pipe problem and the slower than expected drilling.

#### DISCUSSION BY INTERVAL

12 1/4" Hole	:	5 m - 340 m (335 m Drilled - 2 Days)
Formations	:	Port Campbell Lst, Gellibrand Marl

DRILLING FLUID : Water to Flocculated Native Clay

As the surface limestone appeared to be quite competent and the Gellibrand Marl was expected very close to surface the hole was spudded in using water only.

The limestone was thicker than expected with the first thin bands of marl only occurring from about 50 m. Forty sacks of Potassium Chloride were immediately added to give a KCl content of close to 1%. This was done to inhibit the hydration of the Gellibrand Marl and reduce water dilution and dumping requirements.

Drilling continued steadily through the marl to the 340 m casing point. No more KCl was added with the KCl content allowed to gradually reduce by dilution to 0.3%. Lime was regularly added to maintain flocculation of the system and provide additional inhibition. Dilution with water was used to control viscosity and mud weight.

#### TYPICAL MUD PROPERTIES

Weight	:	8.5 to 8.9	ppg
Viscosity	:	28 to 42	seconds/qt
Yield Point	:	0 to 25	lb/100 ft <sup>2</sup>
API Filtrate	:	No Control	ml
Chlorides	:	4,500 to 2,000	mg/L
KCL Content	:	0.8 to 0.3	% by wt soln.

#### HOLE CONDITIONS

There were no hole problems during actual drilling of the section. A large amount of cuttings was returned at the shakers during drilling. The proportion of cavings appeared to increase with depth.

After circulating the hole clean for a half hour, the wiper trip at casing point was run without problems, but mud ring problems after circulation resumed blocked the flowline. The shaker had to be bypassed and returns dumped temporarily, with water dilution used to control the problem. A large amount of marl cavings up to 2-1/2" in size was returned at the shakers.

The 9-5/8" casing was run to 334.4 m, with the last joint requiring washing to bottom. While circulating the casing a large amount of cavings was again returned. The casing was cemented, using about 80% excess, but no cement returns were observed. The cement was later measured at 9 m below surface, and was topped up by hand.

#### SOLIDS CONTROL

The single Triton shaker was run with a combination of 80/50/50 mesh screens. The desander and desilter were run continuously. Almost no volume was dumped during drilling. However, a severe weight and viscosity increase after the wiper trip, at casing point, had to be controlled by temporarily dumping returns and diluting with water.

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#### CONCLUSIONS AND RECOMMENDATIONS

- The use of the KCI and Lime inhibited the marl sufficiently so that there was no need for dumping during drilling, with a controlled viscosity obtained. This would have been impossible with a fresh water mud.
- Concerns for minimising dumping to the small sump led to the viscosity of the system being run in the 40 to 42 second range. In retrospect this was too high. Mud ring problems on the wiper trip would have been reduced with a much lower 34 to 36 second viscosity.
- The large amount of cavings and lack of cement returns indicated the hole was significantly enlarged. This caving of the Gellibrand Marl is unusual and has not been observed on previous wells in the area. There was no significant difference in the drilling fluid or hydraulics. It may be the result of a localised geological variation.
- There is scope for extending inhibition of the Gellibrand Marl to reduce viscosity and potential mud ring problems and dilution requirements. This is becoming more important as there is more pressure to reduce sump clean-up costs. Below are several low cost options depending on the mud system to be used for the next hole section.
  - 1) Maintain a 1% KCI content through to casing point. The system could then be continued as a KCI/Polymer for the next section.
  - 2) Continue with increased Lime additions and control viscosity using a lignosulphonate such as QB II, ENVIROTHIN or POLYNOX. The system could then be continued as a Lime/Polymer for the next section.
  - 3) "Clear Water" drill the section using a PHPA flocculant. Lime, CaCl<sub>2</sub> or KCl can be used as the required ionic component. This cannot be used if there is any potential for washing out the surface conductor. A significant amount of water can be recycled from the sump. As basically water is left in the pits this is compatible with continuing with any water based mud for the next section.

DISCUSSION BY INTERVAL

DRILLING FLUID

8 1/2" Hole Formations	:	340 m - 1400 m (1060 m Drilled - 6.5 Days Gellibrand Marl to Skull Creek Mudstone
	•	Fresh Water AQUAGEL/CMC EHV

The 9-5/8" casing shoe was drilled out using old Lime-Flocculated mud from the previous section, diluted with water. The cement contamination was left untreated.

Drilling then continued through the Gellibrand Marl diluting with water. The dilution rate was controlled to minimise dumping to the small sump, and conserve volume for the higher dilution rates expected in the Dilwyn and Paaratte Formations. The high pH from the earlier cement contamination steadily reduced.

From the top of the Dilwyn Sandstone at 560 m, CMC-EHV was steadily added to a concentration of about 1ppb. Pre-hydrated AQUAGEL was added to maintain the mud viscosity above 40 seconds. This reduced the API filtrate of the mud to the 8.5-9.0 ml range.

There were noticeable downhole seepage losses of 2-3 bbl/hr while drilling through the sands of the Paaratte formation. The clay content, (MBT) of the mud was allowed to steadily decrease to 9 ppb towards the base of the Paaratte to minimise problems converting to a KCI/Polymer system. This began at 1400 m after drilling into the Skull Creek Mudstone.

#### **TYPICAL MUD PROPERTIES**

Weight	:	8.8 to 9.0	ppg
Viscosity	:	40 to 42	seconds/qt
Yield Point	:	10 to 14	lb/100 ft <sup>2</sup>
API Filtrate	:	Reducing to 8.5 1	ml
Chlorides	:	1,000 to 1,500	mg/L
KCL Content	:	Nil	% by wt soln.
MBT	:	8 to 10	ppb

#### HOLE CONDITIONS

A 25 stand wiper trip was run at 832 m, without problems. On the next wiper trip at 1228 m, the pipe pulled tight from near bottom and was temporarily stuck at 1076 m. It was worked free through tight hole up to 1035 m over 1 hour and was then run back in with only 2 m of fill.

A full trip was run at 1257 m for a BHA change. There were no problems pulling out, but 2 hrs were required to ream back in from 1062-1075 m and 1177-1257 m. Another trip was run

Page 4

assembly because of continuing problems with increasing hole deviation. It took 13-1/2 hrs to ream this assembly back to bottom from 947 m.

#### SOLIDS CONTROL

The single Triton shaker was run with a combination of 80/50/50 mesh screens. The desander and desilter were run continuously. The mud weight was easily controlled at 8.9-9.0 ppg without any dumping required, due to the low clay content of the formations.

#### CONCLUSIONS AND RECOMMENDATIONS

- There were no mud problems through this section with mud properties closely following the program.
- The caliper log at TD showed this section to be mostly close to gauge at 8 1/2" to 9". This indicates that the reduced hydraulics run were successful in reducing hole washout in the loose sand sections.
- The tight hole and reaming problems during tripping through the Paaratte formation would have been due to :
  - 1) Filter cake build up across the very permeable sandstone.
  - 2) Near gauge hole. (caliper log showed 8 3/4" for this section at TD.)
  - 3) Variations in the deviation which finally resulted in the stiff assembly being run.
- Suggestions to reduce the tight hole and reaming problems would include :
  - 1) Reduce the programmed API filtrate through the Paaratte Formation.
  - 2) Run more frequent short wiper trips to wipe the hole of filter cake buildup.
  - 3) Consider the addition of BARACARB, (ground to size Limestone), to the system to act as a pore throat plugging agent, reducing permeability.

#### DISCUSSION BY INTERVAL

8-1/2" Hole	:	1400 m to 2006 m (606 m Drilled, 18.5 Days)	
Formations	:	Skull Creek Mudstone to TD in Eumeralla.	

DRILLING FLUID : KCI/Polymer.

Conversion of the previous fresh water AQUAGEL/CMC mud to a KCI/Polymer began at 1400 methods m. This had barely begun when the rig clutch broke down at 1438 m and the pipe became differentially stuck. The completion of the conversion had to be delayed until after the pipe was freed.

The KCL content was then increased to 3 %, with PAC R and PAC L used for viscosity and filtration control. The system was simply maintained by added all chemicals as pre-mixed mud from the reserve pit. No more pre-hydrated AQUAGEL was used for the remainder of the well.

Through the Nullawaare and Belfast Formations the mud rheology increased due to the large amount of clay solids incorporated into the system. The viscosity rose to the 50-55 seconds range with yield points of 18-20 lb/100ft<sup>2</sup>. The sandtrap was dumped regularly to control the mud weight and viscosity. The mud weight was allowed to increase to the required 9.3 ppg by the top of the Waare Formation target without any barite being added.

From the Waare Formation through to TD, the lower clay content of the formations resulted in a lower mud rheology being more easily maintained, with viscosities of 42-48 seconds and yield points of 15-20 lb/100 ft<sup>2</sup>.

#### TYPICAL MUD PROPERTIES.

Weight	:	9.0 to 9.3+	ppg
Viscosity	:	42 to 50	seconds/qt
Yield Point	:	16 to 20	lb/100 ft <sup>2</sup>
API Filtrate	:	7.0 to 8.0	ml
Chlorides	:	15,000 to 18,000	mg/L
KCI Content	:	3.0	% by wt soln.
MBT	:	10 to 12	ppb

#### HOLE CONDITIONS.

At 1438 m while drilling with the new stiff assembly and intermittent high torque, the rig clutch broke down. The drill pipe, which was on bottom and could not be rotated or moved for several hours, became differentially stuck while the clutch was being repaired. The pipe was worked and the hole displaced to water twice, before it was freed using a 32 bbl EZ SPOT pill.

Page 6

There were no major hole problems during drilling and tripping for the rest of the well. Trips were run at 1638 m, 1732 m, 1745 m, 1764 m, 1897 m, 1910 m, and the 2006 m TD with only minor tight hole experienced. Wireline logs were run at TD with no problems. Two drill stem tests were run during drilling at 1745 m and 1910 m, with no problems running in or pulling out. DST 1 successfully flowed gas, but DST 2 was a misrun. This interval was successfully straddle tested after wireline logging, (DST 3), with only a weak blow recorded.

The hole continued to take an average of 2-1/2 bbls of mud per hour during wireline logging.

There were still problems with the draw-works clutch slipping, particularly after reaching TD, which caused further delays.

#### SOLIDS CONTROL.

The shaker was run with 1x80 and 2x50 mesh screens. The desander and desilter were run continuously. All the solids control equipment worked well, with the mud weight kept to 9.3 ppg as programmed. There was no centrifuge available on this well, nor was one required.

#### CONCLUSIONS AND RECOMMENDATIONS.

- The primary cause of the stuck pipe at 1438 m was the clutch failure. The drill string was on bottom and could not be rotated or moved for several hours, becoming differentially stuck.
- Except for the stuck pipe incident, hole conditions were very good. The end of well caliper log showed the section to be a very uniform 9" gauge, except for the zone where the pipe had been stuck, which was up to 20". This would have resulted from the jarring, working of pipe and displacing to water done at that depth.
- ► The fact that the stuck pipe occurred as the mud system was beginning to be converted does not mean that this was a contributing factor. There had already been tight hole and one instance of temporarily stuck pipe with the fresh water/AQUAGEL/CMC used previously. In addition the continuing downhole losses of 2-1/2 bbl/hr measured while logging shows there was still potential for differential sticking with the KCI/Polymer system. For recommendations to reduce the potential for differential sticking, see the recommendations for the previous section.
- There were no major problems with the KCL/Polymer mud system. It is recommended the same mud system be used in future wells in this area through this section.

#### **APPENDIX - A**

1

#### FORMATION TOPS

Formation	Measured Depth (m)
Mepunga	ে পিয়ে উপন্থায়ের এনে বিনেয়া হিন্দু প্রদান বিনেয়া বিদ্যালয় বিদ্যালয় বিদ্যালয় বিদ্যালয় বিদ্যালয় বিদ্যালয 510
Dilwyn Sandstone	560
Pember Mudstone	778
Pebble Point	836
Paaratte	917
Skull Creek Mudstone	1348
Nullawaare	1427
Belfast Mudstone	1545
Waarre	1716
Eumeralla	1826
T.D.	2006

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Baroid Australia Pty Ltd, June 1994. File : wpwin\recaps\gfe\lang-1

**APPENDIX - B** 

## 8 1/2" HOLE CALIPER DATA (averaged)

Measured Depth (m)

Hole Size (ins)

340 - 400	9.0	n na ser anna an an an an an an ann an an an an
400 - 440	9.0	ĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸĸ ĸ
450 - 475	9.0	
475 - 510	8.5 - 16.0	(off scale)
510 - 550	9.0	
550 - 600	9.0	
600 - 650	10.5	
650 - 700	9.0	
700 - 778	9.0	
778 - 825	8.5 - 20.0	(off scale)
825 - 875	9.0	
875 - 917	9.0	
917 - 950	8.75	
950 - 1000	8.75	
1000 - 1050	8.75	
1050 - 1100	8.75	
1100 - 1150	8.75	
1150 - 1200	8.75	
1200 - 1250	8.75	
1250 - 1275	12.5	
1275 - 1300	9.0	
1300 - 1325	12.5	
1325 - 1350	8.75	
1350 - 1375	8.5 - 20.0	(off scale)
1375 - 1425	8.5 - 20.0	(off scale)
1425 - 1525	9.0	لد ا
1525 - 1625	9.0	
1625 - 1725	9.0	
1725 - 1825	9.0	
1825 - 1870	9.0	
1870 - 1910	9.0	
1910 - 2006	9.0	

Baroid Australia Pty Ltd, June 1994. File : wpwin\recaps\gfe\lang-1

DAILY ACTIVITY SUMMARY

PAGE-1



#### Baroid Australia Pty Ltd COMPANY GFE Resources Ltd WELL Langley-1 LOCATION Otway Basin, Victoria

CONT/RIG Century Rig 11

1994 ACTIVITY

12 – May Spud in with water at 13:30 hrs after pre-spud meeting. Drilled 12 1/4" hole through limestone and marl at 20 to 30 m/hr.

13 – May Drilled to 340 m casing point at 05:00 hrs. Circulated hole clean for 1/2 hr. Ran wiper trip, then circulated hole clean for another hour. POH and ran 9 5/8" casding, washing last joint to bottom. Circulated casing for 1 hr. Cemented xcasing with 15.6 ppg neat slurrey. WOC.

14 – May Wait on cement. Used 14 sxs cement to do top up on surface casing. Nippled up BOP

and pressure tested. Began making up 8 1/2" BHA.

- 15 May RIH and tagged cement at 318 m. Drilled out cement and shoe with mud, then drilled 6m new hole to 346 m. Ban PIT test giving 22.6 ppg EMW. Continued drilling through marl. Had to clear flowline of mud ring at 395 m for 1 hour. Continued drilling taking regular surveys.
- Drilled to 832 m. Circulated out for 1/2 hr then ran 25 stand wiper trip to casing shoe. 16 - Mav Ran back in without problems and no fill. Continued drilling from 12:30 hrs. Reduced bit weight and taking more surveys as deviation increased.
- Drilled to 1228 m. Circulated out 1/2 hr, then POH for wiper trip. Pipe pulled tight from 17 - May near bottom. Temporarily stuck at 1076 m. Worked free, and worked pipe through tight hole to 1035 m over 1 hr. Continued POH to 823 m. Ran back in without problems. Had 2 m fill. Resumed drilling but survey line broke during survey at 1257 m. POH to recover line and survey barrel.
- Continued POH. Checked bit, changed BHA and slipped line. Ran back into hole. Had 18 - May to ream in from 1062 to 1075 m over 1/2 hr and from 1177 to 1257 m over 1 1/2 hrs. resumed drilling from 11:30 hrs.
- Drilled to 1363 m at 08:30 hrs. Circ out 1/2 hr, then POH for bit and BHA change. Had to 19 - May work tight hole from 1302 to 1158 m pulling out. Changed bit and added 2 stabilisers to BHA to stiffen BHA. RIH to 947 m. Had to ream in the rest of the way. Reached 1240 m.
- 20 May Reamed to bottom and continued drilling ahead. At 1438m incountered some torque. Pulled up and clutch went down. Could not move the pipe for several hours while repairing clutch. After fixing the clutch tried to pull pipe. The pipe was stuck, work pipe. Working pipe and activating jars.
- Worked stuck pipe. Displaced annulas with 258bbls of water and work pipe. Hold tension 21 - May and torque on pipe for one hour, then work pipe again. Reverse circulate with mud to water at shakers and work pipe. Continued to work pipe while waiting on Schlumberger,not circulating. Circulated and displaced water with active mud, dump water in sump. Running wireline free point indicator.
- 22 May Completed free point. Circulated hole clean, then displaced the hole to water. Work stuck pipe. Mix and pump 32 bbls EZ Spot around collars and HWDP, Work pipe straight away. Rig up and run another free point. Pipe came free while running free point. Circulated and displaced water and EZ Spot Diesel with mud. Circulated and conditioned mud.
- Pulled out of the hole and changed bit. Tight hole from 1361 to1226m on the way out. 23 - May Ran in the hole to 1238m washed to bottom.

PAGE-2



#### Baroid Australia Pty Ltd COMPANY GFE Resources Ltd WELL Langley-1 LOCATION Otway Basin, Victoria CONT/RIG Century Rig 11

- 1994 ACTIVITY
- 24 May Continue drilling 8.5" hole, survey at 1527m.
- 25 May Drilling ahead 8.5" hole to 1623m. Made 10 stand wiper trip OK. Continued drilling ahead , at 1628m circvlated up a sample.
- 26 May Continued drilling ahead without any hole problems to 1729m, there was a drilling break at this point. Drilled to 1731m and circulated up a sample. Tried to drill 3m extra but only managed 1m, because the bit was torqueing up. POH.
- 27 May Ran in the hole to 1713m wash to bottom at 1732m. Circulated bottoms up prior to drilling to 1734m, circulated up sample. Drilled to 1745m Circulated up sample. It was decided to do a test at this depth, made a wpier trip to the shoe. Ran back to bottom and circulated hole clean prior to POH for DST # 1.
- 28 May Ran in the hole and perform DST # 1. Interval 1715m to 1745m, Recovered CO2 gas. Pulled out of the hole and laid out test tool. Made up core barrel and ran in the hole. Wash and ream last 15m to bottom.
- 29 May Core from 1745m to 1764m. POH with core barrel and lay out core. Ran in the hole with 8.5" bit, Drilling ahead.
- 30 May Continued drilling through Waare and Eumeralla formations at 2–3 m/hr.
- 31 May Drilled to 1897m, circulated up sample for Geologist as gas increased to 70 units. Then made a wiper trip (10 stands), tight from 1802–1742m. Drilled on to 1910m, circulated up sample for Geologist. (Gas 87units) Decided to test, POOH for DST # 2.
- 01–Jun Ran in the hole with test tool, and perform DST # 2. Interval 1875m to 1910m. Did not flow, pulled out of the hole. Ran back in with bit to 1890m, washed to bottom and circulated for thirty five minutes prior to drilling ahead 8.5" hole.
- 02–Jun Continued drilling ahead 8.5" hole to 2006m. (T.D.) circulated bottoms up prior to making a 42 stand wiper trip, no hole problems on trip. Circulated the hole clean, and POOH to log.
- 03—Jun Running wire line logs. Logging tool got to bottom without any problems.
- 04–Jun After WRT log , Ran in the hole for a wiper trip. Circulated the hole clean. Draw works clutch silpping, repair clutch and POOH to log. Continued logging.
- 05–Jun Completed logging and ran in the hole for a wiper trip. Circulated bottoms up at 2000m, could not get to bottom as had problems with the clutch slipping. POOH to the shoe and repair clutch.
- 06–Jun Ran in the hole, clutch slipping so POOH to the shoe. Work on clutch, then ran in the hole with 25 stands. Clutch slipping so POOH to the shoe again and repair clutch. Ran in the hole clutch OK. Wash last 20m to bottom, and circulated the hole clean prior to POOH to test. Made up test tools.
- 07 Jun Ran in the hole and performed DST # 3, interval 1882.9 1909.1m POOH with test tool. Layed out test tools and layed down BHA. Ran in the hole open ended to set four cement plugs.



COMPANY GFE Resources Ltd WELL Longley-1 LOCATION Obwey Besin, Victoria         HOLE SIZE 12 1/4" CONTRACTOR/RIG Century Rig 11 MUD TYPE Floculated Native Clay           INTERVAL TO (m)         340         DRILLING DAYS         2         COST/DAY         A5329 A510           FROM (m)         5         ROTATING HRS         12.5         COST/DAY         A5329 A510           DRILLED (m)         335         ROTATING HRS         12.5         COST/DAY         A5329 A510           DATE         13-Mey-94         CONSUMPTION FACTOR (bb/m)         2         2           MATERIAL         UNIT         QUANTITY         CONSUMPTION FACTOR (bb/m)         2           KCLTech(sx)         25 kg         8.04         10         10         0.6         0.7         90.40         90           Line         25 kg         8.04         10         10         0.6         0.7         90.40         90           Line         COST LESS BANITE :         A5305.80         A5555         A5555           VOLUMES         COST WITH BANTE :         A5305.80         A5555           See W.         bbi         97.6         825         A5555		Baroi	d Aus	tralia Pt	y Ltc	k		MATERIAL	
INTERVAL TO (m)         340         DNILLING LATE         12.5         COST/m         A81           DRILLED (m)         335         NOT AND BILLED (m)         335         COST/M         A81           DRILLED (m)         335         COST/M         A81         COST/M         A81           DRILLED (m)         335         COST/M         A81         COST/M         A81           DATE         13-May-94         CONSUMPTION FACTOR (bb//m)         2         COST/M         A81           MATERIAL         UNIT         UNIT         CONTINUT         CONTINUT         CONTINUE         CONTINUE         COST/MATE         ACTU           KCLTech(sx)         25 kg         8.04         10         10         0.6         0.7         80.40         80           Line         25 kg         8.04         10         10         0.6         0.7         80.40         80           Line         25 kg         B.04         10         10         0.6         0.7         80.40         80           Line         COST LESS BARITE         A\$595.80         A\$595         A\$595         A\$595           VOLUMES         Ebil         957.6         825         625         625         62		COMPANY	GFE Resour Langley-1	rces Ltd	-		RACTOR/RIG	Century Rig 11	Page 1
MAILEHAL         UNU         COOT         EST         ACT         EST         ACT         EST MATE         ACTU           KCL.Tech(ex)         25 kg         14.44         35         40         2.0         2.7         505.40         577           Lime         25 kg         8.04         10         10         0.6         0.7         90.40         90           Mail         50.4         10         10         0.6         0.7         90.40         90           Ime         25 kg         8.04         10         10         0.6         0.7         90.40         90           VOLUMES         Cost Less Bantte         ASSE5.80         ASSE5         ASSE5         ASSE5         ASSE5           Volumes         Lob         S57.8         625         625         ASSE5.80         ASSE5	FROM DRILLE	(m)	5 335	ROTATING HE		12.5		COST/m COST/bbl FACTOR (bbl/m)	A\$329.00 A\$1.96 A\$0.79 2.47
VOLUMES         COST LESS BARITE :         A\$585.80         A\$6555           VOLUMES         COST LESS BARITE ::         A\$585.80         A\$6555           See W.         bbl         957.8         625	MATEP	<u>sIAL</u>			EST	ACT	EST ACT	ESTIMATE	ACTUAL
VOLUMES         COST LESS BARITE :         A\$585.80         A\$658           Sea W.         bbl           Drill W.         bbl         957.6         825		ɔh(sx)	25 kg	14.44	10	10	0.6 0.7	80.40	577.60 80.40
COST LESS BARITE :         A\$585.80         A\$658           VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl         Drill W.         bbl         957.6         825									
COST LESS BARITE :         A\$585.80         A\$658           VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl         Drill W.         bbl         957.6         825									
COST LESS BARITE :         A\$585.80         A\$658           VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl         Drill W.         bbl         957.6         825									
COST LESS BARITE :         A\$585.80         A\$658           VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl         Drill W.         bbl         957.6         825									
COST LESS BARITE :         A\$585.80         A\$658           VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl         Drill W.         bbl         957.6         825									
VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl           Drill W.         bbl         957.6         825							Ł		
VOLUMES         COST WITH BARITE :         A\$585.80         A\$658           Sea W.         bbl           Drill W.         bbl         957.6         825									
Sea W.bblDrill W.bbl957.6825	VOLUI	M <u>ES</u>							A\$658.0 A\$658.0
l other DDI	Sea W	ſ.		ət 👘	957.6	825			
other bbl other bbl Chemical bbl 3.4 4	other		bbl	bi	3.4	4			
Chemical     DDi       Salvaged Mud     bbl       TOTAL MUD USED     bbl       COMMENTS	Salvag TOTAL	ged Mud L MUD USED	bbl	bl					

	GFE Resour Langley–1 Otway Basin			CONT	HOLE SIZE RACTOR/RIG MUD TYPE	G Century Rig 11 E FW/AQUAGEL/0	CMC
ITERVAL TO (m) ROM (m) RILLED (m) ATE	1400 340 1060 20-May-94	DRILLING DA ROTATING HI 4		6.5 67 CC	ONSUMPTIO	COST/DA COST/ COST/b N FACTOR (bbl/r	<b>/m</b> A\$6.03 obl A\$3.26
	UNIT	UNIT		NTITY	CONC (Ib/b		TOTAL COSTS
	SIZE	14.33	<u>EST</u> 336	ACT 126		<u>CT ESTIM/</u> 5.5 4,814	1,805.58
QUAGEL,sx austic Soda	25 kg 25 kg	32.43	13	10	0.3 0.	.3 421	1.59 324.30
MC EHV	25 kg	106.61		40			1.52 4,264.40 1.60
oda Ash	25 kg	16.15	4		0.1	÷.	.00
					1		
				COST	LESS BARITE	E: A\$8,71	2.59 A\$6,394.20
OLUMES				COST	WITH BARITE		
Sea W.	bbl			1010			
Drill W.	bbl		2307.5	1610			
other other	bbl bbl						
Chemical	bbl		25.5	13			
Salvaged Mud	bbl		300	336 1959			
TOTAL MUD USED	bbl	1	2633	1909			naintain viscosity and

s

Baroic	d Aust	ralia Pty	Ltd	ł			MATERIA	L RECAP Page 3
COMPANY		ces Ltd		CONT		SIZE 81, B/BIG Cel	/2" ntury Rig 11	
WELL LOCATION	Langley–1 Otway Basir	n, Victoria		CON	MUD	TYPE KC	/Polymer	
	2006		5	18.5			COST/DAY	A\$1,276.8 <sup>-</sup>
NTERVAL TO (m) FROM (m)	1400	ROTATING HRS		140.5			COST/m	A\$38.98
DRILLED (m)	606						COST/bbl	A\$24.2
DATE	7–Jun–94			C	ONSUMF	PTION FAC	CTOR (bbl/m)	1.6
MATERIAL		UNIT COST	QUAN		CONC EST	(lb/bbl) ACT	TOTAL ESTIMATE	COSTS ACTUAL
BARACIDE	25 kg	549.92	1	1	0.0	0.1	549.92	549.9
BARACOR 129	25 kg	64.96	3	5	0.1	0.3	194.88	324.80
Barite,sx	50 kg	15.96	81		5.0		1,292.76	
Caustic Soda	25 kg	32.43	14	18	0.4	1.0	454.02	583.7
CMC EHV	25 kg	106.61		9		0.5		959.4
EZ SPOT	208 lt	761.18		2		0.9		1,522.3
KCL,Tech(sx)	25 kg	14.44	300	335	9.3	19.0	4,332.00	4,837.4
PAC-R	50 lb	170.74	36	46	1.0	2.4	6,146.64	7,854.0
	50 lb	170.74	36	40	1.0	2.1	6,146.64	6,829.6
da Ash	25 kg	16.15	5		0.2		80.75	=
BARAFILM	25 ít	159.7		1		0.1		159.7
					j.			
VOLUMES	bbl				LESS BA WITH BA		A\$17,904.85 A\$19,197.61	A\$23,621.0 A\$23,621.0
Drill W.	bbl		241.2	935				
other	bbl							
other	bbl							
Chemical	bb		37.8	39				
Salvaged Mud	bb		500	074				
TOTAL MUD USED	bb		1779	974				

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500 bbl old mud converted to KCI/Polymer from 1400 m. KCI/Polymer maintained to TD. x 25 L can BARAFILM used for drill pipe coating while pulling out sideways at end of well.

# Baroid Australia Pty Ltd

# MATERIAL SUMMARY

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LOCATION Otway Basin, Victoria CONTRACTOR/RIG Century Rig 11

WELL Langley	1		CONTI	ACTOR/RIG Cent	ury Rig 11	
AL MUD TYPES	SIZE 12 1/4"	m 335	DAYS 2	HOURS 12.5	WELL FROM :	DURATION 12-May-94
UAGEL/CMC	8 1/2" 8 1/2"	1060 606	6.5 18.5	67 140.5	то :	07-Jun-94

		-				COST/DAY COST/m COST/bbl	A\$1,136.05 A\$15.33 A\$8.95
		TOTALS _	2001	27	220		1.71
RECAP BY	M. Olejniczak, C.	Da Silva.			NSUMPTION FA		
MATERIAL	UNIT	UNIT		QUAN			AL COSTS
	SIZE	COST	EST	IMATE	ACTUAL	ESTIMATE	ACTUAL
AQUAGEL,sx	25 kg	14.33		336	126	4,814.88	1,805.58
BARACIDE	25 kg	549.92		1	1	549.92	549.92
BARACOR 129	25 kg	64.96		З	5	194.88	324.80
Barite.sx	50 kg	15.96		81		1,292.76	
Caustic Soda	25 kg	32.43		27	28	875.61	908.04
CMC EHV	25 kg	106.61		32	49	3,411.52	5,223.89
EZ SPOT	208 lt	761.18			2		1,522.36
	250 kg	14.44		335	375	4,837.40	5,415.00
CL,Tech(sx)	25 kg	8.04		10	10	80.40	80.40
	50 lb	170.74		36	46	6,146.64	7,854.04
PAC-R	50 lb	170.74		36	40	6,146.64	6,829.60
PAC-L		16.15		9		145.35	
Soda Ash BARAFILM	25 kg 25 lt	159.7		J	1		159.70

VOLUMES			S BARITE : H BARITE :	A\$27,203.24 A\$28,496.00	A\$30,673.33 A\$30,673.33
Sea W.	bbl		·······		
Drill W.	bbl	4506.3	3370		
other	bbi				
other	bbl				
Chemical	bbl	66.7	56		
Salvaged Mud	bbl				
TOTAL MUD USED	bbl	4573	3426		
COMMENTS					

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	Baroid Australia Pty Ltd	Aust	ralia	ΡŁ	Ltd													WEB	KLY II	WEEKLY INVENTORY	ORY
	COMPANY GFE Resources Ltd	IPANY GFE Resol	sources	Ltd																YEAR	Page 1 1994
)	DATE		12/05			13/05			14/05			15/05		16/05	5		17/05			18/05	
MATERIAL	Size	Used		Bal	l Used	1 1	Ba	Used	Rec	Bal	Used	Rec	Ba	Used Rec	: Bal	Used	Rec	Bal	Used	Rec	Bal
AQUAGEL.sx	25 kg				N		432			432	88		364	28	Ж М	306		306			306
BARACIDE	25 kg						-			T			T			-		-			-
BARACOR 129	25 kg		8		8		œ			8			80			8		8			8
Barite.sx	50 kg		200		200		200			200			200		Ň	200		200			500
Barite.sx	25 kg		400		400		400			400			400		4	400		400			<del>6</del>
Caustic Soda	25 ka		4		4		4			40	N		æ	ო		2		g			છ
CMCEHV	25 ka		<b>6</b> 4		4		49			<b>6</b>	S		44	S				ខ	10		ន
EZ SPOT	208 It		N		5		2			~			2			N		2			~
KCL,Tech(sx)	25 kg	40	360		320		320			320			320		- 	320		320			320
Lime	25 kg	10	10																		
PAC-R	9 P 20 P		4		4		4			4			4		_	<del>\$</del>		4			4
PAC-L	50 lb		4	0	<del>\$</del>		4			4			4	_	_	<del>\$</del>		4			Ą
Soda Ash	25 kg		20	0	20		20			20			20		_	50		20			20
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Production         Product	Party         Party <th< th=""><th></th><th></th><th>Baroid</th><th></th><th><b>Australia Pty Ltd</b></th><th>Ptyl</th><th>Ę</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>WEEK</th><th></th><th>WEEKLY INVENTORY</th><th>ORY</th></th<>			Baroid		<b>Australia Pty Ltd</b>	Ptyl	Ę													WEEK		WEEKLY INVENTORY	ORY
	$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		EAROLU Marine	COMPANY		esources v_1	Ltd																P YEAR	age 2 1994
	Sing         Mail         Mail <th< th=""><th>Site         Site         <th< th=""><th>)</th><th>DATE</th><th>1000</th><th>19/05</th><th></th><th></th><th>20/05</th><th></th><th></th><th>1/05</th><th></th><th>22</th><th>/05</th><th></th><th>23/05</th><th></th><th></th><th>24/05</th><th>_</th><th></th><th></th><th></th></th<></th></th<>	Site         Site <th< th=""><th>)</th><th>DATE</th><th>1000</th><th>19/05</th><th></th><th></th><th>20/05</th><th></th><th></th><th>1/05</th><th></th><th>22</th><th>/05</th><th></th><th>23/05</th><th></th><th></th><th>24/05</th><th>_</th><th></th><th></th><th></th></th<>	)	DATE	1000	19/05			20/05			1/05		22	/05		23/05			24/05	_			
			MATERIAL	Size	Used		Bal	Used	1 1		1 1		Π						Used		-1	- 11	Rec	Ba
			AQUAGEL.sx	25 kg			306			G	-	┝─┤	906			906		Ř			306			306
			BARACIDE	25 kg						-			-			-					-		+	-
			BARACOR 129	25 kg			ω			8			8			80					4	-		ဗ
			Barite,sx	50 kg			200			200			200			200		500			200	_	_	200
			Barite,sx	25 kg			400			400			400			<del>6</del> 0		<u></u>			<del>6</del>	-+		<del>6</del>
			Caustic Soda	25 kg	-		ЭС			29			59			59	-	Š			24	N		2
			CMCEHV	25 kg	÷		1			7			2			~					2	e		4
			EZ SPOT	208 lt						2			N	2										
			KCL,Tech(sx)	25 kg			ж Ж			300			300	<del>1</del> 0		50	ß	24(			150	ଚ	_	120
			Lime	25 kg																				
			PAC-R	50 lb			4			æ			æ	-		37		6			ଞ	우		8
			PAC-L	20 lp			4			g	4		g			ਲ	<del>9</del>	Ň			÷	n		위
			Soda Ash	25 ka			<u></u>	0		8			20			50		Ñ	0		20			8
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Meth         Effective         Test         For         For <th< th=""><th></th><th>Baroid</th><th>Aust</th><th><b>Australia Pty Ltd</b></th><th>₽¥ F</th><th>D</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th>VE</th><th>WEEKLY INVENTORY</th><th>NVEN</th><th>ORY</th></th<>		Baroid	Aust	<b>Australia Pty Ltd</b>	₽¥ F	D												VE	WEEKLY INVENTORY	NVEN	ORY
$ \begin{array}{ c c c c c c c c c c c c c c c c c c c$		COMPANY WFLI	GFE Re	sources	Ltd															YEAR	7 age 3 1 994
Bar         Made         Fact		DATE		26/05		N	7/05		28/02			29/05		106	05		31/05				
	MATERIAL	Size	Used	Rec							Used	Rec		1 1				Bal		Rec	Bal
	AQUAGEL.sx	25 kg			ω	1 1		9	1	306				1 1				Э́е́	6		306
	BARACIDE	25 kg														-					
	BARACOR 129	25 kg			e			m		e 			n			<u>ო</u>			0		9
	Barite,sx	50 kg		-	200			500		200			200			8		500	0		200
	Berite,sx	25 kg			400			<del>0</del>		400 004			400		-	8 Q		<del>Q</del>	0		<u></u>
	Caustic Soda	25 kg			21	+		20	+	5 0			17	-				Ť	0		3
	CMC EHV	25 kg	4																		
	EZ SPOT	208 lt																			
	KCL, Tech (sx)	25 kg	<b>4</b>		80	8		ß		ິລ			4			4	œ		0		120
	Lime	25 kg																			
	PAC-R	ମ 0 <u>୨</u>	Q		14			14		4			우	4					4		4
	PAC-L	ସ ଉଦ୍ଧ			10			10		<del>9</del>			2	2					0		4
	Soda Ash	25 kg			20			20		50			20		_	20		Ñ	0		ž
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WEEKLT INVENIUNT Page 4 YEAR 1994																														
VEENL		Bal	306	6		002	400	12			3	8	6	20	-						-							 <u></u>		
-	07/06	Rec							+						N							-								
		Used																-				_								
			306	C	n 000	002	<del>1</del>	2		- 4	3	34	40	20																
	06/06	Rec							-																					
		Used																												
		Bal	306	0	5	500	400	12		- 4	8	34	40	20			 -											 		
	05/06	Rec																	_									 		
		Used	0		ם מ		0				2	2	40	20			<u> </u>			_				+				 		
		Bal	306			500	4 6	12				() () () () () () () () () () () () () (	4	N 			 _											 _		
	04/06	d Rec															 										_	 		
		I Used	306		פומ	200		<u>6</u>		- 5	<u>R</u>	96	40	20		_	 		_		_	+			 			 		
	06	c Bal			-						_	+					 	 									_	 _		
	03/06	Used Rec						_	_								 		٤			_					_	 		
AUSTRAIIA PTY LIO GFE Resources Lid Landlev – 1		Bal Us	306		en 1	50	<del>6</del>	<u></u>			RU RU	j e	4	20																
AUSTRAIIA FT GFE Resources Ltd Landlev - 1	02/06					-	-+										 					_						 _	-	
<b>AUSTA</b> GFE Resou Landlev – 1	0	Used		-				~			94	α	<u> </u>				-													
		Π	ğ	25 kg	25 kg	50 kg	25 kg	25 kg	5 kg	208 It	20 Kg	2040	20 lp	25 kg	25 It															
	DATE	Size								X '							 	 			_					_		 _		
		ERIAL	×		53			٩			x																			
		MATERIAL	AQUAGEL, sx	ACIDE	BARACOR 129	Barite,sx	Barite,sx	Caustic Soda	CEH	EZ SPOT	KCL,Tech(sx)		PAC-L	Soda Ash	BARAFILM															

COMPANY         GFE Resources Ltd Langley1           WELL         Langley1           MATERIAL         UNIT         PRICE         DELIVERIES           MATERIAL         UNIT         PRICE         DT 337077         DT           MATERIAL         UNIT         PRICE         DELIVERIES         DELIVERIES           MATERIAL         UNIT         PRICE         DELIVERIES         DT         DT           MATERIAL         UNIT         PRICE         25 kg         14.33         423         40           Earlie.sx         25 kg         16.16         7.98         8.04         40           PAC-L         50 lb         170.74         40         40         40           PAC-L         50 lb         170.74         40         40         40         40           PAC-L         50 lb         170.74         40         40         40         40         40           PAC-L         50 lb         170.74 </th <th>urces Ltd DELIVERIES BY DT No. DT 337077 DT 337186 DT 337092 5/5/94 26/5/94 1 200 400 400 400 400 40 40 40 40</th> <th>7 337092 26/5/94 1 20 1 20 40</th> <th>GFE stock TC 5/5/94</th> <th></th> <th>N</th> <th>LC C TERVAL</th> <th>LOCATION CONT/RIG INTERVAL USEAGE</th> <th></th> <th>Otway Basin, Victoria Century Rig 11</th> <th>a FINAL</th> <th>DATES : FR<del>U</del>M TO</th> <th>: FROM 12-May-94 TO 07-Jun-94</th>	urces Ltd DELIVERIES BY DT No. DT 337077 DT 337186 DT 337092 5/5/94 26/5/94 1 200 400 400 400 400 40 40 40 40	7 337092 26/5/94 1 20 1 20 40	GFE stock TC 5/5/94		N	LC C TERVAL	LOCATION CONT/RIG INTERVAL USEAGE		Otway Basin, Victoria Century Rig 11	a FINAL	DATES : FR <del>U</del> M TO	: FROM 12-May-94 TO 07-Jun-94
N ELL         Langer           ON SITE         ON SITE           UNIT         PRICE           SIZE         (A\$)           25 kg         549.92           25 kg         549.92           25 kg         549.92           25 kg         549.92           25 kg         14.33           25 kg         549.92           25 kg         15.96           25 kg         15.96           25 kg         16.18           208 lt         761.18           25 kg         14.44           20 lb         170.74           25 kg         16.15           25 kg         16.16           25 kg         16.15	LIVERIES BY DT No 337077 DT 337186 [5/94 5/5/94 1 8 2200 423 2200 400 400 400 400 400 400 40 40 40 40 4	26/5/94 26/5/94 120 40			IN I	TERVAL	USEAGE			FINAL		L
UNIT PRICE SIZE (AS) 25 kg 14.33 25 kg 549.92 25 kg 64.96 25 kg 15.96 25 kg 15.96 25 kg 16.61 208 lt 761.18 25 kg 106.61 25 kg 106.61 26 lb 170.74 25 kg 106.61 26 lb 170.74 26 lb 170.74 27 lb 170.74 27 lb 170.74 27 lb 170.74 27 lb 170.74 26 lb 170.74 27 lb 170.74 26 lb 170.74 27 lb 170.74 2	337077     DT 337186       5/94     5/5/94       423     5/5/94       423     5/5/94       423     200       40     400       40     49       360     10       40     40       360     10       40     20       40     20       40     20	0T 337092 26/5/94 120 120 40				The support of the local division of the loc		ſ				
25 kg       14.33         25 kg       549.92         25 kg       64.96         50 kg       15.96         25 kg       7.98         25 kg       7.98         25 kg       16.61         25 kg       7.98         25 kg       16.61         25 kg       106.61         25 kg       16.15				TOTAL	VALUE (	(1) (2) 2 1/4" 8 1/2"	() (3) (2)" (3)	TOTAL	VALUE (A\$)	INVEN	VALUE (A\$)	COMMENTS
23     <	Ŵ <del>4</del>	120 40 40		423	1		10	126	1805	-	4384.98	Balance to Mylor – 1
25 kg       25 kg       50 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg <t< td=""><td>0.4</td><td>40 40</td><td></td><td></td><td>549.92</td><td></td><td></td><td>1</td><td>549.92</td><td></td><td></td><td></td></t<>	0.4	40 40			549.92			1	549.92			
50 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg       29 kg       29 kg <t< td=""><td>Q 4</td><td>120 40 40</td><td></td><td>8</td><td>519.68</td><td></td><td></td><td>5</td><td>324.8</td><td></td><td>194.88</td><td>_</td></t<>	Q 4	120 40 40		8	519.68			5	324.8		194.88	_
25 kg 25 kg 25 kg 25 kg 25 kg 1 7 7 7 8 1 1 1 1 25 kg 25 kg 26 kg 27 kg 28 kg 27 kg 27 kg 27 kg 28 kg	4	120 40 40		200	3192					200	3192	-
25 kg       25 kg       25 kg       26 kg       27 kg       28 kg       29 kg       20 b       25 kg       25 kg       25 kg       25 kg       25 kg       26 kg       27 kg       28 kg       29 b       20 b       25 kg       26 kg       27 kg       28 kg       29 kg       29 kg       20 kg       20 kg       21 kg       22 kg       23 kg       24 kg       25 kg       26 kg       27 kg       28 kg       29 kg		120 40 40		400	3192					400	3192	
25 kg 208 tr 208 tr 25 kg 25 kg 26 kg 26 kg 27 k		40		40	1297.2			18 28		12	389.16	Balance to Mylor – 1
208 ft 7 25 kg 2 50 lb 1 25 kg 2 25 kg 2 25 kg 2 25 hg 1 25 hg 2 25 hg 2 2 2 hg 2 2 2 hg 2 2 2 hg 2 2 2 hg 2 2 2 2 hg 2 2 2 hg 2 2 hg 2 2 2 hg 2 2 hg 2 1 hg 2		120 40 40		49	5223.89		40	4				
25 kg       26 kg       27 kg       28 kg       29 kg <t< td=""><td></td><td>40 40</td><td>33</td><td>e</td><td>2283.54</td><td></td><td></td><td></td><td>15</td><td></td><td>761.18</td><td></td></t<>		40 40	33	e	2283.54				15		761.18	
		40		480	6931.2	40	335	e		65	938.6	Balance to Cobden
20 lb 20 lb 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 lb 26 kg 26 lb 26 kg 26 lb 26 kg 26 kg		40		10	80.4	10			_			
20 lb 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 lb 27 kg 27 kg 26 lb 27 kg 27 kg		40		80	13659.2		4				5805.16	
52 Kg 52 H 52 H	20			80	13659.2		4	40 40	6829.6		6829.6	
52 H	2			20	323						323	_
				2	319.4			-	159.7	-	159.7	Balance to Mylor – 1
								_				
							-					
						_		_				
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			,					_				
TOTALS A\$					57292.22				30673.33	3	26170.26	

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									CONTR	Oland	
	Baroid			Ltd			S	OLIDS	VOLUM	OL and E ANAL	YSIS
AROLD)	COMPANY		rces Ltd						VOLUM		PAGE 1
		Langley-1								1	
		Otway Basi									1994
	CONT/RIG	Century Hig	13-May	14Mav	15-Mav	16-Mav	17-May	18-May	19-May	20-May	21-May
OLIDS CO	Screens	50,50'80	50.50.80	50,50,80	50,50,80	50,50,80	50,50,80	50,50,80	50,50,60	50250200	00000000
nakel i	Hrs	10.5	7.5		21	21	17	15	16.5	17	18
haker 2	Screens										
	Hrs									. <u> </u>	
haker 3	Screens										
	Hrs										
haker 4	Screens Hrs										
esander	U/F ppg	10.4	10.5		11.6	11.5	11.4	11.1	11.2	11.3	
0341401	bbi/hr	3.5	3.5		4.5	2.5	4	3	1.5	1.3	
	Hrs	1	1		12	21	17	11	15	12	
	bbl	4	4		54	53	68	<u>33</u> 11	<u>23</u> 11	16 10.7	
esilter 1.	U/F ppg	10.8	11.2		11.4 5	11.4 7	11.1 6	6	4	3	
	bbl/hr	10	5 5		5 20	21	17	15	12	12	
	Hrs bbl	6.5 65	5 25		100	147	102	90	48	36	
Desilter 2.	U/F ppg	00									
Jeanler Z.	bbl/hr										
	Hrs										
	bbl							••••••••••••••••••••••••••••••••••••••			
Centrifuge 1	Feed ppg										
	O/F ppg										
	U/F ppg										
	bbl/hr										
	Hrs bbl										
Centrifuge 2	Feed ppg										
Jentrituge 2	O/F ppg										
	U/F ppg										
	bbl/hr										
	Hrs				ļ						
	bbl				45. 14-14	40 140	17-May	18-May	19-May	20-May	21-May
VOLUMES		12-May 128	<u>13-May</u> 84	14-May 84	<u>15-May</u> 145		272	288	296	312	312
Downhole Vo nitial Reserv		120	04			74	74	74	34	14	14
Added:	Act Mud										
	Seawater										
	Drill-Water				135	130	60	220	200		
	other				1	1		1	1		
	other				- 1			. 1			
	other Chemical				5	4	74		14	14	14
	other Chemical		000	206	74	4 74	74	34	14 374	14 374	14 389
nitial Active	other Chemical e		220	336	74 336	4 74 450			14 374 221		
nitial Active	other Chemical e Res Mud		220	336	74	4 74	74 450	34 350	374	374	
Final Reserve nitial Active Added:	other Chemical e Res Mud Seawater	425	220	336	74 336	4 74 450	74 450	34 350	374		
nitial Active	other Chemical e Res Mud	425		336	74 336 66	4 74 450 134	74 450 61	34 350	374	374	
nitial Active	other Chemical e Res Mud Seawater Drill-Water			336	74 336 66	4 74 450 134	74 450 61	34 350	374	374 80	
nitial Active	other Chemical e Res Mud Seawater Drill-Water other	4	400	336	74 336 66 435	4 74 450 134 250	74 450 61 120	34 350 261	<u>374</u> 221	374 80 3	
nitial Active Added:	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control	4	400	336	74 336 66 435 154	4 74 450 134 250 200	74 450 61 120 170	34 350 261 123	374 221 71	374 80	389
nitial Active Added:	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped	4 69 12	400	336	74 336 66 435	4 74 450 134 250 200 51	74 450 61 120 170 47	34 350 261 123 63	374 221 71 82	374 80 3	389
nitial Active Added: Adses:	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control	4 69 12	400 29 299		74 336 66 435 154 172	4 74 450 134 250 200 51 50	74 450 61 120 170 47 20	34 350 261 123 63 35	374 221 71 82 60	374 80 3	389
nitial Active Added: _osses: \$	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12 220	400 29 299 336	336	74 336 66 435 154 172 450	4 74 450 134 250 200 51 50 450	74 450 61 120 170 47 20 350	34 350 261 123 63	374 221 71 82	374 80 <u>3</u> 52	389 60 18
nitial Active Added: _osses: \$ Final Active Total Final V	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12	400 29 299		74 336 66 435 154 172	4 74 450 134 250 200 51 50 450	74 450 61 120 170 47 20 350	34 350 261 123 63 35 374	374 221 71 82 60 374 388	374 80 3 52 389 403	389 60 18 311 325
nitial Active Added: _osses: \$ _inal Active Total Final V DILUTION	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12 220 220	400 29 299 <u>336</u> 336	336	74 336 66 435 154 172 450	4 74 450 134 250 200 51 50 450	74 450 61 120 170 47 20 350	34 350 261 123 63 35 374	374 221 71 82 60 374 388 Sect 2.	374 80 3 52 389 403 Sect 2.	389 60 18 311 325 Sect 2.
nitial Active Added: Losses: S Final Active Fotal Final V DILUTION Interval Type	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12 220 220 Sect 1.	400 29 299 336 336 Sect 1.	<u>336</u> 336	74 336 66 435 154 172 450 524	4 74 450 134 250 200 51 50 450 524 Sect 2.	74 450 61 120 170 47 20 350 424	34 350 261 123 63 35 374 408	374 221 71 82 60 374 388 Sect 2. 1363	374 80 3 52 389 403 Sect 2. 1438	389 60 18 311 325
nitial Active Added: -osses: S Final Active Total Final V DILUTION nterval Type Depth m	other Chemical e Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12 220 220	400 29 299 <u>336</u> 336	336 336 Sect 2.	74 336 66 435 154 172 450 524 Sect 2.	4 74 450 134 250 200 51 50 450 524 Sect 2. 1062 372	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195	34 350 261 123 63 35 374 408 Sect 2. 1321 64	374 221 71 82 60 374 388 Sect 2. 1363 42	374 80 3 52 389 403 Sect 2. 1438 75	389 60 18 311 325 Sect 2. 1438
nitial Active Added: -osses: S Final Active Total Final V DILUTION nterval Type Depth m Daily drilled	other Chemical P Res Mud Seawater Drill-Water other other Chemical Solids Control Lost/Dumped DownHole	4 69 12 220 220 Sect 1. 223	400 29 299 336 336 336 Sect 1. 340	336 336 Sect 2.	74 336 66 435 154 172 450 524 Sect 2. 690 350 326	4 74 450 134 250 200 51 50 450 524 Sect 2. 1062 372 301	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195 237	34 350 261 123 63 35 374 408 Sect 2. 1321 64 221	374 221 71 82 60 374 388 Sect 2. 1363 42 213	374 80 3 52 389 403 Sect 2. 1438 75 52	389 60 18 311 325 Sect 2.
nitial Active Added: -osses: S Final Active Total Final V DILUTION nterval Type Depth m Daily drilled Daily Dilutior	other Chemical P Res Mud Seawater Drill-Water other ot	4 69 12 220 220 Sect 1. 223 218	400 29 299 336 336 Sect 1. 340 117	336 336 Sect 2. 340	74 336 66 435 154 172 450 524 Sect 2. 690 350	4 74 450 134 250 200 51 50 450 524 Sect 2. 1062 372 301 384	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195 237 181	34 350 261 123 63 35 374 408 Sect 2. 1321 64 221 221	374 221 71 82 60 374 388 Sect 2. 1363 42 213 201	374 80 3 52 389 403 Sect 2. 1438 75 52 83	389 60 18 311 325 Sect 2. 1438 78
nitial Active Added: -osses: S Final Active Total Final V DILUTION nterval Type Depth m Daily drilled Daily Dilutior Daily Consu	other Chemical e Res Mud Seawater Drill-Water other ot	4 69 12 220 220 Sect 1. 223 218 81	400 29 299 336 336 Sect 1. 340 117 328	336 336 Sect 2. 340	74 336 66 435 154 172 450 524 Sect 2. 690 350 326 575 350	4 74 450 134 250 51 50 450 524 Sect 2. 1062 372 301 384 722	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195 237 181 917	34 350 261 123 63 35 374 408 Sect 2. 1321 64 221 221 981	374 221 71 82 60 374 388 Sect 2. 1363 42 213 201 1023	374 80 3 52 389 403 Sect 2. 1438 75 52 83 1098	389 60 18 311 325 Sect 2. 1438 78 1098
nitial Active Added: -osses: S -inal Active Total Final V DILUTION nterval Type Depth m Daily drilled Daily Dilutior Daily Consu nterval Drille	other Chemical e Res Mud Seawater Drill-Water other ot	4 69 12 220 220 Sect 1. 223 218 81 429 218 81	400 29 299 336 336 336 Sect 1. 340 117 328 400	336 336 Sect 2. 340	74 336 66 435 154 172 450 524 Sect 2. 690 350 326 575 350 326	4 74 450 134 250 51 50 450 524 Sect 2. 1062 372 301 384 722 627	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195 237 181 917 864	34 350 261 123 63 35 374 408 Sect 2. 1321 64 221 221 981 1085	374 221 71 82 60 374 388 Sect 2. 1363 42 213 201 1023 1298	374 80 3 52 389 403 Sect 2. 1438 75 52 83 1098 1350	389 60 18 311 325 Sect 2. 1438 78 1098 1428
nitial Active Added: Added: Final Active Total Final V DiLUTION Interval Type Depth m Daily drilled Daily Dilutior Daily Consul Interval Drille Interval Dilut Rate bbl/m	other Chemical e Res Mud Seawater Drill-Water other other other Chemical Solids Control Lost/Dumped DownHole olume olume	4 69 12 220 220 Sect 1. 223 218 81 429 218	400 29 299 336 336 336 Sect 1. 340 117 328 400 335	336 336 Sect 2. 340	74 336 66 435 154 172 450 524 Sect 2. 690 350 326 575 350	4 74 450 134 250 51 50 450 524 Sect 2. 1062 372 301 384 722 627 0.87	74 450 61 120 170 47 20 350 424 Sect 2. 1257 195 237 181 917 864 0.94	34 350 261 123 63 35 374 408 Sect 2. 1321 64 221 221 981	374 221 71 82 60 374 388 Sect 2. 1363 42 213 201 1023	374 80 3 52 389 403 Sect 2. 1438 75 52 83 1098	389 60 18 311 325 Sect 2. 1438 78 1098

PARUL	Baroid COMPANY WELL LOCATION	GFE Reso Langley-	urces Ltd				S	OLIDS	CONTR	IE ANAL	YSIS PAGE 2
	CONT/RIG	Century B	ia 11								199
SOLIDS CO		00 May	29-May	24-May	25-May	26-May	27 - May	28-May	29-May	<u> 30 – May</u>	31 – Ma
Shaker 1	Screens	50x50x80	50x50x80	50x50x80	50x50x80	50x50x80	50x50x80	50x50x80	50X50X80	50250280	50x50x
Unaker i	Hrs	6	8	24	24	15	12	2	9	24	1
Shaker 2	Screens										
_	Hrs										
Shaker 3	Screens										
	Hrs								_		
Shaker 4	Screens										
	Hrs			44.0	11.1	11	10.7	10.7	10.9	11	10
Desander	U/F ppg			11.3		1.25	1.2	1.25	1.2	1.2	1
	bbl/hr			1	1.25	1.25	12	2	9	24	•
	Hrs			22	22 28	19	14	3	11	29	
	bbl			22	10.5	10.3	10.1	10	10.1	10.3	
Desilter 1.	U/F ppg			10.7	10.5	10.3	2	1.75	1.5	1.5	1
	bbl/hr			2	22	15	12	2	9	24	
	Hrs			12	44	30	24	4	14	36	
	bbl		L	24	44		24				
Desilter 2.	U/F ppg										
	bbl/hr										
	Hrs										
	bbl										
Centrifuge 1											
	O/F ppg										
	U/F ppg										
	bbl/hr										
	<u>Hrs</u>						<u> </u>				
	bbl										
Centrifuge 2											
	O/F ppg										
	U/F ppg										
	bbl/hr										
	Hrs										
	bbl	· · · ·	1,					00. 14-14	29-May	30-May	31-M
VOLUMES		22-May	<u>23 - May</u>	24-Mav	25-May	26-May		28-May	29-1VIAV 389	30-10/20	31-10
Downhole V		312				379			14		
Initial Reser		14	14	14	14	14	14	14	14	17	
Added:	Act Mud										
	Seawater										
	Drill-Water										
	other										
	other				1	i.					
	Chemical	<u> </u>	<u> </u>						14	14	
Final Reserv		14			14	14	14	14	389	419	4
Initial Active		311	308	308	419	371	437	419	309	419	
Added:	Res Mud										
	Seawater						1 10		90	83	
	Drill-Water			205	75	126	40	1	90	03	
	other										
	other						-		· ·	1	
	Chemical		5	9	4	4	3		2	65	
Losses:	Solids Control			46	72	49	38	7	25 30	25	1
	Lost/Dumped		5	30	30	1	20	23	30	20	
	DownHole		ļ	<u> </u>				389	419	419	3
		308				437	419		419	419	3
Final Active	/olume	322	322	433	385	451	433	403	403	400	
Total Final \					T.a :		0	Cost C	Cont C	Sect 2.	Sect 2
Total Final \ DILUTION			Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.		19 Sect 2
Total Final \ DILUTION Interval Typ	e	Sect 2.		1 1557	1666	1732	1745	1745	1779	1853	19
Total Final V DILUTION Interval Typ Depth m		Sect 2. 1438	1438	1557			13	1	34	74	
Total Final V DILUTION Interval Typ Depth m Daily drilled	lm	1438		119	109	66	1			1 00	1
Total Final V DILUTION Interval Typ Depth m Daily drilled Daily Dilutic	l m on bbl		5	119 76	102	49	58	30	55	90	
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Total Final \ DILUTION Interval Typ Depth m Daily drilled Daily Dilutic Daily Consu Interval Drill	l m on bbl umption bbl led m	1438 7 4 1098	5 5 1098	119 76 214 1217	102 79 1326	49 130 1392	58 43 1405	1405	92 1439	84 1513	
Total Final \ DILUTION Interval Typ Depth m Daily drilled Daily Dilutic Daily Consu	l m on bbl umption bbl led m	1438 7 4	5	119 76 214 1217 1516	102 79 1326 1618	49 130 1392 1667	58 43 1405 1725	1405 1755	92 1439 1810	84 1513 1900	15 19
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Total Final N DILUTION Interval Typ Depth m Daily drilled Daily Dilutic Daily Consu Interval Drill Interval Dilu Rate bbl/m	l m on bbl umption bbl led m ttion bbl	1438 7 4 1098 1435	5 5 <u>1098</u> 1440	119 76 214 1217 1516	102 79 1326 1618	49 130 1392 1667	58 43 1405 1725 1.23	1405 1755 1.25	92 1439 1810	84 1513 1900	19

	WELL LOCATION	GFE Reso Langley-1 Otway Bas	urces Ltd 1 sin, Victoria				S	OLIDS	CONTROL and MUD VOLUME ANALYSIS PAGE 3
	CONT/RIG	Century Ri	ia 11		- iun		oe lun	07-lun	1994 TOTALS
SOLIDS CO		01-Jun	02-Jun	03-Jun	04-Jun	05-JUI	06-Jun	E0v50x80	
Shaker 1	Screens			50x50x80	50x50xou	50x50x60	50x50x80	50x50x00	319.5
	Hrs	2	24	1.5	3	2	1.5		
Shaker 2	Screens Hrs				L				
Shaker 3	Screens Hrs						J		
Shaker 4	Screens Hrs						10.5	j	
Desander	U/F ppg	10.7	10.9	10.7	10.5	10.5	10.5		
	bbl/hr	1.2	1.2	1.2	1.2	1.2	1	1	246.5
	Hrs	2	24	1.5		1	1		442
	bbl	2	29	2		1	1		
Desilter 1.	U/F ppg	10	10.3	10.1	10	10	10 1.25	i	
	bbl/hr	1.5	1.5	1.5		1.5	1 1	1	255
	Hrs	2	24	1.5		1	1		865
	bbl	3	36	2	5	2	<u> </u>	<u>⊦-</u> }	+
Desilter 2.	U/F ppg bbl/hr								
,	Hrs	<i>'</i>					[]	[]	
O the second	bbl Feed ppg	<u> </u>						[]	
Centrifuge 1	O/F ppg U/F ppg bbl/hr Hrs								
	bbl				T		<u> </u> '	ļ'	<u></u>
Centrifuge 2	O/F ppg U/F ppg bbl/hr Hrs								
	bbl	C.f. hum		03-Jun	04–Jun	05-Jun	06-Jun	07-Jun	
VOLUMES		01-Jun 396		416	<u>04–Jun</u> 416				
Downhole Vo		14		410				14	
Initial Reserv									
Added:	Act Mud Seawater Drill-Water other other					L L			745
,	Chemical								12
Final Reserv	the second s	14	14	14	14	14			
Initial Active		371	385						
Added:	Res Mud				+				743
August.	Seawater Drill-Water other other	40	135			70	3		2625
	Chemical	1	4			1			45
Losses:	Solids Control				9	3	2		1307
	Lost/Dumped	1		1	3			4	
	DownHole				23				
Final Active		385	419	405					
Total Final V	olume	399			384	382	353	339	
DILUTION		1							
Interval Type		Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.	Sect 2.	
Depth m	,	1915			2006	2006	2006	2006	
Daily drilled	m	5	}						200
Daily Dilutio		25			35	73	32	14	
Daily Dilution		40	1	1		71		1	3427
		1575			1666			1666	,
		2010							
Interval Drille				6199					
Interval Dilut						1.33	1.35	1.36	
Interval Dilut Rate bbl/m		1.28	1.26	1.27	1.29				

TIES Page 1	+ 22	Z	24:00	1438	8.5	8	σ	45	P Q	P Q					Ŧ	-18	9	15	24	7.5	~	_		` _+-	4	8	8-	; ; ; ;	8.8	0.4	0.1	0.2	1.3	8	8	1.8	2.7	0.46/1	10.3
WATER BASE MUD PROPERTIES	15.40 23/05										<u> </u>												-						10									T	
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MUE	22/05						. σ						_					~	25	0	2		+			KO	2 -	- 0	8.8	5		0.2	5.5	80	80	0.7	2.6	2	4
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ITER	21/05			2 00	16	2 6	σ	45	24	100	 :				10	4	<u>თ</u>	20	8	<b></b>	2	_	_		4.0	- 40	3 -	- 0	8.8	0.45	0.1	0.2	5.7	80	80	8.0	2.6	0.50/1	4.6
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	20/05	Į	<u></u>		4	1	<u> </u>						-+		-						~	_	+		9.4 9.4		3 5	_	. 8.8	<u> </u>			1.5		8		1	0.47/0 0.	-+
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	19/05		24-00 12-				0	n g	B C	3 8	2				თ თ	Ŧ	우	<u>9</u>			~	+	-+		4.0	0	2.7	- 0	0	0.5	0.05			\$	\$		2.7	0.54/00	+
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	17/05		Ę			2	0	0 7 0	<del>2</del> 8		2				2	4	<u>ε</u>	ខ្ល	ଚ	12	~				6 6 6	8	ß 5		0	0.5	0.05	0.1	-	ജ	ន		2.7	0.45/1	
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	MELL La	T		=	+		╈										Q	~	~	c		c							T				5			ц г			3
Baroid company	3		IN or OUT	nrs	ε.	SUI	ç	bdd	sec/qt	Ib/100 ft2	15/100 ft2	1b/100 ft2	Ib/100 ft2	Ib/100 ft <sup>2</sup>	ۍ ۲	lb/100 ft2	Ib/100 ft2	Ib/100 ft2	Ib/100 ft2	ml/30min	32nd ins	ml/30min	32nd ins	ĥ	% Vol	0.84% Vol	% Vol	~ <u>~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ </u>			1 TE	Ē	ma/Lx10 <sup>3</sup>	ma/L	ma/L	% Wt Soln	g/cc		mg/Lx103
															sity						9		Cake			0.6						-		556			ds		0
			Sample Location	Time Sample I aken	Depth	Hole Size	Flowline Temp	Weight	Funnel Viscosity	600 rpm	300 rpm	100 mm	6 rom	3 mm	Plestic Viscosity	Yield Point	Gel - 10 sec	Gel - 10 min	Gel - 30 min	API Filtrate	API Filter Cake	HPHT Filtrate	HPHT Filter Cake	HPHT Temp	Solids	0il Content	Water	Sand	<u>Mernyiene biue cap</u>			Alk Mf	Chlorides	Total Hardness	Calcium	КQ	ASG of Solids	n & K	K+ Ion Conc

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Baroid AL	Istral	Australia Pty	/ Ed								1				5	ATE	R BA	WATER BASE MUD PROPERTIES	D PRC	PERT 	ES ES
GFE Resou	3 -	GFE Resources Ltd 1 and ev 1																		YEAR 1994	rage ∠ 31994
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Collaranty         GF Resources Ltd           WELL         Lengley-1           WELL         Lengley-1           Time Semple Taken         In         IN           Time Semple Taken         NorOUT         Dore           Time Semple Taken         NorOUT         Dore           Time Semple Taken         NorOUT         Dore           Dereh         m         2005         2006         2006           Dereh         m         2006         2006         2006           Dereh         m         2006         2006         2006           Dereh         m         2006         2006         2006           Dereh         MELL         41         41         41           Even         93         93         93         93           Son pm         Ib/100 ft?         34         48         50           Son pm         Ib/100 ft?         16         16         20           Son pm         Ib/100 ft?         37         33         33           Son pm         Ib/100 ft?         16         16         20           Ber?         100 ft?         16         16         20           Read	
Interpretation         Nor OUT	
Location         N or OUT         IN	
Exercise         18:35         19:0           ize         in         200:15         18:35         19:0           ize         in         2006         2006         2006         2006           ize         in         200.15         4.1         4.1         4.1           ize         in         b/100.42         9.3         9.3         9.3           in         b/100.42         50         4.8         4.4         4.4           in         b/100.42         50         4.8         4.4         4.4           in         b/100.42         54         4.8         4.4         4.4           in         b/100.42         54         3.3         3.5         3.5           in         b/100.42         16         16         17         17           in         b/100.42         16         16         16         16           coint         b/100.42         16         16         17         17           coint         b/100.42         16         16         16         17         17           coint         b/100.42         coint         b/100.42         16         17         17         16 </td <td></td>	
Title         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         2006         200         41<	
ise         is         8.5	
Emp         C         41         41         41           ppg         sec(st         89.3         9.4         9.4	
Ppg         9.3 <td></td>	
scosity         sec/qt         48         33         15         33	
By 100 H2         50         48           by 100 H2         by 100 H2         34         33           by 100 H2         by 100 H2         34         33           by 100 H2         by 100 H2         by 100 H2         34         33           by 100 H2         by 100 H2         by 100 H2         16         15           by 100 H2         by 100 H2         16         15         15           secsity         cP         16         16         16           min         by 100 H2         14         18         18           min         by 100 H2         14         13         1           min         by 100 H2         33         33         33           frate         m/30min         8         9         2         5           frate <t< td=""><td></td></t<>	
Ib/100 H2         Bb/100 H2         34         33         13	
Ib/100 ft2         Ib/100	
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Ib/100 ft2         Ib/100	
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Niscosity $cP$ 16         15         15           Point $lb/100 tt^2$ $lb/100 tt^$	
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ec lb/100 ft <sup>2</sup> 6 6 6 6 10/100 ft <sup>2</sup> 110 ft <sup>2</sup> 9 9 9 9 9 9 9 10 110 ft <sup>2</sup> 114 113 ft <sup>3</sup> 113 114 113 ft <sup>3</sup> 113 114 113 114 113 114 113 114 113 114 113 114 113 114 113 114 113 114 114	
Ib/100 ft²     1       Ib/100 ft²     14       Ib/20min     8       Ib/20min     8       Ib/100 ft²     5.7       Ib/20min     5.7       Ib/20min     5.7       Ib/20min     5.7       Ib/20min     0.1       Ib/20min     0.1       Ib/20min     0.1       Ib/20min     0.1       Ib/20min     0.1       Ib/20min     0.1       Ib/20min     0.2       Ib/20min	
Ib/100 ft2     14     13       ml/30min     8     8     8       ml/30min     8     8     8       ml/30min     2     2     2       iake     32nd ins     2     2     2       ml/30min     8     8     8     8       ml/30min     2     2     2     2       iake     32nd ins     2     2     2       % Vol     5.7     5.7     5.7     5       % Vol     0.1     0.1     11     0.1       ue cap     ppb     10     11     11       meter     0.3     0.3     0.3     0.3       modu     0.25     0.25     0.2       modu     50     50     50	
rate         ml/30min         8         7 <th7< th="">         7         <th7< th="">         7         7         <th7<< td=""><td></td></th7<<></th7<></th7<>	
ler Cake         32nd ins         2         2         2           Filtrate         ml/30min         2         2         2         2           Filtrate         ml/30min         7         3         2         2         2           Filter Cake         32nd ins         7         5         7	
Filtrate     ml/30min       Filtrate     ml/30min       Filter Cake     32nd ins       Temp     %       Void     5.7       Noi     93       % Void     0.1       % Void     0.3       % Mathematical	
Filter Cake         32nd ins         5.7	
Temp         F         5.7	
% Vol         5.7 </td <td></td>	
Itent         0.84% Vcl         93         94         93         94	
% Vol         93         93         93           % Vol         0.1         0.1         0.1         0.1           % Vol         0.1         0.1         0.1         0.1           % Vol         0.1         0.1         0.1         0.1           Mud Pm         meter         9         9.7         9           Id Pm         ml         0.3         0.3         0.3           frade         ml         0.25         0.2         0.2           features         mg/L         50         50         50	
% Vol         0.1         0.1         0.1         0.1           lene Blue cap         ppb         10         11         1           ud Pm         meter         9         9.7         9         8.7           ud Pm         ml         0.3         0.3         0.3         0         9           ud Pm         ml         0.3         0.3         0.3         0         9           itrate Pt         ml         0.25         0.25         0.2         0         6           f         ml         0.55         0.5         0         6         1         1           des         mg/L         50         50         50         50         50         1         50	
cap         ppb         10         11           meter         9         9.7         9           ml         0.3         9         9.7           ml         0.3         0.3         0.3           ml         0.355         0.3         9           ml         0.555         0.6         15           mg/L         50         50         50	
meter         9         8.7         9           ml         0.3         0.3         0.3           ml         0.25         0.2         0.3           ml         0.25         0.2         0.2           ml         0.55         0.2         0.5           mg/L         50         50         50	
d Pm         ml         0.3         0.3         0.3           ele Pf         ml         0.25         0.2         0.2           ele Pf         ml         0.25         0.2         0.2           es         mg/Lx10 <sup>3</sup> 15         15         15           erdness         mg/L         50         50         50	
rate Pf         ml         0.25         0.2           ml         0.55         0.6         -           es         mg/Lx10 <sup>3</sup> 15         15           erdness         mg/L         50         50	
es mg/L 0.55 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6 0.6	
the second secon	
dness mg/L 50 50 50 mg/L 50	
mo/l 50 50	
% Wt Soln 2.6 2.6	
i of Solids	
0.56/1 0.54/1 0	
K+ Ion Conc mg/Lx10 <sup>3</sup> 14.9 14.9 14.9	

	COMPANY WELL LOCATION CONT/RIG		lesources	s Ltd															
))	LOCATIC CONT/F																		
			Otway Basin, Victoria Century Rig 11	lictoria													DATES	: FROM TO	1 12-May-94 0 07-Jun-94
BIT No.	BIT MAKE SIZE	KE	Ш а	JEIS			DR D	RES P	BATE Inder	ACC DRLG X HRS	W0B F x1000	APM VERT DEV.			PUMP MUD RATE WT bbl/min ppg	UD MUD T VIS		8. REWARK	CONDITION & REMARKS
RR# 1 1	12.25 SEC	S33SF		3x20		340	<del>6</del>			Ь	15-20	120 0	<u> </u>	575					
			ETD-417 1	1x11 2x13	340	1257	917	47	19.5	59.5	20			750					
RR# 2			417	1x11 2x13	1257	1363	106	19.5	5.4	6/	10			1025					
e				1x11 2x13	1363	1438	75	14.5	5.2	93.5	15			600					
4				1x11 2x13	1438	1732	294	57	5.2	150.5	15			900		9.3 50		• ₩ TOT # •	
ں م	8.5 SEC	S82F		1X11 2X13 CODE BIT	1/32	1/45	2 0	0.0	0 F	155	20 13	0.00	0 u	000 625	0.02 6.46	0.0 0.3 0.4 0.4		11/10/11/11/11/10/10/1 # 1.20% Core	
0 88 # 5				1x11 2x13	1764	1910	146	44	3.3	199	25			1100				T2/B2/IN Trip for DST # 2.	
RR# 7			517	3x13	1910	2006	96	21	4.6	220	20			1100			48 T2/B4/1 1/16 T.D.	T.D.	
RR # 7				3X13	2006	2006						100		1125		9.3 48		iper Trip	
						1											-		

.

#### DIRECTIONAL SURVEYS

### Baroid Australia Pty Ltd COMPANY GFE Resources Ltd

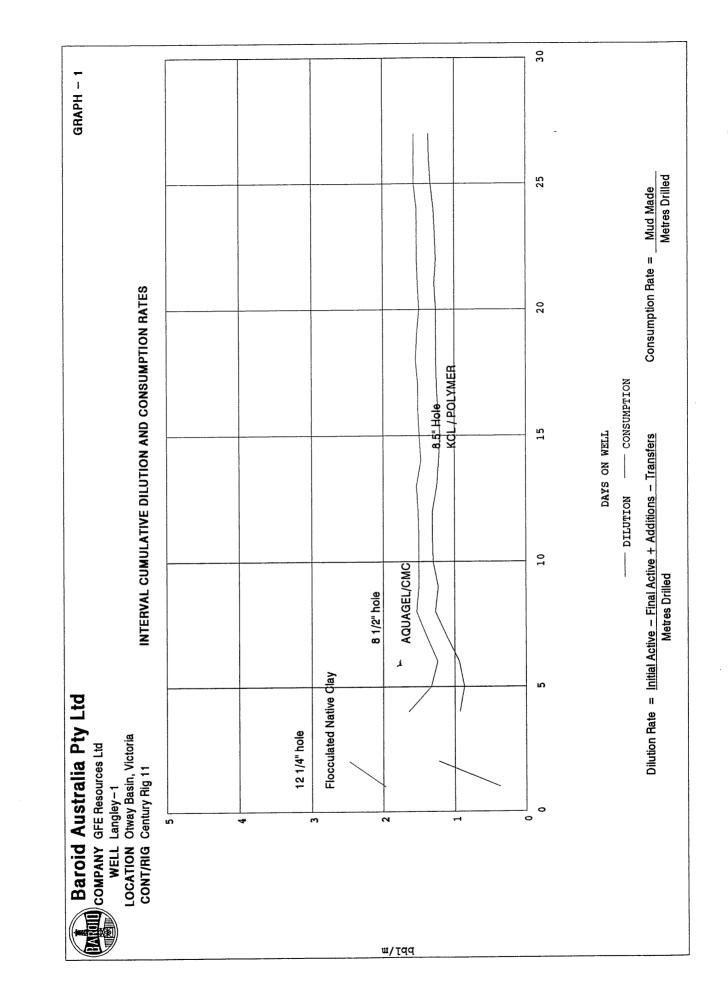
COMPANY GFE Resources Ltd WELL Langley-1 LOCATION Otway Basin, Victoria CONT/RIG Century Rig 11

PAGE-1

	MD m	TVD m	INCL°	DIR °	DISP m	
	248		0.25			
	335		0.75			
	391		1			
	468		0.75			
	515		0.5			
	660		1			
	708		1			
	870		0.5			
	1004		1.5			
	1033		2			
	1091		1.5			
	1158		0.5			
	1196		1			
	1228		1.5			
	1244		1.25			
	1276		1			
	1305		1.75			
	1331		1.75			
	1363		1.75			
	1527	1527	2			
	1610	1610	1.5			
	1808	1808	0.75			
	2000	2000	1			
1	2000	2000	•			

¥



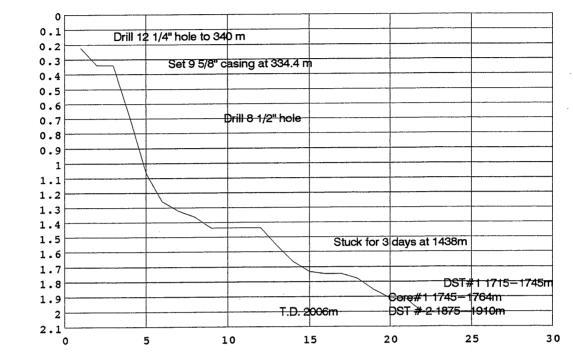




(Thousands)

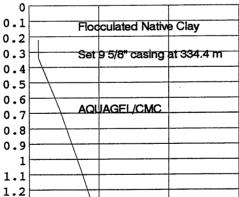
Depth m

Baroid Australia Pty Ltd COMPANY GFE Resources Ltd WELL Langley-1 LOCATION Otway Basin, Victoria CONT/RIG Century Rig 11



**DEPTH vs DAYS** 

Days on Well



5

**DEPTH vs COST** 

£

Convert to KCI/Polymer from 1400 m

KCL / POLYMER

30

35

T.D.2006m

25

(Thousands) Depth m

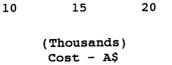
11

1.3 1.4 1.5 1.6 1.7 1.8

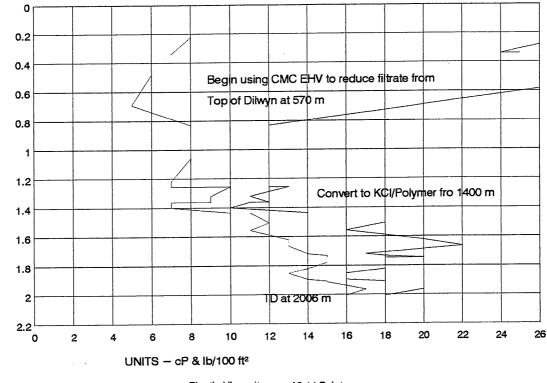
1.9

2 2.1

0



GRAPH - 2



#### Depth vs Plastic Viscosity & Yield Point

**Baroid Australia Pty Ltd** 

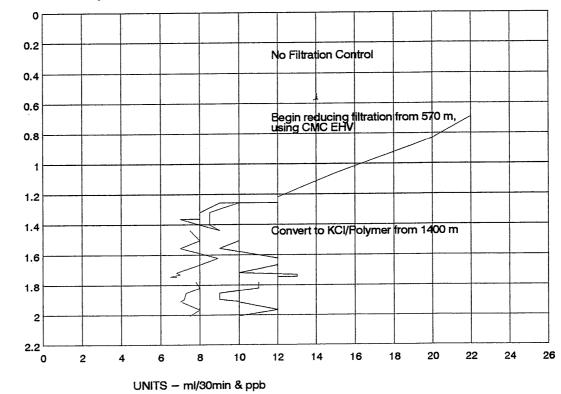
COMPANY GFE Resources Ltd WELL Langley-1



Depth-m (Thousands)



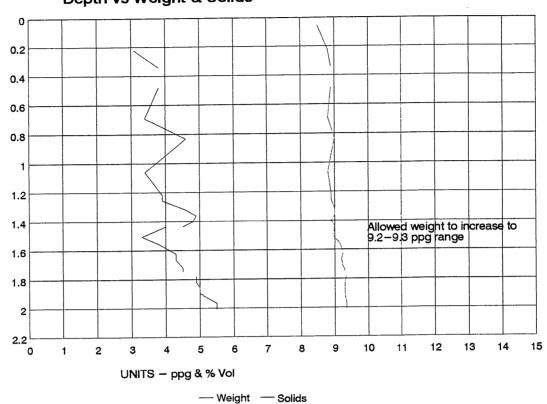




---- API Filtrate ---- Methylene Blue cap

# Baroid Australia Pty Ltd

COMPANY GFE Resources Ltd WELL Langley-1



# Depth-m (Thousands)

Depth vs Chlorides & KCL



0 0.2 0.4 Ł 0.6 0.8 Fresh Water AQUAGEL/CMC EHV 1 1.2 Convert to KCI/Polymer from 1400 m 1.4 Increased KCI to 3.2% 1.6 1.8  $\leq$ 2 2.2 24 26 14 16 18 20 22 8 10 12 2 6 0 4 UNITS - mg/Lx103 & % Wt Soln



GRAPH - 4



Depth vs Weight & Solids



BARUIU		أحطما	ᇥᇝᇝ	4 + 4	ŀ				0			
Num Zum 7/	Baroid A	ustra	na Pt	y Lta		DATE 13/5/94	DEPTH		ID 223	3 T	VD 22	3
						START DATE	ACTIVI					
		7	CONTRA	CTOR / RIG	3	12-May-94	COUN					
OPERATOR			CONTRA Century R				Australi					
GFE Resources Ltd REPORT FOR			REPORT				TOWN					
Ken Smith			S. Kelly				Port Ca	mpbeil				
WELL NAME AND	NO.			BLOCK	10.		LOCAT					
Langley-1			PPL 1					Basin, Vi	_	-		
BIT DATA	DRILLIN	IG STRING			CASINGS			UMP D			·····	
Size 12.250 ins	OD ins	ID ins	Length m	Size ins		Depth m Pump Make			95		9m   811	4.7
Type S33 SF	Pipe 1 4.5	4.367	12.1	Riser	Set @		5.5	7.75		0.004	84	5.9
Nozzles 32nds	Pipe 2 4.5	2.875	55.78		Set @	Nat 8P80		8.5	95	0.0705	- 04	0.9
20 20 20	Pipe 3				Set @		450 ppi		TOT	AL bbl/min	l	10.6
	Col 1 6.25	2.875	155.1		Set @		bbl	CIRCU		NG DATA		10.0
	Col 2		2010		Set @			Total cire			V m	/min
Noz Area 0.35 ins <sup>2</sup>		LE SECTIO	JNS		Set @ Set @			Bottoms		-	DP	
TFA ins <sup>2</sup>	Sect 1			Liner	Set @			Surface	•		DC	67
NV m/sec 82.9	Sect 2	12.25	223	Linei	Top @		1	ECD pp		1	liser	
Impact Ib f 379	Current		223 MUD PRO	PERTIES	100 @		PROPER					
Comple Least-	IN or OUT	IN		IN		WEIGHT ppg	VIS	SE		YP	1	b/100
Sample Location		16:00		24:00		API Filt ml	HTHP	m		KCL.	9	6
Time Sample Taken	nrs	53		223		BY AUTHORITY						
Depth Flowling Temp	 °C					REMARKS						
Flowline Temp		8.50		8.80		Attended GFE pre-sp	ud and sa	fety mee	eting.			
Weight Funnel Viscosity	ppg sec/qt	28		40					-			
Plastic Viscosity	sec/qt cP			8		Spudded in with water						
Yield Point	lb/100 ft <sup>2</sup>	1		28		at about 50 m. Addeo	40 sxs KC	CI as drill	ing of	marl bega	in, the	n
Gels 10 sec/10min/3	the second s			12/14/15		continued drilling mar	l, diluting p	periodica	ally wit	h water an	d add	ing
API Filtrate	ml/30min			NC		Lime to maintain highl	y flocculat	ed syste	m.			
HPHT Filtrate	mi/30min					No downhole losses of	luring drilli	ng of lim	eston	e. Viscosi	ty of n	nud
API/HPHT Filter Cak	e 32nd ins					while drilling marl mai	ntained in	40 to 45	secor	nd range.	This w	as
Solids	% Vol			3.1		higher than anticipate	d but mud	weight a	and so	olids conte	nt was	still
Dissolved Salts	% Vol			0.4		low. Large amounts o		firm to si	ignuy	son mari c	cutting	s
0il Content/Water Co		[	ļ	-/96.5		were returned at the s		- فاست و معمد ا	•h		-	nc <sup>,</sup>
Sand	% Vol			0.1		There was no actual d						nour
Methylene Blue cap		I		10		water were used to ho					ungs	
рН	meter			11.5		continually forming or	i ine gratin	y in tron	ii of th	e snaker.		
Alk. Mud Pm	mi	. <b> </b>		2.60		ACTIVITY Spud in with water at	13.30 bro d	ftor pro		t meeting	Drille	d
Alk. Filtrate, Pf/Mf	mi			1.30/1.35		Spud in with water at 12 1/4" hole through li						
Chlorides	mg/Lx10 <sup>3</sup>	· [		4.5 700/700		12 1/4 Note through It	meatone a				•	
Total Hardness/Calc	<u>sium mg/L</u> % Wt Soln	1		0.8								
KCL	76 VVL SUIT	1										
		1										
·····	·····											
Rheometer	600 rpm/300 rpm			44/36								
lb/100 ft <sup>2</sup>	200 rpm/100 rpm											
	6 rpm/3 rpm											
	INVENTORY AN									CONSUM	07.4	
		LUCCD	REC	BAL	COST			tive Clay	. /		ur 110	
	IPTION	USED		1								
AQUAGEL,sx	IPTION 25 kg		432	432		SOLIDS CONTROL E	QUIPME	NT		Additions		
AQUAGEL,sx BARACIDE	IPTION 25 kg 25 kg		432 1	1		Make	EQUIPME screen	NT size hi	rs	Additions Sea W.		bbl
AQUAGEL,sx BARACIDE BARACOR 129	IPTION 25 kg 25 kg 25 kg		432 1 8	1		Make Shaker 1	QUIPME	NT size hi	rs	Additions Sea W. Drill W.		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx	IPTION 25 kg 25 kg 25 kg 50 kg		432 1 8 200	1 8 200		Make Shaker 1 Shaker 2	EQUIPME screen	NT size hi	rs	Additions Sea W. Drill W. other		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx	IPTION 25 kg 25 kg 25 kg 50 kg 25 kg		432 1 8 200 400	1 8 200 400		Make Shaker 1 Shaker 2 Shaker 3	EQUIPME screen	NT size hi	rs	Additions Sea W. Drill W. other other		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda	IPTION 25 kg 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg		432 1 8 200 400 40	1 8 200 400 40		Make Shaker 1 Shaker 2 Shaker 3 Shaker 4	SCREEN 50,50'8	NT size hi 30	rs 10.5	Additions Sea W. Drill W. other other Barite		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV	IPTION 25 kg 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 25 kg		432 1 8 200 400 40 40	1 8 200 400 40 40 49		Make Shaker 1 Shaker 2 Shaker 3 Shaker 4 PPg	EQUIPME screen 50,50's bbl/hr	NT size hi	rs 10.5	Additions Sea W. Drill W. other other		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT	IPTION 25 kg 25 kg 25 kg 20 kg 25 kg 25 kg 25 kg 25 kg 26 kg 208 lt		432 1 8 200 400 40 40 40 2	1 8 200 400 40 40 49 2	577 6	Make Shaker 1 Shaker 2 Shaker 3 Shaker 4 PP9 Desander 10.	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hi 30 hrs bi	rs 10.5 bl	Additions Sea W. Drill W. other other Barite Chemicals		bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx)	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg	40	432 1 8 200 400 40 40 2 2 360	1 8 200 400 40 40 49	577.6	Make Shaker 1 Shaker 2 Shaker 3 Shaker 4 PPg	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hi 30 hrs bi 1	rs 10.5 bl 4	Additions Sea W. Drill W. other other Barite Chemicals Losses	5	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime	IPTION 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 25 kg		432 1 8 200 400 40 40 2 2 360 10	1 8 200 400 40 40 49 2	577.6 80.4	Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hi 30 hrs bi 1	rs 10.5 bl	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con.	s	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R	IPTION 25 kg 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 50 kg 50 lb	40	432 1 8 200 400 40 40 2 2 360	1 8 200 400 40 40 2 320		Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander     10.       Desilter 1.     10.	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hi 30 hrs bi 1	rs 10.5 bl	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con. Lost/Dum	s	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL, Tech(sx) Lime PAC -R PAC -L	IPTION 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 50 lb 50 lb	40	432 1 8 200 400 40 40 2 2 360 10 40	1 8 200 400 40 40 2 320 320 40		Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.       Centrifuge 1	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hi 30 hrs bi 1	rs 10.5 bl	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol	s ped	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL, Tech(sx) Lime PAC -R PAC -L	IPTION 25 kg 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 50 kg 50 lb	40	432 1 8 200 400 40 40 2 360 10 10 40	1 8 200 400 40 40 2 320 320 40 40		Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.       Centrifuge 1	EQUIPME screen 50,50'8 bbl/hr 4 3.5	NT size hu 30 hrs bi 1 6.5	rs 10.5 bl 4 65	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole NET GAII	s ped e N ed	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT (CL,Tech(sx) ime PAC -R PAC -L Soda Ash	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 25 kg 208 lt 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg	40	432 1 8 200 400 40 40 2 360 10 10 40	1 8 200 400 40 40 2 320 320 40 40	80.4	Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.       Centrifuge 1       Centrifuge 2	EQUIPME screen 50,50'6 bbl/hr 4 3.5 8 10	NT size hu 30 hrs bi 1 6.5	rs 10.5 bl 4 65	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole	s ped e N ed	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT CCL,Tech(sx) Lime PAC-R PAC-L Soda Ash BAROID Eng	IPTION 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 25 kg 50 lb 50 lb 25 kg	40 10 	432 1 8 200 400 40 40 40 40 360 10 40 40 20	1 8 200 400 40 2 320 40 40 40 20 WAREHOL	80.4	Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.       Centrifuge 1       Centrifuge 2       Solids Control Effic.       DAILY C	EQUIPME screen 50,50'6 bbl/hr 4 3.5 8 10 50,50'6 50,50'70,50'7 50,50'7 50,50'7 50,50'7	NT size hi 30	10.5 10.5 bl 4 65 6 VIM()	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole NET GAI Daschay LATIVE CO	s ped e N ed	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R PAC-L Soda Ash	IPTION 25 kg 25 kg 50 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 25 kg 50 lb 50 lb 25 kg	40	432 1 8 200 400 40 40 40 40 360 10 40 40 20	1 8 200 400 40 40 2 320 320 40 40 20	80.4	Make       Shaker 1       Shaker 2       Shaker 3       Shaker 4       Desander       10.       Desilter 1.       10.       Desilter 2.       Centrifuge 1       Centrifuge 2       Solids Control Effic.       DAILY C	EQUIPME screen 50,50'6 bbl/hr 4 3.5 8 10	NT size hi 30	10.5 10.5 bl 4 65 6 VIM()	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole NET GAII	s ped e N ed	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CMC EHV EZ SPOT (CL,Tech(sx) ime PAC -R PAC -L Soda Ash BAROID Eng M. Olejniczak Tel. 059-787103	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 208 lt 25 kg 25 kg 20 kg	40 10 0FFICE Melbourne 03-62133	432 1 8 200 400 400 40 40 40 20 360 10 40 20 	1 8 200 400 40 2 320 40 40 20 20 WAREHOL Adelaide 08-47743	80.4	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4	EQUIPME screen 50,50'c bbl/hr 4 3.5 8 10 0ST 3.00	NT size hi 30 hrs bl 1 6.5 % C A	10.5 10.5 65 65	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol NET GAII Dischart A TIVE CC 6b38.00	s ped e N ed DS1	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CAUSTIC Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC -R PAC -R PAC -L Soda Ash BAROID Eng M. Olejniczak Tel. 059 - 787103 THE RECOMMENDAT	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 26 kg 26 kg 27 kg 28 kg 29 kg 20 lb 20 lb 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 20 lb 25 kg 25 kg 25 kg 26 kg 26 kg 27 kg 27 kg 28 kg 29 kg 20 lb 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg	40 10 0FFICE Melbourne 03-62133 N SHALL NC	432 1 8 200 400 40 40 40 40 40 40 20 5 11 DT BE CONS	1 8 200 400 40 2 320 40 40 20 20 WAREHOL Adelaide 08-4774: STRUED AS 3	80.4 JSE 33 AUTHORIZII	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4	EQUIPME screen 50,50'E bbl/hr 4 3.5 8 10 0ST 3.00	NT size hi 30 hrs bi 1 6.5 % C A	rs 10.5 bl 4 65 65 0 0 UMUI UMUI	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Nethols Nethols Alight Col Col Sol Con. Lost/Dum Down Hol Nethols Col Sol Con. Lost/Dum Down Hol Col Sol Con. Lost/Dum Down Hol Nethols Col Sol Con. Lost/Dum Col Sol Col Sol Co	s ped e N ed DS1	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CAUSTIC Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC -R PAC -R PAC -L Soda Ash BAROID Eng M. Olejniczak Tel. 059 - 787103 THE RECOMMENDAT	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 26 kg 26 kg 27 kg 28 kg 29 kg 20 lb 20 lb 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 20 lb 25 kg 25 kg 25 kg 26 kg 26 kg 27 kg 27 kg 28 kg 29 kg 20 lb 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg	40 10 0FFICE Melbourne 03-62133 N SHALL NC	432 1 8 200 400 40 40 40 40 40 40 20 5 11 DT BE CONS	1 8 200 400 40 2 320 40 40 20 20 WAREHOL Adelaide 08-4774: STRUED AS 3	80.4 JSE 33 AUTHORIZII	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4	EQUIPME screen 50,50'E bbl/hr 4 3.5 8 10 0ST 3.00	NT size hi 30 hrs bi 1 6.5 % C A	rs 10.5 bl 4 65 65 0 0 UMUI UMUI	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Nethols Nethols Alight Col Col Sol Con. Lost/Dum Down Hol Nethols Col Sol Con. Lost/Dum Down Hol Col Sol Con. Lost/Dum Down Hol Nethols Col Sol Con. Lost/Dum Col Sol Col Sol Co	s ped e N ed DS1	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CAUSTIC Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC -R PAC -R PAC -L Soda Ash BAROID Eng M. Olejniczak Tel. 059 - 787103 THE RECOMMENDAT	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 26 kg 26 kg 27 kg 28 kg 29 kg 20 lb 20 lb 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 20 lb 25 kg 25 kg 25 kg 26 kg 26 kg 27 kg 27 kg 28 kg 29 kg 20 lb 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROI	432 1 8 200 400 400 2 360 10 40 40 20 	1 8 200 400 40 2 320 40 40 20 20 WAREHOL Adelaide 08-4774: STRUED AS 3	80.4 JSE 33 AUTHORIZII	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4	EQUIPME screen 50,50'E bbl/hr 4 3.5 8 10 0 ST 3.00 DF ANY VAI MENTS OF	NT size hi 30 hrs bl 1 6.5 9 C A LID PATE OPINION	10.5 10.5 4 65 6 UMUJI	Additions Sea W. Drill W. other Barite Chemicala Losses Sol. Con. Lost/Dum Down Hol Newhole NET GAIL NET GAIL ATIVE CO 6158.00	s ped e M ed JST	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Caustic Soda CAUSTIC Soda CMC EHV EZ SPOT KCL,Tech(sx) ime PAC – R PAC – L Soda Ash BAROID Eng M. Olejniczak Tel. 059 – 787103 THE RECOMMENDAT MITHOUT ASSUMPTIO	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 25 kg 208 lt 25 kg 50 lb 50 lb 25 kg 1000S MADE HERECON ON OF ANY LIABILIT	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROII	432 1 8 200 400 400 40 40 40 40 10 40 40 20 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 1	1 8 200 400 40 2 320 40 40 20 40 20 WAREHOL Adelaide 08 - 47743 STRUED AS A FLUIDS, INC	33 AUTHORIZIN C OR IT'S AG	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4  Desander 10 Desilter 1. 10 Desilter 2. Centrifuge 1 Centrifuge 1 Centrifuge 2 Solids Control Effic. DAILY C A\$ 65E	EQUIPME screen 50,50'E bbl/hr 4 3.5 8 10 0ST 3.00 DF ANY VAI MENTS OF NALYSIS	NT size hi 30 hrs bi 1 6.5 3 C C C C C C LID PATE OPINION	10.5 10.5 bl 4 65 65 6 UMUI UMUI \$ NT, AN ONLY IME E	Additions Sea W. Drill W. other Barite Chemical Losses Sol. Con. Lost/Dum Down Hol Netr GAL Daschay LATIVE C6 Lis8.00	s ped e M ed JST	bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R PAC-R PAC-L Soda Ash BAROID Eng M. Olejniczak THE RECOMMENDAT WITHOUT ASSUMPTIO RESERVE PITS	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 208 lt 25 kg 208 lt 25 kg 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 26 kg 26 kg 27 kg 28 kg 29 kg 20 lb 20 lb 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg 20 lb 25 kg 25 kg 25 kg 26 kg 26 kg 27 kg 27 kg 28 kg 29 kg 20 lb 20 lb 25 kg 20 lb 20 lb 25 kg 20 lb 25 kg 20 lb 25 kg 25 kg	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROI	432 1 8 200 400 400 2 360 10 40 40 20 	1 8 200 400 40 2 320 40 40 20 20 WAREHOL Adelaide 08-4774: STRUED AS 3	80.4 JSE 33 AUTHORIZII	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4 Desander 10 Desilter 1. 10 Desilter 1. 10 Desilter 2. Centrifuge 1 Centrifuge 2 Solids Control Effic. DAILY C A\$ 658 VG THE INFRINGEMENT 0 SENTS, AND ARE STATEM SOLIDS AI Low Grav. Solids	EQUIPME screen 50,50'6 bbl/hr 4 3.5 8 10 0 SOST 8,00 DF ANY VAI 2 S,00 DF ANY VAI 2 S,00	NT size hi 30 hrs b 1 6.5 2 C C A LID PATE OPINION TT 2.9 [	10.5 10.5 bl 4 65 6 5 0 1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1 1	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole NET GAI Daschauj Chascha	s ped e M ed JST	bbi 
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R PAC-R PAC-L Soda Ash BAROID Eng M. Olejniczak Tel. 059-787103 THE RECOMMENDAT WITHOUT ASSUMPTIO RESERVE PITS	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 25 kg 208 lt 25 kg 50 lb 50 lb 25 kg 1000S MADE HERECON ON OF ANY LIABILIT	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROII	432 1 8 200 400 400 40 40 40 40 10 40 40 20 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 1	1 8 200 400 40 2 320 40 40 20 40 20 WAREHOL Adelaide 08 - 47743 STRUED AS A FLUIDS, INC	33 AUTHORIZIN C OR IT'S AG	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4  Desander 10 Desilter 1. 10 Desilter 2. Centrifuge 1 Centrifuge 2 Solids Control Effic. DAILY C A\$ 65E VG THE INFRINGEMENT 0 ENTS, AND ARE STATEM SOLIDS AI Low Grav. Solids Low Grav. Solids	EQUIPME screen 50,50'c bbl/hr 4 3.5 8 10 0ST 8.00 DF ANY VAI ENTS OF NALYSIS % Vol 2 ppb 3	NT size hi 30 hrs b 1 6.5 2 C C C C C C C C C C C C C	ID.5 10.5 bl 4 65 6 UMUJI 4 65 6 UMUJI 1 S 10 10 10 10 10 10 10 10 10 10	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol NET GAI Dawn Hol NET GAI Dayschay LATIVE Cf 6158.00	s ped e M ed JST	bbi 
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R PAC-R PAC-L Soda Ash BAROID Eng M. Olejniczak Tel. 059-787103 THE RECOMMENDAT WITHOUT ASSUMPTIC RESERVE PITS NO TYPE	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 25 kg 208 lt 25 kg 50 lb 50 lb 25 kg 1000S MADE HERECON ON OF ANY LIABILIT	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROII	432 1 8 200 400 400 40 40 40 40 10 40 40 20 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 1	1 8 200 400 40 2 320 40 40 20 40 20 WAREHOL Adelaide 08 - 47743 STRUED AS A FLUIDS, INC	33 AUTHORIZIN C OR IT'S AG	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4 PP9 Desander 10 Desilter 1. 10 Desilter 2. Centrifuge 1 Centrifuge 2 Solids Control Effic. DAILY C A\$ 65E VG THE INFRINGEMENT 0 SENTS, AND ARE STATEM SOLIDS AI Low Grav. Solids Low Grav. Solids High Grav. Solids	EQUIPME screen 50,50'c bbl/hr 4 3.5 8 10 0 SOST 3.00 DF ANY VAI 2 SOO DF ANY VAI 2 SOO DF ANY VAI 2 SOO DF ANY VAI 2 SOO 3 SOOO 3 SOO 3 SOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO 3 SOOO SOOO SOOO SOOO SOOO SOOO SOO S	NT size hi 0 1 hrs b 1 6.5 % C A LID PATE OPINION TT 2.9 [] 26.4 [] 26.4 [] 0.2 [] F	IS 10.5 bl 4 65 6 UMUJI 4 65 6 UMUJI 4 6 UMUJI 1 1 1 1 1 1 1 1 1 1 1 1 1	Additions Sea W. Drill W. other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol NGT GAII Dayschart LATIVE CC 6058.00 HD ARE MAL	s ped e M ed JST	N bbl bbl
AQUAGEL,sx BARACIDE BARACOR 129 Barite,sx Barite,sx Caustic Soda CMC EHV EZ SPOT KCL,Tech(sx) Lime PAC-R PAC-R PAC-L Soda Ash BAROID Eng M. Olejniczak Tel. 059-787103 THE RECOMMENDAT WITHOUT ASSUMPTIC RESERVE PITS NO TYPE	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 25 kg 208 lt 25 kg 50 lb 50 lb 25 kg 1000S MADE HERECON ON OF ANY LIABILIT	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROII	432 1 8 200 400 400 40 40 40 40 10 40 40 20 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 1	1 8 200 400 40 2 320 40 40 20 40 20 WAREHOL Adelaide 08 - 47743 STRUED AS A FLUIDS, INC	33 AUTHORIZIN C OR IT'S AG	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4	EQUIPME screen 50,50'E bbl/hr 4 3,5 8 10 COST 3,00 DF ANY VAI MENTS OF % Vol ( ppb 2 % Vol ( ppb 2	NT size hi 30 hrs bl 1 6.5 2 C A LID PATE OPINION TT 2.9 26.4 C 2.2 F 2.9 F	ID.5 10.5 10.5 4 65 4 65 4 65 4 65 4 10 10 10 10 10 10 10 10 10 10	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole Mown Hol Newhole Align GAII Dayschauj LATIVE CC 6158.00	s ped e M ed JST	bbl
M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTION RESERVE PITS NO TYPE	IPTION 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 25 kg 26 kg 25 kg 208 lt 25 kg 50 lb 50 lb 25 kg 1000S MADE HERECON ON OF ANY LIABILIT	40 10 0FFICE Melbourne 03-62133 NN SHALL NC Y BY BAROII	432 1 8 200 400 400 40 40 40 40 10 40 40 20 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 40 10 10 10 10 10 10 10 10 10 1	1 8 200 400 40 2 320 40 40 20 40 20 WAREHOL Adelaide 08 - 47743 STRUED AS A FLUIDS, INC	33 AUTHORIZIN C OR IT'S AG	Make Shaker 1 Shaker 2 Shaker 3 Shaker 3 Shaker 4 PP9 Desander 10 Desilter 1. 10 Desilter 2. Centrifuge 1 Centrifuge 2 Solids Control Effic. DAILY C A\$ 65E VG THE INFRINGEMENT 0 SENTS, AND ARE STATEM SOLIDS AI Low Grav. Solids Low Grav. Solids High Grav. Solids	EQUIPME           screen           50,50%           bbl/hr           4           3.5           8           10           SCRET           00ST           3.00           DF ANY VAI           KENTS OF           % Vol 2           ppb 2           % Vol 2           ppb 3	NT size hi 30 hrs bl 1 6.5 2 C A LID PATE OPINION TT 2.9 26.4 C 2.2 F 2.9 F	IS 10.5 bl 4 65 6 UMUJI 4 65 6 UMUJI 4 6 UMUJI 1 1 1 1 1 1 1 1 1 1 1 1 1	Additions Sea W. Drill W. other other Barite Chemicals Losses Sol. Con. Lost/Dum Down Hol Newhole Mown Hol Newhole Align GAII Dayschauj LATIVE CC 6158.00	s ped e M ed JST	bbl bbl

Interval Dilution bbl/m 0.4 Interval Consumption bbl/m 2.0

AVE ROP m/hr 20.76

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RAROIN						L	MUD REP	ORT NO.	2	up to 2	.4.00		13/5/94	
h AK(JIII)	Ror	oid Ai	istral	ia Pt	/ I td	Г	DATE	4/5/94	DEPT	H-m	MD 34	0	TVD 34	40
	Dai		Jouan			L	START D		ACTIN					
							12-May-		woc					
PERATOR			1	CONTRAC	TOR / RIG	the second s			COUN					
FE Resources L	_td			Century Ri	g 11				Austra					
EPORT FOR				REPORT	FOR					<b>VSHIP</b>	1			
(en Smith				S. Kelly					LOCA	ampbell				
VELL NAME AN	ND NO.				BLOCK N	0.				Basin,	Victoria	a -		
angley-1		0.041.414	O OTDING	PPL 1	6	ASINGS	_			PUMP I				
BIT DATA		OD ins	D ins		Size ins		Depth m	Pump Make	ins	x ins	Eff %	bbi/stk	spm	bbl/mi
Size 12.250 ins Type S33 SF	Pipe 1		4.367		Riser	Set @		Nat 7P50	5.5	7.75	95	0.054		
lozzles 32nds	Pipe 2		2.875		9 5/8"	Set @	334.43	Nat 8P80	6	8.5	95	0.0705		
20 20	20 Pipe 3					Set @		Duran Danage	600.00	ł	тот	AL bbi/n	L	
	Col 1	6.25	2.875			Set @ Set @		Pump Press MUD VOL	bbl			NG DAT		
	Col 2	005111101	E OFOTI			Set @		Downhole	84	Totai c				m/min
Noz Area 0.92 in	Sect 1	OPEN HO	ESECTION			Set @		Active	336	Bottom	ns up	– mins	DP	
TFA ins <sup>2</sup>	Sect 2				Liner	Set @		Total Circ	420			– mins	DC	
mpact lb f	Curre		12.25	5.6		Top @		Reserve		ECD p			Riser	
TIP GOL 12				MUD PRO	PERTIES							CATION	5	lb/100
Sample Location	1	IN or OUT	OUT		IN		WEIGHT	ppg	VIS HTHP		sec ml	YP KCL		10/100 %
Time Sample Tal		hrs	05:00		20:00		API Filt BY AUTH	mi OBITY	F11 17119	1				
Depth		m °C	340		340		REMARK	S						
Novine Temp		°C	8.90		8.90		Maintaine	d mud during	last se	ction of I	hole by	water d	ilution o	oniy, to
Veight Funnel Viscosity	,	ppg sec/qt	40		42		allow acti	ve volume to i	ncrease	<ol> <li>After \</li> </ol>	wiper ti	rip had le	arge am	nount c
Plastic Viscosity		cP	7		7		cavings r	eturned to sur	face. (u	p to 2.5"	' in size	e) These	tempo	rarily
field Point		lb/100 ft2	24		25		blocked t	he flowline, bi	ut it was	quickly	cleare	d by byp	assing	ne
Sels 10 sec/10m	nin/30 min	lb/100 ft2	10/11/11		10/11/11		shaker po	ssum belly, a ulating the ca	na dum	iping till	une WC	nsinaqi foavinge	1031. Was ar	nain
API Filtrate		ml/30min	NC		NC		while circ	ulating the ca at the shakers	but th	arge ann ere was :	no pro	blem with	h the flr	owline.
HPHT Filtrate		mi/30min					returned	ess cement v	as oun	nned, bu	t no ce	ement ret	urns we	ere
API/HPHT Filter	Cake	32nd ins	3.8		3.8		observed	at the shaker	s. High	pH of re	eturnin	g mud si	uggeste	ed the
Solids		% Vol % Vol	0.2		0.2		cement w	as close. (lat	er mea	sured at	31' be	low surfa	ice)	
Dissolved Salts 0il Content/Wate	er Content	% Vol	-/96.0		-/96.0		Hole obv	ously signific	antly ov	er guage	∋.			
Sand	ST OOMCOM	% Vol	0.1		0.2		Į							
Methylene Blue	сар	ppb	10		10									
рН		meter	9.0		8.8		LOTINT.							
Alk. Mud Pm		ml	0.50		0.40		ACTIVIT	340 m casing	noint a	t 05:00 b	nrs. Ci	irculated	hole cli	ean
Alk. Filtrate, Pf/N	٨f	ml	0.05/0.07 2.3		0.05/0.07	· · · · · · · · · · · · · · · · · · ·	for 1/2 hr	. Ran wiper ti	ip, then	circulat	ed hol	e clean fo	or anoth	ner hou
Chlorides Total Hardness/	Caloium	mg/Lx10 <sup>3</sup> mg/L	2.3		200/200		POH and	ran 9 5/8" ca	sding, v	ashing l	last joii	nt to bott	om. Ci	rculate
	Calcium	% Wt Soin	0.3		0.3					ning wit				
					0.0		casing fo	r 1 hr. Cemei	nea xce	asing wit	n 15.6	ppg nea	t slurre	y. WO
KUL					0.0		casing fo	r 1 hr. Cemei	nted xca	asing wit	n 15.6	ppg nea	t slurre	y. WO
					0.0		casing fo	r 1 hr. Cemei	nted XC	asing wit	n 15.6	ppg nea	t slurrey	y. WO
					0.0		casing fo	r1hr.Cemei	nted XC	ising wit	n 15.6	ppg nea	t slurrey	y. WO
							casing fo	r 1 hr. Cemei	nted XC	ising wit	n 15.6	ppg nea	t slurre	y. WO
	600 m	m/200 rpm	38/31				casing fo	r 1 hr. Cemei	nted XC	15111 <b>9</b> wit	n 15.6	ppg nea	t slurre	y. WO
Rheometer		m/300 rpm	38/31		39/32		casing fo	r 1 hr. Cemei	nted XC	ising wit	n 15.6	ppg nea	t slurre	y. WO
Rheometer	200 rp	m/100 rpm	1				casing fo	r 1 hr. Cemei	nted XC	ising wit	n 15.6	ppg nea	t slurre	y. WO
Rheometer	200 rp 6 rpm			MPTION									t slurre	y. WO
Rheometer b/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI		MPTION		COST	MUD TY	PĘ Floco	ulated	Native Cl		CONS	UMPTI	y. WO
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY	PE Flocc CONTROL E	ulated I	Native Cl	lay		UMPTI ons	y. WO
	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS	PE Flocc CONTROL E Make	ulated I	Native Cl IENT n size	lay	_ CONS Additi Sea W	UMPTI ons	y. WO
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY	PE Flocc CONTROL E Make	ulated I QUIPM scree	Native Cl IENT n size	lay	_ CONS Additi Sea W	UMPTI ons	y. WO
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1	PE Flocc CONTROL E Make	ulated I QUIPM scree	Native Cl IENT n size	lay	CONS Additii Sea W Drill W other other	UMPTI ons	y. WO
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 2	PE Flocc CONTROL E Make	ulated I QUIPM scree 50,50	Native Cl IENT n size ),80	hrs 7.5	CONS Additii Sea W 5 Drill W other cther Barite	UMPTI ons	y. WO
Rheometer b/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 4	PE Flocc CONTROL E Make PP9	ulated I GUIPM scree 50,50	Native Cl IENT In size D,80 r hrs	hrs 7.5 bbl	CONS Additii Sea W 5 Drill W other other Barite Chemi	UMPTI ons	ion bbi
Rheometer b/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande	PE Flocc CONTROL E Make PP9 r 10.	ulated I GUIPM scree 50,50 bbl/h 5 3.9	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	hrs 7.5 bbl	CONS Additii Sea W 5 Drill W other 5 Drill W other Barite Barite Chemi 4 Losse	UMPTI ons	ion bbi
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 3 Shaker 4 Desande Desalter	PE Flocc CONTROL E Make PP9 r 10.	ulated I GUIPM scree 50,50 bbl/h 5 3.9	Native Cl IENT In size D,80 r hrs	hrs 7.5 bbl	CONS Additii Sea W 5 Drill W other other Barite Chemi 4 Losse 5 Sol. C	UMPTI ons	
Rheometer Ib/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 3 Shaker 4 Desande Desilter Desilter	PE Flocc CONTROL E Make PP9 r 10. 1, 11. 2.	ulated I GUIPM scree 50,50 bbl/h 5 3.9	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	hrs 7.5 bbl	CONS Additii Sea W 5 Drill W other other Barite Chemi 4 Losse 5 Sol. C	UMPTI ons	
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Rheometer b/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 3 Shaker 4 Desande Desilter Desilter	PE Flocc CONTROL E Make r 10. 1. 11. 2.	ulated I GUIPM scree 50,50 bbl/h 5 3.9	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	hrs 7.5 bbl	CONS Additi Sea W other other Barite Chemi Losse Sol. C. Lost/D	UMPTI ons cals s on. Hole ble	
Rheometer b/100 ft <sup>2</sup>	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32	COST	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter Centrifug Centrifug	PE Flocc CONTROL E Make PP99 r 10. 1. 11. 2. 1. 11. 2. 1. 11. 2. 1. 11. 2. 1. 11. 2. 1. 11. 2. 1. 11. 2. 1. 11. 2. 2. 1. 2. 2. 1. 2. 2. 1. 2. 1.	ulated I GUIPM Scree 50,50 bbl/h 5 3.1 2	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	ay	CONS Additti Sea W 5 Drill W other other Barite Chemi 4 Losse 5 Sol. C Lost/D Down Newto Net TC Disch	UMPTI ons	ION bbl
Theometer b/100 ft <sup>2</sup> PRODUCT DES	200 rp 6 rpm	m/100 rpm /3 rpm NTORY ANI	D CONSU		39/32		MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter Centrifug Centrifug	PE Flocc CONTROL E Make r 10. 1. 11. 2. 19 1 19 2	ulated I GUIPM Scree 50,50 bbl/h 5 3.1 2	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	ay	CONS Additii Sea W 5 Drill W other 6 Barite 6 Sol. C Lost/D Down Newho NET C	UMPTI ons	
Rheometer b/100 ft <sup>2</sup> PRODUCT DES BAROID	200 rp 6 rpm INVE SCRIPTIO	m/100 rpm /3 rpm NTORY ANI	O CONSU USED		BAL BAL WAREHOU		MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter Centrifug Centrifug	PE Flocc CONTROL E Make r 10. 1. 11. 2. 19 1 19 1 19 1 19 2 19 1 19 1 19 1 19 1	ulated I GUIPM scree 50,50 bbl/h 5 3,9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2 9 2	Native Cl IENT In size D,80 <b>r hrs</b> 5 1	ay	CONS Additti Sea W 5 Drill W other other Barite Chemi 4 Losse 5 Sol. C Lost/D Down Newto Net TC Disch	UMPTI ons cals s on. umped Hole ble cAIN arged cOST	
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Bheometer b/100 ft <sup>2</sup> PRODUCT DES BAROID M. Olejnii Tel. 059-787	200 rp 6 rpm INVEI SCRIPTION SCRIPTION Engineer czak		OCONSU USED OFFICE Melbourn 03 -62131	e 811 017 117 117 117 117 117 117 1	39/32 BAL WAREHOL Adelaide 08-4774: STRUED AS	JSE 33 AUTHORIZI	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter Desilter Centrifug Centrifug Centrifug Solids C	PE         Flocc           CONTROL E         Make           Make         10.0           r         10.0           l.         11.0           le 1         10.0           ontrol Effic.         DAILY CO           A\$         0.00	Ulated I QUIPM Scree 50,50 50,	Vative Cl IENT on size D,80 r hrs 5 1 5 5 5 5	hrs 7.5 bbl 2 2 2 CUM A\$	CONS Additii Sea W Drill W other Other Barite Chemi Losse Sol. C Lost/D Down Newho NET C Disch ULATIVE 658.0	UMPTI ons cals s on. umped Hole ble cals s cals s cals s cals s cals s cals s cals s cals s con. cals s con. cals s con. cals s con. cals s con. cals s con. cals con. con. cals con. con. cals con. con. con. con. con. con. con. con.	
Bheometer b/100 ft <sup>2</sup> PRODUCT DES BAROID M. Olejnii Tel. 059-787	200 rp 6 rpm INVEI SCRIPTION SCRIPTION Engineer czak		OCONSU USED OFFICE Melbourn 03 -62131	e 811 017 117 117 117 117 117 117 1	39/32 BAL WAREHOL Adelaide 08-4774: STRUED AS	JSE 33 AUTHORIZI	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter Desilter Centrifug Centrifug Centrifug Solids C	PE         Flocc           CONTROL E         Make           Make         10.0           r         10.0           l.         11.0           le 1         10.0           ontrol Effic.         DAILY CO           A\$         0.00	Ulated I QUIPM Scree 50,50 50,	Vative Cl IENT on size D,80 r hrs 5 1 5 5 5 5	hrs 7.5 bbl 2 2 2 CUM A\$	CONS Additii Sea W Drill W other Other Barite Chemi Losse Sol. C Lost/D Down Newho NET C Disch ULATIVE 658.0	UMPTI ons cals s on. umped Hole ble cals s cals s cals s cals s cals s cals s cals s cals s con. cals s con. cals s con. cals s con. cals s con. cals s con. cals con. con. cals con. con. cals con. con. con. con. con. con. con. con.	
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							MUD REP	PORT NO.	3	up to	24:00	hrs,	14/5/94	
DADATA	Barc	hid Ai	ustral	ia Ptv	/ Ltd		DATE	15/5/94	DEPT	H-m	MD 34	D	TVD 340	0
PARULU	Duit						START D	ATE	ACTIV	/ITY				
							12-May-	.94		g up Bl	HA			
OPERATOR				CONTRA		G			COUN Austra					
GFE Resources Ltd				Century R					TOWN					
REPORT FOR			1	REPORT S. Kelly	FOR					ampbe	1			
Ken Smith WELL NAME AND	NO				BLOCK	10.			LOCA					
Langlev-1	NO.			PPL 1							Victoria	1		
BIT DATA		DRILLING	G STRING			CASINGS				x ins	DATA Eff %	bbl/etk	spm b	obl/min
Size 8.500 ins	ļ	OD ins		_ength m	Size ins	Set @	Depth m	Pump Make Nat 7P50	5.5	7.75		0.054	T	
Type ETD 417	Pipe 1	4.5	4.367 2.875	340	Riser 9 5/8"	Set @			6	8.5		0.0705		
Nozzles 32nds 11 13 13	Pipe 2 Pipe 3	4.5	2.015		3 0/0	Set @								
	Col 1	6.25	2.875			Set @		Pump Press				AL bbl/m		
	Col 2					Set @		MUD VOL	<u>bbl</u> 83		circ -	MG DAT		/min
Noz Area 0.35 ins <sup>2</sup>		<b>DPEN HOL</b>	LE SECTIO	ONS		Set @ Set @		Downhole Active	336	1	msup.		DP	
TFA ins <sup>2</sup>	Sect 1 Sect 2				Liner	Set @		Total Circ	419	Surfa	ce-bit	– mins	DC	
NV m/sec Impact lb f	Current		12.25	5.6		-		Reserve		ECD			Riser	
inipact is i	Todiform			MUD PRO	PERTIES	,				RTY S		CATION		b/100 ft <sup>2</sup>
Sample Location		N or OUT					WEIGHT	ppg	VIS HTHP			YP KCL		80/100 it- %
Time Sample Taker		irs					API Filt	mi OBITY	HINP		1111	NOL		
Depth		<u>n</u>					BY AUTH	S						
Flowline Temp		C					2x13, 1x1	1 nozzles sele	ected for	r 8 1/2"	bit to g	ive follow	ving hydi	raulics,
Weight Funnel Viscosity		ec/at					at 300 gp	m. (maximum	n anticipa	ated pu	imp rate	<del>)</del> )		
Plastic Viscosity		<del>ес/91</del> Р					1	Nozzle Veloc		2 ft/sec	•			
Yield Point		b/100 ft <sup>2</sup>					1	Impact - 379						
Gels 10 sec/10min/		b/100 ft <sup>2</sup>				<b> </b>	ł	AV (collars) - AV (drill pipe)						
API Filtrate		ni/30min					Relatively	v low nozzle ve	elocity s	hould r	educeh	nole wsho	out in loc	ose
HPHT Filtrate		nl/30min 32nd ins					sands, wi	hile annular ve	alocities	will eas	sily clea	n hole.		
API/HPHT Filter Cal Solids		% Vol					]							
Dissolved Salts		% Vol												
0il Content/Water C	ontent 9	% Vol					1							
Sand		% Voi												
Methylene Blue car		opb												
pH Alk. Mud Pm		neter nl				1	ACTIVIT	Y						
Alk. Filtrate, Pf/Mf		ni					Wait on c	ement. Used	114 sxs	cemen	t to do t	op up on	surface	casing.
Chlorides	r	ng/Lx10 <sup>3</sup>					Nippled u	up BOP and p	ressure	tested.	. Began	i making	up 8 1/2	BHA.
Total Hardness/Cal		ng/L					1							
KCL		% Wt Soln												
							1							
							-							
Rheometer		n/300 rpm					-							
lb/100 ft2	6 rpm/3	n/100 rpm					1							
	INVEN	TORY AN	D CONSU	MPTION								1.0.000		
PRODUCT DESCI			USED	REC	BAL	COST	MUD TY		ulated N		Clay	Additio	UMPTIC	bbl
	<u></u>		ļ				SOLIDS	CONTROL E Make		n size	brs	Sea W		
							Shaker 1		50,50		T	Drill W		
		<u></u>			1	+	Shaker 2					other		
							Shaker 3					other		
							Shaker 4		<u> </u>			Barite	onic	
			ļ	·				ppg_	DDI/hi	r hrs	bbl	Chemi Losse		bbl
			·			+	Desande Desilter		+	+		Sol. Co		<u> </u>
				<u> </u>			Desilter :		-	1			umped	
				+			Centrifug					Down		
			1			1	Centrifug					Newho		
							1					NET G		
					1	1105	Solids C	ontrol Effic. DAILY C	OST		% CUM	Discha ULATIVE		<u></u>
BAROID En	gineer	·	OFFICE		WAREHO	035	-1							
M. Olejnicza	k		Melbourn	e	Adelaide	,	1	A\$ 0.0	D		A\$	658.0	00	
7.1 050 70740	-		03-62133	311	08-4774	433	<u> </u>							
THE RECOMMENDA	TIONS MA	DE HEREC	N SHALL N	OT BE CON	STRUED AS	AUTHORIZ	ING THE IN	FRINGEMENT	OF ANY V	ALID P	ATENT, A	AND ARE	MADE	
WITHOUT ASSUMPT	TION OF A	NY LIABILIT	Y BY BARO	ID DRILLING	FLUIDS, IN	IC OR IT'S A	GENTS, AN	D ARE STATEN	AENTS O	F OPIN	ION ONL	.ř.		
								SOLIDS A				BREAK	DOWN	hrs
RESERVE PITS			The second se	EY DATA	DIR®	DISP m	Low Gra	V. Solids	% Vol		Drillin			
NO TYPE	bbl	MD m	TVD m	INUL	UIN	000 11		v. Solids	ppb			lating		
Pill		[	-	1				av. Solids	% Vol	l		ning In		
					1			av. Solids	ppb			ning out		
					+		ASG of S		g/cc		Tripp Othe			24
			1	1	1	. i	I Cuttings	Volume	bbl		Jule			
				-					hbl/m	1				
							Interval		bbl/m bbl/m					

Size 8.500 ins         OD Ins         ID Ins         Expension         Size 8.500 ins         Nat 7P50         5.5         7.75         9           Type ETD 417         Pipe 2         4.5         2.875         55.28         9 5/8"         Set @         Nat 8P80         6         8.5         9           11         13         13         Pipe 2         4.5         2.875         154.22         Set @         Pump Press 850 psi         To           1         Col 1         6.25         2.875         154.22         Set @         Pump Press 850 psi         To           1         Col 2         Set @         Downhole         145         Notatics         Set @         Downhole         145         Botoms up           NV m/sec         82.9         Sect 1         Liner         Set @         Total Circ 555         Surface -b         Surface -b <t< th=""><th>A         Spm         bbl/stk         spm         bbl/mi           5         0.054         5         5         0.054         5           5         0.0705         101         7.12         7.12           DTAL bbl/min         7.12         7.12         7.12           TING DATA         4         4         7.12         7.12           TING DATA         5         0.0         67         67           -         8.91         Riser         7         10100           YP         Ib/100         KCL         %         9           Marl due to small sump.         5         100         100         100</th></t<>	A         Spm         bbl/stk         spm         bbl/mi           5         0.054         5         5         0.054         5           5         0.0705         101         7.12         7.12           DTAL bbl/min         7.12         7.12         7.12           TING DATA         4         4         7.12         7.12           TING DATA         5         0.0         67         67           -         8.91         Riser         7         10100           YP         Ib/100         KCL         %         9           Marl due to small sump.         5         100         100         100
START DATE         ACTIVITY           12-May-94         Drilling           3FE Resources Ltd         CONTRACTOR / RIG           Gentury Rig 11         Australia           Gensmin         S. Kelly           NEEL NAME AND NO.         FIELD OR BLOCK NO.           angley-1         PPL 1           BIT DATA         DRILLING STRING           CASINGS         PUMP MAKe           BIT DATA         DRILLING STRING           Nozzles 32nds         Pipe 2           Pipe ETD AT7         Pipe 4           Vize 8.500 ins         DD ins           Dins         Dins           Nozzles 32nds         Pipe 2           Pipe 2         2.375           Stoze 8.500 ins         Col 1           Col 1         6.25           2.875         154.22           Sted@         Nut 7P50           Stat         Sted@           Col 1         6.25           Vise 4         OPEN Mole           Ital         13 Pipe 3           Stat         Sted@           Noz Area 0.35 ins?         OPEN HOLE SECTIONS           Stat@         Sted@           Number 2.45         355.6           To	A         Spm         bbl/stk         spm         bbl/mi           5         0.054         5         5         0.054         5           5         0.0705         101         7.12         7.12           DTAL bbl/min         7.12         7.12         7.12           TING DATA         4         4         7.12         7.12           TING DATA         5         0.0         67         67           -         8.91         Riser         7         10100           YP         Ib/100         KCL         %         9           Marl due to small sump.         5         100         100         100
DPERATOR         CONTRACTOR / RIG         COUNTRY           Australia         Cantury Rig 11         Australia           EPCORT FOR         REPORT FOR         TOWNSHIP           Ken Smith         S. Kelly         Port Campbell           MELL NAME AND NO.         FIELD OR BLOCK NO.         LOCATION           PPL 1         Otway Basin, Victo         Otway Basin, Victo           BIT DATA         DRILLING STRING         CASINGS         PUMP DAT.           Size 8.500 ins         OD ins         Length m         Size ins         Depth m         Nat 7P50         5.5         7.75         9           Nozzles 32nds         Pipe 2         4.5         2.875         55.28         9 5/8°         Set @         Nat 7P50         5.5         7.75         9           Nozzles 32nds         Pipe 2         4.5         2.875         154.22         Set @         Pump Press         850 psi         TO           Loci 1         6.25         2.875         154.22         Set @         Downhole         145         Total circ 595         Surface -bip           Voz Aree 0.35 ins²         OPEN HOLE SECTIONS         Set @         Active         450         Botoms up           Time Sample Location         IN or OUT         N	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
DepEnd to find the second se	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
Bit Deport FOR         Century Rig 11         Australia           REPORT FOR         REPORT FOR         TOWNSHIP           sen Smith         S. Kelly         Port Campbell           MELL NAME AND NO.         PPL 1         Covery Basin, Victo Campbell           BIT DATA         DRILLING STRING         CASINGS         PUMP DAT.           BIT DATA         DRILLING STRING         CASINGS         PUMP DAT.           Size 8.500 ins         OD ins         ID ins         Length m         Size ins         Depth m         Pump Make         ins         Sis         S.5         7.75         9           Vipe ETD 417         Pipe 1         4.5         4.367         480.5         Riser         Set @         Nut Proso         5.5         7.75         9           1         13         13         Pipe 2         4.5         2.875         52.8         9 5/8"         Set @         Pump Press         850 psi         TO           Vozzles 32nds         Set 2         Set @         Pump Press         850 psi         Total Cinc 595         Surface-bi           Vozeles 28.0         Sect 1         Liner         Set @         Downhole         145         Total Cinc 595         Surface-bi         Surface-bi         Surface-bi </td <td>A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67          </td>	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
ItePort FOR         Iter Port         Port Campbell           wein Smith         S. Keily         Port Campbell           MELL NAME AND NO. angley -1         FIELD OR BLOCK NO. PPL 1         Otway Basin, Victor PPL 1           BIT DATA         DRILLING STRING         CASINGS         Pump Make         ins. x.ins.         FIF           BIT DATA         DRILLING STRING         CASINGS         Pump Make         ins. x.ins.         FIF           Size 8.500 ins         OD ins         ID ins. Length m         Size ins.         Depth m         Pump Make         ins. x.ins.         FIF           Vozales 32nds         Pipe 2         4.5         2.875         55.28         9 5/8"         Set @         Nat 7P50         5.5         7.75         9           Vozales 32nds         Pipe 2         4.5         2.875         154.22         Set @         Nump Press 850 psi         Tr           Vozales 32nds         OPEN HOLE SECTIONS         Set @         Downhole         145         Total circ 8           NV m/sec 82.9         Sect 1         Liner         Set @         Active 450         Bottoms up           Impact Ib 1         S70         Current         8.5         355.6         Total circ 595         Surdace-b           Sample Loc	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
Gen Smith         D. New year         LocATION         Other year           Amage year         PPL 1         Definition of the period of the perio	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
Induct And File         PPL 1         Otway Basin, Victor           Bit Data         OD ins         ID ins         Length m         Size ins         Depth m         Pump Make ins x ins         Eff ye Ins, Ling STRING         CASINGS         PUMP Data           Size 8.500 ins         OD ins         ID ins         Length m         Size ins         Depth m         Pump Make ins x ins         Eff ye ins x ins	A         spm         bbl/stk         spm         bbl/mi           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         4         mins         AV         m/min           15 mins         DP         4         67         67
BIT DATA         DHILLING STRING         CASINGS         PUMP DAT.           Size 8.500 ins         OD ins         ID ins         Length m         Size ins         Depth m         Pump Make         ins x ins         Eff 7           Size 8.500 ins         Pipe 1         4.5         4.367         480.5         Riser         Set @         Nat 7P50         5.5         7.75         9           Nozzles 32nds         Pipe 2         4.5         2.875         55.28         9 5/8"         Set @         Nut 7P50         5.5         7.75         9           1         13         Pipe 2         4.5         2.875         154.22         Set @         Pump Press         850 psi         Total circ 8           Noz Area 0.35         ins²         Sect 1         Set @         Downhole         145         Total circ 595           NV m/sec         82.9         Sect 2         Liner         Set @         Total circ 595         Bottoms up           Sample Location         IN oU UT         IN         IN         WEIGHT         ppg VIS         Sec           Sample Location         IN oOUT         IN         IN         WEIGHT         ppg VIS         Sec           Sample Location         IN oOUT         IN </td <td>6         bbl/stk         spm         bbl/mi           5         0.054         -           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         -         -           4 mins         AV         m/min           0.15 mins         DP         -           it 5 mins         DC         67           -         6.91         Riser           FICATIONS         YP         lb/100           KCL         %</td>	6         bbl/stk         spm         bbl/mi           5         0.054         -           5         0.0705         101         7.12           DTAL         bbl/min         7.12           DTAL         bbl/min         7.12           TING DATA         -         -           4 mins         AV         m/min           0.15 mins         DP         -           it 5 mins         DC         67           -         6.91         Riser           FICATIONS         YP         lb/100           KCL         %
Size 8.500 ins         OD ins         ID ins         Length m         Size ins         Depth         Pump Make         ins         Lins         Set @         MUD POL         bbi         CRCULA           Noz Area 0.35 ins <sup>2</sup> OPEN HOLE SECTIONS         Set @         Downhole         145         Total circ 59         Set 0         Set 0<	5         0.054           5         0.0705         101           7.12         0         0           0.10         7.12         0           0.10         7.12         0           0.10         0.17 Min         7.12           0.15 mins         DP         4           0.15 mins         DC         67           8.91         Riser         -           FICATIONS         YP         Ib/100           KCL         %         %
Type ETD 417         Pipe 1         4.5         4.357         480.5         Hister         Jet reg         Jet reg <thjet reg<="" th="">         Jet reg         Jet</thjet>	5         0.0705         101         7.12           DTAL bbl/min         7.12           TING DATA         4           4 mins         AV         m/min           0 15 mins         DP         4           ti 5 mins         DC         67           8.91         Riser         67           FICATIONS         YP         Ib/100           KCL         %         %
Nozzies         Szitos         Pipe 2         4,3         Zitoro         Set @         Pump Press         850 psi         Tri           11         13         13         Pipe 3         Set @         Pump Press         850 psi         Tri           11         13         13         Pipe 3         Set @         Pump Press         850 psi         Tri           11         13         13         Pipe 3         Set @         Pump Press         850 psi         Tri           11         13         13         Pipe 3         Set @         Pump Press         850 psi         Tri           11         13         13         Pipe 3         Set @         Downhole         145         Total circ 5         Bottoms up           Noz Area 0.35         Set 2         Liner         Set @         Active         450         Surface-bi           Impact 16         370         Current         8.5         355.6         Top @         Reserve - 74         ECD ppg           Sample Location         IN or OUT         IN         IN         WEIGHT         Ppg VIS         sec           Sample Taken         hrs         12:40         24:00         API Filt         MUD PROPERTY SPECII      <	TING DATA 4 mins AV m/min 15 mins DC 67 8.91 Riser FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro
Image: Section         Image:	TING DATA 4 mins AV m/min 15 mins DC 67 8.91 Riser FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro
Noz Area 0.35 ins²     OPEN HOLE SECTIONS     Set @     MUD VOL     bbl     CIRCULA       Noz Area 0.35 ins²     OPEN HOLE SECTIONS     Set @     Downhole     145     Total circ 8       TFA ins²     Sect 1     Set @     Active     450     Bottoms up       NV m/sec     82.9     Sect 2     Liner     Set @     Total Circ 595     Surface - bit       Impact Ib f     370     Current     8.5     355.6     Top @     Reserve     74     ECD ppg       Sample Location     IN or OUT     IN     IN     WEIGHT     ppg     VIS     sec       Sample Taken     hrs     12:40     24:00     API Filt     MUD PROPERTY SPECI       Depth     m     481     690     BY AUTHORITY     mi       Flowline Temp     °C      REMARKS     Unable to dilute heavily through Gellibrand       Flowline Temp     °C      REMARKS     Unable to dilute heavily through Gellibrand       Flowline Temp     °C      REMARKS     Unable to dilute heavily through Gellibrand       Flowline Temp     °C     6     5     about 570 m. Beginning to reduce filtrate with additional AQUAGEL and CMC – EHV.       Yield Point     Ib/100 ft <sup>2</sup> 15/17/20     18/24/30     API Filtrate	4 mins AV m/min 15 mins DP 4 it 5 mins DC 67 
Noz Area 0.35 ins <sup>2</sup> OPEN HOLE SECTIONS         Oet op Set op Set 0         Active         450         Bottoms up Surface-bi Impact 1b f           NV m/sec         82.9         Sect 2         Liner         Set @         Total Circ         595         Surface-bi Impact 1b f         Surface-bi Reserve         Surface-bi Reserve         Surface-bi Impact 1b f         Set 0         Total Circ         595         Surface-bi Impact 1b f         Surface-bi Reserve         Surface-bi Impact 1b f         Surface-bi Reserve         Surface-bi Reserve         Surface-bi Impact 1b f         Surface-bi Reserve         Surface-bi Reserve         Surface-bi Reserve         Surface-bi Reserve         Surface-bi Impact 1b f         Surface-bi Reserve         Surface-bi Reserve <td>h 15 mins DP 4 it 5 mins DC 67 8.91 Riser FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro</td>	h 15 mins DP 4 it 5 mins DC 67 8.91 Riser FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro
TFA ins <sup>2</sup> Sect 1         Otta Circ         S95         Surface -bi           NV m/sec         82.9         Sect 2         Liner         Set @         Total Circ         595         Surface -bi           Impact lb f         370         Current         8.5         355.6         Top @         Reserve         74         ECD ppg           Sample Location         IN or OUT         IN         IN         WEIGHT         ppg         VIS         sec           Sample Location         IN or OUT         IN         IN         WEIGHT         ppg         VIS         sec           Sample Location         IN or OUT         IN         IN         WEIGHT         ppg         VIS         sec           Depth         m         481         690         BY AUTHORITY         mI         HTHP         mI           Flowline Temp         °C          REMARKS         Weight         ppg         8.90         8.80         Unable to dilute heavily through Gellibrand           Funnel Viscosity         sec/qt         40         36         Mari making mud causing mud ring probler         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft <sup>2</sup> 32         20         with additional AQ	it 5 mins DC 67 8.91 Riser FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro
NV III Sec         0213         Oct 12         8.5         355.6         Top @         Reserve         74         ECD ppg           Impact lb f         370         Current         8.5         355.6         Top @         Reserve         74         ECD ppg           Sample Location         IN or OUT         IN         IN         IN         WEIGHT         ppg         VIS         sec           Time Sample Taken         hrs         12:40         24:00         API Filt         ml         HTHP         ml           Depth         m         481         690         BY AUTHORITY         ml         HTHP         ml           Flowline Temp         °C          REMARKS         Mud reaving mud ring problem         gelibrand           Funnel Viscosity         sec/qt         40         36         Mari making mud causing mud ring problem           Plastic Viscosity         cP         6         5         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft <sup>2</sup> 32         20         with additional AQUAGEL and CMC – EHV.           API Filtrate         ml/30min         L         22.0         ml         ml           API/HPHT Filter Cake         32nd ins         3.4<	FICATIONS YP Ib/100 KCL % Marl due to small sump. ns. Into Dilwyn sands fro
MUD PROPERTIES         MUD PROPERTY SPECI           Sample Location         IN or OUT         IN         IN         WEIGHT         ppg         VIS         sec           Time Sample Taken         hrs         12:40         24:00         API Filt         ml         HTHP         ml           Depth         m         481         690         BY AUTHORITY         ml         HTHP         ml           Flowline Temp         °C         REMARKS         REMARKS         Viscosity         sec/qt         40         36         Mail making mud causing mud ring probler about 570 m. Beginning to reduce filtrate w           Plastic Viscosity         cP         6         5         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft <sup>2</sup> 32         20         with additional AQUAGEL and CMC – EHV.           API Filtrate         ml/30min         NC         22.0         with additional AQUAGEL and CMC – EHV.           API/HPHT Filter Cake         32nd ins         4/         Solids         3.4         Solids           Dissolved Salts         % Vol         0.2         0.1         Solids         Solids         Solid         Solids         Solid         Solids         Solids         Solid         Solids         Solids </td <td>YP lb/100 KCL % Marl due to small sump. ms. Into Dilwyn sands fro</td>	YP lb/100 KCL % Marl due to small sump. ms. Into Dilwyn sands fro
Sample Location         IN of OUT         IN         IN         Main Procession           Time Sample Taken         hrs         12:40         24:00         API Filt         mi         HTHP         ml           Depth         m         481         690         BY AUTHORITY         Filt         ml         HTHP         ml           Flowine Temp         °C          REMARKS         Unable to dilute heavily through Gellibrand           Weight         ppg         8.90         8.80         Unable to dilute heavily through Gellibrand           Funnel Viscosity         sec/qt         40         36         Mari making mud causing mud ring probler           Plastic Viscosity         cP         6         5         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft²         32         20         with additional AQUAGEL and CMC – EHV.           Gels 10 sec/10min/30 min         Ib/100 ft²         15/17/20         18/24/30         ml           API/HPHT Filterte         ml/30min         L         L         Mither Procession           API/HPHT Filter Cake         32nd ins         4/         Mither Procession         Mither Procession           Solids         % Vol         0.2         0.1         0.2<	KCL % Marl due to small sump. ms. Into Dilwyn sands fro
Time Sample Taken         Irs         12.40         24.00         INT         INT           Depth         m         481         690         BY AUTHORITY           Flowline Temp         °C         Intervention         REMARKS           Vieight         ppg         8.90         8.80         Unable to dilute heavily through Gellibrand           Funnel Viscosity         sec/qt         40         36         Mari making mud causing mud ring probler           Plastic Viscosity         cP         6         5         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft²         32         20         with additional AQUAGEL and CMC – EHV.           Gels 10 sec/10min/30 min         Ib/100 ft²         15/17/20         18/24/30         HPHT Filtrate           API Filtrate         ml/30min         C         22.0         with additional AQUAGEL and CMC – EHV.           Solids         % Vol         3.8         3.4         Dissolved Salts         % Vol         0.2         0.1           Oil Content/Water Content         % Vol         0.1         0.2         0.1         0           pH         meter         10.5         9.5         A         ACTIVITY	Mari due to small sump. ns. Into Dilwyn sands fro
Depth         Int         Vol         Permitted           Flowline Temp         °C          Permitted         Permitt	ms. Into Dilwyn sands fro
Weight         ppg         8.90         8.80         Unable to dilute heavily through Gellibrand           Funnel Viscosity         sec/qt         40         36         Marl making mud causing mud ring probler about 570 m. Beginning to reduce filtrate w           Plastic Viscosity         cP         6         5         about 570 m. Beginning to reduce filtrate w           Yield Point         Ib/100 ft²         32         20         with additional AQUAGEL and CMC-EHV.           Gels 10 sec/10min/30 min         Ib/10 ft²         15/17/20         18/24/30         with additional AQUAGEL and CMC-EHV.           API Filtrate         ml/30min         22.0         NC         22.0         NC           API/HPHT Filter Cake         32nd ins         4/         A/         NC         22.0         NC           Solids         % Vol         3.8         3.4         NC         20.0         NC         22.0           Oil Content/Water Content         % Vol         0.2         0.1         NC         20.0         NC         20.0         NC         20.0         NC         20.0         NC         20.0         NC         20.0         NC         NC         NC         NC         NC         NC         NC         NC         NC         NC <t< td=""><td>ms. Into Dilwyn sands fro</td></t<>	ms. Into Dilwyn sands fro
Funnel Viscosity         sec/qt         40         36         Marl making mud causing mud ring probler about 570 m. Beginning to reduce filtrate w with additional AQUAGEL and CMC – EHV.           Gels 10 sec/10min/30 min         1b/100 ft <sup>2</sup> 32         20         with additional AQUAGEL and CMC – EHV.           API Filtrate         ml/30min         NC         22.0         with additional AQUAGEL and CMC – EHV.           API Filtrate         ml/30min         NC         22.0         with additional AQUAGEL and CMC – EHV.           API/HPHT Filtrate         ml/30min         A/         A         A         A           Solids         % Vol         3.8         3.4         A         A           Dissolved Salts         % Vol         0.2         0.1         A           Oil Content/Water Content         % Vol         0.1         0.2         A           Methylene Blue cap         ppb         10         10         A           pH         meter         10.5         9.5         A	ns, into Uliwyn sands fr hille maintaining viscosit;
Practic Viscosity       St.       St. <td></td>	
Yield Point         ID/100 ft²         J2         J20           Gels 10 sec/10min/30 min         Ib/100 ft²         15/17/20         18/24/30           API Filtrate         ml/30min         NC         22.0           HPHT Filtrate         ml/30min         A/           API/HPHT Filtrate         ml/30min         A/           Solids         % Vol         3.8         3.4           Dissolved Salts         % Vol         0.2         0.1           Oil Content/Water Content         % Vol         0.1         0.2           Sand         % Vol         0.1         0.2           Methylene Blue cap         ppb         10         10           pH         meter         10.5         9.5           Alk. Mud Pm         ml         1.60         0.70	
Ges         10 sec/10/min/00 min         10 rec           API Filtrate         ml/30min         22.0           HPHT Filtrate         ml/30min         4/           API/HPHT Filtrate         32nd ins         4/           Solids         % Vol         3.8         3.4           Dissolved Salts         % Vol         0.2         0.1           Oil Content/Water Content         % Vol         -/96.0         -/96.5           Sand         % Vol         0.1         0.2           Methylene Blue cap         ppb         10         10           pH         meter         10.5         9.5           Alk. Mud Pm         ml         1.60         0.70	
HPHT Filtrate         ml/30min         4/           API/HPHT Filter Cake         32nd ins         4/           Solids         % Vol         3.8         3.4           Dissolved Salts         % Vol         0.2         0.1           Oil Content/Water Content         % Vol         -/96.0         -/96.5           Sand         % Vol         0.1         0.2           Methylene Blue cap         ppb         10         10           pH         meter         10.5         9.5           Alk. Mud Pm         ml         1.60         0.70         ACTIVITY	
Arryin meter         Oards         Solids         Solids <thsolids< th="">         Solids         Sol</thsolids<>	
Stats         % Vol         0.2         0.1           Dissolved Salts         % Vol         0.2         0.1           Oil Content/Water Content % Vol         -/96.0         -/96.5           Sand         % Vol         0.1         0.2           Methylene Blue cap         ppb         10         10           pH         meter         10.5         9.5           Alk. Mud Pm         ml         1.60         0.70         ACTIVITY	
Discrived bans         Original	
Sand         % Vol         0.1         0.2           Methylene Blue cap         ppb         10         10           pH         meter         10.5         9.5           Alk. Mud Pm         ml         1.60         0.70         ACTIVITY	
meter         10.5         9.5           pH         meter         10.6         0.70           Alk. Mud Pm         ml         1.60         0.70	
Alk. Mud Pm         ml         1.60         0.70         ACTIVITY	
Alk. Mud Pill	
Ally Cilente Dillet miles 0, 15/0, 17 0, 10/0, 12 Rill and tagged cement at 318 m. Drilled o	out cement and shoe with
The idea ma(1 x103 20 1.3 mud, then drilled 6m new hole to 346 m. R	an PIT test giving 22.6 pr
Childress         Inglexit         Lis           Total Hardness/Calcium         mg/L         100/100         40/40         EMW. Continued drilling through marl. Ha           Kol         mud ring at 395 m for 1 hour. Continued drilling         Continued drilling through marl. Ha	d to clear flowline of rilling taking regular surve
	rining taking regular our t
ASG of Solids g/cc 2.7 2.6 n & K 0.21/10.2 0.26/4.94	
Bheometer 600 rpm/300 rpm 44/38 30/25	
Rheometer         600 rpm/300 rpm         44/38         30/25           lb/100 ft²         200 rpm/100 rpm	
6 rpm/3 rpm	
	CONSUMPTION
PRODUCT DESCRIPTION USED REC BAL COST MUD TYPE FW/AQUAGEL/CMC	Additions bbl
AUDAGELSX 25 kg 00 00 01 00 01 00 Nako screen size hrs	Sea W.
	21 Drill W. 5
Shaker 2	other
Shaker 3	other Barite
Shaker 4 ppg_bbl/hr hrs_bbl	Chemicals
Desander 11.6 4.5 12	54 Losses bbl
Desilter 1. 11.4 5 20 10	00 Sol. Con. 1
Desilter 2.	Lost/Dumped 1 Down Hole
Centrifuge 1 Centrifuge 2	Newhole
	NET GAIN 2
Solids Control Effic. %	Discharged 3
BAROID Engineer OFFICE WAREHOUSE DAILY COST CUI	MULATIVE COST
A¢ 1572.35 A\$	2230.35
M. Olejniczak Melodinie Pisołato	
THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT	, AND ARE MADE
WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION OF	NLY.
	E BREAKDOWN hr
RESERVE PITS SURVET DATA DUD to Low Group Solido % Vol 3.4 Dri	ling
NO TYPE DDI MD III INCE DIN DIGI III LON GEN GEN GEN	
Low Grou Solids pob 30.9 Cir	culating
Pill         74         391         1         Low Grav. Solids         ppb         30.9         Circ	culating family
Pill         74         391         1         Low Grav. Solids         ppb         30.9         Cirr           468         0.75         High Grav. Solids         % Vol 0.2         Rev	aming In aming out
Pill         74         391         1         Low Grav. Solids         ppb         30.9         Cirr           468         0.75         High Grav. Solids         % Vol         0.2         Rev           515         0.5         High Grav. Solids         ppb         2.9         Rev           660         1         ASG of Solids         g/cc         2.60         Trip	aming In aming out oping
Pill         74         391         1         Low Grav. Solids         ppb         30.9         Cirr           468         0.75         High Grav. Solids         % Vol         0.2         Rev           515         0.5         High Grav. Solids         ppb         2.9         Rev           660         1         ASG of Solids         g/cc         2.60         Trip           Cuttings Volume         bbl         80.0         Other         Solids         Solids <td< td=""><td>aming In aming out oping</td></td<>	aming In aming out oping
Pill         74         391         1         Low Grav. Solids         ppb         30.9         Cirr           468         0.75         High Grav. Solids         % Vol         0.2         Rev           515         0.5         High Grav. Solids         ppb         2.9         Rev           660         1         ASG of Solids         g/cc         2.60         Trip	aming In aming out oping

						MUD REF	PORTN	10.	5 1	up to	24:00 ł	nrs, 16/5/94	
RAROIN	Baroid A	ustral	lia Pt	y Ltd		DATE	17/5/94		DEPTI	Hm	MD 108	52 TVD 10	62
				-		START D			ACTIV				
						12-May-	-94		Drilling				
OPERATOR				CTOR / RIC	3				Austra				
3FE Resources Ltd			Century R REPORT			// <u></u>			TOWN				
Ken Smith			S. Kelly							ampbe			
WELL NAME AND	NO.		FIELD OF	BLOCK N	10.				LOCA			-	
angley-1			PPL 1							Basin, PUMP	Victoria		
BIT DATA		G STRING			CASINGS	Depth m	Pump	Mako			Eff %	bbl/stk spm i	bbl/min
Size 8.500 ins	OD ins Pipe 1 4.5	ID ins 4.367		Riser	Set @		Nat 7F		5.5	7.75	95	0.054	
Гуре ETD 417 Nozzies 32nds	Pipe 1 4.5 Pipe 2 4.5	2.875		9 5/8"	Set @		Nat 8F	80	6	8.5	95	0.0705 101	7.12
	Pipe 3				Set @				l				
	Col 1 6.25	2.875	165.29		Set @				890 psi			AL bbl/min NG DATA	7.12
	Col 2			<u> </u>	Set @		Down		<b>bbl</b> 228		circ 95 r		ı/min
Noz Area 0.35 ins <sup>2</sup>	OPEN HO	LE SECTIO	ONS		Set @ Set @		Active		450		ns up 2		4
TFA ins <sup>2</sup>	Sect 1 Sect 2			Liner			Total C		678	1	æ-bit 8		67.
NV m/sec 82.9 mpact lb f 370	Current	8.5	727.6		Top @		Reser	ve	74	ECD p		8.86 Riser	
inpage is 1 - 010	ganan		MUD PRC	PERTIES				MUD F				ATIONS	
Sample Location	IN or OUT	IN		IN		WEIGHT				42-47		YP 15-20	lb/100 i %
Time Sample Taken		12:00		24:00		API Filt			HTHP		mi	KCL	/0
Depth	m	832		1062		BY AUTH		wuu Pl	ogram				
Flowline Temp	<u></u>	9.00		8.80		Continue	d maint	ainina 4	40+ viso	cosity u	ising pr	e-hydrated AQL	JAGEL
Weight Funnel Viscosity	ppg sec/qt	<u>9.00</u> 44		42		and CMC	-EHV	to minir	nise ho	le wast	nout.		
Plastic Viscosity	cP	8		8								g hole stable.	
Yield Point	lb/100 ft <sup>2</sup>	12		12									
Gels 10 sec/10min/	30 min lb/100 ft <sup>2</sup>	12/20/30		12/20/30									
API Filtrate	ml/30min	20.0		15.0		1							
HPHT Filtrate	ml/30min	4/-		3/-		1							
API/HPHT Filter Cal Solids	e <u>32nd ins</u> % Vol	4,6		3.4		1							
Dissolved Salts	% Vol	0.1		0.1		1							
0il Content/Water C		→/95.3		-/96.5									
Sand	% Vot	0.1		0.1		1							
Methylene Blue cap		10		10		1							
pH	meter mi	<u>9.0</u> 0.50		9.0 0.50		ACTIVIT	Y					·····	
Alk. Mud Pm Alk. Filtrate, Pf/Mf	ml	0.05/0.07		0.05/0.10		Drilled to	832 m.	Circul	ated ou	t for 1/2	hr the	n ran 25 stand w	iper
Chlorides	mg/Lx10 <sup>3</sup>	1.3		1.5		trip to ca	sing sha	oe. Rar	n back i	n witho	ut prob	lems and no fill.	
Total Hardness/Cal	cium mg/L	40/40		50/50							duced b	it weight and tak	ang ma
KCL	% Wt Soln		ļ			surveys a	as devia	tion inc	reased.	•			
ASG of Solids	g/cc	2.7 0.49/0.94	<u> </u>	2.6									
n & K		0.49/0.94		0.45/0.54		1							
						1							
						1							
Rheometer	600 rpm/300 rpm	28/20		28/20		ł							
b/100 ft <sup>2</sup>	200 rpm/100 rpm												
	6 rpm/3 rpm	CONCLU	ARTION			1							
PRODUCT DESCR	INVENTORY AND	USED	REC	BAL	COST	MUD TY	PE	FW/AC	UAGEL	/CMC		CONSUMPTIC	N
AQUAGEL.sx	25 kg	58		306	831.14	SOLIDS						Additions	bbl
Caustic Soda	25 kg	3		35	97.29	<b> </b>	Mai	œ	screer			Sea W.	38
	25 kg	5		39	533.05				50,50	,80	21	Drill W.	35
				<u>  </u>		Shaker 2 Shaker 3					1	other	
						Shaker 3			<u> </u>		<u> </u>	Barite	
								ppg	bbl/hr	hrs	bbl	Chemicals	
						Desande	r	11.5			53	Losses	bbl
						Desilter 1		11.4	7	21	147	Sol. Con.	20
				<b>.</b>		Desilter 2		<u> </u>		+	+	Lost/Dumped Down Hole	5
		ļ		.		Centrifug Centrifug					1	Newhole	
						Centring	<u>,                                    </u>	l				NET GAIN	8
						Solids Co	ontrol E	ffic.			%	Discharged	25
BAROID Eng	jineer	OFFICE		WAREHOL	JSE		DA	LYCO	ST		CUMU	LATIVE COST	
M. Olejniczak		Melbourne	)	Adelaide			A\$	1461	1.48		A\$	3691.83	
Tol 050-787103		03-62133	11	08-4774	33	I							
THE RECOMMENDAT	IONS MADE HEREO	N SHALL NO	OT BE CON	STRUED AS	AUTHORIZI	NG THE INF	FRINGEN D ARE S	IENT O	F ANY V	ALID PA	TENT, A	ND ARE MADE	
WITHOUT ASSUMPTI	UN OF ANY LIABILIT				John JA								h
RESERVE PITS			Y DATA		inic=	1			ALYSIS		_	BREAKDOWN	hrs 20
NO TYPE	bbl MD m	TVD m	INCL	DIR®	DISP m	Low Grav			% Vol ppb	3.4	Drillin Circul		20
6 Pre-Gel	74 708		1										

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RESE	RVEPHS			SURV	ET DATA			OOLIDOTII					
NO	TYPE	bbl	MD m	TVD m	INCL°	DIR °	DISP m	Low Grav. Solids	% Vol	3.4	Drilling		20.5
	Pre-Gel	74	708		1		1	Low Grav. Solids	ppb	30.9	Circulating		0.5
	FIE-Clei		870		0.5			High Grav. Solids	% Vol	0.3	Reaming In		
			1004		1.5			High Grav. Solids	ppb	4.4	Reaming out		
			1033		2			ASG of Solids	g/cc	2.60	Tripping		3
								Cuttings Volume	bbl	86.0	Other		
								Interval Dilution	bbl/m	0.9			
								Interval Consumption	bbl/m	1.3			
											AVE ROP	m/hr	18.15

						MUD REP	ORT NO.	6 up to	24:00	nrs, 1	7/5/94		•
	Baroid A	ustra	lia Ptv	/ Ltd	Ì	DATE 1	8/5/94	DEPTH-r	n MD 12	57	TVD 12	:57	
		400 4		,	ŀ	START DA		ACTIVITY					
			CONTRA	CTOR / RIC		12-May-	94	Drilling COUNTRY	(				
OPERATOR GFE Resources Ltd			Century R	-				Australia					
REPORT FOR			REPORT	FOR				TOWNSH Port Camp					
Ken Smith	10		S. Kelly FIELD OF	BLOCK N	10.			LOCATIO	N				
Langley-1			PPL 1		CASINGS			Otway Bas	in, Victoria				
BIT DATA Size 8.500 ins	ORILLIN OD ins	G STRING ID ins	Length m			Depth m	Pump Make	ins x in	s Eff %			bbl/min	
Type ETD 417	Pipe 1 4.5	4.367	1036.4	Riser	Set @		Nat 7P50 Nat 8P80	5.5 7. 6 8	75 95 1.5 95	0.054	136	7.344	
Nozzles 32nds 11 13 13	Pipe 2 4.5 Pipe 3	2.875	55.28	9 5/8"	Set @ Set @								
11 10 10	Col 1 6.25	2.875	165.29		Set @		Pump Press	1000 psi bbl C	TOT IRCULATI	AL bbl/m		7.344	
Noz Area 0.35 ins <sup>2</sup>	Col 2 OPEN HO	E SECTI	ONS		Set @ Set @		Downhole	the second s	al circ 85 r		AV m		
TFA ins <sup>2</sup>	Sect 1				Set @		Active	· · · · · · · · · · · · · · · · · · ·	toms up 2 face-bit 9		DP	44.3 69.4	2.1.1
NV m/sec 85.5	Sect 2	8.5	922.6	Liner	Set @ Top @	. 1	Total Circ	And the second se	D ppg		Riser		Handler Frei, Is were a
Impact Ib f 398	Current		MUD PRO	PERTIES				PROPERTY				lb/100 ft <sup>2</sup>	
Sample Location	IN or OUT	IN 10:00		IN 24:00		WEIGHT	<9.2 ppg <15 ml	VIS 40- HTHP		YP KCL		%	
Time Sample Taken Depth	hrs m	12:00 1219		1257		BY AUTHO	ORITY	Mud Progr					
Flowline Temp	°C			8.00		REMARK	S pentonite cont	tent and mu	d volume t	o reduce.	with ai	im of	
Weight Funnel Viscosity	ppg sec/qt	8.90 40		8.90 40		beginning	conversion to	o KCI/Polym	er from 14	00 m.			
Plastic Viscosity	cP	7		7									
Yield Point Gels 10 sec/10min/3	lb/100 ft <sup>2</sup> 0 min lb/100 ft <sup>2</sup>	12 13/23/30		12/22/30									
API Filtrate	ml/30min	12.0		12.0		-						]	
HPHT Filtrate API/HPHT Filter Cak	ml/30min e 32nd ins	2/-		2/									
Solids	% Vol	3.9		3.9 0.1									
Dissolved Salts 0il Content/Water Co	% Vol	0.1		-/96.0									
Sand	% Vol	0.1		0.1									
Methylene Blue cap pH	ppb meter	10 9.0		9.0									
Alk. Mud Pm	ml	0.50		0.50		ACTIVIT	1228 m. Circ	ulated out 1	/2 hr. then	POH for	wiper tr	ip.	
Alk. Filtrate, Pf/Mf	mi mg/Lx10 <sup>3</sup>	0.05/0.10		0.05/0.10		Pipe pulle	d tight from n	ear bottom.	Tempora	rily stuck	at 1076	5m.	
Total Hardness/Calc	ium mg/L	50/50		40/40		Worked fr	ee, and work d POH to 823	ed pipe thro	ugh tight h sk in witho	nole to 10 ut proble:	35 m.ov ms. Ha	ver 1 hr.	
KCL ASG of Solids	% Wt Soln g/cc	2.7		2.7		Resumed	drilling but s	urvey line br	oke during	survey a	t 1257	m.	
n&K		0.45/1.15		0.45/1.15		POH to re	cover line an	d survey ba	rel.				
		·				1							
Dha ana sha a	600 rpm/300 rpm	26/19		26/19		1							
Rheometer lb/100 ft <sup>2</sup>	200 rpm/100 rpm					1							
	6 rpm/3 rpm	D CONSU	MPTION			{							
PRODUCT DESCR		USED	REC	BAL	COST	MUD TY		QUAGEL/CI		CONSU Additio		NC bbi	
Caustic Soda	25 kg 25 kg	6		33	64.86 639.66		CONTROL E Make	Screen si		Sea W.	415		
CMC EHV	25 kg					Shaker 1		50,50,80	17	Drill W. other		180	
						Shaker 2 Shaker 3				other			
						Shaker 4		bbl/hr h	rs bbl	Barite Chemic	ale	1	
						Desande	ppg 11.4		17 68	Losses		bbi	
						Desilter 1		1 6	17 102	Lost/DL		170	
		+			<u> </u>	Desilter 2 Centrifug				Down H	lole	20	
						Centrifug	e 2			Newho		45 56	
		+			<u> </u>	Solids Co	ontrol Effic.		%	Discha	rged	217	
	lineer	OFFICE		WAREHO	USE		DAILY CO	DST	CUM	JLATIVE			
BAROID Eng	:	Melbourn	e	Adelaide			A\$ 704	.52	A\$	4396.	35		
BAROID Eng	1	03-6213	311	08-4774	33		BINGEMENT				ADE		
M. Olejniczak		JN SHALL N		STRUED AS	COR IT'S A	GENTS, ANI	D ARE STATEN	ENTS OF OF	INION ONL	Y			
M. Olejniczak Tel. 059-787103	10NS MADE HEREC	TY BY BARO	DDINEEN					ALYSIS		BREAKD	OWN	hrs	
M. Olejniczak Tel. 059-787103 THE RECOMMENDAT WITHOUT ASSUMPTI	IONS MADE HEREC	ry by baro					SOLDS AN						
M. Olejniczak Tel. 059-787103		ry by baro		DIR °	DISP m	Low Grav	. Solids	% Vol 3.7		ng	· · · · ·	16	
M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	ON OF ANY LIABILIT	TY BY BARO SURV TVD m	EY DATA INCL°	DIR °	DISP m	Low Grav	r. Solids r. Solids	% Vol 3.7 ppb 33	.7 Circu	ng Ilating	······	16	
M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE	bbl         MD m           74         1091           1158	TY BY BARO SURV TVD m	INCL°	DIR °	DISP m		r. Solids r. Solids v. Solids	% Vol 3.7	.7 Circu Rean Rean	ng Ilating ning In ning out		1	
M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE	ON OF ANY LIABILIT bbl MD m 74 1091 1158 1196 1228	TY BY BARO SURV TVD m	EY DATA INCL° 1.5 0.5 1 1.5	DIR °	DISP m	Low Grav High Gra High Gra ASG of S	r. Solids r. Solids v. Solids v. Solids olids	% Vol 3.7 ppb 33 % Vol 0.2 ppb 2.9 g/cc 2.7	7 Circu Rean Rean 0 Rean 0 Tripp	ng Ilating ning In ning out ing		1	
M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE	MD m           74         1091           1158         1196	TY BY BARO SURV TVD m	EY DATA INCL° 1.5 0.5	DIR °	DISP m	Low Grav High Gra High Gra	r. Solids r. Solids v. Solids v. Solids olids Volume	% Vol 3.7 ppb 33 % Vol 0.2 ppb 2.9	7 Circu Rean Rean 0 Tripp .0 Othe	ng Ilating ning In ning out ing		1	

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					1					hre	18/5/94	
						MUD REP	PORT NO.	1	up to 24:00			
BAROIT	Baroid A	ustra	lia Pt	y Ltd			19/5/94		H-m MD 13	21	TVD 1	321
						START D. 12-May-		ACTIV Drilling				
PERATOR			CONTRA	CTOR / RIG	3	14		COUN	ITRY			
E Resources Ltd			Century R					Austra TOWN		· · · · · · · · · · · · · · · · · · ·		
PORT FOR			REPORT S. Kelly	гон				Port C	ampbell			
ELL NAME AND	NO.		FIELD OF	BLOCK N	10.			LOCA	TION Basin, Victori	-		
ngley-1 BIT DATA	DBILLIN	G STRING	PPL 1		CASINGS				PUMP DATA			
ze 8.500 ins	OD ins	ID ins	Length m			Depth m	Pump Make Nat 7P50	ins 5.5	x ins Eff % 7.75 95	bbl/stk 0.054	spm 136	bbl/min 7.344
ype ETD 417 ozzles 32nds	Pipe 1 4.5 Pipe 2 4.5	<u>4.367</u> 2.875	<u>1111.4</u> 55.28	Riser 9 5/8"	Set @ Set @		Nat 8P80	6	8.5 95			
the second se	Pipe 3				Set @		Dump Brood	1000 p		FAL bbl/m	un.	7.344
	Col 1 6.25 Col 2	2.875	154.33		Set @ Set @		Pump Press MUD VOL	bbi	CIRCULAT			
oz Area 0.35 ins²		LE SECTION	ONS		Set @	)	Downhole	288	Total circ 90		AV r	<u>m/min</u> 44.3
A ins <sup>2</sup>	Sect 1			Liner	Set @ Set @		Active Total Circ	374 662	Bottoms up 2 Surface-bit		DC	69.4
V m/sec 85.5 npact lb f 403	Sect 2 Current	8.5	986.6		Top @		Reserve	34	ECD ppg 🗠			e deste
			MUD PRC	IN		WEIGHT	MUD   <9.2 ppg		ATY SPECIFI 40-45 sec			lb/100 ft
ample Location me Sample Taken	IN or OUT hrs	IN 11:30		24:00			<12 mi	HTHP	mi	KCL		%
epth	m	1257		1321		BY AUTH		Mud Pi	rogram			
owline Temp	<u>°C</u>	8.90		9.00		REMARK Continue	d maintaining	viscosit	y and filtration	control us	sing Cl	NC-EHV
leight unnel Viscosity	ppg sec/qt	41		38		additions	only. Keeping	g mud N	, ABT (clay cont	ent) low to	o prepa	are
lastic Viscosity	cP	10		9 11		for conve	rsion to KCI/P	olymer.				
ield Point iels 10 sec/10min/3	lb/100 ft <sup>2</sup> 10 min lb/100 ft <sup>2</sup>	13 12/23/30		10/19/29		1						
PI Filtrate	ml/30min	10.0		8.5								
PHT Filtrate	ml/30min e 32nd ins	2/-		2/-								
Solids	% Vol	3.9		4.6								
issolved Salts	% Vol	0.1		0.1								
and	% Vol	0.1		0.1								
lethylene Blue cap		9 9.0		8 9.0								
H lk. Mud Pm	meter ml	0.50		0.50		ACTIVIT	Y					0
lk. Filtrate, Pf/Mf	mi	0.05/0.10		0.05/0.10		Continue	d POH. Chec	ked bit, ream in	changed BHA from 1062 to	and slipp 1075 m o	ver 1/2	hrand
hlorides otal Hardness/Calc	mg/Lx10 <sup>3</sup>	1.0 40/40		40/40		from 117	7 to 1257 m o	ver 1 1/2	hrs. resume	d drilling f	rom 11	:30 hrs.
CL	% Wt Soln			2.7								
SG of Solids	g/cc	2.7 0.52/0.90		0.54/0.69		1.						
						1						
						1						
lheometer	600 rpm/300 rpm			29/20								
/100 ft <sup>2</sup>	200 rpm/100 rpm 6 rpm/3 rpm											
	INVENTORY AN			1.5.41	OCOT	MUD TY		QUAGE	LICMC	CONSL	IMPTI	ON
RODUCT DESCR austic Soda	1PTION 25 kg	USED 2	REC	BAL 31	COST 64.86	MUD TY SOLIDS	CONTROL E	QUIPM	ENT	Additio		bbl
MC EHV	25 kg	10		23	1066.1	1	Make	screel 50,50	n size hrs	Sea W. Drill W.		220
						Shaker 1 Shaker 2		30,50	,00 10	other		
						Shaker 3				other Barite		
			<b> </b>			Shaker 4	ppg	bbl/hr	hrs bbl	Chemic	ais	1
				1		Desande	r 11.1	3	11 33			<b>bbl</b> 123
						Desilter 1 Desilter 2		6	15 90	Lost/DL		63
						Centrifug				Down H	lole	35
						Centrifug	e 2			Newhol		15
						Solids Co	ontrol Effic.		%	Discha	rged	186
BAROID Eng	jineer	OFFICE		WAREHOU	JSE	-	DAILY CO	DST	CUM	JLATIVE	COST	
M. Olejniczak		Melbourne	•	Adelaide			A\$ 113	0.96	A\$	5527.	31	
		03-62133		08-4774	33	<u> </u>					ADE	
E RECOMMENDAT	IONS MADE HEREC	N SHALL N	D DBILLING			NG THE INF	RINGEMENT C	ENTS O	ALID PATENT, / F OPINION ONL	AND ARE N Y.	AUE	
THOUT ASSUMPTI	ON OF ANY LIABILI	T BY BARO	UNILLING	I FLUIDS, IN	o on li S A	GENTO, AN						
ESERVE PITS			EY DATA		Louce.	1	SOLIDS AN	ALYSIS % Vol		BREAKD	OWN	hrs 12.5
0 TYPE 6 Pre-Mix	bbi MD m 34 1276	TVD m	INCL°	DIR®	DISP m	Low Grav		% Voi ppb		lating		0.5
U FIG-WIX			1.75			High Gra	v. Solids	% Vol		ning In		
	1	ł	1	1		High Gra		_ррь_		ning out		
					1	ASG of S	olids	g/cc	2.70 Tripp	ing		<sup>s</sup>
						Cuttings	Volume	bbl	15.0 Othe			
						Cuttings Interval E	Volume		15.0 Othe 1.1			

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Automatical         Canders (18)         Canders (18)         Automatical         Automatical           MRC AND NO.         Sector         Point         Construct (18)         LOCATION         LOCATION           ANGL AND NO.         Pint (1         CONSTRUCT (18)         Point (10)         Charles (18)         LOCATION           ANLA         OPEL LINE STITING         CASINGS         PLUP OVATA         Charles (18)         Social (18) <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>MUD REP</th> <th>ORT NO</th> <th>)<u> </u></th> <th>3 ι</th> <th>up to 2</th> <th>24:00 h</th> <th>nrs, 1</th> <th>9/5/94</th> <th></th>							MUD REP	ORT NO	) <u> </u>	3 ι	up to 2	24:00 h	nrs, 1	9/5/94	
Image: Control ACTION 16/06         Control ACTION 16/06         Control ACTION 16/06         Control ACTION 16/06           Made AND NO.         9.5000         Point ACTION 16/06         Control ACTION 16/06         Control ACTION 16/06           MME AND NO.         9.5000         Point ACTION 16/06         CONTROL 16/06         Point ACTION 16/06           Soft and Do No.         9.5000         Control ACTION 16/06         Control ACTION 16/06         POINT 26/06/08           Soft and Do No.         0.501 and 0.501 an	BAROLD	Baroid A	ustral	lia Pty	y Ltd							MD 136	33	IVD 130	53
Alt OH         Lotential         Lotential         Lotential           mill         Alternial         Port FOR         FORVASHP         Port General           mill         S. Kelly         Port FOR         FORVASHP         Port General           mill         S. Kelly         Port Holds         FELD OR BLOCK NO.         LocATION           V1         ODIE         Dista Long         CASINGS         PIME DATA           Set Sign         Dista Long         Set Sign         Set Sign         Set Sign         Set Sign           Set Sign         Dista Long         Set Sign         Casing Sign         Set					= 10 ( <b>D</b> )(				the second s		_				
Inf F roft         REPORT F CR         TOWNSHP           INME AND NO.         FIELD OF RUCK NO.         Piel Construct         Piel Construct           V1         OR RUCK NO.         FIELD OF RUCK NO.         PUMP DATA           V1         OR RUCK NO.         Piel Construct         PUMP DATA           V2         OR RUCK NO.         PUMP DATA         PUMP DATA           V2         OL res         OL res         Cols Nos         PUMP DATA           V2         OL res         OL res         Cols Nos         PUMP DATA           V2         OL res         OL res         OL res         OL res         PUMP DATA           V2         OL res         0.01 res         OL res	PERATOR FE Resources Ltd		1			3				Austral	ia				
Prime         Prime         DOCK NO.         DOCK NO.         DOCK NO.           ANE AND NO.         OPLIL         DOCK NO.         DOCK NO.         PUID Line         DOCK NO.         PUID Line	EPORT FOR			REPORT				_				1			ĺ
Onlaw         Difful No         CASINGS         Deptin         Purp Site         Colore           560 ra         DO Tris         Dirs         Length Mission         Dirs         Dirs         Length Mission         Dirs	en Smith				BLOCK N	10.		·		LOCA	TION		- • • • •		
DATA         Disk         Long m         State         Depth         Pump         Mar 765         State         Disk         Long m         Depth         Fump         Mar 765         State         Disk         Long m         Disk         Disk <thdisk< th=""> <thdisk< th=""> <thdisk< th=""></thdisk<></thdisk<></thdisk<>	angley-1			PPL 1											
Space Starp         Impail 1         A.S.         4.847         Other I         Rest         Set @         Num Press         6.5         7.75         2.8         0.001         15         5.67           1.1         10         Pipe 3	BIT DATA						Depth m	Pump M	ake				obl/stk	spm b	bl/min
Bits         Type 2         1.4         Display         Set @         Pump Press Cop #         Child         Child <thchild< th="">         Child</thchild<>	vpe Sec S82F					Set @								105	5.67
Is         Col:         C	Nozzles 32nds		2.875	55.28	9 5/8"			Nat 8P8	0	6	8.5	95	0.0705		
Instruction         Cold 2         Control 0         Set 2         Control 0         Control 0         Part 2	11 13 13		2.875	174.6		Set @									5.67
BBS US         DEP         4.2         Set 0         Adve         274         Best of CP         CP <thcp< th="">         CP         CP         <thcp< t<="" td=""><td></td><td></td><td>LE SECTI</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>/min</td></thcp<></thcp<>			LE SECTI												/min
Bane Go.         Bane So.         Liner         Set @         Total Circ670.         Burdlos-Bit 12 m/l 100.         D00.         D01.           Ith (         240         Current         9.5         102.5         Total Circ670.         MUD PROPERTY SINCE/CATONS           MUD PROPERTY SINCE/CATONS         MUD PROPERTY SINCE/CATONS         MUD PROPERTY SINCE/CATONS         MUD PROPERTY SINCE/CATONS           Sample Taken         nn         1936         1935         D1 AV110ATV         Mud Pregare           Name         nn         1936         1935         D1 AV110ATV         Mud Pregare           Name         7         9.00         0.00         B4 Arang meaning nearing nea	loz Area 0.35 ins <sup>2</sup> FA ins <sup>2</sup>		LE SECTIO	JNS				Active	:	374	Botton	ns up 35	5 mins		1
It Is /         2.9         DU28 Interest         Itel / 100 PM	V m/sec 66.0	Sect 2			Liner	-									53.6
Is Location         IN or QUT         N         IN         WEIGHT < Q2 pg VIS         40-45sec YP         10-15(h):00 P           In         m         1393         IP Fill < 150	mpact lb f 240	Current			PERTIES	100 @							ATIONS		
Sample Taken         Ins         12/00         24000         BY AUTYORY         Muck Program           ine Temp         -0         90         97         Filter         Muck Program           ine Temp         -0         90         97         Filter         Muck Program           Viscosity         sec(11)         00         90         Bitw dming as weight on bit reduced atempts or dawlation.           Viscosity         sec(11)         00         92         Filter         Filter           Viscosity         sec(11)         00         92         Filter         Filter           Caval trinuodo m. Bit00.01         12         11         to guage 11/2 hole.         Muck bases inpl auto to take seveal days.           Filter         Bit00.01         92/2.5         8.5         Continued using CMC = EHV only for mud maintanence.           Interdes/Cable         30.1         0.1         O.1         Continued using CMC = EHV only for mud maintanence.           Interdes/Cable         30.0         0.50         ACTIVITY         Muck brow tight hole for mick on the south the stress of the south filter hole for mick on the south filter hole.           Midd Pm         mid 0.50         0.500         ACTIVITY         Muck screen size hole.         Soutalise hole.           Midd Pm	Sample Location		IN		IN				- 3						}
In         IOU         IOU <thiou< th=""> <thiou< th=""> <thiou< th=""></thiou<></thiou<></thiou<>	Time Sample Taken														
t         ppg         0.00         0.00         Slow drilling as weight on bit reduced atterming to control use/auton.           Viscosity         oP         9         7         Problems rearring in due to stiffer. (longer BHA going intor very close Point           0 sec/timing0 min. B/100 RF         9/20/30         7/17/26         Mud bases nigh due to tripping, but also appear to have had seepage intrate wer close Point           10 sec/timing0 min. B/100 RF         9/20/30         7/17/26         Mud bases nigh due to tripping, but also appear to have had seepage intrate wer close Point           PH Titler Cale         8.5         Loses in for Bearate Formation for several days.           Fittate         m/9/30min         6.5         Continued using CMC – EHV only for mud maintainence.           Vieo Satis         Y-Vel         0.6         0.50         ACTIVITY           Add Pm         milet         0.0         0.50         ACTIVITY           Add Pm         milet         0.6         0.50         ACTIVITY           Add Pm         milet         0.6         0.6         Control using CMC – EHV only for mud maintainence.           Vieo Satis         molet         0.6         0.50         ACTIVITY           Add Pm         milet         0.6         0.6         ACTIVITY           Add Pm         mile	Depth Flowline Temp		1303				REMARK	S							
Discosity         0         9         7         Problems reaming in due to stiffer, founger BHA going into very close Problems reaming in due to stiffer, founger BHA going into very close in 0 quage 31/27 hole.           Ubaccifunnadi min Ib/100 RF         9/20/30         7/17/26         Mud losses high due to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping, but also appear to have had seepage losaes in the hard to tripping.           Verial Status         9/10         0.1         0.1         Continued using GMC = EHV only for mud maintenerce.           Verial Status         9.0         8.8         ACTIVITY         Activity is the hard to thard to thard to the hard to the hard to the hard to thard to tha	Weight						Slow drilli	ng as we	ight o to sti	n bit re ffen as	duced a sembly	attempii and sto	ng to cont op deviation	uroi dev on wors	ening.
Pant         Ib/100 rf         12         11         to guage 6 1/2 hole.           0 sac/10mn(0) mil/00 rf         9.5         8.5         Ioases into Parnate Formation for several days.           Filted         m/30mn         9.5         8.5         Ioases into Parnate Formation for several days.           PHT Filter Cake         320 drs.         2/-         2/-         Continued using CMC – EHV only for mud maintainence.           PHT Filter Cake         320 drs.         6.5         7.1         Continued using CMC – EHV only for mud maintainence.           Interruption PhDE         9.0         8.8         Additional data data data data data data data da	-unnel Viscosity Plastic Viscosity						Problems	reaming	in du	e to stif	fer, lon	ger BHA	going in	to very	close
0 desc         0 desc<	field Point	lb/100 ft2	12		11		to quage	8 1/2" ho	le.						
Bit at a m/gomm         Contrued using CMC –EHV only for mud maintainence.           PHT Filtratile Cake         2/-         2/-           PHT Filtratile Cake         3: Void         4.9         4.9           Ved Satts         5: Void         0.1         0.1         4.0           Ved Satts         7.8         7.8         A         A           Aud Pm         mild         0.050         0.0600         Charged bit and added 2 stabilisers to BHA to stiften BHA. RH to the BHA for the BHA is the BHA	Gels 10 sec/10min/3 API Filtrate				and the second s		losses inte	o Paaratt	e Forr	nation f	for seve	ral day	s.		
International content         % Vol         49         49           Ived Salts         % Vol         0.1         0.1         0.1           Ived Salts         % Vol         0.1         7.         0.1           Ived Salts         % Vol         0.1         7.         0.1           Ived Salts         % Vol         0.50         0.50         0.50           Aud Pm         md         0.650.0         0.50         0.50         0.50           Ives         matter         0.600         0.25         0.47         Charter Salts         0.47           Ives         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.26         0.470.20         0.470.26         0.470.20         0.470.26         0.470.20         0.470.20         0.470.20         0.470.20         0.470.20         0.470.20         0.470.20 <td>HPHT Filtrate</td> <td>ml/30min</td> <td></td> <td> </td> <td></td> <td></td> <td>Continued</td> <td>d using C</td> <td>MC-</td> <td>EHV on</td> <td>ly for п</td> <td>nud mai</td> <td>ntainence</td> <td>э.</td> <td></td>	HPHT Filtrate	ml/30min					Continued	d using C	MC-	EHV on	ly for п	nud mai	ntainence	э.	
Ved Saits         5 Vol         -//25.0         -//25.0           inter/Water Content         5 Vol         0.1         0.1         -//25.0           iden Blue cap         p.pb         8         7         -//25.0           iduel Pm         mid         0.50         0.50         ACTIVITY           iduel Pm         mid         0.50         0.50         Doll         Drilled to 1363 m at 08:30 hrs. Circ out 1/2 hr, then POH for bit and 0.059(.10           ides         middline         50/50         60/60         Change bit and added 2 stabilizers to BHA to stiffen BHA. RiH to 14rdness/Calcium mg/L.         50/50         60/60         Change bit and added 2 stabilizers to BHA to stiffen BHA. RiH to 14rdness/Calcium mg/L.         50/50         60/50         Change bit and added 2 stabilizers to BHA to stiffen BHA. RiH to 14rdness/Calcium mg/L.         50/50         60/50         Change bit and added 2 stabilizers to BHA to stiffen BHA. RiH to 14/240 m.         90/21         25/18         0         60/50         Change bit and added 2 stabilizers to BHA to stiffen BHA. RiH to 150/50.80         165         Del to 12/50 mm         160/50         0         160/50         0         240         m.         240         m.         240         m.         240         m.         240         m.         240         m.         240         160/50         160/50 </td <td>API/HPHT Filter Cak</td> <td></td>	API/HPHT Filter Cak														
Multi Stands         Start	Solids Dissolved Salts				0.1		1								
Viene Blue cap         Ppb         8         7           Mud Pm         mileter         9.0         8.6         ACTVUTY           Aud Pm         mil         0.50         0.050.10         Diffied to 1353 m at 08:30 hrs. Circ out 1/2 hr, then PCH for bit and iterastication of the set of th															
meter         9.0         8.8         ACTIVITY           ittrate, PI/M         0.50         ACTIVITY           ittrate, PI/M         ml         0.05(0.10         D.05(0.10)         Drilled to 1983 m at 08:30 hrs. Circ out 1/2 hr, then PCH for bit and dides           ittrate, PI/M         mg/Lxt0 <sup>2</sup> 1.2         1.5         Bit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.           iteracess/Catcium         mg/Lxt0 <sup>2</sup> 1.2         1.5         Bit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.           iteracess/Catcium         mg/Lxt0 <sup>2</sup> 1.2         0.4         Dit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.           iteracess/Catcium         mg/Lxt0 <sup>2</sup> 1.2         0.4         Dit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.           iteracess/Catcium         mg/Lxt0 <sup>2</sup> 2.6         2.6         0.4         Dit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.           iteracess/Catcium         0.510.87         0.47/0.96         Dit Achange. Hack to work tight hole from 1902 to 1158 m pulling out.         Dit Achange. Hack to work tight hole made.           iteracess/Catcium         0.00 pm/100 pm         30/2.1         25/18         Dit Achange. Hack to work tight hole made.           iteracess/Catcipmine         0.112         1.2	Sand Methylene Blue cap						1								
Multi mile         0.05/0.10         0.05/0.10         Differ to 1363 m at 08:30 hs. Circ out 1/2 hr, then PCH for bit and tides           ides         mg/Lx10 <sup>2</sup> 1.2         1.5         BHA change. Head to work tight hole from 1302 cirls an pulling out. Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to stiffen BHA. Rill to Changed bit and added 2 stabilisers to BHA to attrame the rest of the way. Reached 1240 m.           matter         600 rpm/3 rpm         30/21         25/18         Solubs ConTROL EQUIPMENT         Additions         bbl           DUCT DESCRIPTION         USED REC         BAL         COST         MUD TYPE         FW/ACUAGEL/CMC         CONSUMPTION           DUCT DESCRIPTION         USED REC         BAL         COST         Mult TYPE         FW/ACUAGEL/CMC         Additions         bbl           EHV         25 kg         11         12         17.2 <td>ын</td> <td>meter</td> <td></td> <td></td> <td></td> <td></td> <td>ACTRUT</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	ын	meter					ACTRUT								
Idea         mg/Lx10 <sup>2</sup> 1.2         1.5         BHA change. Had to writ sliph hole from 1302 to 1156 m publing out.           Hardness/Calcium         mg/L         50/50         60/60         Changed bit and added 2 stabilizers to BHA to stifter BHA. Rift to 947 m. Had to ream in the rest of the way. Reached 1240 m.           of Solids         g/cc         2.6         2.6         947 m. Had to ream in the rest of the way. Reached 1240 m.           of Solids         g/cc         2.6         2.6         947 m. Had to ream in the rest of the way. Reached 1240 m.           matter         60/10.67         0.47/0.96         947 m. Had to ream in the rest of the way. Reached 1240 m.           matter         600 rpm/300 rpm         30/21         25/18         947 m. Had to ream in the rest of the way. Reached 1240 m.           matter         600 rpm/300 rpm         30/21         25/18         90 32.43         SOLIDS CONTROL EQUIPMENT         Additions           bit         50 det         1         20         32.43         SOLIDS CONTROL EQUIPMENT         Additions         bbl           cis Soda         25 kg         11         12         1172.71         Make screen size hrs         Sea W.         90 mill W.           EHV         25 kg         11         12         15.5         16         23         Loss(0, m.	Alk. Mud Pm						Drilled to	1363 m a	at 08:3	80 hrs.	Circ ou	t 1/2 hr.	then PO	H for bi	and
Industry Calculation         Start Solid         2.6         2.6           of Solids         g/cc         2.6         2.6         2.6           of Solids         g/cc         0.51/0.87         0.47/0.96         0.47/0.96           matter         500 rpm/300 rpm         30/21         25/18         0.47/0.96         0.47/0.96           INVENTORY AND CONSUMPTION         USED         REC         BAL         COST         MUD TYPE         FW/AGUAGEL/CMC         Additions         bbl           LEHV         25 kg         11         12         117.2.1         Make screen size         1.5         Desiter 1         50.50.80         16.5         Drill W.         200           Shaker 1         50.50.80         1.5         Drill W.         200         1.1         1.2         1.5         1.5         1.2         Lost/Dumped         2.         1.6         Desiter 1         1.1         4	Chlorides	and the second se	1.2		1.5		BHA char	nge. Hac	to wo	ork tight	t hole fr	om 130	2 to 1158	m pulli	ng out.
of Solids         g/cc         2.6         2.6         2.6           i         0.51/0.87         0.47/0.96         i         i         i           imater         600 rpm/300 rpm         30/21         25/18         i         i         i           imater         600 rpm/300 rpm         30/21         25/18         i         i         i         i           investore         Approximation         investore         i	Total Hardness/Cald				60/60		Changed 947 m. H	bit and a ad to rea	iaded im in t	2 stabi he rest	of the v	vay. Re	eached 12	240 m.	
meter         600 rpm/300 rpm         30/21         25/18         0           0 R³         200 rpm/100 rpm         0 <td>KCL ASG of Solids</td> <td></td> <td>2.6</td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	KCL ASG of Solids		2.6				1								
Dif         200 rpm/100 rpm         Image: constant of the second	& K		0.51/0.87		0.47/0.96		1								
Dif         200 rpm/100 rpm         Image: constant of the second			<u> </u>				1								
Dif         200 rpm/100 rpm         Image: constant of the second	boomator	600 rpm/300 rpm	30/21		25/18										
6 rpm/3 rpm         Investor QNSUMPTION           DUCT DESCRPTION         USED         REC         BAL         COST         MUD TYPE         FW/AQUAGEL/CMC         CONSUMPTION           bit Soda         25 kg         1         30         32.43         SOLIDS CONTROL EQUIPMENT         Additions         bbl           EHV         25 kg         11         12         1172.71         Make screen size hrs         Sea W.         200           EHV         25 kg         11         12         1172.71         Make screen size hrs         Sea W.         200           Shaker 1         50,50,80         16.5         Drill W.         200         0ther         200           Shaker 3         0         116.5         Drill W.         200         0ther         200           Shaker 4         1         12         1.5         15         22         0ther         200           Solids Cantrol Effic         2         1         Desilter 1.         11         4         12         48         20.100mpd 82           Centrifuge 2         1         10         Nethole         100         Nethole         10           Molepriczak         Melbourne         Adelaide         A\$         12 <td>heometer p/100 ft<sup>2</sup></td> <td>a construction of the second /td> <td></td> <td></td> <td>20/10</td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	heometer p/100 ft <sup>2</sup>	a construction of the second			20/10		1								
DUCT DESCRIPTION         USED         REC         BAL         COST         MUD TYPE         FW/AQUAGEL/CMC         CONSUMPTION           tic Socia         25 kg         1         30         32.43         SOLIDS CONTROL EQUIPMENT         Additions         bbl           EHV         25 kg         11         12         1172.71         Make         screen size         hrs         Additions         bbl           EHV         25 kg         11         12         1172.71         Make         screen size         hrs         Additions         bbl           EHV         25 kg         11         12         172.71         Maker 2         0ther         Constructions         Constructions         Constructions         Constructions         Constructions         Mater 3         0ther         Constructions         Construc			DCONEU	IPTION		I	ł								
tic Soda         25 kg         1         30         32.43         SOLIDS CONTROL EQUIPMENT         Additions         bbl           EHV         25 kg         11         12         1172.71         Make         screen size         hts         Sea W.         Edw         50.50.80         16.5         Drill W.         200           EHV         25 kg         11         12         1172.71         Shaker 1         50.50.80         16.5         Drill W.         200           Shaker 3         0         Other         Shaker 4         0         Other         200           EHV         25         Make         Shaker 3         0         Other         200           Shaker 4         Desander         11.2         15         15         23         Losses         bbl           EHV         26         Desilter 1         11         4         12         48         Sol.Con.         71           Desilter 2         1         4         12         48         Sol.Con.         71         14         12         48         Sol.Con.         71           Desilter 2         1         Astrophole         10         Nethole         10         Nethole         10	RODUCT DESCR				BAL	COST									
EHV         25 kg         11         12         11/2         11/2         Shaker 1         50,50,80         16.5         Drill W.         200           Shaker 2         Shaker 3         Shaker 3         other         other         other         other         0		25 kg	1				SOLIDS					hrs		15	bbl
Image: Shaker 2         other           Shaker 3         other           Shaker 4         Barite           Desilter 1         11 2           Shaker 2         other           Desilter 1         11 4           Shaker 2         other           Shaker 3         other           Shaker 4         Desilter 1.           Desilter 2.         14           Solids Control Effic.         %           Solids Control Fific.         %			1 11		12	11/2./1	Shaker 1	Make					Drill W.		200
Bartie     Barite       Bartie     Bartie       Bartie     Bartie       Bartie     Chemicals       Bartie     Desilter 1       Bartie     Bartie       Bartie     Bartie       Bartie     Bartie       Bartie     Bartie       Bartie     Bartie       Bartie     Desilter 1       Bartie     Bartie       Bartie     Bartie       Bartie     Desilter 2       Bartie     Bartie       BAROID Engineer     OFFICE       OFFICE     WAREHOUSE       Bartie     NET LOSS       BAROID Engineer     OFFICE       Ware House     Adelaide       Adelaide     A\$ 1205.14       A\$ 6732.45       Solids Control Effic.     %       Discharged     153       BAROID DRILLING FLUIDS. INC OR IT'S AGENTS, AND ARE STATEMENT OF ANY VALID PATENT, AND ARE MADE       OUT ASSUMPTION OF ANY LIABILTY BY BAROID DRILLING FLUIDS. INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       ERVE PITS     SURVEY DATA		25 kg					Shaker 2								
Image: Subscript of the state of t		25 kg					I Snaker 3					ļ			
Desilient         Int         I		25 kg				<del>_</del>							Bante	]	
BAROID Engineer       OFFICE       WAREHOUSE       Centrifuge 1       Image: Control Effic.       %       Discharged       153         BAROID Engineer       OFFICE       WAREHOUSE       Daily Cost       CUMULATIVE Cost       12         M. Olejniczak       Melbourne       Adelaide       As       1205.14       As       6732.45         059-787103       03-6213311       08-477433       08-477433       08-477433       CUMULATIVE COST         RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       00///////////////////////////////////		25 kg					Shaker 4		F.M		1		Chemica	als	
BAROID Engineer       OFFICE       WAREHOUSE       Discharged       10         BAROID Engineer       OFFICE       WAREHOUSE       Daily Cost       CUMULATIVE COST       CUMULATIVE COST         M. Olejniczak       Melbourne       Adelaide       Adelaide       A\$ 1205.14       A\$ 6732.45         059-787103       03-6213311       08-477433       08-477433       08-477433         PECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         ERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN       hrs.         TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol 4.9       Drilling       6.5         5       Pre-Mix       14       1331       1.75       Low Grav. Solids       % Vol       Rearning out       7.5         4       1363       1.75       High Grav. Solids       % Vol       Rearning out       7.5         4       1363       1.75       High Grav. Solids       ppb       Rearning out       7.5         4       1363       1.75       High Grav. Solids       ppb		25 kg					Shaker 4 Desander	r	11.2	1.5	15	23	Chemica Losses		bbi
BAROID Engineer       OFFICE       WAREHOUSE       Dailty Cost       Discharged       153         BAROID Engineer       OFFICE       WAREHOUSE       DAILY COST       CUMULATIVE COST         M. Olejniczak       Melbourne       Adelaide       D8-477433       A\$ 1205.14       A\$ 6732.45         Secondmendations       Made Hereon SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS. INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         ERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN       hrs.         TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol       4.9       Drilling       6.5         5       Pre-Mix       14       1331       1.75       Low Grav. Solids       % Vol       4.9       Drilling       0.5         4       1363       1.75       High Grav. Solids       % Vol       Rearning out       7.5         4       1363       1.75       High Grav. Solids       ppb       Rearning out       7.5         4       1363       1.75       High Grav. Solids       ppb       Rearning out       7.5         4       1363		25 kg					Shaker 4 Desander Desilter 1 Desilter 2	r	11.2	1.5	15	23	Chemica Losses Sol. Con Lost/Dur	n. mped	bbi 71 82
BAROID Engineer     OFFICE     WAREHOUSE     DAILY COST     CUMULATIVE COST       M. Olejniczak     Melbourne     Adelaide     A\$ 1205.14     A\$ 6732.45       059-787103     03-6213311     08-477433     A\$ 1205.14     A\$ 6732.45       RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       ERVE PITS     SURVEY DATA     SOLIDS ANALYSIS     TIME BREAKDOWN     hrs.       TYPE     bbl     MD m     TVD m     INCL°     DIR °     DISP m     Low Grav. Solids     % Vol 4.9     Drilling     8.5       8     Pre-Mix     14     1331     1.75     Low Grav. Solids     % Vol     Rearning in     7.5       4     1363     1.75     High Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     Kigh Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     Low Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     Low Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     Low Grav. Solids		25 kg					Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	r e 1	11.2	1.5	15	23	Chemica Losses Sol. Con Lost/Dur Down He	n. mped ole	<b>bbi</b> 71 82 60
BAROID Engineer     OFFICE     WAREHOUDE       M. Olejniczak     Melbourne     Adelaide     A\$ 1205.14     A\$ 6732.45       059-787103     03-6213311     08-477433     A\$ 1205.14     A\$ 6732.45       RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE     OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       ERVE PITS     SURVEY DATA     SOLIDS ANALYSIS     TIME BREAKDOWN     hrs       TYPE     bbl     MD m     TVD m     INCL*     DIR *     DIS P m     Low Grav. Solids     % Vol     4.9     Drilling     6.5       5     Pre-Mix     14     1331     1.75     Low Grav. Solids     % Vol     Rearning in     7.5       4     1363     1.75     High Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     High Grav. Solids     g/cc     2.60     Tripping     7.5       4     1363     1.75     Low Grav. Solids     g/cc     2.60     Tripping     7.5		25 kg					Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	r e 1	11.2	1.5	15	23	Chemica Losses Sol. Con Lost/Dur Down He Newhole	n. nped ole	bbi 71 82 60 10 12
M. Olejniczak     Melbourne     Adelade     Adelade       059-787103     03-6213311     08-477433       PECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       ERVE PITS     SURVEY DATA     SOLIDS ANALYSIS     TIME BREAKDOWN     hrs.       TYPE     bbl     MD m     TVD m     INCL°     DIR °     DISP m     Low Grav. Solids     % Vol 4.9     Drilling     6.5       5     Pre-Mix     14     1331     1.75     Low Grav. Solids     % Vol     Reaming in     7.5       4     1363     1.75     High Grav. Solids     % Vol     Reaming out     7.5       4     1363     1.75     High Grav. Solids     g/cc     2.60     Tripping     7.5       5     Cuttings Volume     bbl     10.0     Other		25 kg					Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug	e 1 e 2 ontrol Effi	<u>11.2</u> 11	1.5	15	23 48 	Chemica Losses Sol. Con Lost/Dur Down He Newhole NET LO Dischar	n. nped ole s SS ged	bbi 71 82 60 10 12
OUR CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE         GECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE         OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         ERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN       hrs         TYPE       bbl       MD m       IVO m       INTEL BREAKDOWN       hrs         1363       1.75       Low Grav. Solids       % Vol       Reami			OFFICE		WAREHOU	JSE	Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug	e 1 e 2 ontrol Effi DAIL	11.2 11 c. Y CO:	1.5 4 ST	15	23 48 	Chemica Losses Sol. Con Lost/Dur Down He Newhole NET LO Dischar	n. nped ole SS ged COST	bbi 71 82 60 10 12
OUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       ERVE PITS     SURVEY DATA     SOLIDS ANALYSIS     TIME BREAKDOWN     hrs       TYPE     bbl     MD m     TVD m     INCL°     DIR °     DISP m     Low Grav. Solids     % Vol     4.9     Drilling     6.5       5     Pre-Mix     14     1331     1.75     Low Grav. Solids     ppb     44.6     Circulating     0.5       1363     1.75     High Grav. Solids     gpb     Reaming in     7.5	MC EHV BAROID Eng	jineer			Adelaide		Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug	e 1 e 2 ontrol Effi DAIL	11.2 11 c. Y CO:	1.5 4 ST	15	23 48 	Chemica Losses Sol. Con Lost/Dur Down He Newhole NET LO Dischar	n. nped ole SS ged COST	bbi 71 82 60 10 12
ERVE PITS     SORVEY DATA     Occupation       TYPE     bbl     MD m     TVD m     INCL°     DIR °     DISP m     Low Grav. Solids     % Vol 4.9     Drilling     8.5       3     Pre-Mix     14     1331     1.75     Low Grav. Solids     ppb     44.6     Circulating     0.5       1363     1.75     High Grav. Solids     ppb     Reaming In     7.5       High Grav. Solids     g/cc     2.60     Tripping     7.5       Cuttings Volume     bbl     10.0     Other	BAROID Eng M. Olejniczak	gineer	Melbourne	11	Adelaide	33	Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Cc	e 1 e 2 ontrol Effi DAIL	11.2 11 c. Y CO:	1.5 4 5.14	15	23 48 % CUMU A\$	Chemica Losses Sol. Con Lost/Dur Down He Newhole NET LO Dischar LATIVE ( 6732.4	n. nped ole SS ged COST 15	bbi 71 82 60 10 12
TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol 4.9       Drilling       8.5         5       Pre-Mix       14       1331       1.75       Low Grav. Solids       ppb       44.6       Circulating       0.5         5       Pre-Mix       14       1331       1.75       High Grav. Solids       % Vol       Reaming in       7.5         -       -       -       -       ASG of Solids       g/cc       2.60       Tripping       7.5         -       -       -       -       Cuttings Volume       bbl       10.0       Other       -	BAROID Eng M. Olejniczak el. 059-787103		Melbourne 03-62133 ON SHALL NO	DT BE CON	Adelaide	33 AUTHORIZI	Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Cc	e 1 e 2 Datto Effi DAIL A\$	11.2 11 c. Y CO: I 205	1.5 4 5.14	15 12	23 48 % CUMU A\$	Chemics Losses Sol. Con Lost/Dur Down H Newhole NET LO Dischar LATIVE C 6732.4	n. nped ole SS ged COST 15	bbi 71 82 60 10 12
S Pre-Mix       14       1331       1.75       Low outer constraints       Pre-Mix       Pre-Mix       14       1331       1.75         1363       1.75       High Grav. Solids       % Vol       Reaming in       7.5         High Grav. Solids       g/cc       2.60       Tripping       7.5         Cuttings Volume       bbl       10.0       Other         Interval Dilution       bbl/m       1.3       1.3	BAROID Eng M. Olejniczak Fel. 059–787103 THE RECOMMENDAT MTHOUT ASSUMPTI		Melbourne 03-62133 DN SHALL NO TY BY BAROI	DT BE CON D DRILLING	Adelaide	33 AUTHORIZI	Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Cc	e 1 e 2 DAIL DAIL A\$ 1 RINGEME D ARE ST/	11.2 11 c. Y CO: 1205	1.5 4 ST 5.14 F ANY V/	15 12 ALID PA	23 48 % CUMU A\$ FENT, AF DN ONLY	Chemics Losses Sol. Con Lost/Dur Down Hi Newhole NET LO Dischar LATIVE ( 6732.4 ND ARE Mi , SREAKD(	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153
High Grav. Solids     ppb     Rearing out       ASG of Solids     g/cc     2.60     Tripping     7.5       Cuttings Volume     bbl     10.0     Other       Interval Dilution     bbl/m     1.3	BAROID Eng M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTIN RESERVE PITS NO TYPE	gineer CIONS MADE HEREC ON OF ANY LIABILI bbl MD m	Melbourne 03-62133 DN SHALL NO TY BY BAROI SURVI	DT BE CON D DRILLING EY DATA INCL°	Adelaide 08-4774 STRUED AS FLUIDS, ING	33 AUTHORIZI C OR IT'S A	Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Co Solids Co Solids Co Solids Co Solids Co Solids Co	e 1 e 2 ontrol Effi DAIL A\$ RINGEME D ARE ST/ SOLID: 7. Solids	11.2 11 c. Y CO: 1205	1.5 4 ST 5.14 FANY V/ ENTS OF ALYSIS % Vol	15 12 ALID PA OPINIC	23 48 % CUMU A\$ TENT, AP DN ONLY TIME I	Chemics Losses Sol. Con Lost/Dur Down Hi Newhole NET LO Dischar LATIVE ( 6732.4 ND ARE M/ SREAKDO	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153 
Cuttings Volume         bbl         10.0         Other           Interval Dilution         bbl/m         1.3         0	BAROID Eng M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTIN RESERVE PITS	pineer CIONS MADE HERECON OF ANY LIABILI bbi MD m 14 1331	Melbourne 03 – 62133 DN SHALL NO TY BY BAROI SURVI TVD m	DT BE CONS D DRILLING EY DATA INCL° 1.75	Adelaide 08-4774: STRUED AS à FLUIDS, ING DIR °	33 AUTHORIZI C OR IT'S A	Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Cc NG THE INF GENTS, ANI	e 1 e 2 ontrol Effi DAIL A\$ RINGEME D ARE ST/ SOLID: 7. Solids 7. Solids	11.2 11 c. Y CO: 1205	1.5 4 5.14 6.14 6.14 6.14 7.15 7.14 7.15 7.14 7.15 7.14 7.15 7.15 7.15 7.15 7.15 7.15 7.15 7.15	15 12 ALID PA OPINIC	23 48 CUMU A\$ TENT, AI IN ONLY TIME I Drilling Circula	Chemics Losses Sol. Corr Lost/Dur Down Hi Newhole NET LO Dischar LATIVE ( 6732.4 ND ARE M/ , , BREAKDO g ating	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153 153
Interval Dilution bbl/m 1.3	BAROID Eng M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTIN RESERVE PITS NO TYPE	pineer CIONS MADE HERECON OF ANY LIABILI bbi MD m 14 1331	Melbourne 03 – 62133 DN SHALL NO TY BY BAROI SURVI TVD m	DT BE CONS D DRILLING EY DATA INCL° 1.75	Adelaide 08-4774: STRUED AS à FLUIDS, ING DIR °	33 AUTHORIZI C OR IT'S A	Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Co Solids	e 1 e 2 Dantrol Effi DAIL A\$ RINGEME D ARE ST/ SOLID SOLID SOLID V. Solids V. Solids V. Solids V. Solids	11.2 11 c. Y CO: 1205	1.5 4 ST 5.14 ANY V/ INTS OF ALYSIS % Vol ppb % Vol ppb	15 12 ALID PA COPINIC 44.6	23 48 % CUMU A\$ TENT, AI DN ONLY TIME I Drilling Circul Ream Ream	Chemics Losses Sol. Cor Lost/Dur Down Hi Newhole NET LO Dischar LATIVE C 6732.4 SREAKDC 9 ating ing in ing out	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153 hrs 8.5 0.5 7.5
	BAROID Eng M. Olejniczak Tel. 059–787103 THE RECOMMENDAT WITHOUT ASSUMPTIN RESERVE PITS NO TYPE	pineer CIONS MADE HERECON OF ANY LIABILI bbi MD m 14 1331	Melbourne 03 – 62133 DN SHALL NO TY BY BAROI SURVI TVD m	DT BE CONS D DRILLING EY DATA INCL° 1.75	Adelaide 08-4774: STRUED AS à FLUIDS, ING DIR °	33 AUTHORIZI C OR IT'S A	Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids	e 1 e 2 ontrol Effi DAIL A\$ RINGEME D ARE ST/ SOLID: , Solids V. Solids V. Solids V. Solids V. Solids	11.2 11 c. Y CO: 1205	1.5 4 5.14 5.14 5.14 5.14 5.14 5.14 5.14	15 12 ALID PA OPINIC 44.6 2.60	23 48 % CUMU A\$ TENT, AA DN ONLY TIME E Drilling Circuli Ream Ream Trippin	Chemics Losses Sol. Con Lost/Dur Down Hi Newhole NET LO Dischar LATIVE ( 6732.4 ND ARE M/ SBREAKDO g ating ing in ing out	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153 hrs 8.5 0.5 7.5
Interval Consumption bbl/m 1.5	BAROID Eng M. Olejniczak Tel. 059–787103 THE RECOMMENDAT MITHOUT ASSUMPTIN RESERVE PITS NO TYPE	pineer CIONS MADE HERECON OF ANY LIABILI bbi MD m 14 1331	Melbourne 03 – 62133 DN SHALL NO TY BY BAROI SURVI TVD m	DT BE CONS D DRILLING EY DATA INCL° 1.75	Adelaide 08-4774: STRUED AS à FLUIDS, ING DIR °	33 AUTHORIZI C OR IT'S A	Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Cc Solids Cc NG THE INF GENTS, ANI Low Grav High Gra High Gra ASG of S Cuttings Interval D	e 1 e 2 DAIL A\$ RINGEME DARE ST/ SOLIDE r. Solids r. Solids v. Solids v. Solids v. Solids v. Solids v. Solids v. Solids	11.2 11.2 11 205 1205 1205 5 AN/	1.5 4 5.14 5.14 5.14 5.14 5.14 5.14 5.14	15 12 12 ALID PA OPINIC 4.9 44.6 2.60 10.0 1.3	23 48 % CUMU A\$ TENT, AA DN ONLY TIME E Drilling Circuli Ream Ream Trippin	Chemics Losses Sol. Con Lost/Dur Down Hi Newhole NET LO Dischar LATIVE ( 6732.4 ND ARE M/ SBREAKDO g ating ing in ing out	n. nped ole SS ged COST 15 ADE	bbl 71 82 60 10 12 153 hrs 8.5 0.5 7.5

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	RARITI	Barc	bid A	ustra	lia Pt	y Ltd	ŀ	DATE	21/5/94	DEP	TH-m	MD 143	38 T	VD 14	38
		•			-	•		START D		-	IVITY k Pipe				
	OPERATOR				CONTRA	CTOR / RIG	3	12-May-	-94	COL	INTRY				
	GFE Resources Ltd				Century R	ig 11				Aust	ralia /NSHIP				
	REPORT FOR Ken Smith				REPORT S. Kelly	FOR					Campbe	11			
	WELL NAME AND	NO.			FIELD OF	BLOCK N	ю.				ATION av Basin,	Victoria	-		
ļ	Langley-1			G STRING	PPL 1		CASINGS			TOtwa	PUMP				
ļ	BIT DATA Size 8.500 ins		OD ins		Length m	Size ins	(	Depth m	Pump Ma		5 7.75	Eff % t	0.054	pm b 110	bl/m 5.
ļ	Type Sec S82F	Pipe 1	4.5	4.367	1208.1	Riser 9 5/8"	Set @ Set @		Nat 7P50 Nat 8P80		5 8.5	95	0.0705	110	
	Nozzles 32nds	Pipe 2 Pipe 3	4.5	2.075	55.20	9 5/6	Set @								
		Col 1	6.25	2.875	174.6		Set @		Pump Pre	ess 625 p L bbl			AL bbi/min NG DATA	<u> </u>	5
		Col 2	PEN HO	LE SECTIO	ONS		Set @ Set @		Downhol			circ 118		₩ m	
	Noz Area 0.35 ins <sup>2</sup> TFA ins <sup>2</sup>	Sect 1					Set @		Active	389		ms up 39 ce—bit 1	1	DP DC	3
	NV m/sec 69.1	Sect 2		8.5	1103.6	Liner	Set @ Top @		Total Circ Reserve	; 701		opq			.+ -, -
	Impact Ib f 264	Current			MUD PRC	PERTIES	100 @			JD PROP	ERTY SI	PECIFIC	ATIONS		
	Sample Location	11	N or OUT	IN		IN			<9.2 pp	-	40-46		YP 10 KCL 3	0-151	b/10 %
	Time Sample Taker		rs	12:15 1401		21:30 1438		API Filt BY AUTH							•
	Depth Flowline Temp	<u>៣</u> °(		38		38		REMARK	S						
	Weight	р	pg	8.90		9.00		Started to	switch ov	er to KCL	/ Polyme	er syster	n. n adding t	o activ	e ta
	Funnel Viscosity		ec/qt P	38 7		45		MIXING DE	acries Of P	13-1WIA II	PRICE				
	Plastic Viscosity Yield Point		P 0/100 ft <sup>2</sup>	10		14		ł							
	Gels 10 sec/10min/	/30 min It	o/100 ft <sup>2</sup>	8/18/27		9/20/30									
	API Filtrate HPHT Filtrate		nl/30min nl/30min	8.5		9.0		1							
	API/HPHT Filter Ca	ke 3	2nd ins	2/-		2/-		I							
	Solids	%	6 Vol	<u>4.8</u> 0.2		4.5 0.5									
	Dissolved Salts 0il Content/Water C		<u>6 Vol</u> 6 Vol			-/95.0		l							
	Sand	9/	6 Vol	0.1		0.1		1							
	Methylene Blue cap pH		neter	8 8.6		9 8.8		<b></b>				. <u>.</u>			
	Alk. Mud Pm		ni	0.50		0.45		ACTIVIT	Y	and ac -+*		ling abo			
	Alk. Filtrate, Pf/Mf		ni narii vito3	0.05/0.10 2.8		0.10/0.20		Reamed At 1438m	to bottom	ang contil ed some i	torque. P	nny anei Pulled up	ad. and clutc	h wen	t do
	Chlorides Total Hardness/Cal		ng/Lx10 <sup>3</sup> ng/L	2.8		80/80		Could no	t move the	pipe for s	several h	ours wh	ile repairin	ig cluto	ch.
	KCL	9	6 Wt Soln	0.4		0.8			g the cluto pipe and a			. The pi	pe was stu	ick, wo	гк р
	ASG of Solids	<u>c</u>	g/cc	2.4 0.50/0.75		2.6		working	hiha qua s	ouvauny j	u.u.				
	K+ Ion Conc	n	ng/Lx10 <sup>3</sup>	2.3		4.6		]							
						·		1							
	Rheometer	600 rpm	/300 rpm	24/17		34/24									
	lb/100 ft2	200 rpm	/100 rpm												
		6 rpm/3		D CONSU	MPTION			1							
	PRODUCT DESC		<u>uni 111</u>	USED	REC	BAL	COST	MUD TY		L/POLY			CONSU Addition		N bb
	Caustic Soda	25 k		1 5		29	32.43 533.05		CONTRO Make		en size	hrs	Sea W.	<u> </u>	
	CMC EHV KCL,Tech(sx)	25 k 25 k		20		300	288.8	Shaker 1			50x80	17	Drill W.		
	PAC-R	50 II	b	2		38 36	341.48 682.96					+	other other		
	PAC-L	50 1	U	4		30	502.30	Shaker 4					Barite		-
								0			h <mark>r hrs</mark> .3 12	bbl 16	Chemica Losses	IS	bb
								Desande Desilter 1		11.3 1 10.7	3 12		Sol. Con	•	
								Desilter 2	2.				Lost/Dun		
								Centrifug Centrifug					Down Ho Newhole		
								Centring	<u> </u>				NET GA	IN	
							105	Solids Co	ontrol Effic	COST		%	Discharg		
	BAROID En	gineer		OFFICE		WAREHO	JSE	1							
	C. DaSilva			Melbourn	e	Adelaide		1	A\$ 1	878.72		A\$	8611.1	1	
	Tel. 059-787103 THE RECOMMENDA	3		03-62133	311 OT EF CON	08-4774			BINGEMEN			TENT. A	ND ARE MA	DE	
	THE RECOMMENDA	TIONS MAI	de hereo Ny liabilit	N SHALL N Y BY BARO	UT BE CON	STRUED AS	COR IT'S A	GENTS, AN	D ARE STA	TEMENTS	OF OPINI	ON ONLY	(		
														WM	1
	WITHOUT ASSUMPT				EY DATA INCL°	DIR°	DISP m	Low Grav		ANALYS % Vo	als al 4.5	Drillin	BREAKDC g		
	RESERVE PITS		84D	TVD m	INUL"			Low Gra		ppb	40.9	Circul			
	RESERVE PITS NO TYPE	bbl	MD m												ı –
	RESERVE PITS	bbl	MD m						v. Solids	<u>% V</u>			ing In		<u> </u>
	RESERVE PITS NO TYPE	bbl	<u>MD m</u>						w. Solids	% Vo ppb g/cc			ing out		
	RESERVE PITS NO TYPE	<u>bbl</u>	<u>MD m</u>					High Gra ASG of S Cuttings	v. Solids Solids Volume	ppb g/cc bbl	2.60 17.0	Ream	ing out ng		
	RESERVE PITS NO TYPE	bbi	<u>MD m</u>					High Gra ASG of S Cuttings Interval [	v. Solids Solids Volume	ppb g/cc bbl bbl/l	2.60	Ream Trippi	ing out ng		

محري وحماقتهم منعه

4						MUD REP	ORT NO.	10	up to 2	4:00 1	hrs,	21/5/94	
PAROLD	Baroid A	ustra	lia Pt	y Ltd			22/5/94	DEPT	H-m 1	MD 14:	38	TVD 14	38
						START DA		Stuck	– Runni	ng Fre	e point.		
OPERATOR				CTOR / RIG	à			Austra					
GFE Resources Ltd	<u></u>		Century R REPORT					TOWN	ISHIP				
Ken Smith			J.Hoffman		0			Port C LOCA	ampbell TION		-		
wELL NAME AND angley-1	NO.		PPL 1	I BLUCK N				Otway	Basin, \		1		
BIT DATA		G STRING			CASINGS	Damth m	Pump Mal		YUMP D		bbl/stk	spm t	obl/min
Size 8.500 ins	OD ins Pipe 1 4.5	ID ins 4.367	Length m 1207.8	Size ins Riser	Set @	Depth m	Nat 7P50	5.5	7.75				
ype Sec S82F Nozzles 32nds	Pipe 2 4.5	2.875		9 5/8"	Set @		Nat 8P80	6	8.5	95	0.0705		
11 13 13	Pipe 3 Col 1 6.25	2.875	174.96		Set @ Set @		Pump Pre	ss – psi	l.	тот	AL bbl/m	in	
	Col 2				Set @		MUD VOL		CIRCI Total ci		NG DAT	A AV m	/min
Noz Area 0.35 ins2	OPEN HO	LE SECTI	ONS		Set @ Set @		Downhole Active	312 311			- mins	DP	<u>111111</u>
TFA ins <sup>2</sup> NV m/sec	Sect 1 Sect 2	1- 5.4		Liner	Set @		Total Circ	623		the same of the	– mins	DC Riser	t: 1.
mpact Ib f	Current	8.5	1103.6 MUD PRC		Top @		Reserve	D PROPE	ECD p				
Sample Location	IN or OUT		MUDPRU	IN			<9.3 ppg	VIS	40—50 s	ec	YP	10-18	lb/100 ft <sup>2</sup>
Time Sample Taker				17:30		API Filt	6-8 ml ORITY Mu	HTHP d Program		nl	KCL	3 '	%
Depth Flowline Temp				1438 37		REMARK	S						
Weight	ppg			9.00			is of mud	vhile displa	acing an	nulus t	to water,	and the	en back
Funnel Viscosity Plastic Viscosity	sec/qt cP			45 10		to mud ag	jan.						
Yield Point	lb/100 ft <sup>2</sup>			15		1							
Gels 10 sec/10min/ API Filtrate	30 min lb/100 ft <sup>2</sup> ml/30min			7/17/25 9.0									
-PHT Filtrate	ml/30min												
API/HPHT Filter Cal				2/ 4.5									
Solids Dissolved Salts	% Vol % Vol			0.5		-							
il Content/Water C				-/95.0 0.1									
and Aethylene Blue car	<u>% Vol</u> ppb			9		-							
он	meter			8.8 0.45		ACTIVITY	(						
Alk. Mud Pm Alk. Filtrate, Pf/Mf	mi mi			0.45		Worked s	tuck pipe.						
hlorides	mg/Lx10 <sup>3</sup>			5.5		Displaced Hold tens	d annulas v ion and to	ith 258bbl aue on pir	s of wate be for on	er and e hour	work pip r, then wo	e. ork pipe	again.
otal Hardness/Cal	cium mg/L % Wt Soln			80/80 0.7		Reverse of	circulate wi	th mud to v	water at	shaker	rs and wo	ork pipe	•
SG of Solids	g/cc			2.6 0.49/1.18		Continue	d to work p d and displ	ipe while v aced wate	vaiting o r with ac	n Schl tive mi	lumberge ud. dump	r,not cir water i	rculating. In sump.
& K (+ Ion Conc	mg/Lx10 <sup>3</sup>			49/1.13		Running	wireline fre	e point ind	icator.				
						-							
Rheometer	600 rpm/300 rpm			35/25		1							
lb/100 ft <sup>2</sup>	200 rpm/100 rpm		<u> </u>			-							
	6 rpm/3 rpm INVENTORY AN	D CONSU	MPTION			1						UMPTIC	201
PRODUCT DESCI		USED 4	REC	BAL 32	COST 682.96	MUD TY	CONTROL	EQUIPM			Additic		bbl
PAC-L	50 lb						Make	scree	n size		Sea W.		ļ
						Shaker 1 Shaker 2		50x50	080	18	Drill W.		
						Shaker 3					other		· · · ·
						Shaker 4		g <u>bbl/h</u> i	hrs	bbl	Barite Chemie	cais	<u> </u>
			<u> </u>			Desande	r 📃	<b>A</b>			Losses		bbl
						Desilter 1 Desilter 2			+		Sol. Co Lost/Di		60
						Centrifug	e 1				Down		18
					<u> </u>	Centrifug	e 2				Newho NET L		78
			-			Solids Co	ontrol Effic.			%	Discha		60
BAROID En	gineer	OFFICE		WAREHO	USE	-	DAILY				ULATIVE		
C. Da Silva		Melbourn	e	Adelaide		1	A\$ 68	32.96		A\$	9294	.13	
Tel. 03-6213367	7 (Fax) TIONS MADE HEREC	03-6213		08-4774	33 AUTHORIZ	ING THE INF	RINGEMEN	T OF ANY V	ALID PAT	ENT, A	AND ARE	MADE	
THE RECOMMENDA	TIONS MADE HEREC	Y BY BARO	ID DRILLING	STLUIDS, IN	C OR IT'S A	GENTS, AN	D ARE STAT	EMENTS O	FOPINIC	N ONL	.Y		
								ANALYSI			BREAK	OWN	hrs_
NO TYPE	bbi MD m	SURV TVD m	EY DATA	DIR °	DISP m	Low Grav	. Solids	% Vol	4.5	Drillin	ng		
6 Pre-Mix						Low Grav High Gra		ppb % Vol	40.9		ulating ning In		4
						High Gra		ppb			ning out		1
			1	1	1	ASG of S		g/cc	2.60	Tripp			
						Cuttings	Volume	bbi		Othe	r		20

						MUD REP	ORT NO.	t1 up to	24:00 h	hrs, 22/5/94	4
(PAROID)	Baroid Au	ustral	lia Pt	y Ltd	1	DATE 2	23/5/94 ATE	DEPTHm ACTIVITY	MD 145	38 TVD 14	438
						12-May-		CIRC & CONE	D MUD		
OPERATOR GFE Resources Ltd		1	CONTRAC Century Ri	CTOR / RIG	<b>i</b>			Australia			
REPORT FOR			REPORT	FOR		,		TOWNSHIP Port Campbel	-		
Ken Smith			J.Hoffman	R BLOCK N	 10.			LOCATION	<u>a</u>	-	
WELL NAME AND N Langley-1	40.		PPL 1			······································		Otway Basin,		<u>i</u>	
BIT DATA	and the second s		i Length m		CASINGS		Pump Make		Eff % t	bbl/st <u>k spm</u>	bbl/min
Size 8.500 ins Type Sec S82F	OD ins Pipe 1 4.5	ID ins L 4.367	1207.8	1	Set @		Nat 7P50	5.5 7.75	95	0.0525 130	6.825
Nozzles 32nds	Pipe 2 4.5	2.875		9 5/8"	Set @		Nat 8P80	6 8.5	95	0.0705	+1
11 13 13	Pipe 3 Col 1 6.25	2.875	174.96		Set @ Set @		Pump Press			TAL bbi/min	6.825
	Col 2				Set @	)	MUD VOL		CULATI	MG DATA	m/min
Noz Area 0.35 ins <sup>2</sup> TFA ins <sup>2</sup>	OPEN HOL Sect 1	E SECTIO	JNS	<b> </b>	Set @ Set @		Downhole Active		ms up 34		41.2
TFA ins <sup>2</sup> NV m/sec. 79.4	Sect 1			Liner	Set @	) Annazi tabizi ara ar	Total Circ		ce-bit 1		64.5
Impact lb f 348	Current	8,5	1103.6 MUD PRO		Top @	·	Reserve MUD I	PROPERTY SP	PECIFIC	9.07 Riser CATIONS	
Sample Location	IN or OUT	í′	MUD 1 1.0	IN	,,	-	<9.3 ppg	VIS 40-50	) sec	YP 10-18	8 lb/100 ft <sup>2</sup>
Time Sample Taken	hrs	·'		04:35	'	API Filt	6-8 mi ORITY Mud P		mi i	KCL 3	3 %
Depth Flowline Temp		·'		1438 38	'	REMARK		Toylan			
Weight	ppg	['		9.00	ļ					_ 1	1
Funnel Viscosity	sec/qt	I'	<b> </b>	46	·'	1					
Plastic Viscosity Yield Point	cP lb/100 ft <sup>2</sup>			15	I	1					
Gels 10 sec/10min/3	30 min lb/100 ft <sup>2</sup>	I'	<u> </u>	6/16/24	+						
API Filtrate HPHT Filtrate	ml/30min ml/30min	I'	<b> </b>	7.1	[]	1					
API/HPHT Filter Cak	ke 32nd ins	I'		2/-	 	.]					1
Solids	% Vol % Vol	i'	<b> </b>	4.4 0.6	t	1					1
Dissolved Salts 0il Content/Water Co			<u> </u>	-/95.0							ļ
Sand	% Vol	I'		0.1	·						I
Methylene Blue cap pH	ppb meter	l'	t	8 8.5							
Alk. Mud Pm	ml			0.40	ļ	ACTIVITY					
Alk. Filtrate, Pf/Mf	mi	['	<b> </b>	0.10/0.20	<b> </b>	Circulate	ed free point. d hole clean, t	then displaced	the hole	e to water.	ł
Chlorides Total Hardness/Calo	mg/Lx10 <sup>3</sup> cium mg/L	l'	<u> </u>	60/60		Work stud	ck pipe. Mix a	and pump 32 bb	ols EZ Sr	Spot around colla	ars and
KCL	% Wt Soln	[]		1.0			Vork pipe strai nd run another				I
ASG of Solids n & K	g/cc	l		2.7 0.51/1.08		Pipe cam	ne free while ru	unning free poir	nt.		ł
K+ Ion Conc	mg/Lx10 <sup>3</sup>			5.7			d and displace d and conditic		Z Spot [	Diesel with mud	í.
Rheometer	600 rpm/300 rpm	I	<u> </u>	37/26	[	1					,
lb/100 ft2	200 rpm/100 rpm			<u> </u> '	<b></b>	-					'
	6 rpm/3 rpm		MPTION		<u> </u>	{				والمتكانية وروانية	
PRODUCT DESCR		USED	REC	BAL	COST	MUD TY	Time	/ POLYMER		CONSUMPTI	ION bbl
EZ SPOT	208 lt	2		290	1522.36	-	CONTROL E	SCREEN SIZE	hrs	Additions Sea W.	
KCL,Tech(sx) PAC-R	25 kg 50 lb	10		37	170.74	Shaker 1		50x50x80		Drill W.	'
PAC-L	50 lb	1		31	170.74	Shaker 2 Shaker 3				other other	'
					t	Shaker 3 Shaker 4		_ <u></u>	1	Barite	
				'	· [		ppg	bbl/hr hrs	bbi	Chemicals Losses	bbl
	i	<b> </b>		+'		Desander Desilter 1			+	Sol. Con.	
				<u> </u>		Desilter 2	2.	<del></del>	<del>-</del>	Lost/Dumped	1 7
		<b></b>		'		Centrifug Centrifug			+	Down Hole Newhole	-
		<u> </u>		+	1					NET LOSS	3
						Solids Co	ontrol Effic. DAILY CO	OOT	% CUMU	Discharged	7
BAROID Eng	jineer	OFFICE		WAREHOU	JSE	-			-		
C. Da Silva		Melbourne		Adelaide			A\$ 200	8.24	A\$	11302.37	
	TIONS MADE HEREO	03-62133	OT BE CON	08-47743	AUTHORIZI	ING THE INF	RINGEMENT	OF ANY VALID P/	ATENT, A	ND ARE MADE	
Tel. 03-6213367		Y BY BARO	ID DRILLING	3 FLUIDS, INF	COR IT'S A	GENTS, AN	D ARE STATEM	MENTS OF OPINI	ON ONL)	<u>Y.</u>	
Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI	ON OF ANY LIABILIT						SOLIDS AN			BREAKDOWN	hrs
THE RECOMMENDAT	ION OF ANY LIABILIT	211010	TO ATA					% Vol 4.1	Drillin		
THE RECOMMENDAT WITHOUT ASSUMPTI		the second s	INCL°	DIR °	DISP m	Low Grav	r. Solids	/6 001 4.1	-6	·9	
THE RECOMMENDAT	bbl MD m	SURVE TVD m			DISP m	Low Grav	v. Solids	ppb 37.3	Circul	lating	4
THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE		the second s			DISP m	Low Grav High Gra	v. Solids av. Solids	ppb 37.3 % Vol 0.3	Circul Ream	ilating ning In	4
THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE		the second s			DISP m	Low Grav	v. Solids av. Solids av. Solids	ppb 37.3	Circul Ream	Ilating ning In ning out	
THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS NO TYPE		the second s			DISP m	Low Grav High Grav High Gra	v. Solids av. Solids av. Solids Solids Volume	ppb 37.3 % Vol 0.3 ppb 4.4	Circul Ream Ream	Ilating ning In ning out ning	20

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11 \$	<u>\</u>						MUD REF	PORT NO	. 12	up to 2	4:00 h	nrs, 23/5/94		
RARI		Baroid	<b>\ustra</b>	lia Pt	y Ltd			24/5/94		TH-m	MD 143	8 TVD 14	38	
	1						START D			IVITY Washing t	o botto	m		
OPERATOR	1			CONTRA	CTOR / RIG	à		<u> </u>	COL	INTRY				
GFE Resour	ces Ltd			Century R					Aust TOV	ralia /NSHIP				
REPORT FC	OR			REPORT J.Hoffmar					Port	Campbel				
VELL NAM		10.		FIELD OF	BLOCK N	0.				ATION av Basin, '	Victoria	-		
angley-1 BIT DATA		DRILL	NG STRING	PPL 1		ASINGS				PUMP	DATA			
BIT DATA		OD ins		Length m			Depth m	Pump M		· · · · · · · · · · · · · · · · · · ·	Eff % t	0.0525 125	6.563	
Type Sec S		Pipe 1 4. Pipe 2 4.	the second s	1207.8	Riser 9 5/8"	Set @ Set @		Nat 7P5 Nat 8P8		6 8.5		0.0705	0.000	
Nozzles 32r 11 13		Pipe 2 4. Pipe 3	, 2.075	00.20	0.010	Set @	·				TOT	AL bbl/min	6.563	
		Col 1 6.2	5 2.875	174.96		Set @ Set @		MUD V	ress 825 p DL bbl				0.000	
Noz Area 0.:	35 ins <sup>2</sup>	Col 2 OPEN H	OLE SECTION	ONS		Set @		Downho	le 312	1	irc 94 n			
TFA ins <sup>2</sup>		Sect 1			Lincz	Set @		Active Total Ci	308 c 620	Surfac	ıs up 3! e-bit 1	2 mins DC	39.6 62	and the second
NV m/sec	322	Sect 2. Current	8.5	1103.6	Liner	Top @	- Physics and the second se	Reserve	المحرف والمحرف والمحرفة	ECD p	pg	9.08 Riser	an a	non againtáis s tír Da scoirteis
				MUD PRO			WEIGHT		UD PROP og VIS	40-50			b/100 ft2	
Sample Loc Time Sampl		IN or OL hrs	4		IN 24:00		API Filt	6-8 m	์ หาห	<b>&gt;</b>			%	
Depth		m			1438		BY AUTH		ud Progra	m				
Flowline Ter Weight	mp	°C			38 9.00		I CEMARI							
Weight Funnel Visc	cosity	sec/qt	1		46		1							
Plastic Visco	osity	cP lb/100 ft			11 18									
Yield Point Gels 10 sec		10 min 1b/100 ft			6/15/24		1							
API Filtrate		ml/30mi	1		7.5									
HPHT Filtrat API/HPHT F		ml/30mi e 32nd ins			2/-		1							
Solids		% Vol			4.0		1						•	
Dissolved S 0il Content/		% Vol	_	<u></u>	-/95.0		1							
Sand		% Vol			0.1		1							
Methylene ( pH	Blue cap	ppb meter	-		8.8		1		. <u></u>					
Alk. Mud Pr		mi			0.40		ACTIVIT Pulled ou	Y ut of the h	ole and ch	anged bit				
Alk. Filtrate, Chlorides	, Pt/Mf	mi mg/Lx1	3		11.3		Tight hol	e from 13	61 to1226r	n on the v	vay out			
Total Hardr	ness/Calo	ium mg/L			60/60 1.8		Ran in th	e hole to	1238m wa	sned to be	ottom.			
KCL ASG of Soli	ids	% Wt So g/cc	<u></u>		2.7		1							
n&K					0.46/1.65		4							
K+ Ion Cor	nc	mg/Lx1	<u>"</u>		10.3		1							
					40/00		-							
Rheometer lb/100 ft <sup>2</sup>	r	600 rpm/300 rp 200 rpm/100 rp			40/29		1							
		6 rpm/3 rpm					4							
PRODUCT	DESCR	INVENTORY	USED	REC	BAL	COST	MUD TY		CL/POLY			CONSUMPTIC		
Caustic So	da	25 kg	1		28	32.43	-	CONTR		MENT en size	hrs	Additions Sea W.	bbi	
KCL,Tech(s PAC-L	sx)	25 kg 50 lb	50		240 21	1707.4				50x80		Drill W.		
		<u> </u>		<u> </u>			Shaker 2					other other	<u></u> +	
							Shaker 3 Shaker 4				<u> </u>	Barite		
								F	pg bbl/	hr hrs	bbl	Chemicals Losses	5 bbl	
							Desande Desilter					Sol. Con.		
			_	1			Desilter	2.				Lost/Dumped Down Hole	5	
							Centrifu Centrifu				<u></u>	Newhole	<u> </u>	
					1						0/	NET GAIN		
			055105		WAREHO	ISE	Solids C	ontrol Eff	c. Y COST		% CUML	Discharged	5	
		20005	OFFICE				1		2461.83	2	A\$	13764.20		
	OID Eng	Jiileei		e .	Adelaide	33	1	лф /	-701.00	•				
C. D	a Silva		Meibourn	944				FRINGEM	NT OF AN	VALID PA	TENT, A	ND ARE MADE		
C. D	a Silva	(Fax)	03-6213	OT BE CON	08-4774 ISTRUED AS	AUTHORIZ							I	
C. D	a Silva		03-6213	OT BE CON	ISTRUED AS	AUTHORIZ	AGENTS, AN	ID ARE ST	ATEMENTS	OF OPINIC	ON ONL	Y		
C. D Tel. 03- THE RECOM WITHOUT A	a Silva 6213367 MMENDA ASSUMPTI	(Fax)	03-6213 EON SHALL N LITY BY BARO	IOT BE CON	ISTRUED AS	AUTHORIZ	AGENTS, AN	ID AHE ST.	ATEMENTS	OF OPINIC		Y. BREAKDOWN	hrs	
C. D	Da Silva 6213367 MMENDAT ASSUMPTI	(Fax)	03-6213 EON SHALL N LITY BY BARO	OT BE CON	ISTRUED AS	AUTHORIZ	GENTS, AN	SOLID	S ANALYS % V	SIS ol 3.7		BREAKDOWN		
C. D Tel. 03- THE RECOM WITHOUT A RESERVE	Da Silva 6213367 MMENDAT ASSUMPTI E PITS PE	(Fax) TIONS MADE HEF ON OF ANY LIAB	03-6213 EON SHALL N LITY BY BARO SURV	IOT BE CON DID DRILLIN	ISTRUED AS 3 FLUIDS, IN	AUTHORIZ C OR IT'S A	Low Gra	SOLID	S ANALYS % V ppb	SIS ol 3.7	TIME Drillin Circu	BREAKDOWN	hrs 5 3	
C. D Tel. 03 THE RECOM WITHOUT A RESERVE NO TYF	Da Silva 6213367 MMENDAT ASSUMPTI E PITS PE	(Fax) TIONS MADE HEF ON OF ANY LIAB	03-6213 EON SHALL N LITY BY BARO SURV	IOT BE CON DID DRILLIN	ISTRUED AS 3 FLUIDS, IN	AUTHORIZ C OR IT'S A	Low Gra Low Gra Low Gra High Gra	SOLID SOLID V. Solids V. Solids av. Solids av. Solids	S ANALYS S ANALYS % V ppb % V ppb	OF OP INIC           31S           ol         3.7           33.7           ol         0.3           4.4	TIME Drillin Circu Ream Ream	BREAKDOWN Ig lating ning In ning out	5	
C. D Tel. 03 THE RECOM WITHOUT A RESERVE NO TYF	Da Silva 6213367 MMENDAT ASSUMPTI E PITS PE	(Fax) TIONS MADE HEF ON OF ANY LIAB	03-6213 EON SHALL N LITY BY BARO SURV	IOT BE CON DID DRILLIN	ISTRUED AS 3 FLUIDS, IN	AUTHORIZ C OR IT'S A	Low Gra Low Gra High Gra High Gra ASG of	SOLID SOLID v. Solids v. Solids av. Solids av. Solids Solids	S ANALYS S ANALYS % V ppb % V	OF OP INIC           31S           ol         3.7           33.7           ol         0.3           4.4	TIME Drillin Circu Rear	BREAKDOWN 19 lating ning In ning out ing	5	
C. D Tel. 03 THE RECOM WITHOUT A RESERVE NO TYF	Da Silva 6213367 MMENDAT ASSUMPTI E PITS PE	(Fax) TIONS MADE HEF ON OF ANY LIAB	03-6213 EON SHALL N LITY BY BARO SURV	IOT BE CON DID DRILLIN	ISTRUED AS 3 FLUIDS, IN	AUTHORIZ C OR IT'S A	Low Gra Low Gra High Gra High Gra ASG of Cuttings Interval	SOLID v. Solids v. Solids av. Solids av. Solids Solids Solids	S ANALYS % V ppb % V ppb g/cr bbl bbl	OF OP INIC           31S           ol         3.7           33.7           ol         0.3           4.4	TIME Drillin Circu Ream Ream Tripp	BREAKDOWN 19 lating ning In ning out ing	5 3 13	

Bit Point Fork         Automa and the second se	BAROLL	Baroid A	ustra	lia Pt	y Ltd	·	MUD REP DATE START D/ 12-May-	25/5/94		13 u DEPTH ACTIVI Drilling	TY			24/5/94 TVD 15	
Bit Dort (2003)         Bit Dort (2004)         Field on Bit Dort (2004)         Field on Bit Dort (2004)           MELL MARKE AND NO.         FIELD ON BLOCK NO.         LOCATION         LOCATION         LOCATION           BIT Dort (2004)         FIEL ASLAGE AND NO.         FIEL ASLAGE AND NO.         FIEL ASLAGE AND NO.         FIEL ASLAGE AND NO.           BIT Dort (2004)         DBIL MARKE AND NO.         FIEL ASLAGE AND NO.         FIEL ASLAGE AND NO.         FIEL ASLAGE AND NO.           BIT Dort (2004)         DBIL MARKE AND NO.         CASIMOS         Devint Dort (2004)         FIEL ASLAGE AND NO.         FIEL ASLA	OPERATOR			1	-	G				COUNT	ITRY				
Am Smith         I-Informan         Peric Centrol           Intel LANKE AND NO.         FELD OR BLOCK NO.         LOCATISATION CONTRACT         DO NOT STRUCE           Intel LANKE AND NO.         FELD OR BLOCK NO.         LOCATISATION CONTRACT         DO NOT STRUCE           Intel ANKE AND NO.         FELD OR BLOCK NO.         LOCATISATION CONTRACT         DO NOT STRUCE           Intel AS A 2017         State AS A 2017         State AS A 2017         State AS A 2017         State AS A 2017           Intel AS A 2017         State AS A 2017 <td< td=""><td>GFE Resources Ltd</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>TOWNS</td><td>ISHIP</td><td></td><td></td><td></td><td></td></td<>	GFE Resources Ltd									TOWNS	ISHIP				
Direct Base         Drew Set         Drew Set         Drew Set           Dire Data         OBLINES STRING         OABING         Departure         PLIME POATS           Sim 0.650 /r         PD14         4.5         6.67 / 3026         Base rest         Departure         Social         Dire Jose         Longit         Base rest         Departure         Social         Dire Jose         Longit         Longit         Dire Jose         Dire Jose </th <th>Ken Smith</th> <th></th>	Ken Smith														
BY DATA         DUAL LING STITURG         COSIMING         Destin         PUIDD MA	WELL NAME AND I Langlev-1	NO.			I BLUCK N					Otway E	Basin, \		i		
Base Base Res         Page 1         Dires	BIT DATA								Jake				bbl/stk	spm	bbl/min
Name         State							)	Nat 7P50	50	5.5	7.75	95	0.0525	137	
Image: Part of the set of the se	Nozzles 32nds		2.875	55.28	9 5/8"			Nat 8P80	<u> </u>	6	8.5	95	0.0705		
Name         Description         Set @         Description         Set @         Description         Description         All and the 10 minutes up 36 minu	11 13 13		2.875	174.96											7.193
Non-Analysister         Sett @         Active         Atter         Bit of Correl         DP         43.4           Market All         Sett 2         Low         Sett 2         DP         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         6.5         122.0         10.0			N C PECTI	ONS				1							n/min
NY mited         Base 3         Control         Control <t< td=""><td>Noz Area 0.35 Ins<sup>2</sup> TFA ins<sup>2</sup></td><td></td><td>LE SECTI</td><td>5113</td><td></td><td></td><td></td><td>Active</td><td>4</td><td>419</td><td></td><td></td><td></td><td></td><td>1</td></t<>	Noz Area 0.35 Ins <sup>2</sup> TFA ins <sup>2</sup>		LE SECTI	5113				Active	4	419					1
Dispect         Control         Number of the set of the s				1002.6											
Sample Loadion         Ins         1x00         AP Fit         5 and         ITTLP         m         KCL         3 %           Death         mo         195	Impact ID F 393	Current						M	<b>JUD</b> P	PROPER					15 (1 00 #2
International field         International field         International field         International field         International field           Bittering Timp         Q         39         39         International field	Sample Location					<u> </u>	-		1.0						
Dotation         prog         9.6         9.16         Increase KCL context to 3.2 %.           Entrat Maccosity         eP         12         11         Continue pro-mises and also PAC Tri for theology and the Bar PAC Tri for theology and the PAC Tri for theology and PAC Tri for for theology and PAC Tri for for for theology and PAC Tri for for theology and PAC Tri for for for theology and PAC Tri for for theology and PAC Tri for for theology and PAC Tri for for for theology and PAC Tri for for for theology and PAC Tri for for for for theology and PAC Tri for for for theology and PAC Tri for	Depth					ļ'	BY AUTH	IORITY M		rogram					
Number         Search         48         42         Added BARACORE 129 for correston control.           Mailer Macazality	Flowline Temp			<b>_</b>		<b>├</b> ────′			tent to	3.2%.	<u> </u>				
Plastic Vacosity         eP         12         11         Continue pro-misses and allop PAC ** for mesoidy and wind Point           Out and Point **         16         16         16         16         Interaction control. Outrope and PAC ** for mesoidy and provide point           APE Fitzeta         mitigitation control. Outrope and PAC ** for mesoidy and provide point         50.0         7.0         Interaction control. Outrope and provide point         1435m and Belfast @* 1435m           API Fitzeta         mitigitation control. Outrope and provide point         3.0         3.0         3.0         Interaction control. Outrope and provide point         1435m and Belfast @* 1435m           API Fitzeta         mitigitation control. Outrope and provide point         3.0         3.0         3.0         Interaction control. Outrope and provide point         1435m and Belfast @* 1435m           Bind Control/Web control to the point point of the point p	Weight Funnel Viscosity					[	Added BA	ARACORE	E 129 1	for corro	osion c	ontrol.			.
Bit ID Card (Dmir)(20 min         BU100 IE         S/1/22         Build mud volume in famks.           AFE Fibrate         mid/30min         9.7.0         Tentative formation tops, Nulleware @ 1435m and Belfast @ 1465m.           HPH Fibrate         mid/30min         9.7         9.7         1         Tentative formation tops, Nulleware @ 1435m and Belfast @ 1465m.           HPH Fibrate         mid/30min         9.7         9.7         9.7         1         Tentative formation tops, Nulleware @ 1435m and Belfast @ 1465m.           Solids         % Vol         3.3         3.8         .         .         Tentative formation tops, Nulleware @ 1435m and Belfast @ 1465m.           Solids         % Vol         0.2         0.2         .         .         .           Bidd much Vision         0.4         0.40         .         .         .         .           Alk. Mult Pm         mt         0.45         0.40         .	Plastic Viscosity	сР				i'								r rheolog	gy and
API Fitze         m(30min         0         7.0           API/EPIT Fitzer cake         32nd ins         2/-         2/-         2/-           API/EPIT Fitzer cake         32nd ins         2/-         2/-         2/-           API/EPIT Fitzer cake         32nd ins         2/-         2/-         2/-           Bisoble Satts         % Vol         1.7         1.7         1.7         1.7           Bisoble Satts         % Vol         0.2         -///.44.6         -///.44.6         -///.44.6           Sand         % Vol         0.2         0.0.2         -//.02.6         -//.02.6         -//.02.6           Continue drilling 8.5" hole, survey at 1527m.         -//.02.05         0.120.25         -/.02.05         -/.02.05           Continue drilling 8.5" hole, survey at 1527m.         -/.02.05         -/.02.05         -/.02.05         -/.02.05           Continue drilling 8.5" hole, survey at 1527m.         -/.02.05         -/.02.05         -/.02.05         -/.02.05           Continue drilling 8.5" hole, survey at 1527m.         -/.02.05         -/.02.05         -/.02.05         -/.02.05           PRODUCT DESCRIPTION         MUD TYPE         KCL / PCLYMER         -/.02.05         -/.02.05           Reader data         2.02.0		the second se				′	Build muc	d volume i	in tanl	nks.					
API/HPIT Filer Cake         Strict         Vol         3.3         3.4           Disagive Saits         % Vol         1.7         1.7         1.7           Disagive Saits         % Vol         0.2         -/96.5         -           Sand         % Vol         0.2         -/96.5         -           Sand         % Vol         0.2         -/96.5         -           Sand         Mit Press         0.0         0.3         -           Alk. Mid Pm         meter         9.0         0.3         -           Alk. Fittate, PIM         mit         0.12/0.25         0.12/0.28         -           Chordes         mg/Lt0?         2.0.2         2.0.2         -           Continue drilling 6.5" hole, survey at 1527m.         -         -           Chordes         mg/Lt0?         18.4         -         -           AS C         0.4071.41         0.40/1.42         -         -           K to Conc         mg/Lt0?         18.4         -         -         -           Bhacometer         600 pm/00 pm         42.9         39/27         -         -         -           BARACOR 12 20 5 kg         4         2.4         2.99.4	API Filtrate	ml/30min			7.0	i'	Tentative	formation	1 tops	, Nullaw	/aare @	) 1435n	n and Be	əifast @	1465m.
Solida         % Vol         3.3         3.8           Discloved Salts         % Vol         1.7        7/94.5           OIL Content/Water Content % Vol         0.2         0.2           Methylene Blue cap         ppb         10         9           Pil         methylene Blue cap         ppb         10         9           Alk. Mud Pm         mil         0.45         0.40         Active           Alk. Mud Pm         mil         0.45         0.40         Active           Alk. Mud Pm         mil         0.45         0.40         Active           Chondes         mg/Lx102         30.2         20.2         Continue drilling 8.5" hole, survey at 1527m.           Chondes         mg/Lx102         30.2         3.2         3.2         3.2           Sol of Solide         g/grow         4.2         3.2         3.2           Sol of Solide         g/grow         4.2         3.2         3.2           Bracon 12 20 fs m/loo pm         -         -         Active         Active           PhoOmeter         600 rpm/300 rpm         4.20         2.32         Active         Active           Construct Proceentize         Mact         2.2         Active	the second s		2/-		2/-										1
Biologram         Style        196.5        196.5           Gand         0.2         0.2         0.2         0.2           Gand         0.1         0.2         0.2         0.2           Mehylene Blue cap         pob         10         9.3	Solids	% Vol		<b></b>		'									
Sand         % Vol.         0.2         0.2           PIL         meter         9.0         9.3         A           Multiplies Bie cap         PiL         Mark         Mark         A         A           Alk. Mult Pm         0.45         0.40         A         A         Continue         Continue         Continue         Continue drilling 8.5" hole, survey at 1527m.           Total Hardness/Calcium         mgL, 109         20.2         3         Continue drilling 8.5" hole, survey at 1527m.           Total Hardness/Calcium         mgL, 109         18.4         0.49/1.41         Continue drilling 8.5" hole, survey at 1527m.           Conside         g/dc         0.49/1.41         0.49/1.41         Continue drilling 8.5" hole, survey at 1527m.           Conside Solds         g/dc         0.49/1.41         0.49/1.41         Continue drilling 8.5" hole, survey at 1527m.           Procent         Solds         g/dc         0.49/1.41         0.49/1.41         Continue drilling 8.5" hole, survey at 1527m.           Procent         Solds         g/dc         2.4         2.92         Continue drilling 8.5" hole, survey at 1527m.           Procent         Solds         38/27         Mult 1.92         Mult 1.92         Mult 1.92         Mult 1.92         Mult 1.92         <						[]	1								
Difference         Part         Part         Part         Part           Alk. Mud Pm         0.120.25         0.120.25         0.120.25         Continue drilling 8.5" hole, survey at 1527m.           Alk. Rittate, Pt/M         mit         0.120.25         0.120.25         Continue drilling 8.5" hole, survey at 1527m.           Chordes         mg/Lx10 <sup>2</sup> 20.2         20.2         Continue drilling 8.5" hole, survey at 1527m.           Chordes         mg/Lx10 <sup>2</sup> 2.6         3.2         A.2.           ASG of Solids         g/Cc         2.6         3.2           As &         0.407/L41         0.407/L41         Continue drilling 8.5" hole, survey at 1527m.           Chordes         mg/Lx10 <sup>9</sup> 18.4         -         Consumption           K + Ion Cone         mg/Lx10 <sup>9</sup> 18.4         -         Consumption           PRODUCT DESCRIPTION         USED         REC         BAL         22.5         Solubs Control, EourPMENT         Additions         bbl           Control bit 07         2.0         10         10         Solubs Control, EourPMENT         Additions         bbl           Control bit 7         3.0         1195.18         Shaker 1         Solubs Control, EourPMENT         Additions         bbl	Sand	% Voi	0.2			<b> </b> '	4								
Alt. Mul Pm         mt         0.45         0.40         ACTIVITY           Alk. Filtrate, Pt/M         0.120/25         0.120/25         Continue drilling 8.5" hole, survey at 1527m.           Contrades         mg(Lx10 <sup>2</sup> )         20.2         20.2         Continue drilling 8.5" hole, survey at 1527m.           Total Hardness/Calcium         mg(Lx10 <sup>2</sup> )         20.2         20.2         Continue drilling 8.5" hole, survey at 1527m.           ASG of Solids         g/cc         2.6         2.3         Continue drilling 8.5" hole, survey at 1527m.           ASG of Solids         g/cc         2.6         2.3         Continue drilling 8.5" hole, survey at 1527m.           ASG of Solids         g/cc         2.6         2.3         Continue drilling 8.5" hole, survey at 1527m.           Total Hardness/Calcium         Golog Drin/100 Drim         Continue drilling 8.5" hole, survey at 1527m.         Consumption           BRARCOR 129         25 kg         Golog Drim/100 Drim         Consumption           BRARCOR 129         25 kg         Golog Drim/100 Drim         Consumption           Coustio Soda         25 kg         Golog Drim/100 Drim         Solido Control Equipment         Additions           Coustio Soda         25 kg         Golog Drim/100 Drim         Solido Control         Equipment         Solido Control <td>Methylene Blue cap pH</td> <td></td> <td></td> <td><u> </u></td> <td></td> <td><u> </u>'</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	Methylene Blue cap pH			<u> </u>		<u> </u> '									
Alter Fride         Title         Display is a set of the interval of	Alk. Mud Pm	mi	0.45			· [	_		, 5" hc	-lo surv					
Multicity         Borne         Borne         Borne           KCL         % Wt Soin         3.2         3.2           n & K         0.49/1.41         0.49/1.47	Alk. Filtrate, Pf/Mf Chlorides					<b> </b> '	Continue	drilling o.	.5" 1101	10, 50, 40	ay at io	27115.			-
No.         Dec.         Dec. <thdec.< th="">         Dec.         Dec.         D</thdec.<>	Total Hardness/Calo	cium mg/L	60/60		60/60	ļ	4								
B K         0.49/1.41         0.49/1.27           K1 ion Conc         mg/Lx10 <sup>2</sup> 18.4         18.4         18.4           Rheometer         600 rpm/300 rpm         42/30         38/27         1000 rpm/300 rpm         42/30         1000 rpm/300 rpm         1000 rpm/300 r						'	1								
Interview         Interview <t< td=""><td>n &amp; K</td><td></td><td>0.49/1.41</td><td> </td><td></td><td></td><td>4</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	n & K		0.49/1.41				4								
Initiation         200 pm/100 pm         Investment         Consumption           Bit/00 R <sup>2</sup> 200 pm/100 pm         Investment         Investment         Consumption           INVENTORY AND CONSUMPTION         USED         REC         BAL         COST         MUD TYPE         KCL/POLYMER         Additions         bbl           BARACOR 129         25 kg         4         4         259.41         SOLIDS CONTROL EQUIPMENT         Additions         bbl           Caustic Socia         25 kg         90         150         129.96         Shaker 1         Social 25 kg         dother         200         250           PAC -R         50 lb         7         30         1195.16         Shaker 2         0 other         0 other         200         200         212         24         Sol. Con. 46           C -L         50 lb         8         13         1365.92         Shaker 3         0 other         0 other <td>K+ Ion Conc</td> <td>mg/Lx10<sup>a</sup></td> <td>18.4</td> <td><u> </u></td> <td>18.4</td> <td><u> </u>'</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>	K+ Ion Conc	mg/Lx10 <sup>a</sup>	18.4	<u> </u>	18.4	<u> </u> '									
Initiation         200 pm/100 pm         Investment         Consumption           Bit/00 R <sup>2</sup> 200 pm/100 pm         Investment         Investment         Consumption           INVENTORY AND CONSUMPTION         USED         REC         BAL         COST         MUD TYPE         KCL/POLYMER         Additions         bbl           BARACOR 129         25 kg         4         4         259.41         SOLIDS CONTROL EQUIPMENT         Additions         bbl           Caustic Socia         25 kg         90         150         129.96         Shaker 1         Social 25 kg         dother         200         250           PAC -R         50 lb         7         30         1195.16         Shaker 2         0 other         0 other         200         200         212         24         Sol. Con. 46           C -L         50 lb         8         13         1365.92         Shaker 3         0 other         0 other <td></td> <td></td> <td>10/20</td> <td></td> <td>29/07</td> <td>'</td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>			10/20		29/07	'	4								
6 rpm/3 rpm         Investment of the sector of the se	Rheometer lb/100 ft <sup>2</sup>				30/21										
PRODUCT DESCRIPTION         USED         REC         BAL         COST         MUD TYPE         KCL / POLYMER         CONSUMPTION           BARACOR 129         25 kg         4         4         259.84         SOLIDS CONTROL EQUIPMENT         Additions         bbl           Coustic Soda         25 kg         90         150         1299.6         Shaker 1         S0x50x80         24         Drill W.         205           PAC -R         50 lb         7         30         1195.18         Shaker 2         other         other		6 rpm/3 rpm			<u> </u>		4								
BARACOR 129         25 kg         4         4         259.44         Clubs Contract EQUIPMENT         Additions         bbl           Caustic Soda         25 kg         4         24         129.72         Make         screen size hrs         Sea W         -           CAUSTIC Soda         25 kg         90         150         129.72         Make         screen size hrs         Sea W         -           PAC-R         50 lb         7         30         1195.18         Shaker 2         other         -         other         -           PAC-L         50 lb         8         13         1365.92         Shaker 3         other         -         -         other         -         -         -         other         -	PRODUCT DESCR														
Caustic soda         25 kg         90         1299.6         Shaker 1         50x50x80         24         Drill W.         205           PAC-R         50 lb         7         30         1195.18         Shaker 2         other         other	BARACOR 129	25 kg					-					hrs			bbi
PAC-R         50 lb         7         30         1195.18         Shaker 2         other           PAC-L         50 lb         8         13         1365.92         Shaker 3         other         other           PAC-L         50 lb         8         13         1365.92         Shaker 4         Barite           PAC-L         50 lb         8         13         1365.92         Shaker 4         Barite           PAC-L         Shaker 4         Desilter 1         1.2         2         Losses         bbl           Page bbl/hr         hrs         bbl         Cherricals         9           Desilter 1         10.7         2         12         24         Losses         bbl           Contribuge 1         Desilter 2         Desilter 2         Down Hole         Net GAIN         138           Contribuge 2         NET GAIN         138         Solids Control Effic.         % Discharged         76           C. Da Silva         Melbourne         Adelaide         A\$         A\$         18014.46           Tel. 03-6213367 (Fax)         03-621311         08-477433         DATHY COST         CUMULATIVE COST           Tel. 03-621367 (Fax)         03-621311         08-477433 <t< td=""><td>Caustic Soda KCL, Tech(sx)</td><td></td><td></td><td></td><td>150</td><td>1299.6</td><td>Shaker 1</td><td></td><td>,</td><td></td><td></td><td></td><td>Drill W.</td><td></td><td>205</td></t<>	Caustic Soda KCL, Tech(sx)				150	1299.6	Shaker 1		,				Drill W.		205
PAC-L         S0 IB         0         1/00         1/000000000000000000000000000000000000	PAC-R								'		<u> </u>	<u> </u>			
BAROID Engineer     OFFICE     WAREHOUSE     Desilter 1.     10.7     2     12     24     Sol. Con.     46       Centrifuge 1     Image: Centrifuge 2     Image	PAC-L	<u>50 io</u>				1000.02							Barite		
Image: Second					'		Desande					1			
BAROID Engineer       OFFICE       WAREHOUSE       Daily Cost       Newhole       27         C. Da Silva       Melbourne       Adelaide       Daily Cost       Discharged       76         C. Da Silva       Melbourne       Adelaide       Daily Cost       CUMULATIVE COST       CUMULATIVE COST         Tel. 03-6213367 (Fax)       03-6213311       08-477433       08-477433       Adelaide       A\$ 4250.26       A\$ 18014.46         THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       TIME BREAKDOWN       hrs         NO       TYPE       bbi       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol 0.9       Rearing in       20         6       Pre-Mix       1527       1527       2       Low Grav. Solids       % Vol 0.9       Rearing in       2         High Grav. Solids       g/cc       3.00       Tripping       1       1       1         I       I       I       I       I       I       I       1       2         I       I       I       I       IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII							Desilter 1	1.					Sol. Co	on.	
BAROID Engineer       OFFICE       WAREHOUSE       Centrifuge 2       Newhole       27         BAROID Engineer       OFFICE       WAREHOUSE       Daily COST       CUMULATIVE COST         C. Da Silva       Melbourne       Adelaide       Daily COST       CUMULATIVE COST         THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRIILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         RESERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN       hrs         NO       TYPE       bbl       MD m       TVD m       INCL°       DISP m       Low Grav. Solids       % Vol 2.9       Drilling       20         6       Pre-Mix       1527       1527       2       Low Grav. Solids       % Vol 0.9       Rearing in       2         High Grav. Solids       g/co 3.00       Tripping       1       2       High Grav. Solids       g/co 3.00       Tripping       1         I       I       I       I       Interval Dilution       bbl/m       1.3       Interval Dilution       Interval Dilution       Interval Dilution       Interval Dilution			Ţ	+	'	<b> </b>				++	<u>├</u> '	<u> </u>			30
BAROID Engineer       OFFICE       WAREHOUSE       Daily COST       CUMULATIVE COST         C. Da Silva       Melbourne       Adelaide       Adelaide       A\$ 4250.26       A\$ 18014.46         Tel. 03-6213367 (Fax)       03-6213311       08-477433       08-477433       A\$ 4250.26       A\$ 18014.46         THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         RESERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN hrs         NO       TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol 2.9       Drilling       20         6       Pre-Mix       1527       1527       2       Low Grav. Solids       % Vol 0.9       Reaming in       2         High Grav. Solids       g/cc       3.00       Tripping       1         ASG of Solids       g/cc       3.00       Tripping       1						<u></u>							Newho	ole	
BAROID Engineer         OFFICE         WAREHOUSE         DAILY COST         CUMULATIVE COST           C. Da Silva         Melbourne         Adelaide         A\$ 4250.26         A\$ 18014.46           Tel. 03-6213367 (Fax)         03-6213311         08-477433         08-477433         08-477433           THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE         WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.           RESERVE PITS         SURVEY DATA         SOLIDS ANALYSIS         TIME BREAKDOWN hrs           NO         TYPE         bbl         MD m         TVD m         INCL°         DIR °         DISP m         Low Grav. Solids         % Vol 2.9         Drilling         20           6         Pre-Mix         1527         1527         2         Low Grav. Solids         % Vol 2.9         Drilling         1           High Grav. Solids         g/cc         3.00         Tripping         1         2         1         20         1         20         1         20         1         2         1         20         2         2         2         2         2         2         2         2         2         2         2         2				+			Solids C	ontrol Effi	ic.			%			
C. Da Silva     Melbounie     Addiate       Tel.     03-6213311     08-477433       THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE       WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.       RESERVE PITS     SURVEY DATA     SOLIDS ANALYSIS     TIME BREAKDOWN     hrs       NO     TYPE     bbl     MD m     TVD m     INCL°     DIR °     DISP m     Low Grav. Solids     % Vol 2.9     Drilling     20       6     PreMix     1527     1527     2     Low Grav. Solids     % Vol 0.9     Reaming in     2       High Grav. Solids     % Vol 0.9     Reaming in     2       High Grav. Solids     g/cc 3.00     Tripping       Low     Cuttings Volume     bbl     27.0     Other     1	BAROID Eng	gineer	OFFICE		WAREHOL	JSE	1			ST		CUMU	LATIVE	COST	
Tel.       03-6213311       08-477433         THE RECOMMENDATIONS MADE HEREON SHALL NOT BE CONSTRUED AS AUTHORIZING THE INFRINGEMENT OF ANY VALID PATENT, AND ARE MADE         WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         RESERVE PITS       SURVEY DATA         NO       TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol       2.9       Drilling       20         6       Pre-Mix       1527       1527       2       Low Grav. Solids       % Vol       0.9       Rearning In       2         -       -       -       -       -       ASG of Solids       g/co       3.00       Tripping         -       -       -       -       -       ASG of Solids       g/co       0.00       Tripping         -       -       -       -       -       ASG of Solids       g/co       3.00       Tripping	C. Da Silva		Melbourn	e	Adelaide			A\$ 4	1250	).26		A\$	18014	4.46	
WITHOUT ASSUMPTION OF ANY LIABILITY BY BAROID DRILLING FLUIDS, INC OR IT'S AGENTS, AND ARE STATEMENTS OF OPINION ONLY.         RESERVE PITS       SURVEY DATA       SOLIDS ANALYSIS       TIME BREAKDOWN       hrs         NO       TYPE       bbl       MD m       TVD m       INCL°       DIR °       DISP m       Low Grav. Solids       % Vol 2.9       Drilling       20         6       Pre-Mix       1527       1527       2       Low Grav. Solids       pb 26.4       Circulating       1         1       Pre-Mix       1527       1527       2       High Grav. Solids       % Vol 0.9       Rearning In       2         1       High Grav. Solids       g/bc 3.00       Tripping       2         1       ASG of Solids       g/cc 3.00       Tripping       1         1       Interval Dilution       bbl/m 1.3       0	Tol 02-6212367	(Fax)	03-6213	311	08-4774	33		THEFT		-					
HESERVE PTIS     Software print       NO     TYPE     bbl     MD m     TVD m     INCL*     DIR *     DISP m     Low Grav. Solids     % Vol 2.9     Drilling     20       6     Pre-Mix     1527     1527     2     Low Grav. Solids     ppb     26.4     Circulating     1       6     Pre-Mix     1527     1527     2     High Grav. Solids     pyb     26.4     Circulating     1       7     1527     1527     2     High Grav. Solids     pyb     13.2     Reaming out     2       7     1     1     1     ASG of Solids     g/cc     3.00     Tripping       7     1     1     1     1     Cuttings Volume     bbl     27.0     Other     1	THE RECOMMENDAT	IONS MADE HEREO	N SHALL NO	DT BE CON	STRUED AS A	COR IT'S A	GENTS, ANI	D ARE STA	ATEME	INTS OF	OPINIO	N ONLY	<u>' </u>		
NO     IYPE     bbl     MD m     IYD m     INCL     Diff     Edw Grav. Solids     ppb     26.4     Circulating     1       6     Pre-Mix     1527     2     Low Grav. Solids     ppb     26.4     Circulating     1       6     Pre-Mix     1527     2     Low Grav. Solids     ppb     26.4     Circulating     1       7     1527     2     High Grav. Solids     ppb     13.2     Reaming out       7     1     ASG of Solids     g/cc     3.00     Tripping       7     1     Cuttings Volume     bbl     27.0     Other     1	RESERVE PITS											_		)OWN	
High Grav. Solids     % Vol     0.9     Reaming In     2       High Grav. Solids     ppb     13.2     Reaming out       ASG of Solids     g/cc     3.00     Tripping       Cuttings Volume     bbl     27.0     Other     1       Interval Dilution     bbl/m     1.3     1						DISP m									
ASG of Solids     g/cc     3.00     Tripping       Cuttings Volume     bbl     27.0     Other     1       Interval Dilution     bbl/m     1.3			1027				High Grav	av. Solids							2
Cuttings Volume         bbl         27.0         Other         1           Interval Dilution         bbl/m         1.3						1	Linh Gr	u Colido		nnh	13.2 7	1 Ream	ina out		
							ASG of S	Solids		g/cc 3 bbl 3	3.00 27.0	Trippi	ng		1

1997 - 1997 -					T		EPORT NO.	14 up	to 24:00 h	hrs, ź	25/5/94	
		1*	- D+ -	1+4	· F		26/5/94	1	-m MD 166		TVD 1666	
AROID) B	Baroid Au	stralli	а Рту		-	DATE	and the second se	ACTIVIT				
						12-Ma		Drilling	2V			
ERATOR				TOR / RIG				COUNTR Australia				
E Resources Ltd			Century Rig					TOWNS	HIP			
PORT FOR		1.1	Hoffman					Port Carr				
n Smith ELL NAME AND NO	Э.	F	IELD OR	BLOCK NO	J.			Otway B	lasin, Victoria			
ngley-1	DRILLING	STRING	PPL 1		ASINGS		Dura Maria		ins Eff %	bbl/stk	spm bbl	
BIT DATA	OD ins	ID ins Le	ength m		[ Set @	Depth n	Nat 7P50	5.5	7.75 95	0.0525	5 136	7.14
pe Sec S82F	Pipe 1 4.5 Pipe 2 4.5	4.367 2.875	1435.8 55.28	Riser 9 5/8"	Set @	334.	.43 Nat 8P80	6	8.5 95	0.0705	*	
	Pipe 3				Set @		Pump Press	1075 psi		TAL bbl/n		7.14
	Col 1 6.25	2.875	174.96		Set @ Set @		MUD VOL	bbl	CIRCULAT		TA AV m/m	nin
oz Area 0.35 ins <sup>2</sup>	Col 2 OPEN HOL	E SECTIO	NS		Set @	2	Downhole Active	371	Bottoms up	38 mins	DP	43.1
A ins <sup>2</sup>	Sect 1			Liner	Set @ Set @	<u>.</u>		735	Surface-bit	t 13 mins	DC	67.5
V m/sec + 83.1 -	0000	8.5	1331.6	Liner	Top @		Decenio	1	ECD ppg		3 Riser	
npact lb f 389	Current	N	MUD PRO	PERTIES			MUD htt <9.3 ppg	VIS 4	40-55 sec	YP	10-2010/	
ample Location	IN or OUT	IN 13:00		IN 22:35		APIF	ilt 6–8 ml	HTHP	ml	KCL	3 %	>
me Sample Taken	hrs m	13:00 1623		1666		BY A	UTHORITY Mud					
epth Iowline Temp		39		40		متلم لم	ARKS ng pre-mix and l	Pac "R" & '	"L" to mainta	un rheolo	ogy, and filt	rate
leight	ppg sec/at	9.25 55	ļ	9.20 55	ļ	Requ	lirements. Dumpe	ed sand tra	ap when req	quired.		
unnel Viscosity	sec/qt cP	13		13	ļ	-1						
field Point	lb/100 ft2	20 7/18/29	<u> </u>	22 8/19/31		1						
Bels 10 sec/10min/3	0 min 1b/100 ft <sup>2</sup> ml/30min	7/18/29 8.9		8/19/31		-						
PI Filtrate	ml/30min			2/-	<del> </del>	-						
PI/HPHT Filter Cak	e 32nd ins % Vol	<u>2/-</u> 4.3	<u></u>	4.3		_1						
Solids Dissolved Salts	% Vol	1.7		1.7		-						
il Content/Water Co	ontent % Vol	/94.0 0.2	+	-/94.0 0.2	<u> </u>	_1						
Sand Methylene Blue cap	% Vol	12	+	12		-1						
рН	meter	9.0 0.40	+	9.3 0.40	<u> </u>	AC	τινπγ			) etcm-	iper trip Of	<u>.</u>
Alk. Mud Pm Alk. Filtrate, Pf/Mf	mi mi	0.10/0.30	1	0.10/0.30	1		ling ahead 8.5" ho ntinued drilling ah	ole to 162	528m circvia	บ stand w ited up a	sample.	
Chlorides	mg/Lx10 <sup>3</sup>	19.5	+	19.5 60/60	+		ianuea aniiing ai					
Total Hardness/Cal		60/60	1	3.1								
KCL ASG of Solids	g/cc	3.1		2.9								
n&K	mg/Lx10 <sup>3</sup>	0.48/1.65		0.46/1.99								
K+ ion Conc					+							
	600 (000	n 46/33	+	48/35								
Rheometer lb/100 ft <sup>2</sup>	600 rpm/300 rpn 200 rpm/100 rpr					_						
10/100 IC	6 mm/3 mm	1	IMPTION			-			155		NSUMPTIC	NC
PRODUCT DESC		ND CONSU	REC	BAL	COST	r Mi	UD TYPE KO				ditions	bbl
PRODUCT DESC BARACOR 129	25 kg		1	2		1.96 SC 1.86	DLIDS CONTRO Make	scree	en size hrs	s Sea	a W	75
Caustic Soda	25 kg		2		4 319	9.83 Sh	naker 1		50x80	24 Drill othe	ili W. ner	15
CMC EHV KCL,Tech(sx)	25 kg 25 kg	3	30	12	20 43:		naker 2 naker 3			oth	ner	
PAC-R	50 lb		3				naker 4				nite nemicals	4
PAC-L	50 lb		Ť				p	pg bbl/t			nemicals	bbl
							esander	and the second s	2 22	44 Sol	ol. Con.	72
						D	esilter 2.				ost/Dumped	
					_		entrifuge 1 entrifuge 2			Ne	ewhole	25
		_									ET LOSS ischarged	23 102
					101107	s	olids Control Efficience	ic. Y COST			TIVE COST	
BAROID E	ngineer	OFFICE		WAREH				3102.47			1116.93	
C. Da Silva	a	Melbou		Adelaid						•		
Tal 03-62133	67 (Fax)	03-62	13311 NOT PE C	08-47		DRIZING	THE INFRINGEME	ENT OF AN	Y VALID PATE	ENT, AND	ARE MADE	
THE RECOMMEND	DATIONS MADE HEF	LON SHALL	ROID DRILL	ING FLUIDS.	INC OR I	T'S AGE	NTS, AND ARE ST.	ATEMENTS	OF OPINION	NONLY.		
WITHOUT ASSUM	F HUN OF ANY LIAB						SOLID	S ANALYS	SIS	I IME DIL	EAKDOWN	N hrs
RESERVE PITS			n INC		• DISF		ow Grav. Solids	% V	Vol 3.5	Drilling		21
NO TYPE	bbl MD m			1.5		ī	ow Grav. Solids	ppt		Circulatin Reaming		
6 Pre-Mix							High Grav. Solids High Grav. Solids		b 11.8	Reaming	g out	
							ASG of Solids	<u>g/c</u>		Tripping		1
				1	1		Cuttings Volume			Other		1

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BAROLL	Baroid A	Austra	lia Pt	y Ltd		MUD REP DATE START DA	27/5/94 ATE		DEPTH ACTIVI Tripping	1		26/5/94 TVD 17	
OPERATOR GFE Resources Ltd REPORT FOR Ken Smith			CONTRA Century R REPORT J.Hoffmar	FOR	3				COUNT Australia TOWNS Port Car	a SHIP			
WELL NAME AND	NO.			BLOCK	10.				LOCAT Otway E	ION Basin, <u>Victori</u>	- a		
Langley-1 BIT DATA	DRILLI	NG STRING	the second se		CASINGS				P	UMP DATA			h h Maria
Size 8.500 ins Type Sec S82F	OD ins Pipe 1 4.5		Length m 1501.8		Set @	Depth m	Pump M Nat 7P50		ins x 5.5		bbi/stk 0.0525		bbl/min 5.828
Nozzles 32nds	Pipe 2 4.5			9 5/8"	Set @	334.43	Nat 8P80	2	6	8.5 95	0.0705	5	
11 13 13	Pipe 3 Col 1 6.25	5 2.875	174.96		Set @ Set @		Pump Pi	ress 8	350 psi		TAL bbi/		5.828
	Col 2		ONE		Set @ Set @		Downho		<b>bbi</b> 379	CIRCULAT Total circ 140		TA AV r	n/min
Noz Area 0.35 ins <sup>2</sup> IFA ins <sup>2</sup>	Sect 1	OLE SECTI	UND		Set @		Active	4	437 I	Bottoms up 4	48 mins	DP	35.2
NV m/sec 67.8	Sect 2 Current	8.5	1397.6	Liner	Set @ Top @	CONTRACT PROFESSION	Total Cir Reserve			Surface – bit ECD ppg			55.1
			MUD PRC	T			м	UD P		TY SPECIFI			lb/100 ft2
Sample Location Time Sample Taken	IN or OU hrs	T IN 09:30		IN 15:35		WEIGHT API Filt		•	VIS 4 HTHP	0–55 sec ml	YP KCL		%
Depth	m	1719		1732		BY AUTH	ORITY M	ud Pro	ogram				
-lowline Temp	°C ppg	40 9.25		40 9.30		REMARK Continue	adding p	re-mi	ix and P	AC for mud	maintain	ence.	
Funnel Viscosity	sec/qt	50		51									
Plastic Viscosity Yield Point	cP lb/100 ft <sup>2</sup>	14		15 18									
Gels 10 sec/10min/	30 min lb/100 ft <sup>2</sup>	5/15/24		6/17/26 7.0									
API Filtrate HPHT Filtrate	ml/30min ml/30min			1.0		1							
API/HPHT Filter Cal		2/- 4.5		2/- 4.5		-							
Solids Dissolved Salts	% Vol % Vol	1.5		1.5		1							
Dil Content/Water C		/94.0 0.2		/94.0 0.2									
Sand Methylene Blue cap		10		13		1							
DH	meter ml	9.3 0.40		9.5 0.40		ACTIVIT							
Alk. Mud Pm Alk. Filtrate, Pf/Mf	ml	0.10/0.30	1	0.10/0.30		Continue	d drilling a	ahead	without	any hole pr	oblems t	o 1729m	n, there
Chlorides Total Hardness/Cal	mg/Lx10 <sup>3</sup> cium mg/L	<sup>3</sup> 18.0 60/60		18.0 60/60		was a dril up a sam	iling breal ple. Tried	c at th to dri	is point. Il 3m exi	Drilled to 17 tra but only r	ann ann nanageo	d 1 <b>m</b> , be	cause
(CL	% Wt Sol	n 3.0		3.0		the bit wa				•	-		
SG of Solids	g/cc	0.54/1.07		3.2 0.54/1.14		-							
(+ Ion Conc	mg/Lx10			17.2		-							
	<u> </u>					-							
Rheometer	600 rpm/300 rpr 200 rpm/100 rpr		1	48/33									
lb/100 ft <sup>2</sup>	6 rpm/3 rpm					1							
PRODUCT DESCR	INVENTORY A	USED	REC	BAL	COST	MUD TY	PE K	CL/P	OLYME	R	CONS	UMPTI	ON
Caustic Soda	25 kg	1		21	32.43	SOLIDS	CONTRO	L EQ	UIPMEI		Additi Sea W		bbl
CMC EHV KCL,Tech(sx)	25 kg 25 kg	40		80	426.44 577.6	Shaker 1	Make		50x50x		Drill W		126
PAC-R	50 lb	6		14	1024.44	Shaker 2 Shaker 3					other other		
						Shaker 4					Barite		
						Desander		<b>Pg</b>	bbl/hr 1.25	hrs bbl 15 19	Chem Losse		bbl
						Desilter 1		10.3	2		Sol. C	on. Jumped	49
			+			Desilter 2 Centrifug					Down	Hole	
						Centrifug					Newh		15 81
		_				Solids Co				%	Disch	arged	49
	lineer	OFFICE		WAREHOL	JSE		DAILY				JLATIVE		
BAROID Eng	1	Melbourn		Adelaide			A\$ 2	060	.91	A\$	2317	7.84	
C. Da Silva			24.4	08-4774	33	NG THE INF	RINGEME	NT OF	ANY VAL	ID PATENT, A	ND ARE	MADE	
C. Da Silva	(Fax)	03-6213		STRUED AS	AUTHURIZ								
C. Da Silva [el. 03-6213367] [HE BECOMMENDA]	IONS MADE HERE	ON SHALL N	OT BE CON	STRUED AS	COR IT'S A	GENTS, AND	D ARE STA	IEME	NTS OF (	OPINION ONL	<u>Y.</u>		
C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	IONS MADE HERE	ON SHALL N ITY BY BARO SURV	OT BE CON ID DRILLING	STRUED AS	COR IT'S A	GENTS, AND	SOLIDS	ANA	LYSIS	TIME	BREAK		hrs 13
	IONS MADE HERE	ON SHALL N	ot be con Id drilling	STRUED AS	DISP m	GENTS, AND	SOLIDS SOLIDS J. Solids	ANA	LYSIS % Vol 2 ppb 2	TIME	BREAK ng ilating		hrs 13 2
C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	IONS MADE HERE	ON SHALL N ITY BY BARO SURV	OT BE CON ID DRILLING	STRUED AS	COR IT'S A	GENTS, AND Low Grav Low Grav High Grav	SOLIDS SOLIDS A. Solids A. Solids V. Solids		KYSIS % Vol 2 ppb 2 % Vol 1	TIME 2.8 Drillir 25.5 Circu 1.7 Rean	BREAK ng Ilating ning In	DOWN	13
C. Da Silva Tel. 03–6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	IONS MADE HERE	ON SHALL N ITY BY BARO SURV	OT BE CON ID DRILLING	STRUED AS	COR IT'S A	GENTS, AND Low Grav Low Grav High Grav High Grav ASG of S	SOLIDS SOLIDS A Solids A Solids V. Solids V. Solids olids		KLYSIS % Vol 2 ppb 2 % Vol 1 ppb 2 g/cc 3	TIME 2.8 Drillir 25.5 Circu 1.7 Rean 25.0 Rean 3.20 Tripp	BREAK Ing Ing In Ing In Ing Out	DOWN	13
C. Da Silva Fel. 03–6213367 THE RECOMMENDAT MTHOUT ASSUMPTI RESERVE PITS	IONS MADE HERE	ON SHALL N ITY BY BARO SURV	OT BE CON ID DRILLING	STRUED AS	COR IT'S A	GENTS, AND Low Grav Low Grav High Grav High Grav	SOLIDS SOLIDS SOLIDS Solids Solids V. Solids V. Solids Olids Volume		KLYSIS % Vol 2 ppb 2 % Vol 1 ppb 2 g/cc 3	TIME 2.8 Drillir 25.5 Circu 1.7 Rean 25.0 Rean 3.20 Tripp 15.0 Othe	BREAK Ing Ing In Ing In Ing Out	DOWN	13

						MUD REP	ORT NO.	16 up to	24:00 ł	irs, 27/5/94	4
BAROD	Baroid	Austra	lia Pt	y Ltd		DATE START DA	28/5/94	DEPTHm	MD 174	5 TVD 1	745
						12-May-		Tripping			
OPERATOR			CONTRA Century F	CTOR / RIG	G			COUNTRY Australia			
GFE Resources I REPORT FOR	_ta		REPORT					TOWNSHIP			
Ken Smith			J.Hoffmar		10			Port Campbe	11		
WELL NAME AN Langlev-1	ID NO.		PPL 1					Otway Basin,			
BIT DATA		LING STRING			CASINGS	Depth m	Pump Make	PUMP ins x ins	DATA Eff %	bl/stk spm	bbl/min
Size 8.500 ins Type S82F	OD in Pipe 1	s ID ins 4.5 4.367	Léngth m 1514.8		Set @	)	Nat 7P50	5.5 7.75	95	0.0525 111	5.828
Nozzles 32nds	Pipe 2	4.5 2.875	55.28	9 5/8"	Set @		Nat 8P80	6 8.5	95	0.0705	+
	13 Pipe 3 Col 1 6	.25 2.875	174.96		Set @ Set @		Pump Press			AL bbl/min	5.828
	Col 2				Set @		MUD VOL		culatil	NG DATA	m/min
Noz Area 0.32 ir TFA ins²	ns <sup>2</sup> OPEN Sect 1	HOLE SECT	IONS		Set @ Set @		Active		ns up 49	mins DP	35.2
NV m/sec 75.				Liner	Set @		Total Circ	801 Surfac	æ-bit 1	7 mins DC 9.37 Riser	55.1
Impact lb f 293	3 Current	8.5		PERTIES	Top @	, 	Reserve MUD	PROPERTY SI			
Sample Location	n IN or C	UT IN		IN		-1	<9.3 ppg	VIS 40-55			01b/100 ft <sup>2</sup>
Time Sample Ta		08:30		18:00		API Filt	6–8 ml ORITY Mud f		mi	KCL 3	%
Depth Flowline Temp		<u>1745</u> 40		40		REMARK	S				
Weight	ppg	9.28		9.30			near bit staba I for slugs.	lizer and put on	a new t	bit.	
Funnel Viscosity Plastic Viscosity	cP	<u>51</u> 15		50 15		KOL USeu	nor slugs.				(
Yield Point	lb/100	ft² 20		18		-					
Gels 10 sec/10m API Filtrate	nin/30 min_lb/100 ml/30n			5/13/20 6.8		1					
HPHT Filtrate	ml/30n	nin									
API/HPHT Filter	Cake 32nd in % Vol	ns <u>2/-</u> 4.5		4.5		-					
Solids Dissolved Salts	% Vol	1.5		1.5		1					
	er Content % Vol	-/94.0	_	-/94.0 0.2		4					
Sand Methylene Blue	cap ppb	0.2	-	12							
pН	meter	9.0		9.0		ACTIVITY					
Alk. Mud Pm Alk. Filtrate, Pf/N		0.35	5	0.35		Ran in the	a hole to 1713	3m wash to bot	om at 1	732m. Circulate	ed bottoms
Chlorides	mg/Lx			18.0		up prior to	o drilling to 1	734m, circulate It was decided	d up san to do a	nple. Drilled to test at this dep	1745m th. made
Total Hardness/ KCL	Calcium mg/L % Wt 5	50/50 Soin 3.0		50/50 3.0		a wpier tri	ip to the shoe	e. Ran back to b	ottom a	nd circulated h	ole clean
ASG of Solids	g/cc	3.1		3.2		prior to P	OH for DST #	¥ 1.			
n & K K+ Ion Conc	mg/Lx	0.51/1.45 10 <sup>3</sup> 17.2		0.54/1.14	1	1					
						4					
Rheometer	600 rpm/300	rpm 50/35		48/33		1					
lb/100 ft <sup>2</sup>	200 rpm/100	rpm				4					
	6 rpm/3 rpm INVENTORY	AND CONSL	IMPTION			1					
PRODUCT DES	SCRIPTION	USED	REC	BAL	COST 32.43	MUD TY		OLYMER		CONSUMPTI Additions	bbl
Caustic Soda KCL,Tech(sx)	25 kg 25 kg	30	)	20	433.2		Make	screen size		Sea W.	
						Shaker 1		50x50x80	12	Drill W.	40
						Shaker 2 Shaker 3				other	
						Shaker 4		hbl/br bro		Barite Chemicals	3
				-		Desander	r 10.			Losses	bbl
				-		Desilter 1		1 2 12	24	Sol. Con. Lost/Dumped	38 20
						Desilter 2 Centrifug				Down Hole	20
						Centrifug				Newhole	3 15
						Solids Co	ontrol Effic.		%	NET LOSS Discharged	58
BAROID	Engineer	OFFICE		WAREHO	USE		DAILY C	OST	CUMU	LATIVE COST	
C. Da Silv		Melbourn	18	Adelaide			A\$ 465	5.63	A\$	23643.47	
T-1 00 6010	067 / Cov)	03-6213	911	08-4774	33						
THE DECOMMEN	IDATIONS MADE HE	REON SHALL	NOT BE CON	ISTRUED AS	AUTHORIZ	ING THE INF	RINGEMENT (	OF ANY VALID PA	TENT, A	ND ARE MADE	
WITHOUT ASSUM	APTION OF ANY LIA	BILITY BY BAHL	JID DRILLING	a PLUIDS, IN	CORTISA	GENTS, AND					
RESERVE PITS			EY DATA		Talaa	1	SOLIDS A	WALYSIS % Vol 2.8	Drillin	BREAKDOWN	<u>hrs</u> 2
	bbi MD n	n TVD m	INCL°	DIR °	DISP m	Low Grav		ppb 25.5	Circul		5
NO TYPE						High Gra	v. Solids	% Vol 1.7	Ream	ing In	
NO TYPE								0.00	I Datama		1
						High Gra	v. Solids	ppb 25.0 g/cc 3.20	Ream Trippi	ing out 1g	16
							v. Solids olids Volume			ng	16

	··· ···					MUD REP	ORT NO	. 1	7ι	up to 24	4:00 h	rs,	28/5/94		
				1 +d			29/5/94	T	DEDTL	1-m N	174	5	TVD 174	45	
BAROLL	Baroid Au	Istra		y Liu		DATE START D			ACTIV						
						12-May-		-	Trippin	g in.					
OPERATOR		[		CTOR / RIG					COUN Austral						
GFE Resources Ltd			Century R REPORT						TOWN						
REPORT FOR			J.Hoffmar							ampbell					
WELL NAME AND N	10.		FIELD OF	R BLOCK N	0.				LOCA <sup>-</sup> Otway	Basin, V	lictoria				
angley-1 BIT DATA	DRILLING	STRING		C	ASINGS					PUMPE		hi/able	spm t	obl/min	
Size 8.500 ins	OD ins	ID ins	Length m		Set @	Depth m	Pump M Nat 7P5		<u>ins</u> 3 5.5	x ins E 7.75	95	0.0525	1	6.458	
Type CD502	Pipe 1 4.5 Pipe 2 4.5	4.367	1514.8 55.28	Riser 9 5/8*	Set @		Nat 8P8		6	8.5	95	0.0705			
CORE BIT	Pipe 3				Set @		Pump P		25 pei		TOT	L bbl/n	ll	6.458	
	Col 1 6.25	2.875	174.96		Set @ Set @		MUD VC		bbl	CIRCI	JLATIN	IG DAT	Ă.		
Noz Area ins <sup>2</sup>	Col 2 OPEN HOL	E SECTI	ONS		Set @	)	Downho		82	Total ci Bottom			AV m	1/min 39	
TFA ins <sup>2</sup>	Sect 1			Liner	Set @	) 	Active Total Ci	-	389 771	Surface	-bit 1	5 mins	DC	61	
NV m/sec mpact lb f	Sect 2 Current	8.5	1410.6	- C. 1997	Top @		Reserve	75.41 1	· · • •	ECD pr	g	9.38	Riser		
				PERTIES		WEIGHT				ATY SP 40-55 s		ATION (P	10-201	lb/100 ft <sup>2</sup>	
Sample Location Time Sample Taken	IN or OUT hrs			IN 24:00		API Filt	6-8 m	ni ł	HTHP			CL.	з (	%	
Depth	m			1745		BY AUTH		lud Re	port						
Flowline Temp	<u>°C</u>			40 9.30		Approx. 5		f gas.							
Weight Funnel Viscosity	ppg sec/qt		<u> </u>	49		-									
Plastic Viscosity	cP lb/100 ft <sup>2</sup>			14		1									
Yield Point Gels 10 sec/10min/3				5/12/19		]									
API Filtrate	ml/30min			7.0		-1									
HPHT Filtrate API/HPHT Filter Cak	ml/30min e 32nd ins			2/		1									
Solids	% Vol			4.9		-									
Dissolved Salts 0il Content/Water Co	% Vol			1.6 -/93.5		1									
Sand	% Vol			0.2		-1									
Methylene Blue cap				12 9.0		-1									
pH Alk, Mud Pm	meter ml			0.30		ACTIVIT	Υ			от <i>4</i> -	ntoriai	1715	to 1745		
Alk. Filtrate, Pf/Mf	mi			0.20/0.35		Becover	e hole an ed CO2 g	as. Pu	iled ou	it of the i	hole an	d laid c	out test to	bol.	
Chlorides Total Hardness/Calo	mg/Lx10 <sup>3</sup> cium mg/L			50/50		Made up	core bar	rei and	d ran ir	the hol	e. Wasi	h and re	eam last	15m to	
KCL	% Wt Soln			3.0		_ bottom.									
ASG of Solids	g/cc			0.52/1.25		1									
K+ Ion Conc	mg/Lx10 <sup>3</sup>			17.2		-1									
Rheometer	600 rpm/300 rpm			46/32		-									
lb/100 ft <sup>2</sup>	200 rpm/100 rpm 6 rpm/3 rpm					-1									
	INVENTORY AN			1.0.1	COST	MUD T			POLYN	ER		CONS	SUMPTIC	ON	
PRODUCT DESCR	25 kg	USED	REC	BAL 19	COST 32.4		CONTR		UIPM	ENT		Addit	ions	bbl	
Caustic Soda	<u>20 ny</u>	ļ'					Mak	9	scree 50x5	n size		Sea V Drill W		+	
						Shaker Shaker					<u> </u>	other			
						Shaker	3					other Barite			
				_		Shaker		ppg	bbl/h	r hrs	bbl	Chem		1	
					ļ	Desand	er	10.7	1.25	5 2		Losse Sol. C		bbl 7	
						Desilter Desilter		10	1.75	5 2	4		on. Dumped	23	
						Centrifu	ge 1					Down			
						Centrifu	ge 2		1		1	Newh	lole LOSS	30	ļ
						Solids C	ontrol Eff				%	Disct	narged	30	
BAROID En	gineer	OFFICE		WAREHO	USE	_	DAI	YCO	ST				E COST		
C. Da Silva		Melbourr	ne	Adelaide			A\$	32.4	3		A\$	2367	75.90		
	(Fax)	03-6213	311	08-4774	33			CNT O			TENT A		MADE		
THE RECOMMENDA WITHOUT ASSUMPT			NOT BE CO	NSTRUED AS	AUTHORI C OR IT'S	ZING THE IN AGENTS, AI	ID ARE ST		ENTS C	FOPINIC	ON ONL	Y			
WITHOUT ASSUMPT	IUN OF ANY LIABILI												DOWN	hrs	
RESERVE PITS			VEY DATA		DISP m	Low Gr	SOLIE v. Solids	_	ALYSI % Vo		Drillin				
NO TYPE	bbl MD m	TVD m	INCL		0.01-11	Low Gra	v. Solids		ppb	33.7	Circu	lating		1	ł
				1	1		av. Solida		% Vo			ning In		<u>-</u>	İ
						High C.	av Solide	5	pnh	17.0	I near	iniu ou	L		
						High Gr ASG of	av. Solid: Solids	5	ppb g/cc	17.6 3.00	Tripp			15	

.

						MUD REF	PORT NO	<b>).</b> 1	8 1	up to	24:00 h	nrs,	29/5/94	
	Baroid	Δuetra	lia Pt	ht I v		DATE	30/5/94		DEPTI	Hm	MD 177	79	TVD 17	79
		nusiid	nuri	y = 14		START D			ACTIV	ΊTΥ				
			CONTRA	CTOR / RI	3	12-May-	-94		Drilling					
ERATOR E Resources Ltd			CONTHA Century F						Austra	lia				
PORT FOR			REPORT	FOR					TOWN Port C	ISHIP ampbe	u			
Smith				n / S. Kelly R BLOCK N	10.				LOCA		<u> </u>			
ILL NAME AND P			PPL 1								Victoria			
BIT DATA		ING STRING	a Length m		CASINGS	Depth m	Pump N	lake		PUMP x ins	DATA Eff %	obi/stk	spm	bbl/min
e 8.500 ins be SEC S82F	OD ins Pipe 1 4	ID ins .5 4.367	1548.8		Set @	)	Nat 7P5	0	5.5	7.75	95	0.0525	135	7.088
zzles 32nds	Pipe 2 4	.5 2.875	55.28	9 5/8"	Set @		Nat 8P8	0	6	8.5	95	0.0705		
1 13 13	Pipe 3 Col 1 6.	25 2.875	174.96		Set @ Set @		Pump P	ress	1075 ps			AL bbi/m		7.088
	Col 2				Set @	)	MUDV		bbl			NG DAT		n/min
z Area 0.35 ins <sup>2</sup>		IOLE SECTI	ONS		Set @ Set @		Downho Active		389 419		xirc 114 ns up 4		AV n DP	42.8
A ins <sup>2</sup> m/sec 82.5	Sect 1 Sect 2 -	ant an an a		Liner		) 	Total Ci	rc 8		Surfac	æ-bit 1	4 mins		, <b>67</b>
pact lb f 390	Current	8.5	1444.6		Top @	, 	Reserve		DODE	ECD p		9.43 ATIONS	Riser	
	IN or O	<u></u>	MUD PRO	IN		WEIGHT				40-55				lb/100 ft <sup>2</sup>
mple Location ne Sample Taken	IN or U hrs			23:25		API Filt	6-8 n	ni i	нтнр				з	%
epth	m			1779		BY AUTH		Aud Pr	ogram					
owline Temp eight	°C			40 9.35		REMARK Recovere		f the c	ore.					
unnel Viscosity	sec/qt			48		Continue				Naare f	ormatio	n.		
lastic Viscosity	cP	2		15		-								
eld Point els 10 sec/10min/3	lb/100 1 0 min lb/100 1			5/10/15		1								
PI Filtrate	ml/30m	in		7.8										
PHT Filtrate PI/HPHT Filter Cake	mi/30m e 32nd ir			2/										
olids	% Vol			4.9		1								
solved Salts	% Vol		<u> </u>	1.6 -/93.5		1								
Content/Water Co	ontent % Vol % Vol			0.2		1								
ethylene Blue cap	ррь			11		-								
ł k. Mud Pm	meter ml			9.0		ACTIVIT	Y							
k. Filtrate, Pf/Mf	ml			0.20/0.40		Core from	n 1745m					arrei and	lay out	core.
lorides	mg/Lx1 ium mg/L	03		19.0		Ran in th	e nole wi	เท 8.5"	oit, Dri	ung an	690.			
tal Hardness/Calc CL	white white	oln		3.1		1								
G of Solids	g/cc			3.1 0.54/1.14		-								
Ion Conc	mg/Lx1	03		17.8		1								
						-								
heometer	600 rpm/300 r			48/33		1								
/100 ft <sup>2</sup>	200 rpm/100 r					1								
	6 rpm/3 rpm		MPTION		l	4								
ODUCT DESCR		USED	REC	BAL	COST	MUD TY			POLYM			CONS		
austic Soda	25 kg	2		17	64.86 144.4	-	CONTR			ENT 1 size	hrs	Additio Sea W.	ns	bbl
CL,Tech(sx) AC-R	25 kg 50 lb	10		40 10	144.4 682.96			•	50x50		9	Drill W.		90
AC-L	50 lb	3		7	512.22	Shaker 2						other other		<u> </u>
						Shaker 3 Shaker 4					1	Barite		
······································							/	_		hrs	1	Chemic		2
						Desande Desilter 1		10.9 10.1	1.2 1.5			Losses Sol. Co		<b>bbl</b> 25
				+	<u> </u>	Desilter 2		10.1			1	Lost/Du	Imped	30
						Centrifug	le 1			.		Down H		8
						Centrifug	le 2		I	.1	J	NET G		37
						Solids Co					%	Discha	rged	55
	ineer	OFFICE		WAREHO	JSE	-1		Y COS				LATIVE		
BAROID Eng		Melbourn	8	Adelaide			A\$	1404	.44		A\$	25080	).34	
BAROID Eng		03-6213	311	08-4774	33		DINCE							
C. Da Silva	(Fax)	00-0210		ISTRUED AS	AUTHORIZ	ING THE INF	HINGEM	INT OF	NTS OF			NU ARE N	NADE	
C. Da Silva I. 03-6213367 E BECOMMENDATI	IONS MADE HE	EON SHALL N	OT BE CON	FLUIDS. IN	C OR IT'S A									
C. Da Silva el. 03-6213367	IONS MADE HE	EON SHALL N	OT BE CON ID DRILLING	G FLUIDS, IN	C OR IT'S A									•
C. Da Silva el. 03-6213367 HE RECOMMENDATI ATHOUT ASSUMPTIC RESERVE PITS	IONS MADE HEI ON OF ANY LIAE	EON SHALL N ILITY BY BARO SURV	ID DRILLING	a Fluids, in	C OR IT'S A		SOLID	<u>s ana</u>	LYSIS		TIME	BREAKD	OWN	hrs 10
C. Da Silva al. 03-6213367 HE RECOMMENDATI ITHOUT ASSUMPTIC ESERVE PITS	IONS MADE HE	EON SHALL N	ID DRILLING	DIR °	DISP m	Low Grav	SOLID	S ANA				BREAKD g	OWN	
C. Da Silva al. 03-6213367 HE RECOMMENDATI ITHOUT ASSUMPTIC ESERVE PITS	IONS MADE HEI ON OF ANY LIAE	EON SHALL N ILITY BY BARO SURV	ID DRILLING	a Fluids, in	C OR IT'S A	Low Grav Low Grav High Gra	SOLID v. Solids v. Solids v. Solids	S ANA	<u>% Vol</u> ppb % Vol	3.4 30.9 1.5	TIME I Drillin Circul Ream	BREAKD g ating ing In	OWN	
C. Da Silva I. 03-6213367 E RECOMMENDATI THOUT ASSUMPTIC ESERVE PITS	IONS MADE HEI ON OF ANY LIAE	EON SHALL N ILITY BY BARO SURV	ID DRILLING	a fluids, in	C OR IT'S A	Low Grav	SOLID v. Solids v. Solids v. Solids v. Solids	S ANA	ALYSIS % Vol ppb	3.4 30.9	TIME I Drillin Circul Ream	BREAKD ating ing In ing out	OWN_	
C. Da Silva al. 03-6213367 HE RECOMMENDATI ITHOUT ASSUMPTIC ESERVE PITS	IONS MADE HEI ON OF ANY LIAE	EON SHALL N ILITY BY BARO SURV	ID DRILLING	a fluids, in	C OR IT'S A	Low Grav Low Grav High Gra High Gra	SOLID v. Solids v. Solids v. Solids v. Solids v. Solids Volume	S ANA	ALYSIS % Vol ppb % Vol ppb	3.4 30.9 1.5 22.0 3.10 8.0	TIME I Drillin Circul Ream Ream	BREAKD g ating ing In ing out ing out	DOWN	10

ASG of Solids Cuttings Volume Interval Dilution bbl/m 1.3 Interval Consumption bbl/m 1.5

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Other AVE ROP 3.4 m/hr

// A \\						MUD REP	ORT NO.	19	up to	24:00 ł	nrs, S	30/5/94	
DAJATA	Baroid A	ustra	lia Pt	v Ltd		DATE	31/5/94	DEP	TH-m	MD 185	53	TVD 18	53
	Durener			<b>y</b> –	ľ	START D		ACT Drillin					
OPERATOR		<del></del>	CONTRA	CTOR / RIG	i	12-May-	94	COU	INTRY				
GFE Resources Ltd		]	Century R	Rig 11			. <u></u>	Austi TOW	ralia /NSHIP				
REPORT FOR Ken Smith			REPORT S. Kelly	FOR				Port	Campbel	11			
WELL NAME AND	NO.		FIELD OF	R BLOCK N	0.				ATION ay Basin,	Victoria	-		
angley-1 BIT DATA	DRILLIN	G STRING	3		CASINGS				PUMP	DATA			- Literia
Size 8.500 ins	OD ins	ID ins	Length m 1622.8		Set @		Pump Ma Nat 7P50			Eff %	obl/stk 0.0525	spm 132	bbl/min 6.93
Type SEC S82F Nozzies 32nds	Pipe 1         4.5           Pipe 2         4.5	3.826 2.875		9 5/8"	Set @	334.43	Nat 8P80		6 8.5		0.0705		
	Pipe 3	0.975	174.96	<u> </u>	Set @ Set @		Pump Pre	ess 1100	psi	<u></u>	AL bbl/m	in	6.93
	Col 1 6.25 Col 2	2.875	1/4.90		Set @	)	MUD VO	L bbl	CIRC	ULATI	NG DAT	A	
Noz Area 0.35 ins <sup>2</sup>	OPEN HO	E SECTION	SNC		Set @ Set @		Downhole Active	e 383 419		circ 116 ns up 4		AV m DP	41.8
IFA ins <sup>2</sup> NV m/sec 80.6	Sect 1 Sect 2			Liner	Set @	)	Total Circ		Surfac	æ−bit 1	2 mins 9.37	DC Biser	65.5
mpact lb f 371	Current	8.5		OPERTIES	Top @	<u> </u>	Reserve	JD PROP					
Sample Location	IN or OUT	IN	MODING	IN		-	<9.3 pp	g VIS	4055	sec	YP	10-20	lb/100 ft <sup>2</sup>
Time Sample Taken	n hrs	10:45		23:45			6-8 ml ORITY Mu			ml	KCL	3	%
Depth Flowline Temp	m ℃	1821 40		1853 41	/	REMARK	S						
Howline (emp Weight	ppg	9.30		9.30		Top of Eu	meralla for	rmation at	t 1820m	(tentativ	e).	-illad int	the
Funnel Viscosity	sec/qt	48 14	<b></b>	44	·	Mud visco	osity and R a formation	theology of a sit cor	dropea (1 ntains les:	hinneo; s mudsi	as we u tone and	claysto	ne.
Plastic Viscosity	cP lb/100 ft <sup>2</sup>	<u>14</u> 18		16									
Gels 10 sec/10min/3	30 min lb/100 ft <sup>2</sup>	4/9/13		4/8/11	i	4							
API Filtrate HPHT Filtrate	ml/30min ml/30min	8.0	+	7.3		1							
API/HPHT Filter Cak		2/-		2/-		1							
Solids	% Vol	4.9		5.0 1.5	i	-							
Dissolved Salts 0il Content/Water C	% Vol	<u>    1.6</u> —/93.5		-/93.5	·	1							
Sand	% Vol	0.2		0.2		4							
Methylene Blue cap pH	o ppb meter	<u>11</u> 9.0	+	9 9.0		1							
Alk. Mud Pm	ml	0.30		0.35		ACTIVIT	Y d drilling th		-ore and	Cumer	alle forme	tions a	
Alk. Filtrate, Pf/Mf	ml mg/Lx10 <sup>3</sup>	0.20/0.40 18.5		0.25/0.40	İ	2-3 m/h		hough w	aare anu	Famers		alliona u	
Chlorides Total Hardness/Calo		50/50		50/50		1							
KCL	% Wt Soin g/cc	3.0	.+	3.0		-							
ASG of Solids		0.52/1.25	5	0.53/1.06		1							
K+ Ion Conc	mg/Lx10 <sup>3</sup>	17.2	+	17.2		-							
			<u></u>			1							
Rheometer	600 rpm/300 rpm 200 rpm/100 rpm			42/29	<b> </b>	-							
lb/100 ft <sup>2</sup>	6 rom/3 rom			-		1							
		D CONSU USED	REC	BAL	COST	MUD TY	PE KO	CL/POLY	MER		CONSI	UMPTIC	N
PRODUCT DESCR Caustic Soda	25 kg	1		16	32.43	SOLIDS	CONTRO	L EQUIPI	MENT	-	Additio		bbl
	50 lb	4		6		Shaker 1	Make		en size 50x80	hrs 24	Sea W. Drill W.		83
PAC-R	50 lb	2	+		341.40	Shaker 1 Shaker 2			00400		other		
PAC-R PAC-L		I	1			Shaker 3	_	,			other		
and the second s		<u> </u>	<u> </u>	+		Chaker A					Rarite		1 1
and the second s						Shaker 4		eg bbi/	hr hrs	bbi	Barite Chemic		1
and the second s						Desande	pr	11 1	.2 24	29	Chemic Losses	5	1 bbl
and the second s							PF 1.	11 1		29	Chemic Losses	s on.	1 bbl 65 25
and the second s						Desande Desilter 1 Desilter 2 Centrifug	PI 97 1. 2. je 1	11 1	.2 24	29	Chemic Losses Sol. Co Lost/Du Down H	s on. umped Hole	65 25
and the second s						Desande Desilter 1 Desilter 2	PI 97 1. 2. je 1	11 1	.2 24	29	Chemic Losses Sol. Co Lost/Du	s umped Hole le	65
and the second se						Desande Desilter Desilter Centrifug Centrifug	PF 	11 1 10.3 1	.2 24	× 29 36	Chemic Losses Sol. Co Lost/Du Down H Newho NET LO Discha	an. Jmped Hole Ie OSS	65 25 17
and the second se	jineer	OFFICE		WAREHOU	JSE	Desande Desilter Desilter Centrifug Centrifug	PF I. 2. Je 1 Je 2 DAILY	11 1 10.3 1	.2 24 .5 24	29 36 36 36 36 36 36 36 36 36 36 36 36 36	Chemic Losses Sol. Co Lost/Du Down H Newho NET LO Discha	an. Jimped Hole Ie OSS Irged COST	65 25 17 6
PAC-L	]ineer	OFFICE	3	WAREHOL		Desande Desilter Desilter Centrifug Centrifug	PF 1. 2. je 1 je 2 DAILY	11 1 10.3 1	.2 24 .5 24	× 29 36	Chemic Losses Sol. Co Lost/Du Down H Newho NET LO Discha	an. Jimped Hole Ie OSS Irged COST	65 25 17 6
PAC-L BAROID Eng C. Da Silva		Melbourn	311	Adelaide 08-47743	33	Desande Desilter Desilter Centrifug Centrifug	PE PE 1. 2. je 1 je 2 DAILY A\$ 10	11 1 10.3 1 COST 056.87	.2 24 .5 24	29 36 36 	Chemic Losses Sol. Co Lost/Du Down H Newho NET LO Discha JLATIVE 26137	s Jamped Hole le OSS Irged COST 7.21	65 25 17 6
BAROID Eng C. Da Silva Tel. 03-6213367		Melbourn 03-62133	311 JOT BE CON	Adelaide 08-47743	33 AUTHORIZI	Desande Desilter Desilter Centrifug Centrifug Solids Co	pr           1.           2.           3ge 1           1.           1.           2.           3ge 2           Ontrol Effic           DAILY           A\$ 10	11 1 10.3 1 7 COST 056.87	.2 24 .5 24	29 36 36 36 36 CUMU A\$	Chemic Losses Sol. Co Lost/Du Down H Newho NET Lo Dische JLATIVE 26137	s Jamped Hole le OSS Irged COST 7.21	65 25 17 6
PAC-L BAROID Eng C. Da Silva		Melbourn 03-62133 DN SHALL N IY BY BARO	311 IOT BE CON DID DRILLING	Adelaide 08 - 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI	Desande Desilter Desilter Centrifug Centrifug Solids Co	PF r 1. 2. 1. 2. 1. 2. 1. 2. 1. 2. 2. DATES TAILY A\$ 11 FRINGEMEN D ARE STAT	11 1 10.3 1 7 COST 056.87 NT OF ANY TEMENTS	.2 24 .5 24 	29 36 36 36 36 CUML A\$	Chemic Losses Sol. Co Lost/DL Down H Newho NET Lo Dische JLATIVE 26137 ND ARE M Y.	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6 90
PAC-L BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPT RESERVE PITS	7 (Fax) TIONS MADE HEREO TION OF ANY LIABILIT	Melbourn 03-62133 DN SHALL N IY BY BARO SURV	311 IOT BE CON DID DRILLING	Adelaide 08 - 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI C OR IT'S A	Desande Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids Co	PF 1. 2. 1. 2. 1. 2. 1. 2. 2. 1. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2	11 1 10.3 1 10.3 1 COST COST 056.87 NT OF ANY TEMENTS CANALYS	.2 24 .5 24 	29 36 36 36 36 CUML A\$	Chemic Losses Sol. Co Lost/Du Down H Newho NET Lú Discha JLATIVE 26137 ND ARE M Y. BREAKE	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6
PAC-L BAROID Eng C. Da Silva Tel. 03-6213667 THE RECOMMENDAT WITHOUT ASSUMPT		Melbourn 03-62133 DN SHALL N IY BY BARO SURV	311 IOT BE CON DID DRILLING IEY DATA INCL°	Adelaide 08 – 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI	Desande Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids	PF           I1.         12.           I2.         19.           I3.         19.           I4.         10.           IAILY         A\$           I1.         11.           I1.         11.           I1.         11.           I1.         11.           I2.         11.           I3.         11.           I4.         11.	11 1 10.3 1 10.3 1 7 COST 056.87 NT OF ANY TEMENTS 8 ANALYS % Vi ppb	.2 24 .5 24 	ATENT, A Drillin Circu	Chemic Losses Sol. Co Lost/Du Down H Newho NET L Dische JLATIVE 26137 ND ARE N Y. BREAKE	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6 90
PAC-L BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPT RESERVE PITS	7 (Fax) TIONS MADE HEREO ION OF ANY LIABILIT	Melbourn 03-62133 DN SHALL N IY BY BARO SURV	311 IOT BE CON DID DRILLING IEY DATA INCL°	Adelaide 08 – 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI C OR IT'S A	Desande Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids	PF           I.         2.           Ja 2         3.           Ja 3.         3.           Ja 4.         3.           Ja 4.         3.           Ja 4.         3.           Ja 5.         3.           Ja 6.         3.           Ja 7.	11 1 10.3 1 10.3 1 COST COST 056.87 NT OF ANY TEMENTS ANALYS % Vi ppb % Vi	.2 24 .5 24 	ATENT, A Drillir Circu Ream	Chemic Losses Sol. Co Lost/DL Down H Newho NET L Discha JLATIVE 26137 ND ARE M Y. BREAKC Ig lating hing In	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6 90
PAC-L BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPT RESERVE PITS	7 (Fax) TIONS MADE HEREO ION OF ANY LIABILIT	Melbourn 03-62133 DN SHALL N IY BY BARO SURV	311 IOT BE CON DID DRILLING IEY DATA INCL°	Adelaide 08 – 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI C OR IT'S A	Desande Desilter 1 Desilter 2 Centrifug Centrifug Solids Ce Solids Ce ING THE INI AGENTS, AN	PF           1.         2.           19         2.           19         2.           Ontrol Efficiency         2.           DAILY         A\$           A\$         10           FRINGEMEND         DARE STAT           SOLIDS         v. Solids           v. Solids         v. Solids           av. Solids         av. Solids	11 1 10.3 1 10.3 1 7 COST 056.87 NT OF ANY TEMENTS 8 ANALYS % Vi ppb	.2 24 .5 24 	ATENT, A Drillir Circu Ream	Chemic Losses Sol. Co Lost/DL Down H Newho NET L Discha JLATIVE 26137 ND ARE M Y. BREAKC Isting ning In ning out	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6 90
PAC-L BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPT RESERVE PITS	7 (Fax) TIONS MADE HEREO ION OF ANY LIABILIT	Melbourn 03-62133 DN SHALL N IY BY BARO SURV	311 IOT BE CON DID DRILLING IEY DATA INCL°	Adelaide 08 – 47743 NSTRUED AS G FLUIDS, INC	33 AUTHORIZI C OR IT'S A	Desande Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids	PF r 1. 2. 19 1 19 2 Pe 1 10 2 Pe 1 Pe	11 1 10.3 1 10.3 1 COST COST 056.87 056.87 SANALYS % V/ Ppb % V/ ppb g/cc bbl	.2 24 .5 24 	ATENT, A ON ONL CUMU A A TIME Ciricu Rearr Rearr	Chemic Losses Sol. Co Lost/Du Down H Newho NET LO Dische JLATIVE 26137 VD ARE N Y. BREAKE 9 lating ning out ing 0	nn. Jimped Hole Ie OSS GOST 7.21 MADE	65 25 17 6 90

							MUD REP	PORT	10. 2	20	upto 2	24:00 h	rs, 31/5	5/94
RAROLL	Bar	oid A	ustral	ia Pt	y Ltd		DATE	1/6/94		DEPT	H–m	MD 191	0 TVI	D 1910
				•			START D			ACTIV	<b>/ITY</b> ng Out fe	or DST :	# 2.	
PERATOR				CONTRA	CTOR / RIG	à	12-Way	3-		COUN	ITRY			
FE Resources Ltd				Century R REPORT		······				Austra TOWN				
EPORT FOR en Smith				S. Kelly							ampbel			
ELL NAME AND	NO.		1	FIELD OF PPL 1	BLOCK N	Ю.				LOCA Otway	Basin,	Victoria	-	
BIT DATA			G STRING			CASINGS	Depth m	Pump	Mako		PUMP I x ins	DATA Eff % b	bi/stk spi	m bbl/min
ize 8.500 ins vpe SEC S82F	Pipe 1	OD ins 4.5	1D ins 1 3.826	ength m 1679.8	Riser	Set @		Nat 7F		5.5	7.75	95	0.0525 1	32 6.93
lozzles 32nds	Pipe 2	4.5	2.875	55.28	9 5/8*	Set @ Set @		Nat 8F	280	6	8.5	95	0.0705	
11 13 13	Pipe 3 Col 1	6.25	2.875	174.96		Set @			Press 1					6.93
loz Area 0.35 ins <sup>2</sup>	Col 2	OPEN HOI	E SECTIO	INS		Set @ Set @		MUD Down		<u>bbi</u> 395		irc 111	IG DATA mins AV	/ m/min
FA ins <sup>2</sup>	Sect 1					Set @	)	Active		371		ns up 45 e-bit 12		0P 41.8 IC 65.5
VV m/sec 80.6 mpact lb f 371	Sect 2 Curren		8.5	1575.6	Liner	Set @ Top @			Circ 7 ve -	·.,	ECD p	og 💮	9.38 Ri	
hpace in t - St t				MUD PRO				-0.0		ROPE VIS	ATY SP		ATIONS (P 10-	-20 lb/100 ft
Sample Location Time Sample Taker		IN or OUT hrs	IN 11:15		IN 17:10		WEIGHT API Fiit	6-8	mi	нтнр	1		KCL 3	~2018/1001 %
Depth		m	1897		1910 41		BY AUTH	S						
Flowline Temp Weight		℃ ppg	41 9.30		9.30		Mud prop	erties s	staying v	ery ste	ady, PA	C and (	Caustic use	d for mud
Funnel Viscosity		sec/qt cP	45 14		46 15		maintaina	ince.						
Plastic Viscosity Yield Point		LP b/100 ft <sup>2</sup>	16		18		1							
Gels 10 sec/10min/ API Filtrate		lb/100 ft <sup>2</sup> ml/30min	4/9/12 7.2		5/9/14 7.0									
HPHT Filtrate		ml/30min					1							
API/HPHT Filter Cal Solids		32nd ins % Vol	<u>2/-</u> 5.0		2/- 5.1		1							
Dissolved Salts		% Vol	1.5		1.4									
0il Content/Water C Sand		% Vol % Vol	-/93.5 0.2		-/93.5 0.1		1							
Methylene Blue cap		ppb	9		10 9.2		-							
pH Alk. Mud Pm		meter ml	9.3 0.30		9.2 0.35		ACTIVIT	Y						· · · · · · · · · · · · · · · · · · ·
Alk. Filtrate, Pf/Mf Chlorides		ml mg/Lx10 <sup>3</sup>	0.20/0.35		0.25/0.35		to 70 unit	s. Ther	n made a	a wiper	trip (10	stands)	, tight from	as increased 1802-1742
Total Hardness/Cal	cium	mg/L	50/50		50/50		Drilled or	to 191	0m, circ	ulated	up sam	ple for (	Geologist. (	Gas 87units)
KCL ASG of Solids		% Wt Soln g/cc	3.0 3		2.8		Decided	io iesi,	POURI		# 2.			
n&K			0.55/0.97		0.54/1.14									
K+ Ion Conc		mg/Lx10 <sup>3</sup>	17.2		16.1		1							
Dha amatar	600 m	m/300 rpm	44/30		48/33		-							
Rheometer lb/100 ft <sup>2</sup>	200 rpr	m/100 rpm	44,50				1							
	6 rpm/3	3 rpm	CONSU	<b>IPTION</b>	L	L								
PRODUCT DESCR	RIPTION	1	USED	REC	BAL	COST	MUD TY SOLIDS		KCL/F			<del>.                                    </del>	CONSUM Additions	PTION bbl
Caustic Soda EZ SPOT	25 208		1	1	15	32.43	1	Ma		scree	n size		Sea W.	
KCL,Tech(sx)	25	kg		80 40	120 44	341.48	Shaker 1 Shaker 2			50x50	)x80	18	Drill W. other	48
PAC-R PAC-L	50 50		2	40	44	853.7	Shaker 3			<b></b>			other	
							Shaker 4		ppg	bbi/hr	hrs	bbl	Barite Chemicals	and the second second second second second second second second second second second second second second second
							Desande		10,5	1.2			Losses Sol. Con.	<u>bbl</u>
							Desilter 1 Desilter 2		10	1.5	10		Lost/Dump	ed 36
							Centrifuc Centrifuc						Down Hole Newhole	13
									-l	J			NET LOSS	3 36
			OFFICE		WAREHOL	195	Solids Co		ffic.	ST		% CUMU	Discharge	
BAROID En	gineer	1					1		1227			A\$	27364.8	2
	(Fay)		Melbourne 03-62133	11	Adelaide 08-4774:	33								
C. Da Silva Tel 03-6213367	TIONS M	ADE HEREO	N SHALL NO	T BE CON	STRUED AS	AUTHORIZ	NG THE INF						ID ARE MAD	E
Tel. 03-6213367		NY LIABILIT	Y BY BAROI	D DRILLING	FLUIDS, INC	CORTISA	GENTS, AN	D ARE S	TATEME	1130	FUFINIC			
Tel. 03-6213367	ION OF A							SOLI	DS ANA	ALYSIS	3	TIME E	REAKDOV	
Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS			_		000		Low Cor	, Salid	e	% V/~!	41	Drilling	1	1 10
Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT	bbl	MD m	SURVI TVD m	INCL°	DIR °	DISP m	Low Grav		s	% Vol ppb	37.3	Drilling Circula	ating	
Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS			_		DIR °	DISP m	Low Grav High Gra	/. Solid v. Solic	s Is	ppb % Vol	37.3 1.0	Circula Reami	ating ng In	
Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS			_		DIR °	DISP m	Low Grav High Gra High Gra ASG of S	/. Solid v. Solic v. Solic olids	s Is Is	ppb % Vol ppb g/cc	37.3 1.0 14.7 2.90	Circula Reami Reami Trippir	ating ng In ng out ng	
Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS			_			DISP m	Low Grav High Grav High Grav	r. Solid v. Solic v. Solic olids Volume	s ls ls	ppb % Vol ppb	37.3 1.0 14.7 2.90 13.0	Circula Reami Reami	ating ng In ng out ng	2

			<u></u>			MUD REF	PORT NO.	. 21	up to	24:00 h	nrs, 1/6/94	
	Develot A.	. atrali	ic Dt	01+d					PTH-m	MD 191	5 TVD 19	15
BAROLL	Baroid Au	Istran	ia Pij	/ Liu	L	DATE START D	2/6/94					
						12-May-			illing			
OPERATOR			CONTRA	CTOR / RIG		12	<u></u>	CC	DUNTRY			
FE Resources Ltd		(	Century Ri	lig 11					stralia			
EPORT FOR		1	REPORT	FOR					WNSHIP ort Campbel	a		
en Smith			S. Kelly FIELD OR	BLOCK N	 IQ.				CATION	·		
VELL NAME AND I angley-1	NO	1	PPL 1					Ot	way Basin,			
BIT DATA	A REAL PROPERTY OF THE REAL PR	<b>STRING</b>			CASINGS		Pump Ma		PUMP ins x ins	DATA Eff % L	bi/stk spm b	obl/min
Size 8.500 ins	OD ins Pipe 1 4.5	ID ins L 3.826	ength m 1684.8		Set @	Depth m	Nat 7P50		5.5 7.75	95	0.0525 132	6.93
ype ETD-517 lozzles 32nds	Pipe 1         4.5           Pipe 2         4.5	2.875		9 5/8"	Set @		Nat 8P80		6 8.5	95	0.0705	
	Pipe 3				Set @		Duran Pr	115	nei nei	TOT	AL bbl/min	6.93
	Col 1 6.25	2.875	174.96	<del> </del>	Set @ Set @		Pump Pro					
Noz Area 0.35 ins <sup>2</sup>	Col 2 OPEN HOL	E SECTIO	NS		Set @		Downhol		5 Total o	sirc 113	mins <u>AV m</u>	
Noz Area 0.35 Ins <sup>2</sup>	Sect 1	<u>E 020</u>	<u></u>		Set @		Active	385	í	ns up 45		41.8
VV m/sec 80.6	Sect 2			Liner	Set @		Total Circ Reserve		-	xe−bit 1 pg	2 mins DC 9,39 Riser	65.5
mpact lb f 371	Current	8,5	1580.6	PERTIES	Top @				OPERTY SP		ATIONS	
Sample Location	IN or OUT		100	IN			<9.3 pp	og VIS	40-55	sec `	YP 10-201	Ib/100 ft <sup>2</sup>
Time Sample Taken				24:00		API Filt				mi i	KCL 3 S	%
Depth	m		I	1915	,!	BY AUTH	ORITY ML	ud Proy	ram			
Noise Temp	<u></u>			41 9.30			o surface.					
Weight Funnel Viscosity	ppg sec/qt			48			ailed to sea	at, misru	m.			1
Plastic Viscosity	сР			15		1						
Yield Point	Ib/100 ft <sup>2</sup>			20	·'	ł						
Gels 10 sec/10min/3 API Filtrate	<u>30 min lb/100 ft²</u> ml/30min			7,1	i							
HPHT Filtrate	ml/30min											1
API/HPHT Filter Cal				2/-	·							
Solids	% Vol % Vol			5.1	·							
Dissolved Salts Dil Content/Water C				-/93.5		1						
Sand	% Vol			0.1	Į							
Methylene Blue cap				10 9.0	<del> </del>	-						
h Alk. Mud Pm	meter ml	·		0.30		ACTIVIT						
Alk. Filtrate, Pf/Mf	ml			0.20/0.45		Ran in th	e hole with	n test to	ol, and perf	orm DS	T # 2.	
Chlorides	mg/Lx10 <sup>3</sup>		·	16.5 50/50		Pan bac	1875m to 1 Fin with bi	910m. u it to 189	Did not now Om. washe	, pulleu d to bott	out of the hole. om and circulate	ed for
Total Hardness/Cal KCL	cium mg/L % Wt Soln			2.8	·	thirty five	minutes p	prior to c	drilling ahea	ıd 8.5" h	ole.	
ASG of Solids	g/cc			2.9		1						
n & K			i	0.51/1.45	<b> </b>	-						
K+ Ion Conc	mg/Lx10 <sup>3</sup>	j{	1			1						
			·			1						1
Rheometer	600 rpm/300 rpm			50/35	<b> </b>	-						
lb/100 ft²	200 rpm/100 rpm 6 rpm/3 rpm		r	+		1						1
	INVENTORY AND	CONSUL	APTION			1				الانبريسي	TO STOL MADTIC	
PRODUCT DESCR			REC	BAL	COST	MUD TY					CONSUMPTIC Additions	bbi
							Make		reen size	hrs	Sea W.	
<u></u>			[			Shaker 1	1		0x50x80	2	Drill W.	40
					[	Shaker 2			<u></u>		other other	
				+	<u> </u>	Shaker 3 Shaker 4					Barite	<u> </u>
						011001-0-1		pg bł	ol/hr hrs	ьы	Chemicals	
						Desande		10.7	1.2 2		Losses	bbl 5
			l		<u> </u>	Desilter		10	1.5 2		Sol. Con. Lost/Dumped	20
		<b> </b>		+		Desilter : Centrifug				+	Down Hole	<u></u>
						Centrifug				1	Newhole	
······						1			v==		NET GAIN Discharged	15 25
			L			Solids C	ontrol Effic	c. Y COST		% CUMU	LATIVE COST	25
BAROID En	gineer	OFFICE		WAREHOL	<u>195</u>	1						
C. Da Silva		Melbourne	;	Adelaide		1	<b>A\$</b> 0	0.00		A\$	27364.82	
Tel. 03-6213367	/ (Fax)	03-62133	11	08-4774	33	ING THE IN	CONGEME			TENT, A	ND ARE MADE	
	TIONS MADE HEREO	N SHALL NC	D DRILLING	3 FLUIDS, IN	CORIT'S A	GENTS, AN	ID ARE STA	TEMEN	IS OF OPINI	ON ONLY	<i>(.</i>	
THE RECOMMENDA							SOLIDS				BREAKDOWN	hrs
THE RECOMMENDA		SURVE										
THE RECOMMENDA WITHOUT ASSUMPT	bbl MD m	SURVE	INCL®	DIR °	DISP m	Low Gra			Vol 4.1	Drillin		1
THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	bbl MD m			DIR®	DISP m	Low Gra	v. Solids	pr	Vol 4.1 pb 37.3 Vol 1.0	Circul	9 lating ling In	.
THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	bbl MD m			DIR®	DISP m	Low Gra High Gra		рг % РГ	ob 37.3 Vol 1.0 ob 14.7	Circul Ream Ream	lating ning In ning out	1
THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	bbl MD m				DISP m	Low Gra High Gra High Gra ASG of S	av. Solids av. Solids av. Solids Solids	Pf % pf g/	bb 37.3 Vol 1.0 bb 14.7 /cc 2.90	Circul Ream Ream Trippi	lating ning In ning out ing	1
THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	bbl MD m				DISP m	Low Gra High Gra High Gra ASG of S	av. Solids av. Solids av. Solids Solids Solids	PI % PI g/ bi	bb 37.3 Vol 1.0 bb 14.7 /cc 2.90	Circul Ream Ream	lating ning In ning out ing 1g	1

.7¢

	le tates		14 (						
						MUD REPORT NO.	22 up to 24:00		
BAROID	Baroid A	ustra	lia Pt	y Ltd		DATE 3/6/94	DEPTH-m MD	2006 TVD 200	6
						START DATE	ACTIVITY POOH to log, T.D.	·	
OPERATOR			CONTRA	CTOR / RIG	G		COUNTRY		
GFE Resources Ltd			Century R REPORT			······	Australia TOWNSHIP		
REPORT FOR Ken Smith			S. Kelly				Port Campbell		
WELL NAME AND	NO.		FIELD OF	R BLOCK N	10.		LOCATION Otway Basin, Victo	oria	
BIT DATA	DRILLIN	IG STRING	à		CASINGS		PUMP DAT		bl/min
Size 8.500 ins Type ETD-517	OD ins Pipe 1 4.5	ID ins 3.826	Length m 1775.8		Set @	Depth m Pump Make Nat 7P50	the second second second second second second second second second second second second second second second s	95 0.0525 132	6.93
Nozzles 32nds	Pipe 2 4.5	2.875		9 5/8"	Set @	334.43 Nat 8P80	6 8.5 9	95 0.0705	
13 13 13	Col 1 6.25	2.875	174.96		Set @ Set @		1100 psi T	OTAL bbl/min	6.93
	Col 2				Set @	MUD VOL	bbi CIRCULA	20 mins AV m/	min
Noz Area 0.39 ins <sup>2</sup> TFA ins <sup>2</sup>	OPEN HO Sect 1	ILE SECTI	ONS		Set @ Set @		419 Bottoms u	p 47 mins DP	41.8
NV m/sec 73.0	Sect 2			Liner	Set @	Total Circ	835 Surface-b ECD ppg	oit 13 mins DC 9.43 Riser	65.5
Impact Ib f 337	Current	8.5	1671.6 MUD PRC		Top @		PROPERTY SPECI	FICATIONS	
Sample Location	IN or OUT			IN		WEIGHT <9.3 ppg API Filt 6-8 ml	VIS 40-55 sec HTHP ml	YP 10-201k KCL 3 %	
Time Sample Taker Depth	n hrs m	12:45 1965		02:30 2006		BY AUTHORITY Mud P			
Flowline Temp	ۍ	41		41 9.35		REMARKS Nearing T.D. at 2006m,	viscosity and rheol	ogy began to raise. A	Addina
Weight Funnel Viscosity	ppg sec/qt	9.35 51		9.35 48		water and pre-mixes a	and dumped sand tr	ap as needed, using	PAC to
Plastic Viscosity	сР	17 20		16 18		maintain filtrate.			
Yield Point Gels 10 sec/10min/	lb/100 ft <sup>2</sup> 30 min lb/100 ft <sup>2</sup>	7/12/18		6/10/15					
API Filtrate	ml/30min_	8.0		7.5					
HPHT Filtrate API/HPHT Filter Cal	ml/30min ke 32nd ins	2/-		2/-		1			
Solids	% Vol % Vol	<u>5.5</u> 1.5		5.5 1.5					
Dissolved Salts 0il Content/Water C		-/93.0		-/93.0					
Sand Methylene Blue car	% Vol	0.2		0.2					
pH	meter	9.0		9.3					
Alk. Mud Pm	mi mi	0.30		0.35		ACTIVITY Continued drilling ahea	ad 8.5" hole to 2006	m. (T.D.) circulated I	oottoms
Alk. Filtrate, Pf/Mf Chlorides	mg/Lx10 <sup>3</sup>	17.5	·	17.7		up prior to making a 42	2 stand wiper trip, no	o hole problems on t	rip.
Total Hardness/Cal KCL	cium mg/L % Wt Soln	50/50 3.0		50/50 3.0		Circulated the hole clea	an, and POOH to log	g.	
ASG of Solids	g/cc	2.9		2.9		1			
n & K K+ Ion Conc	mg/Lx10 <sup>3</sup>	0.55/1.20		0.56/1.03					
						-			
Rheometer	600 rpm/300 rpm	54/37		50/34					
lb/100 ft²	200 rpm/100 rpm					-			
	6 rpm/3 rpm INVENTORY AN	D CONSU	MPTION						
PRODUCT DESCR		USED 1	REC	BAL	COST 549.92	MUD TYPE KCL/ SOLIDS CONTROL E	POLYMER QUIPMENT	CONSUMPTION Additions	N bbl
Caustic Soda	25 kg 25 kg	2		13	64.86	Make	screen size hrs	Sea W. 24 Drill W.	135
KCL,Tech(sx) PAC-R	25 kg 50 lb	40		80 36		Shaker 1 Shaker 2	50x50x80	other	133
		ļ				Shaker 3		other Barite	
			<u> </u>			Shaker 4 ppg	bbl/hr hrs bbl	Chemicals	4
						Desander 10.9 Desilter 1. 10.3		29 Losses 36 Sol. Con.	65 bbl
				<u> </u>		Desilter 1. 10.3 Desilter 2.		Lost/Dumped	20
,,, _,						Centrifuge 1		Down Hole Newhole	21
						Centrifuge 2	<u></u>	NET GAIN	54
		OFFICE		WAREHOL	195	Solids Control Effic. DAILY CO	% DST CU	Discharged MULATIVE COST	85
BAROID En	gineer	OFFICE		1	, <u>oc</u>	A\$ 255			
	(Eav)	Melbourn 03-6213		Adelaide 08-4774	33	A# 200	U.UU A4		
C. Da Silva		N SHALL N	OT BE CON	STRUED AS	AUTHORIZI	NG THE INFRINGEMENT C	F ANY VALID PATENT	, AND ARE MADE	
C. Da Silva Tel. 03-6213367	TIONS MADE HEREC		ID DRILLING	FLUIDS, INC	CORIT'S A	GENTS, AND ARE STATEM	ENTS OF OPINION O	NLY.	
C. Da Silva Tel. 03-6213367	TIONS MADE HEREC	Y BY BARO				SOLIDS AN		E BREAKDOWN	hrs
C. Da Silva Tel. 03-6213367	TIONS MADE HEREC		EY DATA						
C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPT	TIONS MADE HEREC			DIR °	DISP m	Low Grav. Solids	% Vol 4.5 Dri	lling culating	22
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	TIONS MADE HEREC	SURV	EY DATA	DIR °	DISP m	Low Grav. Solids Low Grav. Solids High Grav. Solids	% Vol 4.5 Dri ppb 40.9 Cir % Vol 1.0 Re	Illing culating aming In	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	TIONS MADE HEREC	SURV	EY DATA	DIR °	DISP m	Low Grav. Solids Low Grav. Solids High Grav. Solids High Grav. Solids	% Vol         4.5         Dri           ppb         40.9         Cir           % Vol         1.0         Re           ppb         14.7         Re	Iling culating aming In aming out	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	TIONS MADE HEREC	SURV	EY DATA	DIR °	DISP m	Low Grav. Solids Low Grav. Solids High Grav. Solids High Grav. Solids ASG of Solids Cuttings Volume	% Vol         4.5         Dri           ppb         40.9         Cir           % Vol         1.0         Re           ppb         14.7         Re           g/cc         2.90         Tri           bbl         21.0         Text	Illing culating aming In aming out pping sting	1
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	TIONS MADE HEREC	SURV	EY DATA	DIR°	DISP m	Low Grav. Solids Low Grav. Solids High Grav. Solids High Grav. Solids ASG of Solids	% Vol         4.5         Dri           ppb         40.9         Cir           % Vol         1.0         Re           ppb         14.7         Re           g/cc         2.90         Tri           bbl         21.0         Text	Iling culating aming In aming out pping	

		<u></u>			<u></u>	MUD REF	PORT NO.		to 24:00		
( and a large a large a large a large a large a large a large a large a large a large a large a large a large a	Baroid A	ustra	alia Pt	v I td	·	DATE	the second		-m MD 20		2006
BARULU	Daloid		Jiwi -	y	,	START DA	ATE	ACTIVITY	Y	<u></u>	
			CONTRA	OTOR / RI		12-May-	94	Logging			
OPERATOR GFE Resources Lt	ч		CONTRA Century R	ACTOR / RIG	i 			Australia			
REPORT FOR	1		REPORT				<u> </u>	TOWNSH Bort Cam			1
Ken Smith			S. Kelly	R BLOCK N			<u> </u>	Port Cam LOCATIC			
WELL NAME AND anglev-1	/ NO.		PPL 1					Otway Ba	asin, Victoria		
BIT DATA		NG STRING			CASINGS		Pump Make		IMP DATA	bbl/stk spm	bbl/min
Size ins Type	OD ins Pipe 1 4.5		Length m 5 1775.8	Size ins Riser	Set @	استعداده فالشعاق	Nat 7P50	5.5 7	7.75 95	0.0525	
Type Nozzles 32nds	Pipe 2 4.5			9 5/8"	Set @	334.43	Nat 8P80	6	8.5 95	0.0705	
	Pipe 3		174.05	<b></b>	Set @ Set @		Pump Press			TAL bbl/min	4
	Col 1 6.25	2.875	5 174.96		Set @ Set @		MUD VOL	bbl C	CIRCULATI	ING DATA	
Noz Area ins <sup>2</sup>	and the second s	OLE SECTI	IONS		Set @	2	Downhole		otal circ -		m/min
TFA ins <sup>2</sup>	Sect 1				Set @ Set @		Active Total Circ		lottoms up Surface – bit		1
NV m/sec Impact lb f	Sect 2 Current	8.5	5 1671.6	Liner		- 1	Reserve	E	CD ppg	9.3 Riser	
Impact to t				OPERTIES				PROPERT			0 lb/100 ft2
Sample Location	IN or OUT			IN 19:00	i		<9.3 ppg 6–8 ml	VIS 40- HTHP			%
Time Sample Take Depth	en hrs m			2006	(		ORITY Mud F				
Flowline Temp	ۍ ۲				t	REMARK	s				
Weight	ppg			9,30 48	l	Loggers o	depth 2007m.	,			
Funnel Viscosity Plastic Viscosity	sec/qt cP		+	48	ſ	-					1
Yield Point	lb/100 ft2			19	l	1					ļ
Gels 10 sec/10mir	n/30 min lb/100 ft2			6/11/16 7.5	f	-					1
API Filtrate HPHT Filtrate	ml/30min ml/30min			1.5		-					ļ
API/HPHT Filter C	ake 32nd ins		_	2/-	↓	-1					1
Solids	% Vol			5.5	í	-					ļ
Dissolved Salts 0il Content/Water	% Vol Content % Vol		-	-/93.0	[	_					ļ
Sand	% Vol			0.1	Į	4					1
Methylene Blue ca				<u>10</u> 9.0	<del> </del>	4					
pH Alk. Mud Pm	meter ml		+	0.30	[	ACTIVITY	r				
Alk. Filtrate, Pf/Mf	mi			0.20/0.50	I			., Logging to	ol got to br	ottom without an	ų y
Chlorides Total Hardness/C	mg/Lx10 <sup>3</sup> alcium mg/L			17.5 50/50	t	problems	•				)
KCL	% Wt Solr	n	+	3.0		1					1
ASG of Solids	g/cc			2.8		-					ļ
n & K K+ Ion Conc	mg/Lx10 <sup>3</sup>	, <del> </del>		0.53/1.25		1					)
				'	ļ	4					1
	600 rpm/300 rpm			49/34		-					)
Rheometer lb/100 ft <sup>2</sup>	200 rpm/300 rpm 200 rpm/100 rpm		1	1		1					ļ
	6 rpm/3 rpm				L	4					)
PRODUCT DESC		USED	REC	BAL	COST	MUD TY	PE KCL	/ POLYMER	{	CONSUMPTI	•
PHODUCT DEC	HIP NON	00000					CONTROL E	EQUIPMEN	IT .	Additions	ьы
				<b>↓</b> '	<b> </b>	Shaker 1	Make	screen si 50x50x80		Sea W. 5 Drill W.	
						Shaker 1				other	
				, ,	<b></b>	Shaker 3				other	- <b> </b> '
				+'	<del> </del>	Shaker 4	PPg	bbl/hr h	hrs bbl	Barite Chemicals	+'
					<u> </u>	Desander			1.5 2	2 Losses	ррі
		-				Desilter 1	1. 10.	).1 1.5	1.5 2	2 Sol. Con.	4
······		1	<u> </u>	- <b> </b> '	<b></b>	Desilter 2				Lost/Dumped Down Hole	1 10
, , ,				+'	+	Centrifug Centrifug		+		Newhole	<u> </u>
		-	+							NET LOSS	14
			<u> </u>	WAREHOU		Solids Co	ontrol Effic,	TPO	% CUML	Discharged	14 r
DADON	ngineer	OFFICE	<u></u>			-1					'
BAHOID E		Melbourn		Adelaide			A\$ 0.0	0	A\$	29923.12	,
C. Da Silva	•	03-6213	1311	08-47743	33	THE INF		OF ANY VAL	IN PATENT,	AND ARE MADE	
C. Da Silva	37 (Fax)	h	NOT BE UCI-	STHUED AND		AGENTS, AN	D ARE STATE	MENTS OF O	PINION ONL	Y.	!
C. Da Silva Tel. 03-621336	ATIONS MADE HERE	ON SHALL I	DRILLING	- PLUIDS, IN							· · · · · ·
C. Da Silva Tel. 03-621335 THE RECOMMEND WITHOUT ASSUMP	57 (Fax)	ITY BY BARC	OID DRILLING								· 1
C. Da Silva Tel. 03-621336 THE RECOMMEND WITHOUT ASSUMP RESERVE PITS	ATIONS MADE HEREC	ITY BY BARC	OID DRILLING				SOLIDS A			BREAKDOWN	hrs
C. Da Silva Tel. 03-621335 THE RECOMMEND WITHOUT ASSUMP	ATIONS MADE HERE( TION OF ANY LIABILI bbl MD m	ITY BY BARC SURV	OID DRILLING	DIR °	DISP m	Low Grav	v. Solids	% Vol 4.	.8 Drillin		hrs
C. Da Silva Tel. 03-621336 THE RECOMMEND WITHOUT ASSUMP RESERVE PITS	ATIONS MADE HEREC	ITY BY BARC SURV	OID DRILLING	DIR °		Low Grav Low Grav High Grav	v. Solids v. Solids av. Solids	% Vol 4.1 ppb 43 % Vol 0.1	.8 Drillin 3.7 Circu .7 Ream	ing ulating ming In	
C. Da Silva Tel. 03-621336 THE RECOMMEND WITHOUT ASSUMP RESERVE PITS	ATIONS MADE HERE( TION OF ANY LIABILI bbl MD m	ITY BY BARC SURV	OID DRILLING	DIR °		Low Grav Low Grav High Grav High Grav	v. Solids v. Solids av. Solids av. Solids	% Vol 4.4 ppb 43 % Vol 0.7 ppb 10	.8 Drillin 3.7 Circu .7 Ream 0.3 Ream	ing ulating ming In ming out	1.5
C. Da Silva Tel. 03-621336 THE RECOMMEND WITHOUT ASSUMP RESERVE PITS	ATIONS MADE HERE( TION OF ANY LIABILI bbl MD m	ITY BY BARC SURV	OID DRILLING	DIR °		Low Grav Low Grav High Grav High Grav ASG of S	v. Solids v. Solids av. Solids av. Solids Solids	% Vol 4.4 ppb 43 % Vol 0.7 ppb 10 g/cc 2.4	.8 Drillin 3.7 Circu 7 Rean 0.3 Rean .80 Tripp	ing ulating ming In ming out ping	
C. Da Silva Tel. 03-621336 THE RECOMMEND WITHOUT ASSUMP RESERVE PITS	ATIONS MADE HERE( TION OF ANY LIABILI bbl MD m	ITY BY BARC SURV	OID DRILLING	DIR °		Low Grav Low Grav High Grav High Grav	v. Solids v. Solids av. Solids av. Solids Solids Volume	% Vol 4.4 ppb 43 % Vol 0.7 ppb 10	.8 Drillir 3.7 Circu 7.7 Ream 0.3 Ream 8.80 Tripp Testin	ing ulating ming In ming out ping ing	1.5

			<u> </u>			MUD REP	ORT NO.	2	4 up to	24:00 h	nrs, 4/6	/94	
	Baroid A	uetra	lia Pt	d td		DATE	5/6/94		DEPTH-m	MD 200	об <sup></sup> тV	D 2006	
BARULU	Daloiu A		y <u>L</u> lQ		START D			ACTIVITY					
						12-May-		_	Logging				
OPERATOR				CTOR / RIG	ì			1	COUNTRY Australia				
SFE Resources Ltd			Century R REPORT						TOWNSHIP				
REPORT FOR			S. Kelly						Port Campbe	<u>  </u>			
WELL NAME AND	NO.			BLOCK N	0.				LOCATION Otway Basin,	Victoria	~		
angley-1		G STRING	PPL 1		ASINGS				PUMP				
BIT DATA Size ins	OD ins		Length m			Depth m	Pump Ma		ins x ins	Eff % b		m bbl/min	
Гуре	Pipe 1 4.5	3.826	1775.8	Riser	Set @		Nat 7P50 Nat 8P80		<u>5.5 7.75</u> 6 8.5		0.0525		ļ
Nozzles 32nds	Pipe 2 4.5 Pipe 3	2.875	55.28	9 5/8"	Set @ Set @		Nat of oo						
	Col 1 6.25	2.875	174.96		Set @		Pump Pre		– psi		AL bbl/min		
	Col 2	C OFOTI	010		Set @ Set @		MUD VO Downhol		the second second second second second second second second second second second second second second second s	circ -		V m/min	
Noz Area ins <sup>2</sup>	OPEN HO Sect 1	LE SECTI	UNG		Set @		Active		870 Botto	ms up -		DP	
NV m/sec	Sect 2			Liner	Set @		Total Circ	; 7	786 Surfa	ce-bit	- mins   [ 9.3 R	)C	• • • • • • • • • • • • • • • • • • •
Impact Ib f	Current	8.5	1671.6	PERTIES	Top @	,	Reserve	JD PI	ROPERTY S				1
Sample Location	IN or OUT		MUDPAC	IN		WEIGHT			/IS 40-55	sec	YP 10	-20 lb/100 ft2	2
Sample Location Time Sample Taken				11:00		API Filt			HTHP	mi	KCL 3	%	
Depth	m			2006		BY AUTH	ORITY MU	id Pro	ogram				1
Flowline Temp	<u>್</u>			9.30		Lost a tot	al of 33 bb	is of	mud to the h	ole while	logging so	far.	]
Weight Funnel Viscosity	ppg sec/qt			48									
Plastic Viscosity	сР			15									
Yield Point Gels 10 sec/10min/	lb/100 ft <sup>2</sup>			18 6/10/16		1							
API Filtrate	ml/30min			7.5									
HPHT Filtrate	mi/30min					-							
API/HPHT Filter Cal	e 32nd ins % Vol			<u>2/-</u> 5.5		-							
Solids Dissolved Salts	% Voi			1.5		1							
0il Content/Water C				-/93.0									
Sand	% Vol			0.1		1							
Methylene Blue cap pH	meter			9.0									-
Alk. Mud Pm	ml		<u> </u>	0.30			Y Tlog Bar	in th	e hole for a v	viper trip	. Circulated	the hole	1
Alk. Filtrate, Pf/Mf Chlorides	mi mg/Lx10 <sup>3</sup>			17.5		ciean. Dr	aw works	clutch	n silpping, rej	air cluto	h and POO	)H to log.	
Total Hardness/Cal				50/50		Continue	d logging.						
KCL	% Wt Soln			3.0		4							
ASG of Solids n & K	g/cc			0.54/1.14		1							
K+ Ion Conc	mg/Lx10 <sup>3</sup>			17.2		4							
Rheometer	600 rpm/300 rpm			48/33		]							
lb/100 ft <sup>2</sup>	200 rpm/100 rpm					-							
	6 rpm/3 rpm INVENTORY AN	D CONSU	MPTION			1						DTION	-
PRODUCT DESCR	RIPTION	USED	REC	BAL 12	COST 32.43	MUD TY			UIPMER		CONSUM Additions		1
Caustic Soda	25 kg	1		12	02.40		Make		screen size		Sea W.		4
						Shaker 1			50x50x80	3	Drill W.		-1
						Shaker 2 Shaker 3					other other		1
				+		Shaker 4					Barite		-
	······					1					Chemical: Losses	s bbl	-
						Desande Desilter		10.5 10			Sol. Con.	9	5
						Desilter a					Lost/Dum		
		1		-1		Centrifug	je 1				Down Hol Newhole	le 23	4
											Newnole		5
						Centrifug			L		NET LOS	S 35	
							pe 2		L	%	Discharg	ed 12	
BAROID En	gineer	OFFICE		WAREHOU	JSE		je 2		ST			ed 12	
	gineer	OFFICE	é	WAREHO	JSE		pe 2	COS			Discharg	ed 12 OST	
C. Da Silva		Melbourn	311	Adelaide	33	Solids C	ontrol Effic DAILY A\$ 3	2.4	3	CUML A\$	Discharg JLATIVE Co 29955.	ed12 DST 55	
		Melbourn 03-6213		Adelaide 08-4774		Solids C	ontrol Effic DAILY A\$ 3	2.4	3 ANY VALID P	CUML A\$	Discharg JLATIVE CO 29955.	ed12 DST 55	
C. Da Silva Tel. 03-6213367		Melbourn 036213 DN SHALL N IY BY BARC		Adelaide 08–4774 ISTRUED AS 3 FLUIDS, IN	33 AUTHORIZ C OR IT'S /	Solids C	a 2 ontrot Effic DAILY A\$ 3 FRINGEME D ARE STA SOLIDS	CO: 2.4: NT OF TEME	3 ANY VALID P ENTS OF OPIN ALYSIS	CUML A\$ ATENT, A ION ONL	Discharg JLATIVE CO 29955. ND ARE MAI Y. BREAKDO	ed 12 DST 55 DE	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT		Melbourn 036213 DN SHALL N IY BY BARC	311 IOT BE CON DID DRILLING	Adelaide 08-4774		Solids C ING THE IN AGENTS, AN	a 2 ontrot Effic DAILY A\$ 3 FRINGEME D ARE STA SOLIDS y. Solids	CO: 2.4: NT OF TEME	<b>3</b> FANY VALID P INTS OF OPIN ALYSIS % Vol 4.8	CUMU A\$ ATENT, A ION ONL TIME Drillin	Discharg JLATIVE C 29955. ND ARE MAI Y. BREAKDO	ed 12 DST 55 DE	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	Y (Fax) TIONS MADE HEREC ION OF ANY LIABILIT	Melbourn 03-6213 IN SHALL N IY BY BARC	311 IOT BE CON DID DRILLING	Adelaide 08–4774 ISTRUED AS 3 FLUIDS, IN	33 AUTHORIZ C OR IT'S /	Solids C ING THE INI AGENTS, AN	a 2 ontrot Effic DAILY A\$ 3 FRINGEME D ARE STA SOLIDS	CO: 2.4: NT OF TEME	3 ANY VALID P ENTS OF OPIN ALYSIS	CUML A\$ ATENT, A ION ONL' TIME Drillin Circu Rear	Discharg JLATIVE CO 29955. ND ARE MAI Y. BREAKDO 19 lating ning In	ed 12 DST 55 DE WN hrs	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	Y (Fax) TIONS MADE HEREC ION OF ANY LIABILIT	Melbourn 03-6213 IN SHALL N IY BY BARC	311 IOT BE CON DID DRILLING	Adelaide 08–4774 ISTRUED AS 3 FLUIDS, IN	33 AUTHORIZ C OR IT'S /	Solids C Solids C DNG THE INI AGENTS, AN Low Gra High Gra High Gra	A Solids A Solids A Solids A Solids A Solids A Solids A Solids	CO: 2.4: NT OF TEME	3 ANY VALID P INTS OF OPIN ALYSIS % Voi 4.8 ppb 43.7 % Voi 0.7 ppb 10.3	CUML A\$ ATENT, A ION ONL' TIME Drillin Circu Rearr Rearr	Discharg JLATIVE CO 29955. ND ARE MAI Y. BREAKDO 19 lating hing In hing out	ed 12 DST 55 DE WN hrs	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	Y (Fax) TIONS MADE HEREC ION OF ANY LIABILIT	Melbourn 03-6213 IN SHALL N IY BY BARC	311 IOT BE CON DID DRILLING	Adelaide 08–4774 ISTRUED AS 3 FLUIDS, IN	33 AUTHORIZ C OR IT'S /	Solids C Solids C DNG THE INI AGENTS, AN Low Gra Low Gra High Gra High Gra ASG of S	A Solids	CO: 2.4: NT OF TEME	3 ANY VALID P INTS OF OPIN ALYSIS % Vol 4.8 ppb 43.7 % Vol 0.7 ppb 10.3 g/cc 2.80	CUML A\$ ATENT, A ION ONL <sup>1</sup> Drillin Circu Rear Rear Tripp	Discharg JLATIVE CO 29955. ND ARE MAI Y. BREAKDO Isting Inting In hing out ing	ed 12 DST 55 DE WN hrs	
C. Da Silva Tel. 03-6213367 THE RECOMMENDA WITHOUT ASSUMPT RESERVE PITS	Y (Fax) TIONS MADE HEREC ION OF ANY LIABILIT	Melbourn 03-6213 IN SHALL N IY BY BARC	311 IOT BE CON DID DRILLING	Adelaide 08–4774 ISTRUED AS 3 FLUIDS, IN	33 AUTHORIZ C OR IT'S /	Solids C Solids C DNG THE INI AGENTS, AN Low Gra High Gra High Gra	a 2 ontrol Effic DAILY A\$ 3 FRINGEME D ARE STA SOLIDS v. Solids v. Solids	CO: 2.4: NT OF TEME	3 ANY VALID P INTS OF OPIN ALYSIS % Voi 4.8 ppb 43.7 % Voi 0.7 ppb 10.3	CUML A\$ ATENT, A ION ONL' TIME Drillin Circu Rearr Rearr	Discharg JLATIVE CO 29955. ND ARE MAI Y. BREAKDO 19 Iating ning ln ning out ing	ed 12 DST 55 DE WN hrs 3 3 3 4 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	

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	Baroid A	untro	lia Dt	v I td		DATE		DEPTH-n	MD 20	06	TVD 200	06
(JARUIII)	Daloiu P	usud	na r l	y Liu		DATE (	5/6/94	ACTIVITY				
						12-May-		Wiper Trip/		oe.		
OPERATOR				CTOR / RIG	G			COUNTRY Australia				
GFE Resources Ltd			Century R REPORT					TOWNSHI	Р			
REPORT FOR Ken Smith			S. Kelly					Port Camp				
WELL NAME AND	NO.			R BLOCK N	10.			LOCATION Otway Bas		- 8		
angley-1 BIT DATA	DBILL	IG STRING	PPL 1		CASINGS				P DATA			
Size 8.500 ins	OD ins		Length m				Pump Make	ins x ins			spm b	
Type ETD-517	Pipe 1 4.5		1775.8		Set @		Nat 7P50 Nat 8P80	5.5 7.7	.5 95	0.0525	132	6.93
Nozzles 32nds 13 13 13	Pipe 2 4.5 Pipe 3	2.875	55.28	9 5/8"	Set @ Set @		Nat of OO					
	Col 1 6.25	2.875	174.96		Set @		Pump Press			TAL bbl/m		6.93
	Col 2				Set @		MUD VOL Downhole		ACULAI al circ 113	ING DATA	AV m	/min
Noz Area 0.39 ins <sup>2</sup> TFA ins <sup>2</sup>	OPEN HO Sect 1	DLE SECTI	UNS		Set @ Set @		Active	368 Bot	toms up 4	47 mins	DP	41.8
NV m/sec 73.0	Sect 2			Liner	Set @	)	Total Circ		face-bit		DC Riser	65.5
Impact Ib f 336	Current	8,5	1671.6	the second second second second second second second second second second second second second second second s	Top @	1	Reserve MUD	PROPERTY	D ppg SPECIFI			
Sample Location	IN or OUT	·		IN		WEIGHT			55 sec	YP	10-201	b/100 ft²
Time Sample Taken				20:15		API Filt		HTHP	mi	KCL	3 9	%
Depth	m			2006		BY AUTH	ORITY Mud F	rogram				
Flowline Temp Weight	<u>℃</u>			41 9.30		Mud Loss	s es to the hole	e today while	logging v	vere 65 bl	ols.	
Funnel Viscosity	sec/qt			48			80 bbls of ne					
Plastic Viscosity	cP			16		ł						
Yield Point Gels 10 sec/10min/3	lb/100 ft <sup>2</sup> 30 min lb/100 ft <sup>2</sup>	1		18 6/9/14		1						
API Filtrate	ml/30min			8.0		ļ						
HPHT Filtrate	mi/30min			2/-		1						
API/HPHT Filter Cak Solids	(e 32nd ins % Vol	1		5.7		1						
Dissolved Salts	% Voi			1.3		ł						
0il Content/Water Co Sand	ontent % Vol % Vol	-		0.1		1						
Methylene Blue cap				10		1						
pH	meter			9.0		ACTIVITY						
Alk. Mud Pm Alk. Filtrate, Pf/Mf	mi ml			0.25/0.55		Complete	d logging an	d ran in the h	ole for a	wiper trip.	- • •	
Chlorides	mg/Lx10°			15.0		Circulated	i bottoms up ems with the	at 2000m, co		et to botto	om as oe and i	renair
Total Hardness/Calo KCL	cium mg/L % Wt Soli			2.6		clutch.	ems with the	clutch sippli	ig. P001			opun
ASG of Solids	g/cc			2.8								
n & K K+ Ion Conc	mg/Lx10 <sup>4</sup>			0.56/1.03		-						
K+ ION CONC	mg/LxTo					1						
			<u> </u>	50/34		4					-	
Rheometer lb/100 ft <sup>2</sup>	600 rpm/300 rpm 200 rpm/100 rpm			50/34		1						
	6 rpm/3 rpm											
	INVENTORY AN	USED	MPTION REC	BAL	COST	MUD TYP	E KCL/	POLYMER		CONSL	IMPTIO	N
PRODUCT DESCR		15		65	216.6	SOLIDS	CONTROL E	QUIPMENT		Additio	ns I	bbi
	25 kg		1	34	341.48	Shaker 1	Make	screen siz 50x50x80		Sea W. Drill W.		70
KCL,Tech(sx)	25 kg 50 lb	2		1						other		
KCL,Tech(sx)		2		<u> </u>		Shaker 2						
KCL,Tech(sx)		2				Shaker 2 Shaker 3			_	other		
KCL,Tech(sx)		2				Shaker 2		bbi/hr hr	s bbl	other Barite Chemic	als	1
KCL,Tech(sx)		2				Shaker 2 Shaker 3			1 1	Barite Chemic Losses		1 bbl
KCL,Tech(sx)		2				Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1	10.	5 1.2	1 1	Barite Chemic Losses Sol. Co	n	з
KCL,Tech(sx)		2				Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2	10.	5 1.2	1 1	Barite Chemic Losses	n. mped	
KCL,Tech(sx)		2				Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1	10. 1( • 1	5 1.2	1 1	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol	n. mped iole e	3 5 65
PRODUCT DESCR KCL, Tech(sx) PAC – R						Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	10. 10. 10.	5 1.2		Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC	n. Imped Iole e DSS	3 5 65 2
KCL,Tech(sx) PAC-R	50 lb			WAREHOL	ISE	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	10. 1( • 1	5 1.2 0 1.5		Barite Chemic Losses Sol. Co Lost/Du Down H Newhol	n. Imped Iole e DSS Irged	3 5 65
KCL,Tech(sx)	50 lb	OFFICE		WAREHOU	JSE	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	10.3 10 11 11 10 11 10 11 10 10 10	5 1.2 0 1.5		Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LO Discha ULATIVE	n. Imped Iole e DSS rged COST	3 5 65 2
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva	50 lb	OFFICE	9	Adelaide		Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug	10. 11 3 1 3 2 ntrol Effic.	5 1.2 0 1.5		Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha	n. Imped Iole e DSS rged COST	3 5 65 2
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel 03-6213367	50 lb	OFFICE Melbourn 03-6213	e B11	Adelaide	33	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug	10.0 11 ⇒ 1 ⇒ 2 ntrol Effic. DAILY CC A\$ 558	5 1.2 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0	1 1 1 2 	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513	n. mped lole e DSS rged COST 3.63	3 5 65 2
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367	50 lb	OFFICE Melbourn 03 – 62133	e 311 OT BE CON	Adelaide 08-4774 STRUED AS	33 AUTHORIZI	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Co	10.0 11 11 12 1 1 1 1 1 1 1 1 1 1 1 1 1	5 1.2 0 1.5 0 5 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0	1 1 2 1 2 % CUM A\$	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513	n. mped lole e DSS rged COST 3.63	3 5 65 2
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO	e B11 OT BE CON	Adelaide 08-4774 STRUED AS	33 AUTHORIZI	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Centrifug Centrifug Solids Co	10.0 11 12 13 1 14 15 2 15 16 17 17 17 17 17 17 17 17 17 17	5 1.2 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0	1 1 1 1 2 % CUMI A\$ PATENT, /	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8
KCL,Tech(sx) PAC-R BAC-IR BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO SURV	B B B B B B B B B B B B B B B B B B B	Adelaide 08-4774 STRUED AS FLUIDS, IN	33 AUTHORIZI C OR IT'S A	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Co	10.0 10.0 11 10 11 10 11 10 10 10 10 1	5 1.2 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0	1 1 1 1 2 % CUMI A\$ PATENT, /	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 and ARE M Y. BREAKD	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO	e B11 OT BE CON	Adelaide 08-4774 STRUED AS	33 AUTHORIZI	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Centrifug Solids Co	10. 11 1 1 1 1 1 1 1 1 1 1 1 1	5 1.2 0 1.5 0 1.5 0 50 0 50 0 50 0 5.0 0 5.0 0 5.0 0 5.0 0 5.0 0 5.0 0 5.0 0 0 5.0 0 0 0 5.0 0 0 0 5.0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	1 1 1 2 % CUM A\$ PATENT, / NION ONL TIME Drillin 5 Circu	Barite Chemic Losses Sol. Co Lost/Du Down I- Newhol NET LC Discha JLATIVE 30513 30513 AND ARE M Y. BREAKD	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8
KCL,Tech(sx) PAC-R BAC-IR BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO SURV	B B B B B B B B B B B B B B B B B B B	Adelaide 08-4774 STRUED AS FLUIDS, IN	33 AUTHORIZI C OR IT'S A	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Centrifug Solids Co Solids Co NG THE INF GENTS, AND Low Grav Low Grav	10.4           1           1           2           Introl Effic.           DAILY CO           A\$ 558           RINGEMENT CO           ARE STATEM           SOLIDS AN           Solids           Solids           Solids	5 1.2 0 1.5 0 1.5 0 50 0 5	1 1 1 2 % CUMU A\$ PATENT, / NION ONL TIME Drillin 5 Circu Rean	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 and ARE M Y. BREAKD	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8 hrs
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO SURV	B B B B B B B B B B B B B B B B B B B	Adelaide 08-4774 STRUED AS FLUIDS, IN	33 AUTHORIZI C OR IT'S A	Shaker 2 Shaker 3 Shaker 3 Desander Desilter 1 Desilter 2 Centrifug Centrifug Solids Co Solids C	10.           1           1           2           DAILY CO           A\$ 558           RINGEMENT CO           ARE STATEM           SOLIDS AN           Solids           Solids           Solids           Solids	5 1.2 0 1.5 0 1.5 0 50 0 5	1 1 1 2 3 CUMI A\$ PATENT, / NION ONL TIME TORIN 5 CICL Rean 3 Rean	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 AND ARE M Y. BREAKD ng dating ning In	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8 hrs
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO SURV	B B B B B B B B B B B B B B B B B B B	Adelaide 08-4774 STRUED AS FLUIDS, IN	33 AUTHORIZI C OR IT'S A	Shaker 2 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Centrifug Solids Co Solids Co NG THE INF GENTS, AND Low Grav Low Grav	10.4           11           1 <td>5 1.2 0 1.5 0 1.5 0 50 0 5</td> <td>1 1 1 2 % CUMI A\$ PATENT, / NION ONL TIME Drillin 5 Circu Rear 3 Rear 0 Tripp Testi</td> <td>Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 30513 AND ARE M Y. BREAKD</td> <td>n. Imped tole e DSS rged COST 3.63 MADE</td> <td>3 5 65 2 8 hrs 1.5 5.5</td>	5 1.2 0 1.5 0 1.5 0 50 0 5	1 1 1 2 % CUMI A\$ PATENT, / NION ONL TIME Drillin 5 Circu Rear 3 Rear 0 Tripp Testi	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 30513 AND ARE M Y. BREAKD	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8 hrs 1.5 5.5
KCL,Tech(sx) PAC-R BAROID Eng C. Da Silva Tel. 03-6213367 THE RECOMMENDAT WITHOUT ASSUMPTI RESERVE PITS	50 lb	OFFICE Melbourn 03-6213: DN SHALL N TY BY BARO SURV	B B B B B B B B B B B B B B B B B B B	Adelaide 08-4774 STRUED AS FLUIDS, IN	33 AUTHORIZI C OR IT'S A	Shaker 2 Shaker 3 Shaker 3 Shaker 4 Desander Desilter 1 Desilter 2 Centrifug Centrifug Centrifug Centrifug Solids Co Solids Co	10.4           11           1 <td>5 1.2 0 1.5 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0</td> <td>1 1 1 2 % CUMI A\$ PATENT, / NION ONL TIME Drillin 5 Circl. Rear 3 Rear 3 Rear 5 Tripp</td> <td>Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 30510</td> <td>n. Imped tole e DSS rged COST 3.63 MADE</td> <td>3 5 65 2 8 hrs 1.5</td>	5 1.2 0 1.5 0 1.5 0 5 0 5 0 5 0 5 0 5 0 5 0 5 0	1 1 1 2 % CUMI A\$ PATENT, / NION ONL TIME Drillin 5 Circl. Rear 3 Rear 3 Rear 5 Tripp	Barite Chemic Losses Sol. Co Lost/Du Down H Newhol NET LC Discha JLATIVE 30513 30510	n. Imped tole e DSS rged COST 3.63 MADE	3 5 65 2 8 hrs 1.5

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the second second second second second second second second second second second second second second second se		ng/Lx10 <sup>3</sup>			15.0		then ran i	n the h	ole with	25 stai	nds. Cil Ian in th	utch sli ne hole	pping so	POOH	to the
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Total Hardness/Calo KCL ASG of Solids n & K K+ Ion Conc Rheometer Ib/100 ft <sup>2</sup>	cium r 600 rpm 200 rpm 6 rpm/3 INVEN	ng/L % Wt Soln g/cc ng/Lx10 <sup>3</sup> n/300 rpm n/100 rpm			50/50 2.6 2.8 0.54/1.14 14.9 48/33		then ran i shoe aga 20m to b Made up Made up Soluids Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desitter 1 Desitter 2 Centrifug	PE CONTI Mal	KCL / F ROL EG ke	POLYM Screet 50x50 bbl/hr	ER ENT n size x80	hrs 1.5	CONS Additic Sea W. Drill W. other Barite Chemi Losse Sol. Co Lost/D Down Newho NET L	UMPTIC ons cals s n. umped Hole OSS	DN bbl
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rotal Hardness/Calo KCL ASG of Solids 1 & K K - Ion Conc Rheometer b/100 ft <sup>2</sup> PRODUCT DESCR	cium r 5 5 600 rpm 200 rpm 200 rpm 3 rpm/3 INVEN RIPTION	ng/L % Wt Soln g/cc ng/Lx10 <sup>3</sup> n/300 rpm n/100 rpm	OFFICE		50/50 2.6 2.8 0.54/1.14 14.9 48/33 BAL BAL WAREHOL Adelaide	COST	then ran i shoe aga 20m to b Made up Made up Soluids Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desitter 1 Desitter 2 Centrifug	PE CONTI Mal	KCL / F ROL EC ke	POLYM AUIPMI Screet 50x50 bbl/hr 1 1.25 ST	ER ENT n size x80	hrs bbi	CONS Additic Sea W. Drill W. other Barite Chemi Lossee Sol. Cc Lost/D Down Newho NET L Dische	POOH 1 K. Wash POOH to POOH to	DN bbl
Tel. 03-62134600	GOO PPIN GOO PPIN 200 PPIN 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 PPTION 3 MARCH 1 PPTION 3 PPTION 3 MARCH 1 PPTION	ng/L % Wt Soln g/cc ng/Lx10 <sup>9</sup> //300 rpm rpm rpm rORY ANI	OFFICE Melbourns 03 – 62133		50/50 2.8 2.8 0.54/1.14 14.9 48/33 BAL BAL WAREHOL Adelaide 08-4774:		then ran i shoe aga 20m to br Made up Multi to br Made up Soliton Shaker 1 Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande Desilter 1 Desilter 2 Centrifug Centrifug	PE CONTI Mai	KCL / F and circ ols. KCL / F ROL EC ke 10.5 10 10.5 10 10 10 10 10 10 10 10 10 10 10 10 10	POLYM DUIPM SCREET ST F ANY V	ER ENT n size x80	hrs 1.5 bbl 1 1 CUMI A\$ TENT, /	CONS Additic Sea W. Drill W. other Barite Chemis Sol. Cc Lost/D Down Newho NET L Discha JLATIVE 3051	UMPTIC ons cals son. umped Hole le OSS arged COST 3.63	DN bbl
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// 555 \\							MUD REF	PORT NO	<b>D.</b> 27				hrs,	7/6/94	
	Rar	nid ∆i	ustral	ia Pt	/ I td		DATE	8/6/94	ſ	DEPTH	Hm	MD 20	006	TVD 20	06
	Dail		usual				START D			ACTIV					
							12-May-				hole to	P.& A			
PERATOR				-	CTOR / RIC	а			1	COUN					
FE Resources Ltd	d			Century R						Austra TOWN	IIA ISHIP				
EPORT FOR				REPORT S. Kelly	FUH						ampbel	1			
Cen Smith	) NO.				BLOCK N	10.				OCA					
angley-1				PPL 1							Basin, PUMP		a		
BIT DATA			G STRING		Size ins	CASINGS	Depth m	Pump N	lake				bbl/stk	spm t	bbl/mi
lize ins	Pipe 1	OD ins 4.5	ID ins 1 3.826	<u>engin m</u>	Riser	Set @		Nat 7P5		5.5	7.75		0.0525		
ype lozzles 32nds	Pipe 2	4.5	2.875	55.28		Set @	334.43	Nat 8P8	30	6	8.5	95	0.0705		
	Pipe 3					Set @						TO	TAL bbi/m	 vin	
	Col 1	6.25	2.875	174.96		Set @ Set @		Pump F		- psi bbl			ING DAT		
	Col 2	DEN HOI	LE SECTIO	ONS		Set @		Downho		16			mins	AV m	n/min
loz Area ins² "FA ins²	Sect 1					Set @		Active		25			- mins	DP	
NV m/sec	Sect 2				Liner	Set @		Total C		41			- mins	DC Riser	
mpact lb f	Curren	t	8.5	1671.6	OFDICO	Top @		Reserve		OPE	ECD p		CATION		
		N or OUT		MUD PRO	IN		WEIGHT				40-55		YP	10-20	lb/100
Sample Location		n <b>rs</b>			19:00		API Filt	6-8 n	ni H	тнр		mi	KCL	3	%
Depth		n			2006		BY AUTH		/ud Pro	grame	e				
lowline Temp		с					REMARK Flowed w		- 10 000	ocfd of	fgas				
Veight		opg			9.30 48		Lost 10 b	bis mud	to hole.	Also	lost 4 b	bls on	trips.		
unnel Viscosity		sec/qt P			15		Mud engi	neer left	location	n after	cemen	t plugs	s were set	t <b>.</b>	
field Point		b/100 ft²			20										
Gels 10 sec/10mir	1/30 min II	b/100 ft <sup>2</sup>			6/10/15		ł								
API Filtrate		ni/30min			8.0		2 x 25 1 t	cans of F	BARAFIL	_M rec	cieved a	at start	of well ac	ided on	to
HPHT Filtrate		nl/30min 32nd ins	·		2/-		stock for	today. C	One of th	nese u	used at	end of	weil to co	oat pipe	while
Solids		% Vol			5.7		pulling ou								
Dissolved Salts		% Vol			1.3		ļ								
Dil Content/Water					-/93.0 0.1										
Sand Methylene Blue ca		% Vol opb			12		1								
oH		neter			8.6		l								
Alk. Mud Pm		ni			0.30		ACTIVIT	Y hole -	nd no-f-		DET #	a into	rval 1882.	9-100	9.1m
Alk. Filtrate, Pf/Mf		ni (jud 02)			0.20/0.50		Ran in th POOH wi	e noie ar	u perro	nned ad out	test too	o, nite	laved do		~····
Chlorides	r	ng/Lx103			15.0			in test m	iol, Lave						٦.
					50/50		Ran in th	e hole op	ol. Laye ben end	ied to	set four	r ceme	nt plugs.		۹.
Total Hardness/Ca	alcium r	ng/L % Wt Soln			50/50 2.6		Ran in th	e hole op	ol. Laye ben end	ied to	set four	r ceme	ent plugs.		<b>.</b>
Total Hardness/Ca KCL	alcium r	ng/L			2.6 2.8		Ran in th	e hole of	iol. Laye ben end	ied to	set foui	r ceme	ent plugs.		<b>.</b>
Total Hardness/Ca KCL ASG of Solids n & K	alcium r	ng/L % Wt Soln g/cc			2.6 2.8 0.51/1.45		Ran in th	e hole op	iol. Laye ben end	ied to	set foui	rceme	nt plugs.		<b>.</b>
Total Hardness/Ca KCL ASG of Solids n & K K+ Ion Conc	alcium r	ng/L % Wt Soln			2.6 2.8		Ran in th	e hole op	ol. Laye ben end	ied to	set four	rceme	ent plugs.	WH OH F	<b>.</b>
Total Hardness/Ca KCL ASG of Solids n & K	alcium r	ng/L % Wt Soln g/cc			2.6 2.8 0.51/1.45		Ran in th	e hole op	ol. Laye ben end	ied to	set four	rceme	nt plugs.	WIT OF #	<b>.</b>
Total Hardness/Ca KCL ASG of Solids n & K K+ Ion Conc	alcium r c c c c c c c c c c c c c c c c c c c	mg/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm			2.6 2.8 0.51/1.45		Ran in th	e hole op	ol. Laye ben end	ied to	set four	rceme	ent plugs.	WIT OF #	<b>.</b>
Total Hardness/Cd KCL ASG of Solids n & K K + Ion Conc Rheometer	alcium r ( ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	ng/L_ % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm			2.6 2.8 0.51/1.45 14.9		Ran in th	e hole op	ol. Laye	ied to	set four	rceme	nt plugs.		<b>.</b>
Total Hardness/Cd KCL ASG of Solids n & K K + Ion Conc Rheometer	alcium r 600 rpn 200 rpm/3	ng/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm		MPTION	2.6 2.8 0.51/1.45 14.9		Ran in th	e hole op	iol. Laye	led to	set foui	rceme	nt plugs.		
Total Hardness/Cé KCL ASG of Solids n & K K+ Ion Conc Rheometer Ib/100 ft <sup>2</sup>	alcium r 600 rpn 200 rpn 6 rpm/3 INVEN	ng/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm	D CONSUL USED	MPTION REC	2.6 2.8 0.51/1.45 14.9 50/35 BAL	COST	Ran in th	e hole op	Sen end	OLYM	set four	rceme	ont plugs.	UMPTIC	ON
Total Hardness/Cd KCL ASG of Solids n & K K+ Ion Conc Rheometer Ib/100 ft <sup>2</sup> PRODUCT DESC	alcium r 600 rpn 200 rpn 6 rpm/3 INVEN	ng/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm rpm TORY ANI	CONSU		2.6 2.8 0.51/1.45 14.9 50/35 BAL	COST	Ran in th	e hole op PE l	KCL / PC	OLYM UIPME	ER E <b>R</b>	r ceme	nt plugs.	U <b>M</b> PTIC ons	
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Total Hardness/Cd KCL ASG of Solids n & K K+ Ion Conc Rheometer Ib/100 ft <sup>2</sup> PRODUCT DESC	600 rpn 200 rpn 6 rpm/3 INVEN CRIPTION	ng/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm rpm TORY ANI	CONSU	REC	2.6 2.8 0.51/1.45 14.9 50/35 BAL	COST	MUD TY SOLIDS, Shaker 1 Shaker 2 Shaker 3 Shaker 4	PE i CONTR Make		OLYM UIPME 50x50	ER ENT n size	r ceme	CONS Additic Sea W. Drill W. other other	UMPTIC ons	ON
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Total Hardness/Cd KCL ASG of Solids n & K K+ Ion Conc Rheometer Ib/100 ft <sup>2</sup> PRODUCT DESC	600 rpn 200 rpn 6 rpm/3 INVEN CRIPTION	ng/L % Wt Soln g/cc mg/Lx10 <sup>3</sup> n/300 rpm n/100 rpm rpm TORY ANI	CONSU	REC	2.6 2.8 0.51/1.45 14.9 50/35 BAL	COST	MUD TY SOLIDS Shaker 1 Shaker 2 Shaker 3 Shaker 4 Desande	PE become of the operation of the operat	CL / PC OL EQU B S	OLYM UIPME 50x50	ER ENT n size X80	hrs	CONSI Additic Sea W. Orill W. other Barite Chemic Losses Sol. Cc Lost/Dr	Cals s umped	DN bbl
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# APPENDIX 3

**APPENDIX 3** 

**GFE RESOURCES LTD** 

# **APPENDIX 3**

### **DRILLING OPERATIONS**

### SUMMARY

LANGLEY-1

#### **GFE RESOURCES LTD**

## **DRILLING OPERATIONS SUMMARY**

**APPENDIX 3** 

			LANGLEY-1
	PPL 1 K. Smith	1	Spud Date: 12/05/94 Rig: Century Rig 11 Geologist: Val Akbari
TIME	HOURS	3	OPERATIONS Page: 1 of 10
12/05/	<b>′94</b>		
0800 - 1000	2	_	Drill Rat Hole and Mouse Hole.
1000 - 1130	11/2	-	Rig up to spud.
1130 - 1300	11/2	-	Pre-spud and safety meeting with all personnel by GFE's Engineer and Geologist and Century's Tool Pusher and Safety Officer.
1300 - 1330	1/2	-	Jet cellar and clear floor prior to spud.
1330 - 1500	11/2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 0m to 43m.
1500 - 1530	1/2	-	Circulate and survey at 30m.
1530 - 1700	11⁄2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 43m to 80m.
1700 - 1730	1/2	-	Circulate and survey at 67m.
1730 - 2000	21⁄2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 80m to 141m.
2000 - 2030	1/2	-	Circulate and survey at 128m.
2030 - 2230	2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 141m to 204m.
2230 - 2330	1	-	Circulate and survey at 191m.
2330 - 2400	1⁄2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 204m to 223m.
13/05/	/94		
0000 - 0130	11/2	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 223m to 261m.
0130 - 0200	1/2	-	Circulate and survey at 248m.
0200 - 0500	3	-	Drill 12 <sup>1</sup> / <sub>4</sub> " hole from 261m to 340m.
0500 - 0530	1/2	-	Circulate bottoms up.
0530 - 0730	2	-	Wiper trip.
0730 - 0900	11/2	-	Run in hole.
0900 - 0930	1⁄2	-	Break circulation and clean to bottom - 5m of fill.
0930 - 1030	1	-	Circulate hole clean prior to running casing.
1030 - 1300	21/2	-	Pull out of hole.
1300 - 1400	1	-	Lay out stabiliser, 2 x 8" DC's and recover survey.
1400 - 1530	11/2	-	Rig up to run and run 9 <sup>5</sup> / <sup>8</sup> " casing - blew seal in hydraulic motor of power tongs after running first three joints.
1530 - 1600	1⁄2	-	Lay out power tongs, clean floor and rig up rotary tongs.
1600 - 2030	41/2	-	Continue running casing with chain tongs and rotary tongs.
2030 - 2130	1	-	Head up circulating swage and clean to bottom (8m of fill) and circulate
0100 0000	17		prior to cementing.
2130 - 2200	$\frac{1}{2}$	-	Remove swage, head up Dowell, land casing and chain down.
2200 - 2330	11⁄2	-	Pressure test lines, pump pre-flush. Mix cement and displace same - nil
2330 - 2400	1/2		cement returns. Wait on cement.
2330 - 2400	72	-	

TIME HOURS OPERATIONS

14/05/	<b>'94</b>		
0000 - 0530	51/2	-	Continue wait on cement.
0530 - 0730	2	-	Lay out cement head, landing joint and conductor pipe - tag top of cement
			at 31' (9.4m) below bottom of cellar.
0730 - 0830	1	-	Make up casing bowl and spacer spool.
0830 - 1030	2	_	Top up annulus with cement by hand, rig up 1" line and blow annulus out
			with air compressor to get cement to fall - used 14 sacks cement.
1030 - 1700	61⁄2	-	Nipple up BOP's and install choke and flare-line.
1700 - 1730	1/2	-	Function test BOP - HCR valve stem leaking.
1730 - 1930	2	-	Repair HCR valve.
1930 - 2200	21⁄2	-	Pressure test flare-line to 1,000psi, blind rams to 300psi and 1,500psi and pipe rams to 2,500psi, all choke valves, HCR valve, manual choke line valve and 2 kill-line valves to 2,500psi and Hydril to 1,500psi.
2200 - 2230	1/2	-	Break and lay out cup tester.
2230 - 2400	11⁄2	-	Make up 8 <sup>1</sup> / <sub>2</sub> " BHA and run in hole.
15/05/	′ 94		
0000 - 0130	11⁄2	-	Continue run in hole. Pick up jars.
0130 - 0230	1	-	Tag cement at 318m. Break circulation and pressure test upper and lower
	_		kelly cocks to 1,500psi with rig pump.
0230 - 0330	1	-	Drill out plug, float collar cement and float shoe.
0330 - 0400	1/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 340m to 346m.
0400 - 0430	1/2	-	Circulate hole clean and condition mud.
0430 - 0530	1	-	Run Formation Integrity Test with Dowell - 22.6ppg EMW.
0530 - 0700	11/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 346m to 395m.
0700 - 0800	1	-	Clean plugged flow-line and work mud ring out of hole.
0800 - 0830	1/2	-	Continue drilling 8 <sup>1</sup> / <sub>2</sub> " hole from 395m to 404m.
0830 - 0900	1/2	-	Circulate and survey at 391m.
0900 - 1200	3	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 404m to 481m.
1200 - 1230	1/2	-	Centre crown of derrick over centre of rotary table.
1230 - 1300	1/2	-	Circulate and survey at 468m.
1300 - 1400	1	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 481m to 515m.
1400 - 1430	1/2	-	Circulate and clean mud ring from flow line.
1430 - 1500	1/2	-	Drill $8\frac{1}{2}$ " hole from 515m to 538m.
1500 - 1530	1/2	-	Circulate and survey at 525m.
1530 - 2100	51/2	-	Drill $8\frac{1}{2}$ " hole from 538m to 673m.
2100 - 2130	1/2	-	Circulate and survey at 660m.
2130 - 2230	1	-	Repair kelly spinner - engaging kelly while rotating.
2230 - 2400	11/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 673m to 690m.
16/05/			
0000 - 0130	11/2	-	Drill $8\frac{1}{2}$ " hole from 690m to 721m.
0130 - 0200	1/2	-	Circulate and survey at 708m.
0200 - 0900	7	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 721m to 832m.
0900 - 0930	1/2	-	Flow check and circulate geological sample at 832m.
0930 - 1100	11/2	-	Twenty-five stand wiper trip back to shoe.
1100 - 1130	1/2	-	Slip 40' of drill line.
1130 - 1230	1	-	Run back in hole - no fill.
1230 - 1430	2	-	Un-plug jet and drill 8 <sup>1</sup> / <sub>2</sub> " hole from 832m to 883m.
1430 - 1500	1/2	-	Circulate and survey at 870m.

#### TIME HOURS OPERATIONS

	1500 - 2030	51/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 883m to 1017m.
	2030 - 2100	1/2	-	Circulate and survey at 1004m.
	2100 - 2130	1/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1017m to 1046m.
	2130 - 2200	1/2	-	Circulate and survey at 1033m.
	2200 - 2330	11/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1046m to 1075m.
	2330 - 2400	1/2	-	Circulate and survey at 1062m.
	17/05/	/ 94		
	0000 - 0200	2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1075m to 1104m.
	0200 - 0230	1/2	-	Circulate and survey at 1091m.
	0230 - 0500	21/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1104m to 1142m.
	0500 - 0530	1/2	-	Circulate and survey at 1129m.
	0530 - 0800	21/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1142m to 1171m.
	0800 - 0830	1/2	-	Circulate and survey at 1158m.
	0830 - 1030	2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1171m to 1199m.
	1030 - 1100	1/2	-	Circulate and survey at 1196m.
_	1100 - 1300	2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1199m to 1228m.
	1300 - 1330	1/2	-	Circulate and survey at 1228m.
-	1330 - 1630	3	-	Twenty stand wiper trip back to 823m. Work tight hole at 1076m to
				1035m. Pipe stuck at 1076m for 20 minutes. 2m of fill.
	1630 - 2030	4	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1228m to 1257m.
	2030 - 2100	1/2	-	Circulate and survey at 1244m. Sand line parted while pulling survey
				barrel out of hole.
	2100 - 2230	11/2	-	Pull out of hole to recover survey barrel to 870m.
	2230 - 2300	1/2	-	Recover survey barrel.
	2300 - 2400	1	-	Continue to pull out of hole to inspect bit.
	18/05/	/ 94		
	0000 - 0130	11/2	_	Continue to pull out of hole.
	0130 - 0300	11/2	-	Run in hole to casing shoe. Change string stabiliser (1/8" under gauge)
				and working single.
	0300 - 0700	4	-	Slip and cut drill line to remove damaged section of line and repair sand
				line.
	0700 - 0800	1	-	Continue to run in hole.
	0800 - 0830	1/2	-	Circulate - unable to RIH due to storm and sleet.
	0830 - 0900	1/2	-	Continue to RIH to 1062m.
	0900 - 0930	1/2	-	Ream from 1062m to 1075m.
	0930 - 1000	1/2	-	Continue to RIH to 1177m.
	1000 - 1130	11⁄2	-	Ream from 1177m to 1257m.
	1130 - 1700	51/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1257m to 1276m.
	1700 - 1730	1/2	-	Circulate and survey at 1276m.
	1730 - 2030	3	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1276m to 1305m.
	2030 - 2100	1/2	-	Circulate and survey at 1305m.
	2100 - 2400	3	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1305m to 1318m.
	19/05	/94		
	0000 - 0200	2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1318m to 1334m.
	0200 - 0230	1/2	-	Circulate and survey at 1331m.
	0230 - 0830	6	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1334m to 1363m.
	0830 - 0900	1/2	-	Circulate and survey at 1360m.
	L			· · · · · · · · · · · · · · · · · · ·

TIME	HOUR	<u>s</u> (	OPERATIONS Page: 4 of 10
0900 - 1330	41/2	-	Pull out of hole to stiffen up BHA - work tight hole from 1302m to 1158m.
1330 - 1430	1	-	
1430 - 1630	2	-	Run in hole to 949m.
1630 - 2400	7½	-	Ream tight hole from 949m to 1240m, running stands or singles where possible.
20/05/	′ 94		1
0000 - 0400	4	-	Pear tight hale from 1240 to 1262
0400 - 1030	- 6½	_	Ream tight hole from 1240m to 1363m - work junk sub. Drill 8½" hole from 1363m to 1394m.
1030 - 1100	1/2	-	Circulate and survey at 1390m.
1100 - 1900	8	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1394m to 1438m - stuck in hole. Drill string locked up in hole, stalling motors. Unable to hoist after restarting motors - clutch slipping.
1900 - 2130	21/2	-	Check and degrease oily drum clutch and re-fit.
2130 - 2400	21⁄2	-	Try to hoist off bottom, pipe stuck, work jars to 35,000lbs over string weight, pull to 240,000lbs (115,000lbs over string weight) and try to rotate to get pipe free.
21/05/	94		
0000 - 1030	101/2	_	Continue to jar and pull on pipe and try to rotate.
1030 - 1200	$1\frac{1}{2}$	-	Displace annulas to water.
1200 - 1330	11/2	_	Jar and pull on pipe.
1330 - 1530	2	-	Close Hydril and reverse, circulate slowly to displace hole to water completely.
1530 - 1600	1/2	-	Continue to pull on pipe and jar intermittently.
1600 - 1700	1	-	Visual check of drilling line, anchors, derrick supports and all lines, sheaves and safety pins in mast.
1700 - 1930	21⁄2	-	Continue to pull on pipe and jar intermittently.
1930 - 2030	1	-	Change out drive chain in draw-works.
2030 - 2200	11/2	-	Displace hole to mud before running Free-Point Tool.
2200 - 2400	2	-	Try to remove access bull plug in top of swivel goose neck - too tight - remove kelly hose etc. and goose neck.
22/05/9	94		
0000 - 0800	8	-	Rig up Schlumberger and run Free-Point Tool to try to establish where drill string is stuck. Schlumberger's tests suggest that the string is stuck at the jars at 1262.97m - jars continues to function.
0800 - 0830	1/2	-	Test jars for operation check.
0830 - 1200	31⁄2	-	Re-install wash pipe, goose neck and kelly hose while evaluating Free- Point logs. Pressure test to 500psi.
1200 - 1300	1	-	Circulate hole - complete circulation plus 30% - cavings from bottom of hole.
1300 - 1330	1/2	-	Work pipe to 250,000lbs.
1330 - 1530	2	-	Displace hole to water.
1530 - 1600	1/2	-	Work jars up to 160,000lbs and down 25,000lbs.
1600 - 1900	3	-	Mix 'Ezy-Spot' and diesel fuel and spot across bottom of hole to 1,200mKB with Dowell (circulated with water slowly while mixing, as pressure indicated hole could be packing-off).

#### TIME HOURS OPERATIONS

	1900 - 1930	1/2	-	Work jars up and down, hold torque on pipe.
	1930 - 2030	1	-	Remove access bull plug in goose neck and rig up Schlumberger.
	2030 - 2330	3	-	Run Free-Point tool with Schlumberger, string pulled free while applying
				tension for locating Free-Point - rig down Schlumberger.
	2330 - 2400	1/2	-	Layout single of drill pipe and replace access plug.
	23/05/	/ 94		
	0000 - 0100	1	-	Unplug jets in bit.
	0100 - 0200	1	-	Displace hole to drilling mud.
	0200 - 0500	3	-	Circulate and condition mud.
	0500 - 1330	81/2	-	Pull out of hole servicing all tool joint connections and lay out jars - work
	0500 1550	072		tight hole from 1361m to 1226m.
	1330 - 1430	1	-	Make up cup tester and test pipe rams, choke and HCR to 2,500psi and
		-		500psi and Hydril to 1,000psi and 500psi.
	1430 - 1700	21/2	-	Make up new bit and BHA and run in hole to casing shoe.
	1700 - 1930	21/2	-	Slip and cut 100' of drilling line.
	1930 - 2130	2	-	Run in hole to 1207m. Lay out 20 singles for reaming. Service last 10
				connections, not serviced while pulling in tight hole.
	2130 - 2400	21⁄2	-	Break circulation and ream and wash from 1207m to 1390m.
	24/05/	/ 94		
	0000 - 0200	2	-	Ream from 1390m to 1438m.
	0200 - 1900	17	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1438m to 1537m.
	1900 - 1930	1/2	-	Circulate and survey at 1524m.
	1930 - 2400	41⁄2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1537m to 1556m.
	25/05/	/ 94		
	0000 - 1000	10	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1556m to 1614m.
	1000 - 1030	1/2	-	Circulate and survey at 1610m.
	1030 - 1300	21/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1614m to 1623m.
	1300 - 1400	1	-	Ten stand wiper trip from 1623m to 1419m - work tight hole 1476m to
				1467m - 1 meter of fill.
	1400 - 1530	11/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1623m to 1628m.
_	1530 - 1630	1	-	Circulate geological sample at 1628m.
	1630 - 2400	71⁄2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1628m to 1675m.
	26/05/	/ 94		
	0000 - 1300	13	-	Drill 8½" hole from 1675m to 1731m.
				Lowered circulation rate from 300gpm to 250gpm at 1711m.
	1300 - 1400	1	-	Circulate geological sample at 1731m.
	1400 - 1500	1	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1731m to 1732m. Drill string torqueing up - unable
				to put weight on bit.
	1500 - 1900	4	-	Pull out of hole to check bit and stabilisers - high winds and driving rain -
				work tight hole at 1352m to 1243m - 35,000lb over-pull.
	1900 - 1930	1/2	-	Slip 20' of drilling line.
	1930 - 2200	21⁄2	-	Continue to pull out of hole.
	2200 - 2400	2	-	Lay out stabilisers, make up new bit and stabilisers at 60'. Run in hole.
	27/05.	/ 94		
	0000 - 0300	3	-	Continue run in hole.
	0300 - 0330	1/2	-	Precautionary ream from 1713m to 1732m - 2m of fill.
<b>.</b>				

TIME HOURS OPERATIONS

				1
	0330 - 0430	1	-	Circulate hole clean prior to drilling ahead.
	0430 - 0500	1/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1732m to 1734m.
	0500 - 0600	1	-	Circulate geological sample at 1734m.
	0600 - 0700	1	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1734m to 1745m.
	0700 - 0900	2	-	Circulate geological sample at 1745m.
	0900 - 1200	3	-	Wiper trip to casing side - work tight hole at 1435m to 1430m.
	1200 - 1230	1/2	-	Slip 20' of drilling line.
	1230 - 1530	3	-	Continue to run in hole.
	1530 - 1600	1/2	-	Tag bottom, break circulation, circulate for 10 minutes and pull back 2
				stands.
	1600 - 1830	21⁄2		Circulate at 1706m, working pipe.
	1830 - 1900	1/2	-	Pump weight pill and drop survey.
	1900 - 2330	41⁄2	-	Pull out of hole to pick up test tools - strap out.
	2330 - 2400	1/2	-	Lay out bit stabiliser and recover survey.
	28/05/	94		
	0000 - 0100	1	-	Make up test tools.
	0100 - 0600	5	-	Run in hole with test tool.
	0600 - 0700	1	-	Head up surface equipment and work pipe until daylight.
	0700 - 1030	31/2	-	Connect chicksans, set packers and run DST #1 at 1715.22m to 1745m.
	1030 - 1500	41/2	-	Pull out of hole with test tool.
	1500 - 1600	1	-	Lay out test tools.
	1600 - 1700	1	-	Service and make up 60' core barrel.
	1700 - 1830	11/2	-	Run in hole with core barrel.
	1830 - 1900	1/2	-	Slip 20' of drilling line.
	1900 - 2200	3	-	Run in hole with core barrel.
	2200 - 2400	2	-	Ream to bottom 17m and circulate gas-cut mud.
	29/05/	94		-
	0000 - 0200	2	-	Tag bottom. Drop ball and cut Core #1 at 1745m to 1764m.
	0200 - 0700	5	_	Lay out 2 pup joints and pull out of hole with core barrel.
	0700 - 0800	1	-	Recover Core #1.
	0800 - 0930	$1\frac{1}{2}$	_	Break and service core barrel and lay out.
	0930 - 1030	1	_	Make up bit #5RR and run 1 stand of drill collars. Pick up cup tester and
	0990 1090	1		pressure test pipe rams to 2,500psi and 800psi against HCR valve and
				Hydril to 1,000psi.
	1030 - 1100	1/2	_	Service Rig.
	1100 - 1530	4½	_	Run in hole to 1726m.
	1530 - 1630	1	-	Break circulation. Wash and ream down to top of unrecovered core at
				1761m.
	1630 - 1700	1/2	-	Drill up 3 metres of unrecovered core.
	1700 - 2130	41⁄2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1764m to 1776m.
	2130 - 2200	1/2	-	Work bit to check for balling up - low penetration.
	2200 - 2400	2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1776m to 1780m.
	30/05/	94		
	0000 - 0800	8	_	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1780m to 1802m.
	0800 - 0830	0 1/2	_	Circulate for survey at 1802m - abort survey due to broken strand in sand-
	0000 - 0000	/2	-	line.
_	0830 - 1030	2		Drill $8\frac{1}{2}$ " hole from 1802m to 1821m.
	1030 - 1100		-	
	1030 - 1100	1/2		Circulate and survey at 1808m.

TIME HO	OURS	01	PERATIONS Page: 7 of 10
1100 - 1200	1	-	Drill 8½" hole from 1821m to 1824m.
1200 - 2400	12	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1824m to 1852m.
31/05/94	!		
	91⁄2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1852m to 1888m.
0930 - 1000	$\frac{1}{2}$	-	Service rig.
1000 - 1100	1	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1888m to 1897m.
	11/2	-	Circulate geological sample at 1897m - circulate for 10 minutes, pull back
			to 1869m and continue circulating.
1230 - 1430	2	-	Wiper trip back to 1700m. Work tight hole at 1802m to 1736m. RIH to 1770m, pick up kelly and clean out to 1780m. Continue to RIH - 1 metr of fill.
1430 - 1600	11⁄2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1897m to 1910m.
1600 - 1800	2	-	Circulate for 10 minutes, pull back to 1869m and continue circulating.
1800 - 2130	31/2	-	Pull out of hole for DST #2 - strap pipe.
2130 - 2230	1	-	Slip 20' and cut 92' of drilling line.
2230 - 2400	11⁄2	-	Continue to pull out of hole.
01 / 06 / 94	!		
0000 - 0030	1/2	-	Continue to pull out of hole.
0030 - 0130	1	-	Make up test tools.
0130 - 0230	1	-	Run in hole with test tool.
0230 - 0300	1⁄2	-	Service rig and adjust brakes.
0300 - 0730	41⁄2	-	Continue to run in hole with test tool and work tools through tight hole from 1791 to 1824m.
0730- 0930	2	-	Run DST #2 at 1874.97m to 1910m - test aborted after packer seat failure on final flow opening.
		Str	ap result: Driller's depth: 1910m. Strap depth: 1910.61m.
0930 - 1500	51/2	-	Pull out of hole - work through tight hole at 1849m to 1773m. Slight swabbing, recover 10bbls of mud.
1500 - 1630	11⁄2	-	Break and lay out test tools.
1630 - 1700	1⁄2	-	Restart draw-works motor.
1700 - 1900	2	-	Make up $8\frac{1}{2}$ " BHA and run in hole.
1900 - 1930	1/2	-	Slip 15' of drilling line.
1930 - 2330	4	-	Run in hole to 1888m. Break circulation and precautionary ream to 1910m.
2330 - 2400	1⁄2	-	Circulate and condition mud.
02/06/94	!		
0000 - 0030	1/2	-	Continue to circulate gas out.
	11/2	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1910m to 1964m.
1200 - 2100	9	-	Drill 8 <sup>1</sup> / <sub>2</sub> " hole from 1964 to 2006m (T.D.).
2100 - 2200	1	-	Circulate bottoms up.
2200 - 2400	2	-	Pull out of hole. Wiper trip back to 1186m - 10-15,000lbs over pull from
			1869m to 1773m.

TIME HOURS OPERATIONS

ſ				
	03 / 06 /	94		
	0000 - 0130	11⁄2	-	Run in hole. Wiper trip - work tight hole from 1751m to 1761m - 1 metre of fill.
	0130 - 0300	11⁄2	-	Circulate hole clean.
	0300 - 0400	1	-	Survey at 2000m - apply preservative to sand line.
	0400 - 0430	1/2	-	Pull out of hole to log - strap out of hole.
	0430 - 0500	1/2	-	Pick up kelly and work tight hole from 1761m to 1751m.
	0500 - 0800	3	-	Continue to pull out of hole to log - strap pipe.
	0800 - 0830	1/2	-	Pull out of hole. Break bit and stabiliser.
	0830 - 1200	31/2	-	Rig up Schlumberger. Run #1 - Resistivity/Sonic.
	1200 - 2400	12	-	Continue Run #1. Run #2 Neutron/Density. Run #3 Check Shot Survey.
	04 / 06 /	′ <b>94</b>		
	0000 - 0300	3	-	Continue Run #3 Check Shot Survey.
	0300 - 0400	1	-	Make up 8 <sup>1</sup> / <sub>2</sub> " BHA and run in hole.
	0400 - 0430	1/2	-	Slip 27' drilling line.
	0430 - 0730	3	-	Continue to run in hole.
	0730 - 0900	11⁄2	-	Break circulation and circulate hole.
			Ho	le took 27.5bbls of mud while logging.
			Dr	iller's Depth: 2006m.
			Str	ap Depth: 2005.87m.
			Lo	gger's Depth: 2007m.
		417		
	0900 - 1030	11/2	-	Work on slipping drum clutch.
	1030 - 1500	41⁄2	-	Pull out of hole.
	1500 - 2400	9	-	Rig up Schlumberger. Run #4 RFT.
			Ho	le used 65bbls of mud while logging.
	05/06/	' <b>94</b>		
	0000 - 1330	131⁄2	-	Continue logging with Schlumberger. Run #4 RFT. Run #5 Dipmeter. Run #6 Sidewall Cores.
	1330 - 1400	1/2	-	Rig down Schlumberger.
	1400 - 1900	5	-	Make up 8 <sup>1</sup> / <sub>2</sub> " BHA and run in hole to 1993m. Filled pipe at 955m when no mud returns being displaced. Break circulation and wash to 2000m. Check operation of drum clutch - started to slip at 147,000lbs indicator weight.
	1900 - 2000	1	-	Circulate bottoms up - 60 units gas - work pipe.
	2000 - 2330	31⁄2	-	Pull out of hole to casing shoe - hit tight spot at 596m.
	2330 - 2400	1⁄2	-	Repair draw-works.
	06/06/	′ <b>94</b>		
	0000 - 0130	11/2	-	Change over drum clutch and Hydromatic clutch.
	0130 - 0400	21⁄2	-	Run in hole. Clutch started to slip at 130,000lbs indicator weight while running in hole.
	0400 0600	<u>^</u>		5
	0400 - 0600	2	-	Pull back to casing shoe.
	0600 - 0800	2	-	Remove drum clutch and re-face with new facing that arrived overnight in
				Melbourne.

TIME HOURS OPERATIONS

Г			0 1	11
				lumberger lost 4 sidewall core bullets in hole.
1			Ho	le took 41bbls while logging and 21bbls while repairing.
	0800 - 0900	1	-	Change out clutch pads for new ones at shoe.
	0900 - 1100	2	-	Run in hole 25 stands and pull back to shoe - cracks in 2 members of draw-works sub-frame.
	1100 - 1400	3	-	Shut well in, install stabbing valve and well gussets to reinforce draw- works sub-frame.
	1400 - 1730	31/2	-	Run in hole to 1993m. Break circulation and clean to bottom - 3m of fill. Picked up kelly and filled pipe and hole at 1138m when mud stopped displacing from hole.
	1730 - 1830	1	-	Circulate bottoms up - work pipe - clutch okay.
	1830 - 2300	41⁄2	-	Pull out of hole for DST #3.
	2300 - 2400	1	-	Make up DST tools.
	07/06/	/ 94		
	0000 - 0200	2	-	Make up test tools.
	0200 - 0700	5	-	Run in hole with test tool - strap pipe - differential of 0.29m less than tally sheet.
	0700 - 0800	1	-	Head up surface equipment and pressure test chicksans to 100psi air pressure and change out 3 leaky ones.
	0800 - 1400	6	-	Inflate packers and run DST #3 at 1883.07 to 1909.13m.
	1400 - 1900	5	-	Pull out of hole with test tool.
	1900 - 2100	2	-	Break and lay out test tools - recover 2.2 barrels of mud.
	2100 - 2400	3	-	Run in hole with BHA and lay out same.
				le took further 35bbls during repairs from 24hrs to 0800. T #3 interval 1883.07m to 1909.13m.
	08/06/	/ 94		
	0000 - 0100	1	-	Continue lay out 6 <sup>1</sup> / <sub>4</sub> " D/C.
	0100 - 0400	3	-	Run in hole with open ended drill pipe and pick up 12 singles.
	0400 - 0530	11⁄2	-	Circulate bottoms up at 1880m.
	0530 - 0700	11⁄2	-	Head up Dowell pressure test lines and run cement plug #1 at 1880m to 1820m with 84 sacks Class 'A'.
	0700 - 0730	1/2	-	Pull back to 1760m.
	0730 - 0830	1	-	Run cement plug #2 at 1760m to 1700m with 87 sacks Class 'A'.
	0830 - 0900	1/2	-	Pull back 4 stands through cement.
	0900 - 0930	1/2	-	Circulate to clear pipe of any cement.
	0930 - 1300	31/2	-	Lay out 78 joints of drill pipe.
	1300 - 1330	1/2	-	Run plug #3 at 940m to 880m with 8 sacks Class 'A'.
	1330 - 1400	1/2	-	Pull 9 stands and circulate to clear pipe of any cement.
	1400 - 1700	3	-	Lay out 80 singles of drill pipe.
	1700 - 1730	1/2	-	Run in hole 19 stands and run plug #4 at 366m to 306m with 84 sacks Class 'A'.
	1730 - 1830	1	-	Pull back 5 stands circulate to clear pipe of cement.
	1830 - 1900	1/2	-	Pull back 14 stands.
	1900 - 2300	4	-	Wait on cement - clean shaker tank and remove pipe spinner.
	2300 - 2400	1	-	Run in hole - tag plug #4 at 309m.

#### TIME HOURS OPERATIONS

09/06/94					
0000 - 0130	11⁄2	- Lay out drill pipe.			
0130 - 0600	41⁄2	- Nipple down BOP, choke and flare line.			
0600 - 0700	1	- Remove casing bowl and clean suction tank.			
0700 - 0730	1/2	- Run surface plug with approximately 30 sacks Class 'A'.			
0730 - 0800	1/2	- Lay out kelly and swivel.			
0800 - 0830	1⁄2	- Release Rig.			
Release Rig at 0830 hours, 9 JUNE 1994.					
	0000 - 0130 0130 - 0600 0600 - 0700 0700 - 0730 0730 - 0800	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	$0000 - 0130$ $1\frac{1}{2}$ -Lay out drill pipe. $0130 - 0600$ $4\frac{1}{2}$ -Nipple down BOP, choke and flare line. $0600 - 0700$ 1-Remove casing bowl and clean suction tank. $0700 - 0730$ $\frac{1}{2}$ -Run surface plug with approximately 30 sacks Class 'A'. $0730 - 0800$ $\frac{1}{2}$ -Lay out kelly and swivel. $0800 - 0830$ $\frac{1}{2}$ -Release Rig.		

# APPENDIX 4

# **APPENDIX 4**

### LITHOLOGICAL DESCRIPTIONS

4A. CUTTINGS DESCRIPTIONS 4B. GEOLOGICAL DESCRIPTIONS FROM DAILY REPORTS

LANGLEY-1

**APPENDIX 4A** 

## **CUTTINGS DESCRIPTIONS**

### LANGLEY-1

Nil	Nil	lin	Nil	Nii	Nii	lin			80	370-395
Nil	Nil	Nil	Nil	Nil	Nil	Nil		100 MARL: blue grey, soft, very fossiliferous with abundant coral and shell fragments.	100	340-370
сит	NAT.	C4	Ü	CS	5	TOTAL GAS FOR UNITS	2¥5	SAMPLE DESCRIPTION	8	DEPTH (m)
SCENCE	FLUORESCENCE	PPM)	GAS COMPONENTS (PPM)	NOAINC	GAS CI			Akbari PAGE: 1 of 16	Val A	GEOLOGIST: Val Akbari
			SHOWS	S				LANGLEY-1 DATE: 19/02/94 to 25/02/94	LANC	WELL:

340-370100MARL: blue grey, soft, very fossiliferous with abundant coral and shell fragments.NilNil370-39580MARL: as for 340-370m.NilNilNilNil370-39570MARL: as for 340-370m.NilNilNilNil395-40570MARL: dark grey to blue grey, often brown, calcareous, trace glauconite, traceNilNilNil395-40570MARL: as for 395-405m.NilNilNilNil405-42050LIMESTONE: as for 395-405m.NilNilNilNil405-42070MARL: as for 395-405m.NilNilNilNil405-42070MARL: as for 395-405m.NilNilNilNil410-43070LIMESTONE: as for 395-405m.NilNilNilNil420-43070MARL: as for 395-405m.NilNilNilNil430-45070MARL: as for 395-405m.NilNilNilNil430-45070MARL: as for 395-405m.NilNilNilNil430-45070ILMESTONE: as for 395-405m.NilNilNilNil430-45070MARL: as for 430-450m.NilNilNilNil430-4508MARL: as for 430-450m.NilNilNilNil450-4609010MARL: as for 430-450m.NilNilNilNil450-4601010MARL: as for 430-450m.NilNil										
80       MARL: as for 340-370m.       Nil         20       LIMESTONE: off white to tan, mostly fossil fragments.       Nil         70       MARL: dark grey to blue grey, often brown, calcareous, trace glauconite, trace       Nil         70       MARL: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         50       MARL: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         70       MARL: as for 395-405m.       Nil         71       MARL: as for 395-405m.       Nil         72       MARL: as for 395-405m.       Nil         73       LIMESTONE: as for 395-405m.       Nil         70       MARL: as for 430-450m.       Nil         80       MARL: as for 430-450m.       Nil         90       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       Nil         101       ILMESTONE: as for 395-405m.       Nil         100       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       Nil         100	340-370	100	MARL: blue grey, soft, very fossiliferous with abundant coral and shell fragments.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
20       LIMESTONE: off white to tan, mostly fossil fragments.       Nill         70       MARL: dark grey to blue grey, often brown, calcareous, trace glauconite, trace       Nill         90       LIMESTONE: as for 395-405m.       Nill         50       MARL: as for 395-405m.       Nill         50       LIMESTONE: as for 395-405m.       Nill         70       MARL: as for 395-405m.       Nill         71       MARL: as for 395-405m.       Nill         70       MARL: as for 395-405m.       Nill         71       MARL: as for 395-405m.       Nill         72       MARL: as for 395-405m.       Nill         73       LIMESTONE: as for 395-405m.       Nill         80       MARL: as for 430-450m.       Nill         90       MARL: as for 430-450m.       Nill         100       MARL: as for 430-450m.       Nill         100 <td>370-395</td> <td>80</td> <td><b>MARL:</b> as for 340-370m.</td> <td>Nil</td> <td>Nil</td> <td>Nil</td> <td>Nil</td> <td>Nil</td> <td>Nil</td> <td>Nil</td>	370-395	80	<b>MARL:</b> as for 340-370m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70       MARL: dark grey to blue grey, often brown, calcareous, trace glauconite, trace       Nil         90       LIMESTONE: mainly fossil fragments, common glauconite.       Nil         50       MARL: as for 395-405m.       Nil         50       MARL: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         70       MARL: as for 395-405m.       Nil         71       MARL: as for 395-405m.       Nil         72       MARL: as for 395-405m.       Nil         73       LIMESTONE: as for 395-405m.       Nil         80       MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, soft, rare to common glauconite.       Nil         20       LIMESTONE: as for 395-405m.       Nil       Nil         80       MARL: as for 430-450m.       Nil       Nil         90       MARL: as for 430-450m.       Nil       Nil         100       MARL: as for 430-450m.       Nil       Nil		20	LIMESTONE: off white to tan, mostly fossil fragments.							
pyrite.30LIMESTONE: mainly fossil fragments, common glauconite.50MARL: as for 395-405m.50MARL: as for 395-405m.50LIMESTONE: as for 395-405m.70MARL: as for 395-405m.71MARL: as for 395-405m.72MARL: as for 395-405m.73LIMESTONE: as for 395-405m.74MARL: as for 395-405m.75MARL: as for 395-405m.76MARL: as for 395-405m.77MARL: as for 395-405m.80MARL: as for 395-405m.80MARL: as for 395-405m.80MARL: as for 395-405m.91Immestrone: as for 395-405m.92LIMESTONE: as for 395-405m.93MARL: as for 430-450m.94MARL: as for 430-450m.90MARL: as for 430-450m.910MARL: as for 430-450m.92Narl: as for 430-450m.93MARL: as for 430-450m.94MARL: as for 430-450m.95MARL: as for 430-450m.96MARL: as for 430-450m.97MARL: as for 430-450m.98MARL: as for 430-450m.99SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subnouled quartz, common fossil fragments, rate blauconite, common actillaceous matrix, soft, poor visual porosity.90SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, subnounded quartz, common fossil fragments, common fossil fragments, common fossil fragments, common fossil fragments, common fossil fragments, common fossil fragments, common fossil fragments, common fossil fragments, commo	395-405	70	MARL: dark grey to blue grey, often brown, calcareous, trace glauconite, trace	Nil	Nil	Nil	Nil	Nil	Nil	Nil
30       LIMESTONE: mainly fossil fragments, common glauconite.       Nil         50       MARL: as for 395-405m.       Nil         50       LIMESTONE: as for 395-405m.       Nil         70       MARL: as for 395-405m.       Nil         71       MARL: as for 395-405m.       Nil         72       MARL: as for 395-405m.       Nil         73       LIMESTONE: as for 395-405m.       Nil         80       MARL: as for 395-405m.       Nil         80       MARL: as for 395-405m.       Nil         90       MARL: as for 430-450m.       Nil         91       LIMESTONE: as for 395-405m.       Nil         92       LIMESTONE: as for 395-405m.       Nil         90       MARL: as for 430-450m.       Nil         10       LIMESTONE: as for 395-405m.       Nil         10       LIMESTONE: as for 395-405m.       Nil         10       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       0.1         100       MARL: as for 430-450m.       0.1         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, onthe subangular to subrounded duartz, common fossil fragments, subrounded		•••••	pyrite.							
50MARL: as for 395-405m.Nil50LIMESTONE: as for 395-405m.Nil70MARL: as for 395-405m.Nil30LIMESTONE: as for 395-405m.Nil30LIMESTONE: as for 395-405m.Nil30LIMESTONE: as for 395-405m.Nil80MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, soft, rare to common glauconite.Nil20LIMESTONE: as for 395-405m.Nil90MARL: as for 430-450m.Nil10LIMESTONE: as for 395-405m.Nil10MARL: as for 430-450m.Nil10MARL: as for 430-450m.0.1100MARL: as for 430-450m.0.1100SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.0.1100SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, subrounded to rounded dominantly subrounded quartz, poor to moderately sorted, subrounded to rounded dominantly subrounded quartz, poor to moderately sorted,0.1		30								
50LIMESTONE: as for 395-405m.70MARL: as for 395-405m.70MARL: as for 395-405m.30LIMESTONE: as for 395-405m.80MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, Nil80MARL: as for 430-450m.90MARL: as for 430-450m.10LIMESTONE: as for 395-405m.91MARL: as for 430-450m.92MARL: as for 430-450m.93MARL: as for 430-450m.94MARL: as for 430-450m.95MARL: as for 430-450m.96MARL: as for 430-450m.97100MARL: as for 430-450m.98MARL: as for 430-450m.99MARL: as for 430-450m.90MARL: as for 430-450m.910SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.90SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, onlower or moderately sorted, subrounded to rounded to rounded dominantly subrounded quartz, poor to moderately sorted, common arritheous matrix, more visual porosity.	405-420	50	MARL: as for 395-405m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
70       MARL: as for 395-405m.       Nil         30       LIMESTONE: as for 395-405m.       Nil         30       LIMESTONE: as for 395-405m.       Nil         80       MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, Nil       Nil         80       MARL: as for 395-405m.       Nil         20       LIMESTONE: as for 395-405m.       Nil         90       MARL: as for 430-450m.       Nil         10       LIMESTONE: as for 395-405m.       Nil         90       MARL: as for 430-450m.       Nil         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, out with a subrounded quartz, common fossil fragments, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, subrounded to rounded, dominantly subrounded quartz, poor visual porosity.       0.1         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, out subrounded quartz, poor visual porosity.       0.1		50	LIMESTONE: as for 395-405m.							
30LIMESTONE: as for 395-405m.80MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, soft, rare to common glauconite.Nil20LIMESTONE: as for 395-405m.Nil90MARL: as for 430-450m.Nil10LIMESTONE: as for 395-405m.Nil10MARL: as for 430-450m.Nil100MARL: as for 430-450m.Nil100MARL: as for 430-450m.Nil100MARL: as for 430-450m.Nil100MARL: as for 430-450m.Nil100SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.0.1100SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, sorted, common arrillaceous matrix0.1	420-430	70	<b>MARL:</b> as for 395-405m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
80       MARL: dark grey to blue grey, dominantly dark brown, calcareous, fossiliferous, Nil soft, rare to common glauconite.       Nil soft, rare to common glauconite.         20       LIMESTONE: as for 395-405m.       Nil         90       MARL: as for 430-450m.       Nil         100       LIMESTONE: as for 395-405m.       Nil         100       MARL: as for 430-450m.       Nil         101       Ill       MARL: as for 430-450m.       Nil         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.1         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, on argillaceous matrix, soft, poor visual porosity.       0.2         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, on and subrounded quartz, poor to moderately sorted, on antive nonergine porosity.       0.1		30	LIMESTONE: as for 395-405m.							
soft, rare to common glauconite.       soft, rare to common glauconite.         20       LIMESTONE: as for 395-405m.         90       MARL: as for 430-450m.         10       LIMESTONE: as for 395-405m.         100       MARL: as for 430-450m.         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.1         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly fine, subangular to subrounded, dominantly subrounded quartz, poor visual porosity.       0.2         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, only and to rounded to rounded to rounded duartz, poor to moderately sorted, subrounded to rounded to rounded duartz, poor to moderately sorted, so	430-450	80		Nil	Nil	Nil	Nil	Nil	Nil	Nil
20LIMESTONE: as for 395-405m.90MARL: as for 430-450m.10LIMESTONE: as for 395-405m.10MARL: as for 430-450m.100MARL: as for 430-450m.100SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.100SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, common arcillaceous matrix non visual nonsity.			soft, rare to common glauconite.	·						
90MARL: as for 430-450m.Nil10LIMESTONE: as for 395-405m.Nil100MARL: as for 430-450m.Nil100MARL: as for 430-450m.0.1100SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.0.2100SANDSTONE: medium to dark brown, very fine to coarse, dominantly fine, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, subrounded to rounded dominantly subrounded quartz, poor to moderately sorted, common arcillaceous matrix poor visual porosity.0.1		20	LIMESTONE: as for 395-405m.							
10       LIMESTONE: as for 395-405m.       Nil         100       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       0.1         100       MARL: as for 430-450m.       0.1         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.2         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium, dominantly medium, dominantly fine, subrounded to rounded to rounded dominantly subrounded quartz, poor to moderately sorted, common arcillaceous matrix noor visual porosity.       0.1	450-460	90	<b>MARL:</b> as for 430-450m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
100       MARL: as for 430-450m.       Nil         100       MARL: as for 430-450m.       0.1         100       MARL: as for 430-450m.       0.1         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.2         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly fine, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, common arcillaceous matrix poor visual nonosity.       0.1		10	LIMESTONE: as for 395-405m.							
100       MARL: as for 430-450m.       0.1         100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine, subangular to subrounded, dominantly subrounded quartz, common fossil fragments, rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.2         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly fine, subrounded to rounded dominantly subrounded quartz, poor to moderately sorted, subrounded to rounded to rounded quartz, poor to moderately sorted, common argillaceous matrix poor visual porosity.       0.1	460-490	100	<b>MARL:</b> as for 430-450m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
100       SANDSTONE: medium to dark brown, very fine to medium, dominantly fine,       0.2         subangular to subrounded, dominantly subrounded quartz, common fossil fragments,       0.1         rare glauconite, common argillaceous matrix, soft, poor visual porosity.       0.1         100       SANDSTONE: medium to dark brown, very fine to coarse, dominantly medium,       0.1         subrounded to rounded to rounded quartz, poor to moderately sorted,       0.1	490-510	100	<b>MARL:</b> as for 430-450m.	0.1	18	lin	Nii	Nil	Nil	Nil
100 <b>SANDSTONE:</b> medium to dark brown, very fine to coarse, dominantly medium, 0.1 subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted,	 510-530	100	<b>SANDSTONE:</b> medium to dark brown, very fine subangular to subrounded, dominantly subrounded rare glauconite, common argillaceous matrix, soft,	0.2	24-30	Nil	Nil	lin	Nil	Nil
	530-560	100	: ;	0.1	6-8	Nil	Nil	Nil	Nil	Nil

LANGLEY-1 WELL COMPLETION REPORT

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560-590	100	100 <b>SANDSTONE:</b> off white to translucent, very fine to very coarse, dominantly coarse, subrounded to rounded, dominantly rounded, poor to moderately sorted, rare pyrite, unconsolidated, good intergranular porosity.	0.1	6-8	Nil	Nil	Nil	Nil	Nil
590-600	80 20	SANDSTONE: as for 560-590m. CLAYSTONE: dark brown, silty, carbonaceous, soft, massive.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
600-620	90 10	SANDSTONE: as for 560-590m. CLAYSTONE: as for 590-600m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
620-625	70 30	SANDSTONE: as for 560-590m. CLAYSTONE: as for 590-600m.	Nil	Nil	Nil	Nil	Nil	lin	Nil
625-740	100	SANDSTONE: as for 560-590m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
740-745	70	SANDSTONE: as for 560-590m.							
	30	<b>CLAYSTONE:</b> medium to dark brown, silty, carbonaceous, weakly calcareous, rare glauconite, soft.							
745-750	80 20	SANDSTONE: as for 560-590m. CLAYSTONE: as for 740-745m.							
750-775	100	SANDSTONE: as for 560-590m.							
775-780	80 20	<ul> <li>SANDSTONE: off white, light brown, very fine to medium, occasionally coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poor to moderately sorted, trace glauconite, trace pyrite, common fossil fragments, abundant argillaceous matrix, poor visual porosity, soft.</li> <li>CLAYSTONE: dark brown, silty, calcareous, carbonaceous, trace to rare glauconite, soft.</li> </ul>	Nil	Nil	IIN	ĨŻ	IZ	IIZ	Nil

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DEPTH (m)	%	SAMPLE DESCRIPTION	TOTAL GAS FOR UNITS	δ	ß	З	5	NAT.	сит
780-785	70	<b>SANDSTONE:</b> off white, light brown, very fine to medium, occasionally coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poor to moderately sorted, trace glauconite, trace pyrite, common fossil fragments, abundant argillaceous matrix, poor visual porosity, soft.	Nil	Nil	Nil	IIN	<b>I</b> IN	Nil	Nil
	30	<b>CLAYSTONE:</b> dark brown, silty, calcareous, carbonaceous, trace to rare glauconite, soft.							
785-790	60	SANDSTONE: as for 780-785m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	40	CLAYSTONE: as for 780-785m.							
790-805	80	CLAYSTONE: as for 780-785m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	20	SANDSTONE: as for 780-785m.							
805-830	100	CLAYSTONE: as for 780-785m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
830-835	60	CLAYSTONE: as for 780-785m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
	40	<b>SANDSTONE:</b> brown to translucent, very fine to granular, dominantly coarse, subangular to subrounded, dominantly subrounded quartz, common glauconite, common pyrite, trace iron oxide staining, abundant argillaceous matrix, nil visual porosity, soft.							
835-840		very poor sample (drilling following the wiper trip to check the hole condition).	Nil	Nil	Nii	Nil	Nil	Nil	Nil
840-880	100	<b>SANDSTONE:</b> brown, iron oxide staining, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace argillaceous matrix, dominantly unconsolidated, good intergranular porosity.	Nil	Nil	Nil	Nil	Nil	Nil	Nil

LANGLEY-I WELL COMPLETION REPORT

**APPENDIX 4A** 

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SILTSTONE: medium grey brown, argillaceous, common glauconite, rare pyrite,

rare calcite, massive, moderately firm.

SANDSTONE: as for 840-880m. SANDSTONE: as for 840-880m.

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880-895 895-900

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900-905	50	SILTSTONE: medium grey brown, argillaceous, common glauconite, rare pyrite,	lin	Nil	Nil	Nii	Nil	Nil	Nil
	50	SANDSTONE: as for 840-880m.							
905-914	6	SILTSTONE: as for 900-905m.	Nil	Nil	Nil	liN	Nii	Nil	Nil
	10	<b>SANDSTONE:</b> brown, iron oxide staining, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace aroillaceous matrix dominantly unconsolidated, good intergranular porosity.							
914-1045	100	SANDSTONE: off white to translucent, very fine to granular, dominantly very	0.2	30	Nil	Nil	Nil	Nil	Nil
		coarse to granular, subangular to subrounded, dominantly subrounded quartz, poorly sorted, trace to common pyrite, trace to rare brown lithics, unconsolidated, very good intergranular porosity.							
1045-1050	80	SANDSTONE: as for 914-1045m.	Nil	Nil	Nil	Nil	Nii	Nil	Nil
	20	CLAYSTONE: medium grey, silty, carbonaceous, soft.							
1050-1060	90	SANDSTONE: as for 914-1045m.	Nil	Nil	Nil	Nil	Nil	Nil	Nii
	10	CLAYSTONE: as for 1045-1050m.							
1060-1080	100	<b>.</b>	Nil	Nil	Nil	Nil	Nil	Nil	Nil
		coarse to granular, subangular to subrounded, dominantly subrounded quartz, poorly sorted, trace to common pyrite, trace coal, trace to rare brown lithics, unconsolidated, very good intergranular porosity.							
1080-1100	60	SANDSTONE: as for 914-1045m.							
	10	CLAYSTONE: as for 1045-1050m.							
1100-1130	100	SANDSTONE: as for 1060-1080m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
1130-1140	80	SANDSTONE: as for 1060-1080m.							
	20	CLAYSTONE: as for 1045-1050m.							
1140-1150	90	90 SANDSTONE: as for 914-1045m.	Nil	Nil	Nil	Nil	Nil	Nil	Nil
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LANGLEY-1	¥		۱ ·	10 <b>CLAYSTONE:</b> as for 1045-1050m.	<b>!</b>
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_	10 <b>CLAYSTONE:</b> as for 1045-1050m.	1150-1165       100       SANDSTONE: off white to transmutant of the second of	1165-1170 100 SANDSTONE: as for 1150-1165m.	1170-1180 80 SANDSTONE: as for 1150-1165m.	20 <b>SILTSTONE:</b> medium to dark firm, massive.	1180-1185 70 SILTSTONE: as for 1170-1180m.	30 SANDSTONE: as for 1150-1165m.	1185-1190     70     SANDSTONE: off white to tran       coarse to granular, subangular to sorted, trace to common pyrite, t       intergranular porosity.	25 <b>SILTSTONE:</b> medium to dark firm, massive.	5 COAL: dark brown to black, firm.	1190-1195 70 SILTSTONE: as for 1185-1190m.	25 SANDSTONE: as for 1185-1190m	5 COAL: dark brown to black, firm.
	50m.	<b>SANDSTONE:</b> off white to translucent, very fine to granular, dominantly very coarse to granular, subangular to subrounded, dominantly subrounded quartz, poorly sorted, trace to common pyrite, trace to rare brown lithics, unconsolidated, very good intergranular porosity.	Sm.	5m.	<b>SILTSTONE:</b> medium to dark grey, very argillaceous, carbonaceous, moderately firm, massive.	)m.	Sm.	SANDSTONE: off white to translucent, very fine to granular, dominantly very coarse to granular, subangular to subrounded, dominantly subrounded quartz, poorly sorted, trace to common pyrite, trace to rare brown lithics, unconsolidated, very good intergranular porosity.	SILTSTONE: medium to dark grey, very argillaceous, carbonaceous, moderately firm, massive.	m.	)m.	00m.	cm.
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1195-1210	70	<b>SANDSTONE:</b> off white to translucent, very fine to granular, dominantly very coarse to granular, subangular to subrounded, dominantly subrounded quartz, poorly sorted, trace to common pyrite, trace to rare brown lithics, unconsolidated, very good intergranular porosity.	Trace
	20 10	SILTSTONE: as for 1185-1190m. COAL: dark brown to black, firm.	
1210-1220	90 10	SANDSTONE: as for 1185-1190m. SILTSTONE: as for 1185-1190m.	
1220-1230	100	<b>SANDSTONE:</b> colourless to translucent, very fine to coarse, dominantly coarse, subangular to subrounded, dominantly subangular quartz, poor to moderately sorted, weak calcareous cement, dominantly unconsolidated, good intergranular porosity.	
1230-1250	70 30	SANDSTONE: as for 1220-1230m. CAVING: poor quality sample after wiper trip and drilling with reduced weight on bit (5,000lbs).	
1250-1275	60 40	SILTSTONE: dark grey, argillaceous, often sandy grading into very fine sandstone, moderately firm, massive. SANDSTONE: as for 1230-1250m.	
1275-1285	80 20	SANDSTONE: off white, translucent, very fine, often grading into siltstone, subangular to subrounded, dominantly subangular quartz, well sorted, strong dolomite cement, common pyrite, nil visual porosity, hard; at times medium to coarse, dominantly coarse, unconsolidated. SILTSTONE: as for 1250-1275m.	
1285-1300	90 10	SANDSTONE: as for 1275-1285m. SILTSTONE: as for 1250-1275m.	

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1300-1355	95	SANDSTONE: as for 1275-1285m, but with trace golden amber; first amber at 1325m.	0.1	12					
	Ś	COAL and Carbonaceous Material: common pyrite.	(started at 1340m)						
1355-1365	80	SANDSTONE: as for 1275-1285m.	0.4	16.5					
	20	SILTSTONE: as for 1250-1275m, but grading to silty claystone.							
1365-1375	70	SANDSTONE: as for 1275-1285m.	0.7	40					
	30	<b>CLAYSTONE:</b> dark grey, argillaceous, silty, often sandy grading into very fine sandstone, moderately firm, massive.							
1375-1385	60	SANDSTONE: as for 1275-1285m.	0.2-0.5	36140	Nil	Nil	Nil	Nil	Nil
	40	<b>CLAYSTONE:</b> dark grey, brown grey, very silty grading into siltstone, argillaceous, carbonaceous, very soft, dispersive.							
1385-1400	80	CLAYSTONE: as for 1375-1385m.	0.7	116	Nil	Nil	Nil	Nil	Nil
	20	SANDSTONE: as for 1275-1285m.							
1400-1405	100	<b>CLAYSTONE:</b> dark grey, brown grey, very silty grading into siltstone, argillaceous, carbonaceous, very soft, dispersive.	1.1	204	Nil	Nil	Nil	Nil	Nil
1405-1425	100	CLAYSTONE: as for 1400-1405m.	1.2	219	Nil	Nil	Nil	Nil	Nil
1425-1435	100	CLAYSTONE: as for 1400-1405m.	2.2	426	Nil	Nil	Nil	Nil	Nil
1435-1445	90	CLAYSTONE: as for 1400-1405m.	0.1		Nil	Nil	Nil	Nil	Nil
	10	<b>SANDSTONE:</b> off white, translucent, very fine, often grading into siltstone, subangular to subrounded, dominantly subangular quartz, well sorted, strong dolomite cement, nil visual porosity, hard; at times medium to coarse, dominantly					***		

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1445-1455	50	SANDSTONE: off white, brown, very fine, subangular to subrounded, dominantly subangular quartz, well sorted, common dolomite cement, nil visual porosity, hard. CLAYSTONE: dark grev. silty. carbonaceous. common pyrite, soft.	0.3		Nil	IZ	Nil	Nil	Nil
1455-1460	80 20	CLAYSTONE: as for 1445-1455m. SANDSTONE: as for 1445-1455m.	1.2		Nil	Nil	lin	lix	Nil
1460-1475	90	CLAYSTONE: as for 1445-1455m, but soft to moderately firm. SANDSTONE: as for 1445-1455m.	1.2		Nil	Nil	Nil	Nil	Nil
1475-1515	100	<b>CLAYSTONE:</b> medium to dark grey, brown, weakly calcareous, carbonaceous, rare glauconite, subfissile, soft to moderately firm.	5.5	1037	6	Nil	Nil	Nil	Nil
1515-1520	80	CLAYSTONE: as for 1475-1515m.	3.0	600	5	Nil	Nil	Nil	Nil
	20	<b>SANDSTONE:</b> colourless, translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poor to moderately sorted, rare lithics, unconsolidated, good intergranular porosity.							J.
1520-1525	90 10	CLAYSTONE: as for 1475-1515m. SANDSTONE: as for 1515-1520m.	1.3	237	4	Nil	Nil	Nil	Nil
1525-1540	100	CLAYSTONE: as for 1475-1515m.	2.5	475	5	Nil	Nil	Nil	Nil
1540-1595	100	CLAYSTONE: as for 1475-1515m.	3.7	705	18	Nil	Nil	Nil	Nil
1595-1600	100	<b>CLAYSTONE:</b> medium grey, brown, silty, carbonaceous, rare pyrite, rare glauconite, slightly calcareous, subfissile, soft.	3.2	587	22	Nil	Nil	Nil	Nil
1600-1610	100	<b>CLAYSTONE:</b> as for 1595-1600m, but with common glauconite increasing with depth.	3.2	595	22	Nil	Nil	Nil	Nil
1610-1615	100	<b>CLAYSTONE:</b> as for 1595-1600m, but with abundant glauconite and dark green glauconite nodules.	3.3	604	24	Nil	Nil	Nil	Nil
1615-1630	100	100 CLAYSTONE: as for 1595-1600m, but with trace to rare glauconite.	2.4	439	12	Nil	Nil	Nil	Nil
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1630-1655	100	100 CLAYSTONE: as for 1600-1610m.	1.8	341	8	Nil	Nil	Nil	Nil
1655-1675	100	CLAYSTONE: as for 1595-1600m, but with trace glauconite.	1.8	338	19	Nil	Nil	Nil	Nil
1675-1700	100		2.3	384	22	4	Nil	lin	Nil
		(First C <sub>3</sub> at 1690 1 unit).							
1700-1715	100	<b>CLAYSTONE:</b> as for 1675-1700m, but with abundant glauconite.	2.3	384	22	4	Nil	Nil	Nil
1715-1720	100	<b>CLAYSTONE:</b> as for 1675-1700m, but with trace to common glauconite.							
	Trace	SAND: colourless, translucent, medium to coarse, unconsolidated.							
1720-1729	100	<b>CLAYSTONE:</b> medium grey, brown, silty, carbonace abundant medium to coarse glauconite nodules, rare to fragments, subfissile, soft.	1.6	302	12	-	Nil	Nil	Nil
1729-1732	70	CLAYSTONE: as for 1720-1729m.	19	3233	86	13	21	Nil	Nil
	30	<b>SANDSTONE:</b> colourless, translucent, fine to coarse, dominantly medium, subangular to subrounded, dominantly subangular quartz, poorly sorted, unconsolidated, weak argillaceous matrix.	At 1729.5						
1732-1733	60	CLAYSTONE: as for 1720-1729m.	1.1	207	4	0	0	Nil	Nil
	10	SANDSTONE: as for 1729-1732m.							
1733-1734	80	CLAYSTONE: as for 1720-1729m.							
	20	SANDSTONE: as for 1729-1732m.							
1734-1735	70	CLAYSTONE: as for 1720-1729m.	8.5	1495	35	ŝ	Nil	Nil	Nil
	30	SANDSTONE: as for 1729-1732m.							

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1735-1737	60	<b>CLAYSTONE:</b> medium grey, brown, silty, carbonaceous, abundant glauconite, abundant medium to coarse glauconite nodules, rare to common pyrite, trace fossil	13.6	2538	62	6	∞	Nil	Nil
		fragments, subfissile, soft.	4						
	10	SANDSTONE: colourless, translucent, fine to coarse, dominantly medium,							
		subangular to subrounded, dominantly subangular quartz, poorly sorted, unconsolidated, weak argillaceous matrix.				·			
1737-1739	80	CLAYSTONE: as for 1735-1737m.	16.6	3019	77	12	25	Nil	Nil
	20	<b>SANDSTONE:</b> as for 1735-1737m, but with trace to rare golden brown amber with bright yellow fluorescence.							
1739-1743	70	CLAYSTONE: as for 1735-1737m.	16.2	2964	77	10	24	Nil	Nil
	30	SANDSTONE: as for 1735-1737m, but with 5% amber.							
1743-1745	70	CLAYSTONE: as for 1735-1737m.	15.8	2913	76	10	18	Nil	Nil
	30	SANDSTONE: as for 1735-1737m, but with 10-15% amber.							
1745-1764		CORE NO. 1: cut 19m recovered: 15.94m recovery: 83.9%	15.7	2684	119	44	20	Nil	Nil
1764-1770	70	SANDSTONE: colourless to translucent, very fine to coarse, dominantly coarse,	3	519	17	11	1	Nil	Nil
		subangular to subrounded, dominantly subangular quartz, poor to moderately sorted,							
		weak argillaceous matrix, dominantly unconsolidated, good visual intergranular						<u>.</u>	
		porosity, dominantly triable.							
	30	SHALE: dark grey to black, carbonaceous, micromica, subfissile, moderately hard.							
1770-1775	80	SANDSTONE: as for 1764-1770m.	1.6	256	13	4	Nil	Nil	Nil
	20	SHALE: as for 1764-1770m.							

LANGLEY-1 WELL COMPLETION REPORT

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WELL:       LANGLEY-1       DATE:       19/02/94 to 25/02/94       SHOWS         WELL:       LANGLEY-1       BAGE:       11 of 16       EASCOMPONENTS (PPM)       FLUORESCENCE         GEOLOGIST:       Val Akbari       CA       CAMPONENTS (PPM)       FLUORESCENCE         DEPTH (m)       %       SAMPLE DESCRIPTION       C1       C2       C3       C4       NAT       CUT			
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LANGLEY-1       DATE: 19/02/94 to 25/02/94       SHOWS         Val Akbari       PAGE: 11 of 16       GAS COMPONENTS (PPM)         %       SAMPLE DESCRIPTION       GAS FOR       C1       C2       C3       C4		5	_ <b>⊢</b>
LANGLEY-1       DATE: 19/02/94 to 25/02/94       SHOWS         Val Akbari       PAGE: 11 of 16       GAS COMPONENTS (PPM)         %       SAMPLE DESCRIPTION       GAS FOR       C1       C2       C3       C4		Z	Э́
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LANGLEY-1       DATE: 19/02/94 to 25/02/94       SHOWS         Val Akbari       PAGE: 11 of 16       CAS COMPONENTS (PPM)         %       SAMPLE DESCRIPTION       SAFork       C1       C2       C3       C4		_ <b>_</b> _	Z
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1775-1780						And the second s			
	 60 40	<ul> <li>SANDSTONE: off white to translucent, very fine to very coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poorly sorted, common pyrite, rare brown lithics, common silt matrix, dominantly unconsolidated, good intergranular porosity.</li> <li>SHALE: dark grey to black, carbonaceous, micromica, fissile, hard.</li> </ul>	1.0	162	٢		Nii	Nil	Nil
1780-1785	 60 40	SHALE: as for 1775-1780m. SANDSTONE: as for 1775-1780m.	4	650	36	10	Nil	Nil	Nil
1785-1790	60 40	SANDSTONE: as for 1775-1780m. SHALE: as for 1775-1780m.	4.6	759	46	12	Nil	Nil	Nil
1790-1795	 80 20	<ul> <li>SHALE: light to medium grey, silty, carbonaceous, micromica, dominantly soft, grading into CLAYSTONE: hard in part, subfissile, rare to common pyrite.</li> <li>SANDSTONE: off white to translucent, very fine to very coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poorly sorted, common pyrite, rare brown lithics, common silt matrix, dominantly unconsolidated, good intergranular porosity.</li> </ul>	1.5	250	19	ę	IZ	Nil	Nil
1795-1800	60 40	CLAYSTONE: as for 1790-1795m. SANDSTONE: as for 1790-1795m.	4.3	704	50	13	1	Nil	Nil
1800-1805	50 50	SANDSTONE: off white, light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm. CLAYSTONE: hard in part, rare to common pyrite, subfissile.	21	3111	262	104	38	Nil	Nil
1805-1810	 60 40	SANDSTONE: as for 1800-1805m. CLAYSTONE: as for 1800-1805m.	5.3	006	47	17	Nil	Nil	Nil

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30 30 50 50 50 50 50 50 50 50 50 50 50 50 50	1810 1815	70	SANDSTONF. as for 1800-1805m							
70       CLAYSTONE: as for 1800-1805m.       6.4       1         70       SANDSTONE: as for 1800-1805m.       6.4       1         30       SANDSTONE: blue green, silty, sandy, abundant green lithics, very soft.       1.7       1.7         60       CLAYSTONE: off white, light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm.       1.7       1.7         10       COAL: dark brown to black, firm.       3.1       3.1       1.7         100       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.7         100       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.1         100       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.1         100       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.1         101       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.1         1010       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.8         1010       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.8         1010       CLAYSTONE: as for 1820-1825m.       3.1       3.1       1.8         1010       CLAYSTONE: as fo		30		8.3	1464	72	18	Nil	Nil	Nil
30       SANDSTONE: as for 1800-1805m.         60       CLAYSTONE: blue green, silty, sandy, abundant green lithics, very soft.         1.7       1.7         30       SANDSTONE: off white, light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm.         10       COAL: dark brown to black, firm.       3.1         100       CLAYSTONE: as for 1820-1825m.       3.1         101       CLAYSTONE: as for 1820-1825m.       3.1         101       CLAYSTONE: as for 1835-1840m.       1.18         101       CLAYSTONE: as for 1835-1840m.       2.4         101       CLAYSTONE: as for 1835-1840m.       2.4         101       CLAYSTONE: as for 1835-1840m.       2.4	1815-1820	70		6.4	1067	27	8	Nil	Nil	Nil
60       CLAYSTONE: blue green, silty, sandy, abundant green lithics, very soft.       1.7         30       SANDSTONE: off white, light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm.       1.7         10       COAL: dark brown to black, firm.       3.1         100       CLAYSTONE: as for 1820-1825m.       3.1         60       CLAYSTONE: as for 1820-1825m.       3.1         70       SANDSTONE: as for 1820-1825m.       3.1         80       CLAYSTONE: as for 1820-1825m.       1.8         80       CLAYSTONE: as for 1820-1825m.       1.8         80       CLAYSTONE: as for 1820-1825m.       1.8         80       CLAYSTONE: as for 1820-1825m.       2.4         70       CLAYSTONE: as for 1820-1825m.       2.4         70       CLAYSTONE: as for 1820-1825m.       2.4	)           	30	SANDSTONE: as for 1800-1805m.							
30SANDSTONE: off white, light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm.10COAL: dark brown to black, firm.100CLAYSTONE: as for 1820-1825m.100CLAYSTONE: as for 1820-1825m.100CLAYSTONE: as for 1820-1825m.3.160CLAYSTONE: as for 1820-1825m.3.13.140SANDSTONE: colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.80CLAYSTONE: as for 1820-1825m.20SANDSTONE: as for 1820-1825m.217022SANDSTONE: as for 1820-1825m.23SANDSTONE: as for 1820-1825m.243030SANDSTONE: as for 1835-1840m.	1820-1825	60	CLAYSTONE: blue green, silty, sandy, abundant green lithics, very soft.	1.7	275	10	4	Nil	Nil	Nil
argillaceous matrix, weakly calcareous, nil visual porosity, moderately firm.10COAL: dark brown to black, firm.100CLAYSTONE: as for 1820-1825m.60CLAYSTONE: as for 1820-1825m.61SANDSTONE: as for 1820-1825m.62CLAYSTONE: as for 1820-1825m.63CLAYSTONE: as for 1820-1825m.64SANDSTONE: colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.80CLAYSTONE: as for 1820-1825m.70SANDSTONE: as for 1835-1840m.70CLAYSTONE: as for 1835-1840m.70SANDSTONE: as for 1835-1840m.		30								
100CLAYSTONE: as for 1820-1825m.3.160CLAYSTONE: as for 1820-1825m.3.160CLAYSTONE: as for 1820-1825m.3.140SANDSTONE: colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.3.180CLAYSTONE: as for 1820-1825m.1.820SANDSTONE: as for 1835-1840m.1.870CLAYSTONE: as for 1835-1840m.2.430SANDSTONE: as for 1835-1840m.2.4		10			<u>,,,</u>		<u></u>			
60CLAYSTONE: as for 1820-1825m.40SANDSTONE: colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.80CLAYSTONE: as for 1820-1825m.20SANDSTONE: as for 1835-1840m.70CLAYSTONE: as for 1820-1825m.30SANDSTONE: as for 1835-1840m.30SANDSTONE: as for 1835-1840m.	1825-1835	100	CLAYSTONE: as for 1820-1825m.	3.1	549	15	4	Nil	Nil	Nil
40SANDSTONE: colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.1.880CLAYSTONE: as for 1820-1825m.1.820SANDSTONE: as for 1835-1840m.1.870CLAYSTONE: as for 1820-1825m.2.430SANDSTONE: as for 1835-1840m.2.4	1835-1840	60								
80       CLAYSTONE: as for 1820-1825m.       1.8         20       SANDSTONE: as for 1835-1840m.       1.8         70       CLAYSTONE: as for 1820-1825m.       2.4         30       SANDSTONE: as for 1835-1840m.       2.4		40	<b>SANDSTONE:</b> colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace to common green and brown lithics, common white argillaceous matrix, poor visual porosity.							
20         SANDSTONE: as for 1835-1840m.           70         CLAYSTONE: as for 1820-1825m.           30         SANDSTONE: as for 1835-1840m.	1840-1845	80		1.8	326	6	Nil	Nil	Nil	Nil
70         CLAYSTONE: as for 1820-1825m.         2.4           30         SANDSTONE: as for 1835-1840m.         2.4		20	SANDSTONE: as for 1835-1840m.							
•••••	1845-1850	70	CLAYSTONE: as for 1820-1825m.	2.4	445	10	Nil	Nil	Nil	Nil
••••		30	SANDSTONE: as for 1835-1840m.							

LANGLEY-1 WELL COMPLETION REPORT

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1850-1875	100	CLAYSTONE: light grey, blue grey, very silty grading into siltstone, carbonaceous, common lithics, soft. NOTE: 1859-1860 T.G: 14 Units CI: 2379, C2: 101, C3: 21, C4:10 1800-1801 T.G: 21 Units C1: 3111, C2: 262, C3: 104, C4:38	1.5-3	6222	24	5	IIN	Nil	Nil
1875-1880	20 80	CLAYSTONE: light blue grey, very silty grading into siltstone, carbonaceous, common multicoloured lithics, subfissile, soft to moderately firm. SANDSTONE: light to medium green grey, translucent, very fine to coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, common brown and green lithics, abundant argillaceous matrix, rare calcite, soft, poor porosity.	Ś	196	25	1	Nil	Nil	Nil
1880-1885	90 10	CLAYSTONE: as for 1875-1880m. SANDSTONE: as for 1875-1880m.	5.2	976	24	3	-	Nil	Nil
1885-1895	60 40	SANDSTONE: as for 1875-1880m. CLAYSTONE: as for 1875-1880m.	78	13664	480	89	167	IIN	Nil
1895-1897	70 30	SANDSTONE: as for 1875-1880m. CLAYSTONE: as for 1875-1880m.	7	1345	32	7		Nil	Nil
1897-1898	60 40	SANDSTONE: as for 1875-1880m. CLAYSTONE: as for 1875-1880m.	13.5	2287	105	31	20	Nil	Nil
1898-1899	60 40	SANDSTONE: as for 1875-1880m. CLAYSTONE: as for 1875-1880m.	10.2	1677	89	24	17	Nil	Nil
1899-1900	80 20	SANDSTONE: as for 1875-1880m. CLAYSTONE: as for 1875-1880m.	15	2531	94	20	20	Nil	Nil
1900-1901	09	60 SANDSTONE: as for 1875-1880m.	16	13237	513	110	100	Nil	Nil

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	40	40 CLAYSTONE: as for 1875-1880m.							
1901-1902	70	SANDSTONE: as for 1875-1880m.	87	14030	432	130	192	Nil	Nil
	30	CLAYSTONE: as for 1875-1880m.							
1902-1903	80	SANDSTONE: as for 1875-1880m.	15.5	2607	46	35	45	Nil	Nil
	20	CLAYSTONE: as for 1875-1880m.							
1903-1904	60	SANDSTONE: as for 1875-1880m.	42	7167	275	57	80	Nil	Nil
	40	CLAYSTONE: as for 1875-1880m.							
1904-1905	80	SANDSTONE: as for 1875-1880m.	54	9607	302	74	92	lin	Nil
	20	CLAYSTONE: as for 1875-1880m.							
1905-1906	80	CLAYSTONE: as for 1875-1880m.	38	6458	213	35	47	Nil	Nil
	20	SANDSTONE: as for 1875-1880m.							
1906-1907	80	SANDSTONE: as for 1875-1880m.	14	2379	101	29	26	Nil	Nii
	20	CLAYSTONE: as for 1875-1880m.							
1907-1908	70	SANDSTONE: as for 1875-1880m.	9.2	1647	34	19	ŝ	Nil	Nil
	30	CLAYSTONE: as for 1875-1880m.							
1908-1909	80	SANDSTONE: as for 1875-1880m.	11.5	1982	LL	21	5	Nil	Nil
	20	CLAYSTONE: as for 1875-1880m.							
1909-1910	60	SANDSTONE: as for 1875-1880m.	9.5	1616	72	21	12	Nil	Nil
	10	CLAYSTONE: as for 1875-1880m.							

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1910-1915									
	80	SANDSTONE: light green grey, very fine to very coarse, dominantly coarse,	11.2	1770	113	52	16	Nil	Nil
		subangular to subrounded, dominantly subrounded quartz, moderately sorted,							_
		common brown and green lithics, rare biotite, common pyrite, strong silica cement,							_
		very weakly calcareous, nil visual porosity, hard.							_
	20	CLAYSTONE: dark grey, very silty, carbonaceous, subfissile, moderately firm.							
1915-1940	90	SANDSTONE: as for 1910-1915m.							
	10	CLAYSTONE: as for 1910-1915m.							
		NOTE: INTERVAL TOTAL GAS							
		1910-1916 9-11 units							
		1916-1922 5-10 units							
		1922-1935 1.5-5 units							
1940-1945	100	SANDSTONE: as for 1910-1915m.	5.3	982	24	3	Nil	Nil	Nil
	Trace	<b>CLAYSTONE:</b> light to medium brown, carbonaceous, massive, soft.							
1945-1950	80	SANDSTONE: as for 1910-1915m.	4.8	854	42	7		Nil	Nil
	20	CLAYSTONE: as for 1940-1945m.							
1950-1955	70	SANDSTONE: as for 1910-1915m.	3.7	640	27	9	Nil	Nil	Nii
	30	CLAYSTONE: as for 1940-1945m.							
1955-1960	80	CLAYSTONE: as for 1940-1945m.	4.9	863	34	∞	Nil	Nil	Nii
	20	SANDSTONE: as for 1910-1915m.							
1960-1965	60	CLAYSTONE: as for 1940-1945m.	6.0	1067	38	7	Nil	Nil	Nil
	40	SANDSTONE: as for 1910-1915m.							

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1965-197580SANDSTONE: as for 1910-1915m.LANGLEY-1 WELL COMPLETION REPORT

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	20	20 CLAYSTONE: as for 1940-1945m.							
1975-1985	60	SILTSTONE: lig CLAYSTONE: s	4	671	34	12	1	Nil	Nil
	40	SANDSTONE: light green grey, very fine to coarse, dominantly medium, subangular to subrounded, subrounded quartz, poor to moderately sorted, common				<u>.</u>			
		multicoloured lithics, abundant argillaceous and silty matrix, trace to rare pyrite,							
		dominantly unconsolidated, soft.						-	
1985-1995	70	SANDSTONE: as for 1975-1985m.	6.0	1067	34	8	Nii	Nil	Nil
	30	SILTSTONE: as for 1975-1985m.			1				
1995-2006 TD	80	SANDSTONE: as for 1975-1985m.	2.2	366	15	14	1	Nil	Nil
	20	SILTSTONE: as for 1975-1985m.	At 2006						

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**APPENDIX 4B** 

### **GEOLOGICAL DESCRIPTIONS**

### FROM DAILY REPORTS

**LANGLEY-1** 

#### **APPENDIX 4B**

### DAILY REPORT GEOLOGICAL SUMMARY

### LANGLEY-1

	Permit: PPI	ate: 12/05/94
Geologist: Val A		

Interval ROP (Av.) Lithological and Fluorescence Description (m) (m/hr)

110-340	40-120 <i>(Av.55)</i>	Marl: medium grey to medium green grey, dominantly very calcareous, occasionally slightly calcareous, abundant fossils and shell fragments, trace very fine to fine light grey sand grains and aggregates in part, trace pyrite nodules in part, very sticky, very soft, massive, becoming more argillaceous with depth.
340-370	60-100	Marl: blue grey to grey, very soft, very fossiliferous.
370-395		Marl: as for 340-370m, but interbedded with thin beds of
		Limestone: mainly fossil fragments.
395-450	10-100 (Av.50)	Marl: dark blue grey, often brown, calcareous, trace glauconite, trace pyrite, interbedded with thin beds of
		Limestone: mainly fossil fragments, common glauconite.
450-510	40-60 (Av.50)	Marl: dominantly dark brown, some dark blue grey, calcareous, fossiliferous, rare to common glauconite, soft.
510-560	60-130 (Av.95)	Sandstone: medium to dark brown, very fine to medium, dominantly medium, often calcareous, subrounded to rounded, dominantly subrounded quartz, poor to moderately sorted, common argillaceous matrix, poor porosity.
560-775	15-200 (Av.90)	Sandstone: off white to translucent, very fine to very coarse, dominantly coarse, subrounded to rounded, dominantly rounded quartz, poor to moderately sorted, unconsolidated, good intergranular porosity, interbedded with thin beds of
		Claystone: dark brown, silty, carbonaceous.
775-805	14-30 (Av.20)	Sandstone: off white to light brown, very fine to medium, occasionally coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poo to moderately sorted, trace glauconite, trace pyrite, common fossil fragments, abundant argillaceous matrix, poor visual porosity, soft, interbedded with
		<b>Claystone:</b> dark brown, silty, calcareous, carbonaceous, rare to trace glauconite, soft.
805-840	20-40	Interbedded Sandstone and Claystone as for 775-805m.
840-900	20-40	Sandstone: brown, iron oxide staining, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, trace argillaceous matrix, good intergranular porosity.
900-914	20-40	Siltstone: medium brown grey, argillaceous, common glauconite, rare pyrite, weakly calcareous, massive, moderately firm.
914-1045	40-120	<b>Sandstone:</b> off white to translucent, very fine to granular, dominantly coarse, subangular to subrounded, dominantly subrounded quartz, poorly sorted, common t trace pyrite, rare to trace brown lithics, unconsolidated, very good intergranular porosity.

Interval ROP (Av.) Lithological and Fluorescence Description (m) (m/hr)

1045-1165	20-30	Sandstone: as for 914-1045m, but with trace Coal, interbedded with thin beds of
		Claystone: medium grey, silty, carbonaceous, soft.
1165-1185		Sandstone: off white to translucent, very fine to very coarse, dominantly coarse, subangular to subrounded, dominantly subrounded quartz, poorly sorted, common pyrite, rare lithics, unconsolidated, interbedded with minor
		Siltstone: medium to dark grey, very argillaceous, carbonaceous, firm.
1185-1220	******	Interbedded Sandstone and Siltstone with minor Coal as for 1045-1165m.
1220-1230		Sandstone: colourless, very fine to coarse, dominantly coarse, subangular to subrounded, dominantly subangular quartz, weak calcareous cement, dominantly unconsolidated.
1230-1250		Sandstone: as for 1220-1230m, but poor quality sample after wiper trip and drilling with reduced weight on bit (5,000lbs).
1250-1275	2-27 (Av.9)	Interbedded Sandstone and Siltstone: as for 1165-1185m.
1275-1300	2-30 (Av.15)	<u>Sandstone:</u> off white to translucent, mostly very fine, often grading into siltstone, subangular to subrounded, dominantly subangular quartz, well sorted, abundant dolomite cement, nil visual porosity, with minor
		sandstone, dominantly medium to coarse, unconsolidated and interbedded with dark grey, argillaceous siltstone.
1300-1355	4-23 (Av. 10)	Sandstone: as for 1275-1300m, with minor Coal and trace golden amber material (first at 1325m).
1355-1375	5-20 (Av.10)	Sandstone: off white to translucent, very fine, subangular to subrounded, dominantly subangular quartz, well sorted, strong dolomite cement, common pyrite rare golden brown amber, nil visual porosity, hard, interbedded with
		Siltstone: dark grey, carbonaceous, argillaceous, often grading to silty Claystone.
1375-1400	2-10	Claystone: dark grey, brown, very silty, grading into argillaceous
	(Av.7)	Siltstone: carbonaceous, rare pyrite, soft, sticky, very dispersive, interbedded with thin beds of Sandstone: as for 1355-1375m, but fine grained, dolomite cement.
1400-1435	2-10 (Av.8)	Claystone: as for 1375-1400m.
1435-1460	8-15 (Av. 7)	Sandstone: off white, light brown, very fine, subangular to subrounded, dominantl subangular quartz, well sorted, common dolomite cement, nil visual porosity, hard, interbedded with
		Claystone: dark grey, silty, carbonaceous, common pyrite, soft.
1460-1475	6-9 (Av.7)	Claystone: dark grey, silty, carbonaceous, rare pyrite, subfissile, soft to moderatel firm.
1475-1515	6-8 (Av.7)	Claystone: medium to dark grey, brown, weakly calcareous, carbonaceous, rare glauconite, subfissile, soft to moderately firm.
1515-1525	6-8	<b>Claystone:</b> as for 1475-1515m, interbedded with
	(Av.7)	<b>Sandstone:</b> colourless, translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subrounded quartz, moderately sorted, rare lithics, unconsolidated, good intergranular porosity.

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	1525-1595	6-8 (Av. 7)	Claystone: as for 1475-1515m.
	1595-1600	7	<b><u>Claystone</u></b> : medium grey to brown, silty, carbonaceous, slightly calcareous, rare pyrite, rare glauconite, subfissile, soft.
Ì	1600-1615	7-8	Claystone: as for 1595-1600m, but glauconite increasing with depth.
	1615-1630	5-10 (Av.7)	Claystone: as for 1595-1600m, but with trace to rare glauconite.
	1630-1710	5-10 (Av.7)	<u>Claystone:</u> as for 1595-1600m, but with common glauconite, increasing with depth over the intervals 1630-1655m, 1675-1700m.
	1710-1715	5-6	<b><u>Claystone</u></b> : as for 1595-1600m, but with abundant glauconite, increasing with depth.
	1715-1720	2-5	<b><u>Claystone</u></b> : as for 1595-1600m, but with trace to common glauconite, common pyrite.
	1720-1729	2-30	<b><u>Claystone</u></b> : as for 1595-1600m, but with abundant glauconite, abundant medium to coarse glauconite nodules, rare to common pyrite, trace fossil fragments.
	1729-1732	2-5	Claystone: as for 1720-1729m, with up to 30%
			Sandstone: colourless to translucent, fine to coarse, dominantly medium, subangular to subrounded, dominantly subangular quartz, poorly sorted, unconsolidated, trace argillaceous matrix.
	1732-1745	6-17	Interbedded <b>Sandstone</b> and <b>Claystone</b> : as for 1729-1732m, but with rare to trace golden brown amber with bright yellow fluorescence, increasing with depth to a maximum 15% at 1742-1744m.
	1745-1750	2-12 (Av.9)	Sandstone: light to medium grey, very fine to fine, dominantly fine, subangular to subrounded, dominantly subangular quartz, moderately sorted, carbonaceous, rare multicoloured lithics, abundant argillaceous matrix, nil visual porosity, interlaminated with carbonaceous material,
			sandstone becoming coarse to very coarse, dominantly very coarse, subangular to subrounded, dominantly subrounded, weak calcareous cement, good visual porosity from 1745.4m.
	1750-1751.5	30-38 (Av.34)	Shale: dark grey to black, highly carbonaceous, finely laminated, micromica, hard.
	1751.5-1758	10-60 (Av.34)	Sandstone: off white to light brown, very fine to fine, dominantly fine, subangular to subrounded, dominantly subangular quartz, moderately sorted, carbonaceous, abundant argillaceous matrix, nil visual porosity, becoming coarse below 1751.6m, granular below 1757.4m and very fine Siltstone below 1757.90m.
	1758-1758.6	60	Shale: dark grey to black, highly carbonaceous, micromica, fissile, very hard.
	1758.6- 1760	20-60 (Av.44)	Sandstone: colourless, very fine to medium, dominantly fine, subangular to subrounded, dominantly subangular quartz, moderately sorted, abundant argillaceous matrix, becoming coarse to very coarse from 1759.1m.
	1760-1775	2-11 (Av.5)	Sandstone: colourless to translucent, very fine to medium, occasionally coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poor to moderately sorted, trace argillaceous matrix, dominantly unconsolidated, good intergranular porosity, interbedded with thin beds of
			Shale: dark grey to black, carbonaceous, micromica, subfissile, moderately hard.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description
1775-1790	2.5-10 (Av.6)	Sandstone: colourless to translucent, very fine to very coarse, dominantly medium subangular to subrounded, dominantly subrounded quartz, poorly sorted, common pyrite, rare brown lithics, common silt matrix, occasionally unconsolidated, interbedded with
		Shale: as for 1760-1775m.
1790-1795	1.3-4.3 (Av.3)	<u>Claystone:</u> light to medium grey, silty, carbonaceous, micromica, rare to common pyrite, dominantly soft, often subfissile, firm.
1795-1820	5-20	<u>Sandstone:</u> off white to light brown, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, well sorted, abundant argillaceous matrix, weak calcareous cement, nil visual porosity, moderately firm, interbedded with thin beds of
		Claystone: as for 1790-1795m.
1820-1835	2-10	Claystone: light blue green, sandy, silty, abundant green lithics, very soft, sticky.
1835-1850	3-4	<u>Sandstone:</u> colourless to translucent, fine to medium, dominantly medium, subangular to subrounded, dominantly subangular quartz, moderately sorted, trace common green and brown lithics, common white argillaceous matrix, poor porosity interbedded with
		Claystone: as for 1820-1835m.
1850-1875	3-4	Claystone: light grey to blue grey, very silty, grading into
		Siltstone: carbonaceous, common lithics, soft.
1875-1885	2-8	Claystone: light blue grey, very silty grading into
	(Av.6)	Siltstone: carbonaceous, common multicoloured lithics, subfissile, soft to moderately firm.
1885-1910	6-20 (Av.10)	<u>Sandstone:</u> light to medium grey green, translucent, very fine to coarse, dominant medium, subangular to subrounded, dominantly subrounded quartz, poorly sorted, common brown and green lithics, abundant argillaceous matrix, weakly calcareous poor porosity, soft, interbedded with thin beds of
		Claystone: as for 1875-1885m.
1910-1915	7-11	Sandstone: light grey green, very fine to very coarse, dominantly coarse, subangular to subrounded, dominantly subrounded quartz, common green to brown lithics, common pyrite, rare biotite, strong silica cement, very weakly calcareous, r visual porosity, hard, with minor
		Claystone: dark grey, very silty, carbonaceous, subfissile, moderately firm.
1915-1940	8	Sandstone: as for 1910-1915m.
1940-1955	4-11	Sandstone: as for 1910-1915m, but with minor
	(Av.6)	Claystone: medium brown, carbonaceous, massive, soft.
1955-1975	3-17	Claystone: as for 1940-1955m, but interbedded with
	(Av.7)	Sandstone: as for 1910-1915m.
1975-1995	3-13	Siltstone: light grey brown, very argillaceous, grading into silty
	(Av.7)	Claystone: subfissile, soft, interbedded with minor Sandstone.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description
1995-2006	2-11 (Av.7)	Sandstone: light grey green, very fine to coarse, dominantly medium, subangular to subrounded, dominantly subrounded quartz, poor to moderately sorted, common, multicoloured lithics, abundant argillaceous and silt matrix, trace to rare pyrite, trace, to common carbonaceous material, rare biotite, poor visual porosity, dominantly unconsolidated, interbedded with minor Siltstone: as for 1975-1995m.
	Total	Depth: 2006m (driller) reached at 2100hrs on 2 June, 1994.