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PETROLEUM DIVISION

# WELL COMPLETION REPORT

# WALLABY CREEK-2

## PPL1

### OTWAY BASIN, VICTORIA

### TEXT, APPENDICES & ENCLOSURES

*WCR Wallaby Creek-2 (W1125)*

January, 1996

GFE RESOURCES LTD

PETROLEUM DIVISION

31 JAN 1996

PPL1

OTWAY BASIN, VICTORIA

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**WELL COMPLETION REPORT**

submitted

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## **1. INTRODUCTION**

### **1.1 Reasons for drilling**

Wallaby Creek-2 is an appraisal well located in PPL1, Otway Basin, Victoria (Figure 1).

Wallaby Creek-2 was designed as the first stage in the development of the Wallaby Creek field. The well was drilled to appraise the updip potential of both the Waarre Formation Unit C (Figure 2) as discovered in Wallaby Creek-1, and also the Waarre Formation Unit A unit which was penetrated at Wallaby Creek-1, but was below the gas/water contact and prognosed to be updip at the Wallaby Creek-2 location. The drilling was also to incorporate a production test to further understand the well's potential and assist in the design work for the second phase of the field development.

The Wallaby Creek gas field is located approximately 8 km north west of the township of Port Campbell in south western Victoria.

The Wallaby Creek-1 exploration well was drilled in 1981 and resulted in a discovery of a 19 m gross gas column within the Waarre Formation. A production test resulted in a gas flow of 9.8 MMscf/d through a 30/64 inch choke at 1657 psi. Subsequent remapping, new seismic and structural interpretation indicated that there was a possible updip potential of 55 m above the Waarre Formation Unit C unit penetrated at Wallaby Creek-1. This updip potential was one of the main reasons for drilling Wallaby Creek-2.

### **1.2 Main results**

Wallaby Creek-2 spudded on April 4, 1995 and was drilled to a total depth of 1745.0 m in 11 days.

The Waarre Formation Unit 'C', primary objective of the well was intersected at 1478.5 mKB (1423.8 mSS), which is only 5.8 m lower than prognosed and 46.8 m higher than at nearby Wallaby Creek-1.

There was one cased hole Drilled Stem Test (DST-1) conducted in the Eumeralla Formation between 1537.0-1560.05 mKB with a recovery of 12 bbls of brackish formation water and/or filtrate and gas to surface at a rate too small to measure. Two other cased hole Drill Stem Tests were conducted in the Waarre Formation. DST-2, between 1510.5-1516.85 mKB flowed gas to surface at a rate of 1.2 MMcfd on 1/2" choke and recovered 1.3 bbls of water/filtrate. DST-3 between 1501.0-1517.0 mKB flowed gas to surface at a rate of 4.2 MMcfd on 1/2" choke.

There were two cores cut over the basal Waarre/top Eumeralla Formations. Core-1 was cut between 1527-1529.0 mKB with 56% recovery, while Core-2 was cut between 1529.0-1647.4 mKB achieving 100% recovery.

Mud gas data, Drill Stem Test results, RFT pressures and log evaluation indicate that the entire Waarre Formation is gas bearing. Net gas pay has been estimated at 20.25 m.

Wallaby Creek-2 was consequently cased and suspended as a potential gas producer and the rig was released on May 4, 1995.

## 2. WELL HISTORY

### 2.1 Location (see Figure 3)

Surface Location:	Latitude:	38°	34'	08.913"S
	Longitude:	142°	54'	34.428"E
	AMG:	666358.09mE		5729290.82mN
Seismic:	Line:	Inline 6765		Crossline 3560

### 2.2. General Data

Well Name:	Wallaby Creek-2
Permit:	PPL1 Otway Basin, Victoria
Operator:	GFE Resources Ltd Level 6, 6 Riverside Quay South Melbourne Victoria 3205
Participants:	GFE Resources Ltd 100%
Elevation:	Ground Level (GL): 49.0m AHD Kelly Bushing (KB): 54.7m AHD ( <i>datum</i> )
	<i>(All depths are Drilled Depths relative to KB unless otherwise stated).</i>
Total Depth:	Driller: 1745.0mKB Logger: 1745.0 mKB
Drilling Commenced:	1130 hours, 4 April, 1995
Total Depth Reached:	1730 hours, 15 April, 1995
Rig Released:	0500 hours, 4 May, 1995
Well Status:	Completed Gas Well

## 2.3. Drilling Data

### 2.3.1 Drilling Contractor

Century Drilling Limited

### 2.3.2 Drilling Rig

Century Rig 11 (see Appendix 1)

### 2.3.3 Casing and Cementing Details

A 20" Conductor pipe was cemented at 10 metres (GL) prior to rig up.

#### Surface Casing

Size:	13 <sup>3</sup> / <sub>8</sub> "
Weight & Grade:	25 Joints 61 lb/ft BT&C K55
Centralisers:	296m, 274m, 262m and 251m
Float Collar:	285.97m
Shoe:	298.17m
Hole Depth:	300m
Cement:	1172 sacks Class "A" neat cement
Method:	Single plug displacement (top plug only)
Equipment:	Dowell/Schlumberger

#### Production Casing

Size:	7"
Weight & Grade:	26 Joints 26 lb/ft Buttress K55 86 Joints 29 lb/ft Buttress K55 20 Joints 29 lb/ft 8 Round K55
Centralisers:	1715m, 1693m, 1669m, 1645m, 1621m, 1597m, 1573m, 1549m, 1525m, 1501m, 1477m, 1453m, 1429m, 1405m, 1377m, 1341m, 1322m and 1295m.
Float Collar:	1705.57m
Shoe:	1718.00m
Hole Depth:	1745.0m



Cement:	266 sacks Class "G" cement in 2% Gel/water followed by 197 sacks Class "G" neat cement
Method:	Top and bottom plug displacement method
Equipment:	Dowell/Schlumberger

### Cement plugs

Wallaby Creek-2 was completed as a gas well (shut in pressure 1860 PSI) and was left with a back pressure valve installed in the Christmas tree and the surface pressure bled off.

#### 2.3.4 *Drilling Fluid*

The drilling fluid program used was that designed and recommended by M-I Australia Pty. Ltd. after consultation with GFE representatives. The well was spudded with a 3-4% KCl/native clay spud mud. Initially some gel was used to maintain viscosity but after entering the Gellibrand Marl dilutions with water and additions of Spersene CF were necessary to thin the mud to prevent problems from mud rings. After running the surface casing and drilling out the shoe track, the mud was treated with KCl/Polymer premix whilst drilling 3 metres of new hole prior to running the FIT. Subsequently the 8<sup>1</sup>/<sub>2</sub>" hole section was drilled with a 1% KCl/Polymer mud system and the mud weight was maintained at approximately 9.3 to 9.45 lb/gal. At 982 metres the KCl content was raised to 3% and maintained at this level to total depth. On each wiper and bit trip severe tight hole sections were encountered necessitating considerable time to be spent reaming. After reaching total depth (1745 metres), the wireline logging tools encountered hole bridging and after several unsuccessful clean out trips and attempted logging runs the mud viscosity was increased and the weight raised to 9.6 lb/gal. Wireline logging then proceeded but the caliper log indicated severe hole degradation. Details of the mud system used and assessment of its performance are contained in the Drilling Fluid Recap (Appendix 2).

#### 2.3.5 *Drilling Bits*

Five drilling bits were used during the drilling of Wallaby Creek-2, and a record is shown in Table 1.

#### 2.3.6 *Water Supply*

Drilling water was obtained from a domestic water main and conveyed by pipe to a pit dug at the wellsite.

### 2.3.7 Drilling History

The following summary of operations and the drilling progress chart (Figure 3) for Wallaby Creek-2 are based on tour sheets and daily drilling reports. A more detailed account can be found in the compilation of the operations summaries from daily drilling reports in Appendix 3.

A 20" conductor pipe was cemented at 10 metres (GL) prior to rig up. Wallaby Creek-2 was spudded at 1130 hours on April 4, 1995 with a 17<sup>1</sup>/<sub>2</sub>" bit. The 17<sup>1</sup>/<sub>2</sub>" hole was drilled to a depth of 300 metres, the hole was then conditioned before 13<sup>3</sup>/<sub>8</sub>" surface casing was run to a depth of 298.17 metres and cemented. After nipping up and pressure testing the BOP's, a 12<sup>1</sup>/<sub>4</sub>" bit was used to drill out the float shoe track and three metres of new hole before a Formation Integrity Test was conducted at 303 metres (equivalent mud weight 25.7ppg). The 12<sup>1</sup>/<sub>4</sub>" bit was then pulled out of hole and an 8<sup>1</sup>/<sub>2</sub>" bit and drilling assembly run in hole. Drilling 8<sup>1</sup>/<sub>2</sub>" hole with surveys then proceeded to 982 metres where a wiper trip was conducted encountering some tight hole problems. After reaming all tight hole sections drilling proceeded to depth of 1227 metres where the bit was pulled due to tight hole and low penetration rates. A new bit was run in hole and after reaming tight hole sections drilling of 8<sup>1</sup>/<sub>2</sub>" hole with surveys proceeded to 1424 metres where the bit was wiper tripped to surface and the casing bowl valve changed. After pressure testing the BOP's the bit was run back in hole and after reaming all tight hole sections drilling continued to 1527 metres where a decision was made to core. After conditioning the hole and reaming all tight hole sections, core-1 was cut over the interval 1527 to 1529 metres (the core barrel was pulled due to suspected jamming). 1.12 metres of core was recovered. After clearing formation shale from the top of the inner core barrel, the core barrel was run back in hole for core-2 which was cut over the interval 1529 to 1547.4 metres with 100% recovery. The 8<sup>1</sup>/<sub>2</sub>" bit was then run back in hole and drilling continued to 1745 metres (total depth) reached at 1730hrs April 15, 1995. The hole was then conditioned prior to running BPB wireline logs. After three unsuccessful attempts to get the logging tools to bottom and subsequent hole conditioning trips, the mud viscosity was raised to 44 seconds and the mud weight to 9.6 lb/gal. The wireline logging then proceeded with cleanout trips as necessary after which 7" casing was run to a depth of 1718 metres and cemented. The casing was displaced to a 9.35ppg brine with a fresh water/1% KCl solution emplaced across the perforation interval 1450 to 1570 metres. A CBL/VDL/GR/CCL was then run prior to perforating across the intervals - #1 1553.7-1560.05 metres, #2 1543.4-1546.4 metres, #3 1537.0 to 1543.35 metres. The hole was then scraped from 1534-1572 metres and reverse circulated. Cased hole DST-1 was subsequently run across the interval 1537.0-1560.05 metres. The perforations were then injection tested against the blind rams prior to a 7" bridge plug being set at 1533 metres and the bridge plug pressure tested to 1000 PSI. The interval #4 1510.50-1516.85 metres was perforated and cased hole DST-2 run across this interval. The hole was scraped from 1503-1522 metres followed by the DST tool being run in hole and set across the interval 1529-1533 metres to test the integrity of the bridge plug (recovered 245 metres of formation water). The brine was conditioned to maintain 9.35ppg weight after which interval #5 1502.65-1509.0 metres and #6 1501.0-1502.60 metres were perforated and the interval 1501-1509 metres scraped. A bridge plug was set at 1531 metres and the integrity of this bridge plug tested with the DST equipment. Cased hole DST-3 was run over the interval 1501 to 1509 metres. A production packer was then set 1492 metres and 4<sup>1</sup>/<sub>2</sub>" production tubing run, the Christmas tree installed, the well flowed to clean before a back pressure valve was installed in the Christmas tree and the rig released at 0500 hours May 4, 1995.

The Wellbore Schematic is found in Figure 4.

TABLE

## BIT RECORD

**Well:** Wallaby Creek-2

**GFE Representative:** Ken Smith

**Rig:**

Century Rig 11

No.	Size (inch)	Make	Type	Jets	Serial	Depth Out (m)	Mtrs Drld	Hours	Ave Rate (m/hr)	Accum Drlg Hours	Wt. on bit (000lbs)	RPM	Vert Dev (°)	Pump Press. (psi)	GPM	Mud			IADC Dull. Grade						Remarks								
																WT	VIS	PV/YP	I	O		L	B	G		O							
IRR	17½	SEC	SS33S	out	49783 7	300	290	26	11.1	26	5/10	120	½°	900	702	8.8	44	6/31	1	1			1	In		T/D							
2	8½	HTC	ATJ05	3x1 1	V78B V	1227	924	41.5	22.26	67.5	10/15	110	1°	1425	325	9.1	36	11/10	1	1			3	4	In		Torque						
Cone 3 starting to free-up - easily turned by hand, but seal drag still evident.																																	
3	8½	HTC	ATJ05	3x1 1	S57BU	1425	197	15.5	12.7	93	20/25	80/90	1¼°	1575	325	9.4	41		1	1				1	In	BT	Pick up EMR						
7 broken teeth.																																	
3RR	8½	HTC	ATJ05	3x1 1	S57BU	1527	103 (300)	9 (24.5)	11.4 (12.24)	92	28	75	¼	1375	300	9.3+	47	17/23	1	1				1	0 1/16		Core						
8 broken teeth in 2nd cone and 4 broken teeth in 3rd cone and one missing.																																	
CHI	8½	DB	CD-502	W/C	89000 9	1547.4	20.4*				25	60							4	3	W	N	X	0 1/16	0	T/D Code							
*Two runs 40-50% worn																																	
5	8½	Varel	ETD41 7	3x1 1	98053	1745	198	25	8.0	117	25	90/100	1°	1625	325				1	1				1	I		T/D						
6RR	8½	H/C	ATJ05	OU T	V78B V	Clean out before & during logging																											
7RR	6	SEC	6S4			Run on 7" casing scraper																											

## 2.4 Formation Sampling And Testing

### 2.4.1 Cuttings

Cuttings samples were collected at five-metre intervals from 6 metres to 1745 metres (T.D.) and subdivided into sets as follows;

- 1 set of unwashed and air-dried samples in calico bags 6 - 1745 metres
- 3 sets of washed and dried samples in plastic bags 6 - 1745 metres
- 1 set of washed and dried samples in Samplex trays 6 - 1745 metres

One set of washed and dried samples was subsequently made available to the Victorian Department of Energy and Minerals (Petroleum Division) sample store. The remaining samples were retained by GFE Resources Ltd.

Lithological descriptions of cuttings by the wellsite geologist are provided in Appendix 4A, and a compilation of the lithological descriptions from daily reports issued during the drilling can be found in Appendix 4B.

### 2.4.2 Cores

#### 2.4.2.1 Conventional Cores

Two conventional cores were cut in Wallaby Creek-2. Core-1 from 1527.0 to 1529.0 metres with 56% recovery and core-2 from 1529.0 to 1547.4 metres with 100% recovery. A full description of the cores and the core analysis report are found in Appendix 5, while the core photography are found in Enclosure 1. The driller depth of the core is the same as the logger depth.

#### 2.4.2.2 Sidewall Cores

A total of 24 sidewall cores were attempted, of which 24 were recovered.

All recovered sidewall core samples were checked for lithology and hydrocarbon shows, descriptions of which are contained in Appendix 6.

### 2.4.3 Testing

#### 2.4.3.1 Drill Stem Testing (Appendix 7)

Three cased hole Drill Stem Tests (DST) were conducted in Wallaby Creek-2, as outlined below. No open hole tests were run.

<i>C/H</i>	<i>DST-1</i>	<i>1553.0-1560.05/1543.4-1546.4/1537.0-1543.35 Rec: 12 bbls Formation Water &amp; GTS @ RISTM</i>	<i>Eumeralla</i>
<i>C/H</i>	<i>DST-2</i>	<i>1510.5-1516.85 1.2 MMCFD, 200psi, ½" Choke - Recovered 1.3 bbls Formation Water</i>	<i>Waarre</i>
<i>C/H</i>	<i>DST-3</i>	<i>1501-1517 4.2 MMCFD, 600 psi, ½" Choke.</i>	<i>Waarre</i>

Analysis of recovered gas and water samples are included in Appendices 8A and 8B respectively.

Wallaby Creek-2 was drilled to a total depth of 1745 metres, and after wireline logs were run 7" production casing was set to a depth of 1718 metres. After displacing the casing to a 9.35lb/gal brine, the casing was perforated across three intervals - (Interval-1 1553.0-1560.05 metres, Interval-2 1543.4-1546.4 metres, Interval-3 1537.0-1543.35 metres) and after the perforations were scraped, DST-1 was run across the interval 1537.0-1560.05 metres.

DST-1 was a cased hole test conducted on 25 April 1995 over the interval 1537.0-1560.05 metres to evaluate the upper portion of the Eumeralla Formation sandstones.

The tool was opened at 1352 hours for a five-minute Pre-Flow, however the tool did not shut-in for the initial shut in period hence was open for 225 minutes flowing time. The test tool was opened with both the floor manifold and the bubble hose closed. No surface indication of pressure was observed for the first four minutes, but thereafter increased gradually and by 1359 hours had reached 4.5 PSI when the manifold was opened to the flare line and the pressure released. After the pressure was released the well continued to flow with a moderate air blow until 1457 hours when the manifold and the bubble hose were closed. Subsequently the manifold pressure increased to 1.5 PSI and the pressure was released to the flare pit, after which the manifold was closed until 1516 hours. By this time the pressure had increased to 1 PSI, the manifold was opened through a  $\frac{1}{4}$ " choke with a flowing pressure of  $\frac{1}{2}$  PSI which gradually decreased to 0 PSI by 1540 hours and remained at 0 PSI until the tool was closed in at 1546 hours. The tool was then shut-in for 91 minutes before the test string was equalised with the annulus and the tool pulled. Twelve barrels of formation water were recovered.

Data and observations recorded during DST-1, including charts from the three mechanical and one electronic gauge, are included in Appendix 7.

After setting a bridge plug at 1533 metres, the bridge plug was pressure tested to 1000 PSI before the interval 1510.5-1516.85 metres was perforated in preparation of running DST-2.

DST-2 was a cased hole test conducted on 26 April 1995 over the interval 1510.5-1516.85 metres to evaluate the central portion of the Waarre Formation Unit "A" sandstones.

The tool was opened at 1645 hours for a 5.5 minute Pre-Flow through a  $\frac{1}{4}$ " choke, during which time the flowing pressure gradually increased from zero to  $2\frac{1}{4}$  PSI. The tool was then shut in for  $5\frac{1}{4}$  minutes before being re-opened at 1656 hours for a 232 minute final flow period. The tool was opened through a  $\frac{1}{4}$ " choke with a flowing pressure of  $1\frac{3}{4}$  PSI after which the flowing pressure fluctuated between 8 and 34 PSI until fluid reached the surface at 1715 hours. After fluid reached the surface the flowing pressure increased to 160 PSI and by 1715 hours the pressure had reached 550 PSI when the manifold choke size was changed to  $\frac{1}{2}$ ". For the remainder of the flow period the flowing pressure fluctuated between 125 and 200 PSI. The tool was shut in at 2047 hours for a 505 minute final shut-in time after which the test tool was opened to fill the sample chamber with any fluids before the pressure was blown down and the test tool pulled. Maximum gas flow rate through the  $\frac{1}{2}$ " choke was 1.2 MMCFD at 200 PSI. 1.3 bbls (75 metres) of formation water was recovered.

The casing scraper was then run in hole and worked between 1503 and 1522 metres (the bridge plug was tagged at 1533 metres with 10000 lb weight). The test tool was then run in hole to test the integrity of the bridge plug (recovered 245 metres of formation water). The casing was then perforated across Interval-5 1502.65-1509.0 metres and across Interval-6 1501.0-1502.6 metres. The interval 1501-1509 metres was scraped before a Delta Bridge Plug was set at 1531 metres. The test tool was then run in hole with 300 metres of water cushion and used to test the integrity of the bridge plug at 1531 metres before running DST-3.

DST-3 was a cased hole test conducted on 29 April, 1995 over the interval 1501.0-1517.0 metres to evaluate the upper and central portions of the Waarre Formation Unit "A" sandstones.

The tool was opened at 0704 hours for a 341 minute flow period through a 1/4" choke. 300 metres of water cushion was used. Upon opening the tool the flowing pressure was zero, but gradually increased to 19 PSI by 0715 hours when the water cushion reached the surface. The choke was then changed to 1/2". Thereafter the pressure increased rapidly until by 0721 hours the flowing pressure had reached 510 PSI and subsequently fluctuated between 500 and 550 PSI until the manifold was closed at 0726 hours to permit the re-lighting of the flare. While closed at the manifold the surface pressure climbed to a maximum of 1200 PSI before the manifold was again opened through a 1/2" choke at 0733 hours. After this the manifold was intermittently opened and closed to allow relighting the flare every time it went out until 0804 hours when the manifold was opened through a 1/4" choke. The flowing pressure then stabilised around 1460 PSI until at 0844 hours the manifold was switched to the 1/2" choke and thereafter for the remainder of the test the flowing pressure fluctuated between 600 and 675 PSI with the final flowing pressure being relatively static around 610 PSI. It should be noted that on retrieval of the bottom hole pressure charts, these indicated the bottomhole shut-in tool was not fully open during the final flow. This restricted the final flow. The tool was closed at 1246 hours for a 120 minute shut-in period before the tool was pulled free at 1445 hours and the test string reverse circulated. Gas flow rate was calculated at 4.2 MMCFD through a 1/2" choke at 660 PSI. 2.3 bbls of gas cut fluid was recovered upon reverse circulating the test string.

#### 2.4.3.2 Wireline Formation Testing

Repeat Formation Test (RFT) pressure readings were carried out in Wallaby Creek-2, the results of which are contained in Appendix 9.

## 2.5 Logging And Surveys

### 2.5.1 *Mud Logging*

A standard skid-mounted unit equipped for continuous recording of depth, rate of penetration (ROP), mud gas, pump rate and mud volume data, as well as intermittent mud and cuttings gas (blender) analysis was operative from spud until the 7" production casing was cemented. The Formation Evaluation Log (i.e., "Mud Log") at 1:500 scale is provided in Enclosure 3, and a Gas Ratio Analysis Log at 1:1000 scale is provided in Enclosure 4.

### 2.5.2 Wireline Logging

Wireline logging was performed by BPB using a standard truck-mounted unit. Only one logging suite was carried out at total depth and comprised the following:-

Run	Logs	Interval (mKB)	BHT (c°)	Hrs since circulation stopped	Comments
1	DLL-MLL-SP-GR-Cali-Sonic	1745.0-298.2	53	7	GR to surface
2	Density-Neutron-PE-Cali-GR	1547.0-795.0	57	12.5	
3	Multi Button Dipmeter	1741.0-1350.0	60	16.0	
4	Acoustic Imaging Tool	1733.0-1400.0	62	21.0	
5	Repeat Formation Sampler	1481.0-1678.0	59.1		41 Pretests attempted
6	Velocity Check Shots	T.D - Surface	N/A		
7	Sidewall Cores				24 attempted 24 Recovered

### Mud Properties While Logging

Mud Type	KCL Polymer
Density (ppg)	9.6
Viscosity (sec)	43.0
pH	9.2
Fluid Loss (cc)	5.3
Rm @ Temp °C	0.217 @ 21.7
Rmf @ Temp °C	0.176 @ 18.8
Rmc @ Temp °C	0.345 @ 20.7

### 2.5.3 Deviation Surveys

Totco deviation surveys were carried out periodically throughout the drilling of Wallaby Creek-2, with results as shown in Table 2. Using this data a maximum radius of deviation was calculated by summing the products of the component of horizontal shift [ $interval\ length \times \sin(deviation\ angle)$ ] for each interval. This indicates that the bottom hole location was within a 26-metre radius, which equates to an overall deviation of no more than one degree.

**TABLE 2**

**Totco Deviation Surveys**

<i>Depth (mKB)</i>	<i>Deviation (degree)</i>	<i>Horizontal Shift (metres)</i>
11	0	0.00
28	¾	0.22
84	1	0.98
137	½	0.46
192	¼	0.24
249	½	0.50
287	½	0.33
356	1	1.20
557	½	1.75
757	¾	2.62
969	¾	2.77
1171	1	3.53
1377	1¼	4.49
1578	1¼	4.38
1722	1	2.51
<b>Maximum Radius of Deviation</b>		<b>26.00</b>

**2.5.4**    *Velocity Survey*

A Velocity Survey was carried out by Velocity Data, and the raw data was corrected to obtain time versus depth values below the seismic reference datum (Mean Sea Level). The Velocity Survey is found in Appendix 10.

**3.    GEOLOGY**

**3.1    Stratigraphy**

The section penetrated in Wallaby Creek-2 is interpreted to have formation tops as shown in Table 3 based on consideration of rate of penetration, cuttings descriptions, palynological analyses and wireline logs. Unless stated otherwise, depths mentioned in this report will be referenced on the well datum, the kelly bushing (KB).



**TABLE 3**

**WALLABY CREEK-2 FORMATION TOPS AND THICKNESSES**

Stratigraphic Unit	Depth		Thickness
	(mKB)	(mSS)	(m)
<b>Heytesbury Group</b>	5.7	+49.0	439.8
Port Campbell Limestone	5.7	+49.0	120.3
Gellibrand Marl	126.0	-71.3	307.0
Clifton Formation	433.0	-378.3	12.5
<b>Nirranda Group</b>	445.0	-390.3	133.0
Narrawaturk Marl	445.0	-390.3	78.5
Mepunga Formation	523.5	-468.8	54.0
<b>Wangerrip Group</b>	578.0	-523.3	315.0
Dilwyn Formation	578.0	-523.3	202.0
Pember Mudstone	780.0	-725.3	56.0
Pebble Point Formation	836.0	-781.3	41.5
K-T Shale	877.5	-822.8	15.5
<b>Sherbrook Group</b>	893.0	-838.3	603.5
Paaratte Formation	893.0	-838.3	375.5
Skull Creek Mudstone	1268.5	-	125.5
Nullawarre Greensand (equiv.)	Absent	Absent	-
Belfast Mudstone	1394.0	-1339.3	84.5
Waarre Formation	1478.5	-1423.8	49.6
Unit D †	absent	-	0.0
Unit C	1478.5	-1423.8	7.6
Unit B	1486.1	-1431.4	10.4
Unit A	1496.5	-1441.8	31.6
<b>Otway Group</b>	1528.1	-1473.4	216.9+
Eumeralla Formation	1528.1	-1473.4	216.9+
<b>Total Depth (Driller)</b>	1745	-1691.3	
<b>Total Depth (Logger)</b>			

† Also known as the *Flaxman Formation*

**3.2 Lithological Description**

The following is a summary of the lithological units observed in Wallaby Creek-2 compiled from the descriptions by the wellsite geologist (Appendix 4), as well as the Mud Log (Enclosure 2), and sidewall core descriptions (Appendix 6).

### 3.2.1 *Heytesbury Group (Surface - 445.0 metres)*

#### 3.2.1.1 Port Campbell Limestone (Surface - 126.0 metres)

Calcarenite: light grey to light yellow orange, sucrosic to cryptocrystalline texture, occasionally medium grey and grading to marl, common black carbonaceous detritus, trace glauconite, common to abundant fossil fragments including bryozoa, shell fragments, foraminifer, sponge spicules, gastropods and echinoid spines, friable, fair inferred porosity, grading with depth to

Calcarenite: light grey, very fine to dominantly fine grained, sucrosic texture, trace fossil fragments, slightly argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.

#### 3.2.1.2 Gellibrand Marl (126.0 - 433.0 metres)

Marl: medium brown grey, medium to dark grey, occasionally medium green grey, common fossil fragments including bryozoa, shell fragments, foraminifer, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace pyrite often as fossil replacement, trace micromica, rare very fine to medium quartz sand grains, soft, non-fissile.

#### 3.2.1.3 Clifton Formation (433.0 - 445.0 metres)

Calcarenite: red brown at top becoming dominantly off white with depth, very coarse grained, abundant dark brown iron oxide pellets, common bryozoa and shell fragments, trace to abundant very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, friable to moderately hard, fair inferred porosity.

### 3.2.2 *Nirranda Group (445.0 - 578.0 metres)*

#### 3.2.2.1 Narrawaturk Marl (445.0 - 523.5 metres)

Marl: medium to dark brown, common glauconite, common fossil fragments, trace pyrite, trace micromica, soft, non-fissile.

#### 3.2.2.2 Mepunga Formation (523.5 - 578.0 metres)

Sandstone: medium brown, very fine to grit, dominantly medium to coarse, subrounded, moderately sorted, trace strong calcareous cement, common to abundant medium brown argillaceous matrix, strong brown stain on quartz grains, trace brown iron oxide pellets, trace fossil fragments, friable, poor inferred porosity, interbedded with and grading to

Claystone: medium to dark brown, moderately carbonaceous, often abundant dispersed very fine to grit brown stained quartz grains, common fossil fragments, trace glauconite, trace micromica, soft, very dispersive, non-fissile.

### 3.2.3 *Wangerrip Group (578.0 - 893.0 metres)*

#### 3.2.3.1 *Dilwyn Formation (578.0 - 780.0 metres)*

Sandstone: light brown grey, very fine to grit, dominantly medium to coarse, subangular to rounded, dominantly subrounded, moderately sorted, weak silica cement, common to abundant medium to dark brown argillaceous matrix, common light brown stain on quartz grains, trace grey green cherty lithics, trace black to dark brown carbonaceous detritus, trace pyrite, friable, fair to good inferred porosity, grading to and interbedded with

Claystone: medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive, non-fissile.

#### 3.2.3.2 *Pember Mudstone (780.0 - 836.0 metres)*

Claystone: medium to dark brown, moderately to very silty, common to abundant very fine dispersed quartz sand grains, trace pyrite and marcasite, rare black carbonaceous detritus, trace micromica and coarse muscovite flakes, very soft, very dispersive, non-fissile.

#### 3.2.3.3 *Pebble Point Formation (836.0 - 877.5 metres)*

Sandstone: medium brown, very fine to grit, dominantly very coarse, angular to subangular, poor to moderately sorted, weak silica cement, common to abundant dark brown iron oxide rich argillaceous matrix, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable, fair inferred porosity, in general becoming cleaner with better porosity with depth, interbedded with and grading to

Claystone: medium to dark green, medium to dark brown, slightly silty, abundant dispersed very fine to grit quartz sand grains in part, common glauconite in part, trace black carbonaceous detritus, trace coarse muscovite flakes and micromica, soft, very dispersive, non-fissile.

#### 3.2.3.4 *"K-T" Shale (877.5-893.0)*

Claystone: dark brown grey, silty, fine quartz grains, dispersive.

### 3.2.4 *Sherbrook Group (893.0 - 1496.5 metres)*

#### 3.2.4.1 *Paaratte Formation (893.0 - 1268.5 metres)*

(893.0 - 1206.0 metres)

Sandstone: light brown grey to very light brown, very fine to pebbly, dominantly very coarse to grit, angular to subrounded, very poorly to poorly sorted, weak silica cement, trace strong pyrite cement, common yellow to orange to red quartz grains in general decreasing to trace with depth, trace coarse green mica flakes, trace black carbonaceous detritus, trace to common red green and grey volcanic cherty lithics, friable, fair to very good visual porosity interbedded with and occasionally grading to;

Claystone: medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace to common medium brown cryptocrystalline dolomite, trace to common pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive, non-fissile.

(1206.0 - 1228.0 metres)

Claystone: light grey, very calcareous, slightly silty, often very finely arenaceous, common very fine to fine partially altered feldspar grains, common pyrite, trace to common medium brown cryptocrystalline dolomite, trace micromica, trace black coaly detritus, firm, very dispersive, non-fissile interbedded with and grading to

Sandstone: light grey, very fine and grit, angular to subangular, poorly sorted, moderate silica and calcareous cements, abundant white argillaceous matrix in part, common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace black coaly detritus, trace to common pyrite, moderately hard, very poor visual porosity.

(1228.0 - 1268.5 metres)

Sandstone: very light brown, very fine to medium, dominantly fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white argillaceous matrix, trace very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity interbedded with and grading to

Claystone: medium grey to medium brown, very silty in part, common medium brown cryptocrystalline dolomite, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus, trace pyrite, firm, very dispersive, non to slightly subfissile.

#### 3.2.4.2 Skull Creek Mudstone (1268.5 - 1394.0 metres)

Claystone: medium grey to dark brown grey, very silty in part, moderately calcareous, common medium brown cryptocrystalline dolomite occasionally with very fine to fine glauconite grains, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus and flecks, common pyrite, firm, very dispersive, non to slightly subfissile, interlaminated/interbedded with and grading to

Sandstone: very light brown to light brown grey, very fine to fine, occasionally medium to coarse with fair to good visual porosity, dominantly fine to very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white to light brown argillaceous matrix, trace to common very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity.

### 3.2.4.3 Nullawarre Greensand (equivalent)

Absent

### 3.2.4.4 Belfast Mudstone (1394.0 - 1478.5m)

Claystone: medium to dark grey at top becoming medium to dark brown grey with depth, moderately to very silty, moderately calcareous, moderately carbonaceous decreasing with depth, common very fine off white partially altered feldspar grains, common to abundant glauconite increasing with depth, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite increasing with depth, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile.

### 3.2.4.5 Waarre Formation (1478.5 - 1528.1 metres)

#### 3.2.4.5.1 Unit D (absent)

#### 3.2.4.5.2 Unit C (1478.5 - 1486.1 metres)

Sandstone: light grey, very fine to grit, dominantly medium, poor to moderately sorted, weak to moderate silica cement, nil to trace white argillaceous matrix, trace black coal detritus, common pyrite, friable, good visual porosity.

#### 3.2.4.5.3 Unit B (1486.1 - 1496.5 metres)

Claystone: medium brown grey to medium grey, moderately to very silty, trace very fine to fine dispersed quartz and partly altered feldspar grains, trace glauconite, common pyrite, trace to common micromica, firm, very dispersive, slightly subfissile, with minor interlaminated

Sandstone: off white to medium brown, very fine to fine, dominantly very fine, subangular, moderately sorted, strong calcareous and dolomite cements, abundant off white argillaceous matrix in part, trace black coaly detritus, common pyrite, hard, very poor visual porosity.

#### 3.2.4.5.3 Unit A (1496.5 - 1528.1 metres)

Sandstone: light brown, very fine to grit, dominantly fine to medium, moderately sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common to abundant light brown partially altered feldspar grains, trace green grey and brown lithics, common black coal detritus, trace pyrite, moderately hard, very poor visual porosity at top increasing to fair by 1508m and decreasing to very poor by 1525m, with minor interlaminated

Claystone: medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, abundant very fine to fine quartz grains in part grading to sandstone, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.

### 3.2.5 *Otway Group (1528.1 - 1745.0 metres)*

#### 3.2.5.1 *Eumeralla Formation (1528.1 - 1745.0 metres)*

Claystone: light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non-calcareous, firm, moderately dispersive, non-fissile, interbedded and laminated with

Sandstone: light to medium grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, moderate silica cement, weak to occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, trace coarse brown mica flakes, moderately hard, very poor visual porosity.

### 3.3 **Hydrocarbon Indications**

#### 3.3.1 *Mud Gas Readings*

- Down to 1125 metres no gas was detected.
- Over the interval 1125 - 1269 metres (the base of the Paaratte Formation) mud gas readings were only;

Total Gas : 0.1 units  
C<sub>1</sub> : 1 - 10 ppm

- From 1269 metres down to 1394 metres (the Skull Creek Mudstone) gas levels generally increased slowly with depth, ranging;

Total Gas : 0.2 - 2.7 units  
C<sub>1</sub> : 18 - 416 ppm  
C<sub>2</sub> : 0 - 59 ppm  
C<sub>3</sub> : 0 - 1 ppm  
C<sub>4</sub> : 0

- Over the interval 1394 - 1478.5 metres (corresponding to the Belfast Mudstone) gas readings in general increased with depth and ranged;

Total Gas : 3 - 8.4 units  
C<sub>1</sub> : 507 - 1400 ppm  
C<sub>2</sub> : 32 - 172 ppm  
C<sub>3</sub> : 1 - 27 ppm  
C<sub>4</sub> : 0 - 3 ppm

(Surface - 126.0 metres)

Calcarenite: light grey to light yellow orange, sucrosic to cryptocrystalline texture, occasionally medium grey and grading to marl, common black carbonaceous detritus, trace glauconite, common to abundant fossil fragments including bryozoa, shell fragments, foraminifer, sponge spicules, gastropods and echinoid spines, friable, fair inferred porosity, grading with depth to

Calcarenite: light grey, very fine to dominantly fine grained, sucrosic texture, trace fossil fragments, slightly argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.

(126.0 - 433.0 metres)

Marl: medium brown grey, medium to dark grey, occasionally medium green grey, common fossil fragments including bryozoa, shell fragments, foraminifer, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace pyrite often as fossil replacement, trace micromica, rare very fine to medium quartz sand grains, soft, non-fissile.

(433.0 - 445.0 metres)

Calcarenite: red brown at top becoming dominantly off white with depth, very coarse grained, abundant dark brown iron oxide pellets, common bryozoa and shell fragments, trace to abundant very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, friable to moderately hard, fair inferred porosity.

(445.0 - 523.5 metres)

Marl: medium to dark brown, common glauconite, common fossil fragments, trace pyrite, trace micromica, soft, non-fissile.

(523.5 - 578.0 metres)

Sandstone: medium brown, very fine to grit, dominantly medium to coarse, subrounded, moderately sorted, trace strong calcareous cement, common to abundant medium brown argillaceous matrix, strong brown stain on quartz grains, trace brown iron oxide pellets, trace fossil fragments, friable, poor inferred porosity, interbedded with and grading to

Claystone: medium to dark brown, moderately carbonaceous, often abundant dispersed very fine to grit brown stained quartz grains, common fossil fragments, trace glauconite, trace micromica, soft, very dispersive, non-fissile.

(578.0 - 780.0 metres)

Sandstone: light brown grey, very fine to grit, dominantly medium to coarse, subangular to rounded, dominantly subrounded, moderately sorted, weak silica cement, common to abundant medium to dark brown argillaceous matrix, common light brown stain on quartz grains, trace grey green cherty lithics, trace black to dark brown carbonaceous detritus, trace pyrite, friable, fair to good inferred porosity, grading to and interbedded with

Claystone: medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive, non-fissile.

(780.0 - 836.0 metres)

Claystone: medium to dark brown, moderately to very silty, common to abundant very fine dispersed quartz sand grains, trace pyrite and marcasite, rare black carbonaceous detritus, trace micromica and coarse muscovite flakes, very soft, very dispersive, non-fissile.

(836.0 - 877.5 metres)

Sandstone: medium brown, very fine to grit, dominantly very coarse, angular to subangular, poor to moderately sorted, weak silica cement, common to abundant dark brown iron oxide rich argillaceous matrix, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable, fair inferred porosity, in general becoming cleaner with better porosity with depth, interbedded with and grading to

Claystone: medium to dark green, medium to dark brown, slightly silty, abundant dispersed very fine to grit quartz sand grains in part, common glauconite in part, trace black carbonaceous detritus, trace coarse muscovite flakes and micromica, soft, very dispersive, non-fissile.

(877.5-893.0)

Claystone: dark brown grey, silty, fine quartz grains, dispersive.

(893.0 - 1268.5 metres)

Sandstone: light brown grey to very light brown, very fine to pebbly, dominantly very coarse to grit, angular to subrounded, very poorly to poorly sorted, weak silica cement, trace strong pyrite cement, common yellow to orange to red quartz grains in general decreasing to trace with depth, trace coarse green mica flakes, trace black carbonaceous detritus, trace to common red green and grey volcanic cherty lithics, friable, fair to very good visual porosity interbedded with and occasionally grading to;



Claystone: medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace to common medium brown cryptocrystalline dolomite, trace to common pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive, non-fissile.

(1206.0 - 1228.0 metres)

Claystone: light grey, very calcareous, slightly silty, often very finely arenaceous, common very fine to fine partially altered feldspar grains, common pyrite, trace to common medium brown cryptocrystalline dolomite, trace micromica, trace black coaly detritus, firm, very dispersive, non-fissile interbedded with and grading to

Sandstone: light grey, very fine and grit, angular to subangular, poorly sorted, moderate silica and calcareous cements, abundant white argillaceous matrix in part, common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace black coaly detritus, trace to common pyrite, moderately hard, very poor visual porosity.

(1228.0 - 1268.5 metres)

Sandstone: very light brown, very fine to medium, dominantly fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white argillaceous matrix, trace very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity interbedded with and grading to

Claystone: medium grey to medium brown, very silty in part, common medium brown cryptocrystalline dolomite, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus, trace pyrite, firm, very dispersive, non to slightly subfissile.

(1268.5 - 1394.0 metres)

Claystone: medium grey to dark brown grey, very silty in part, moderately calcareous, common medium brown cryptocrystalline dolomite occasionally with very fine to fine glauconite grains, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus and flecks, common pyrite, firm, very dispersive, non to slightly subfissile, interlaminated/interbedded with and grading to

Sandstone: very light brown to light brown grey, very fine to fine, occasionally medium to coarse with fair to good visual porosity, dominantly fine to very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white to light brown argillaceous matrix, trace to common very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity.

(1394.0 - 1478.5m)

Claystone: medium to dark grey at top becoming medium to dark brown grey with depth, moderately to very silty, moderately calcareous, moderately carbonaceous decreasing with depth, common very fine off white partially altered feldspar grains, common to abundant glauconite increasing with depth, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite increasing with depth, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile.

(1478.5 - 1486.1 metres)

Sandstone: light grey, very fine to grit, dominantly medium, poor to moderately sorted, weak to moderate silica cement, nil to trace white argillaceous matrix, trace black coal detritus, common pyrite, friable, good visual porosity.

(1486.1 - 1496.5 metres)

Claystone: medium brown grey to medium grey, moderately to very silty, trace very fine to fine dispersed quartz and partly altered feldspar grains, trace glauconite, common pyrite, trace to common micromica, firm, very dispersive, slightly subfissile, with minor interlaminated

Sandstone: off white to medium brown, very fine to fine, dominantly very fine, subangular, moderately sorted, strong calcareous and dolomite cements, abundant off white argillaceous matrix in part, trace black coaly detritus, common pyrite, hard, very poor visual porosity.

(1496.5 - 1528.1 metres)

Sandstone: light brown, very fine to grit, dominantly fine to medium, moderately sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common to abundant light brown partially altered feldspar grains, trace green grey and brown lithics, common black coal detritus, trace pyrite, moderately hard, very poor visual porosity at top increasing to fair by 1508m and decreasing to very poor by 1525m, with minor interlaminated

Claystone: medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, abundant very fine to fine quartz grains in part grading to sandstone, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.

(1528.1 - 1745.0 metres)

Claystone: light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non-calcareous, firm, moderately dispersive, non-fissile, interbedded and laminated with

Sandstone: light to medium grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, moderate silica cement, weak to occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, trace coarse brown mica flakes, moderately hard, very poor visual porosity.

### 3.3 Hydrocarbon Indications

#### 3.3.1 *Mud Gas Readings*

- Down to 1125 metres no gas was detected.
- Over the interval 1125 - 1269 metres (the base of the Paaratte Formation) mud gas readings were only;

Total Gas : 0.1 units  
C<sub>1</sub> : 1 - 10 ppm

- From 1269 metres down to 1394 metres (the Skull Creek Mudstone) gas levels generally increased slowly with depth, ranging;

Total Gas : 0.2 - 2.7 units  
C<sub>1</sub> : 18 - 416 ppm  
C<sub>2</sub> : 0 - 59 ppm  
C<sub>3</sub> : 0 - 1 ppm  
C<sub>4</sub> : 0

- Over the interval 1394 - 1478.5 metres (corresponding to the Belfast Mudstone) gas readings in general increased with depth and ranged;

Total Gas : 3 - 8.4 units  
C<sub>1</sub> : 507 - 1400 ppm  
C<sub>2</sub> : 32 - 172 ppm  
C<sub>3</sub> : 1 - 27 ppm  
C<sub>4</sub> : 0 - 3 ppm

- Between 1478.5 metres down to 1527 metres (corresponding to the Waarre Formation Unit C, B and A) mud gas readings were generally very high in sandstones ranging from 780 units to 2432 units with 25 to 65 units present in the claystones;

Total Gas	:	25 - 2432 units
C <sub>1</sub>	:	3201 - 137410 ppm
C <sub>2</sub>	:	107 - 5324 ppm
C <sub>3</sub>	:	51 - 2175 ppm
C <sub>4</sub>	:	13 - 820 ppm

- In the interval 1527 - 1745 metres (corresponding to the Eumeralla Formation) gas readings were mostly in the range of 4 - 62 units, with some sandstone intervals ranging 150 - 720 units.

Total Gas	:	4.0 - 62 units
C <sub>1</sub>	:	782 - 10944 ppm
C <sub>2</sub>	:	24 - 396 ppm
C <sub>3</sub>	:	8 - 1794 ppm
C <sub>4</sub>	:	0 - 61 ppm

The best readings were

Depth	:	1638.5 m	1555.0 m	1656.5 m
Total Gas	:	720 units	195 units	156 units
C <sub>1</sub>	:	129780 ppm	30200 ppm	27869ppm
C <sub>2</sub>	:	3558 ppm	774 ppm	1063 ppm
C <sub>3</sub>	:	1794 ppm	394 ppm	358 ppm
C <sub>4</sub>	:	482 ppm	117 ppm	116 ppm

### 3.3.2 *Fluorescence*

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

#### 3.3.2.1 Cuttings

No fluorescence or oil staining were observed in cuttings from Wallaby Creek-2.

#### 3.3.2.2 Sidewall Cores

No fluorescence was observed in any sidewall core from Wallaby Creek-2.

### 3.3.4 Drill Stem Test Gas Sample

During DST-1, which was conducted to evaluate the top of the Waarre Formation Unit A sandstone, a gas sample was taken after gas was detected at surface during the Main Flow. Analysis of this sample, given as part of Appendix 8, indicates the gas to be relatively dry (92.3% methane), and essentially devoid of carbon dioxide (the small amount reported could be from air in the drill pipe).

### 3.4 Palynology

15 sidewall core samples between 1392.0 and 1599.5 m and 2 samples from Core-2 were sent to Alan Partridge of Biostrata Pty Ltd for palynological analysis. The report is included in Appendix 11.

### 3.5 Structure

The Waarre 3D detailed structure mapping indicated a dull or poorer amplitude in the area at the top of the structure. This area was also considered the most favourable drilling location for maximising reserve drainage and optimal reservoir management for this strong water drive reservoir. The nearest location of better amplitude was approximately 10 metres down dip which would have resulted in a loss of access to approximately 0.5 Bscf of recoverable gas.

To date no other well in the Waarre 3D seismic coverage had penetrated a similar dull amplitude; therefore there was concern that this feature may have indicated a bald high or reservoir of poorer quality than that penetrated a Wallaby Creek-1 with the possibility that a sidetrack might have been necessary.

The following table 4 shows the predicted versus actual formation tops encountered in the well.

**Table 4**

<b>Predicted vs Actual Tops</b>			
<b>Stratigraphic Unit</b>	<b>Predicted Depth (RKB) (m)</b>	<b>Actual Depth (RKB) (m)</b>	<b>+/- (m)</b>
Port Campbell Limestone/ Gellibrand Marl	6	5.7	+0.3
Clifton Formation	434	433.0	+1.0
Mepunga Formation	534	523.5	+10.5
Dilwyn Formation	584	578.0	+6.0
Pebble Point Formation	827	836.0	-9.0
Paaratte Formation	890	893.0	-3.0
Skull Creek Mudstone	1318	1268.5	+49.5
Nullawarre Equiv	Abs	Abs	-
Belfast Mudstone	1403	1394.0	+9.0
Waarre Formation (Top Porosity)	1473	1478.5	-5.8
Eumeralla Formation	1556	1528.1	-27.9
T.D	1697		

Table 4 above shows that actual Formation tops came in very close to their prognosed values. The Waarre Formation (top porosity) was only 5.8 m lower to prognosis. Therefore Wallaby Creek-2 was 46.8 m higher than Wallaby Creek-1 confirming the prognosis. The Nullawarre Greensand and top of the Belfast Mudstone are absent due to faulting.

### 3.6 Petrophysics

#### 3.6.1 Core Analysis

There were two cores cut in Wallaby Creek-2. Core-1 was cut between 1527-1529 mKB (driller depth = logger depth) with 56% recovery. The core was cut at the very base of the Waarre Formation Unit 'A' and recovered a massive sandstone described as light brown, very fine to medium grained, subangular, moderately to well sorted, with moderate silica and calcareous cement.

Ambient porosities in Core 1 ranged between 10 and 13%, while permeability in the better reservoir sections varied between 1-2 mD.

Core-2 was cut between 1529-1547.4 mKB (driller depth = logger depth) at the top of the Eumeralla Formation. Core 2 consisted of sandstone with minor claystone. The sandstone was described as massive, structureless, light grey, very fine to coarse, with moderate silica cement, nil to strong calcareous cement, common off-white argillaceous matrix, common lithics.

Ambient porosities in Core 2 ranged between 10-20% and permeabilities between 0.2 and 16 mD. At 2500 psi overburden pressure porosities are reduced by approximately 1 p.u., while permeabilities of 2 and 16 mD are reduced to 1 and 6 mD.

The core gamma log indicates that intervals displaying highest gamma ray values have highest permeability.

#### 3.6.2 Log evaluation

Log evaluation was performed over the primary objective, the Waarre Formation and also over the top part of the underlying Eumeralla Formation.

Log analysis was performed using Crocker Data Processing PETROLOG software.

The caliper log shows that over the analysed reservoir intervals the hole is in good condition. All logs appear to be reading adequately. Results of the log evaluation have been included in Enclosure 5.

#### Waarre Formation

Top porosity at Wallaby Creek-2 was intersected at 1479.0 mKB (-1424.3 mSS), which is 46.8 m higher than at nearby Wallaby Creek-1 (-1471.1 mSS).

Drill Stem Test results and log evaluation suggest that the totality of the Waarre Formation at Wallaby Creek-2 contains gas pay probably in communication. The lowest known gas (LKG) is the base of DST-3 at 1517.0 mKB (-1462.3 mSS) but log evaluation indicates gas pay down to the base of the Waarre Formation at 1528.1 mKB (-1473.4 mSS).

Results of the log evaluation conducted in the Waarre Formation are found in Table 5 below.

**Table 5**

**Log Analysis Results**

**Waarre Formation**

Zone No	Interval (m)	Stratigraphic Unit	Gross Interval (m)	Gross Sand (m)	Net Sand (m)	NET PAY				Comments
						(m)	$\phi_E$	$V_{cl}$	SW	
1	1479.0-1486.1	C	7.1	5.95	5.95	5.75	0.19	0.19	0.27	Gas
2	1486.1-1496.5	B	10.4	0.65	0.65	0.65	0.14	0.04	0.50	Gas, non net
3	1496.5-1509.0	A	12.5	7.85	7.60	7.60	0.17	0.29	0.30	Tested gas in DST
4	1509.0-1511.0	A	2.0	-	-	-	-	-	-	Argillaceous, non net
5	1511.0-1527.6	A	16.6	6.25	6.25	5.90	0.15	0.35	0.35	Tested gas in DST-2 and DST-3
<b>Summary</b>			<b>48.6</b>	<b>20.7</b>	<b>20.45</b>	<b>20.25</b>	<b>0.165</b>		<b>0.31</b>	

Cut Offs:

Gross Sand	$V_{cl} < 0.40$	
Net Sand	$V_{cl} < 0.40$	$\phi_E > 0.10$ *
Net Pay	$V_{cl} < 0.40$	$\phi_E > 0.10, SW < 0.50$

\* Porosity cut-off of 10% tentatively determined from Core-1  $\phi$  vs K cross plot. Porosities < 10% have K of less than 0.1 mD.

**NET PAY SUMMARY**

Gross Interval	:	48.6 m
Net Pay/Gross Interval	:	0.416
Net Pay $\phi_{AVE}$	:	0.165
Net Pay $S_{W_{AVE}}$	:	0.31

## Eumeralla Formation

Log evaluation is unable to detect significant hydrocarbon saturations in the Eumeralla Formation. Water saturations average 85% and rarely decrease below 78% suggesting residual hydrocarbons. However:

1. RFT pressure data from Wallaby Creek-1 and -2 (Figure 5) suggest a single hydrocarbon accumulation across the field with a good possibility of a common GWC at around 1491/1492 mSS, which is 1545.7/1546.7 mKB at Wallaby Creek-2 or 17.6 m below the top of the Eumeralla Formation.
2. Mud gas readings remained high down to the base of the Waarre Formation and they dropped considerably at the top of the Eumeralla. The more plausible explanation for the decrease in gas values is the slow drilling while coring due to hard sandstone between 1528.0 and 1548.0 mKB. (Enclosure 3). This section was cored but no shows were recorded. The sandstones displayed permeabilities of up to 20 mD, therefore they are not tight.
3. Gas readings increased slightly in a faster drilling sand between 1548.0-1557.0 mKB but peaked at 2.5 % only, while in the Waarre Formation total gas peaked at over 10 %. This sand is below the interpreted field GWC.
4. Drill Stem Test-1 was conducted between 1537.0-1560.05 mKB (1482.3-1505.35 mSS) to evaluate the postulated field GWC at around -1491/-1492 mSS. DST-1 flowed a small amount of gas at RTSTM and recovered in reverse circulation 12 bbls of fluid which is probably a mixture of filtrate and formation water.

Before testing the hole had been displaced to a highly saline KCL brine containing approximately 100,000 ppm chlorides. The resistivity of the recovered fluid was 0.1 at 25 °C or approximately 30,000 pm, while a mud pit sample measured 0.03 at 25 °C or 100,000 ppm. The Eumeralla Formation is acknowledged to contain brackish water of around 10-20,000 ppm. Therefore the salinity measured in the DST-1 is either filtrate introduced while drilling or formation water containing also some filtrate/brine.

5. Between the top of DST-1 at 1537.0 mKB and the interpreted GWC at 1545.7 mKB (-1491.0 mSS) there is 8.7 m of Eumeralla Formation which should have been in the gas zone and open for flow. It is unclear why higher gas rates were not recorded in DST-1. The charts and the interpreted permeability suggest a moderately good reservoir rock. The question is: If 12.5 bbls of formation water were able to flow into the string, what happened with the gas?

The results of DST-1 remain consequently ambiguous. The reported gas rate was 'too small to measure', but an adequate sample was obtained for analysis.

6. Core-2 comprises massive sandstone with permeabilities up to 20 mD. Therefore it would appear that there are no physical barriers between the top Eumeralla and the base of the Waarre Formation.



#### 4. CONCLUSIONS

- \* Top porosity in the Waarre Formation was 46.8 m higher than at nearby Wallaby Creek-1.
- \* The totality of the Waarre Formation at Wallaby Creek-2 contains gas pay.
- \* The identified gross gas column is 48.6 m thick with 20.21 m of net pay.
- \* Average porosity and water saturation in the pay sands is 0.165 and 0.31 respectively.
- \* The gas/water contact could not be confirmed at Wallaby Creek-2, but the RFT pressure plot of Wallaby Creek-1 and -2 suggest one contact at around 1491.0-1492.0 mSS, which is 1545.7-1546.7 mKB, thus falling in the middle of DST-1 which recovered 'apparent' formation water.

Figures

PE907614

This is an enclosure indicator page.  
The enclosure PE907614 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907614 has the following characteristics:

ITEM\_BARCODE = PE907614  
CONTAINER\_BARCODE = PE900875  
    NAME = Location Map  
    BASIN = OTWAY  
    PERMIT = PPL/1  
    TYPE = WELL  
    SUBTYPE = MAP  
DESCRIPTION = Location Map (figure 1 from WCR) for  
              Wallaby Creek-2  
REMARKS =  
DATE\_CREATED =  
DATE\_RECEIVED = 31/01/96  
    W\_NO = W1125  
    WELL\_NAME = Wallaby Creek-2  
CONTRACTOR =  
CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

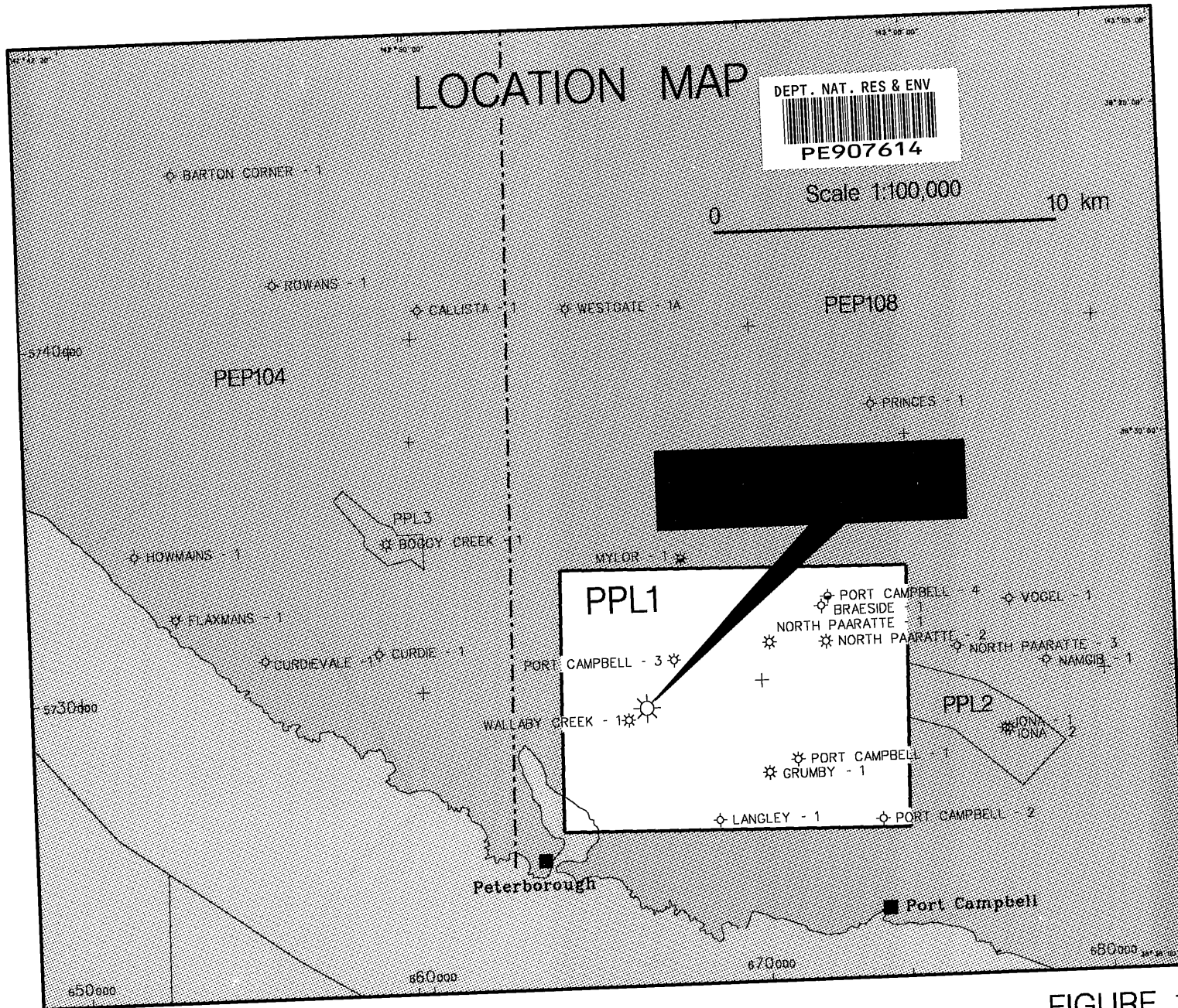


FIGURE 1

PE907615

This is an enclosure indicator page.  
The enclosure PE907615 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907615 has the following characteristics:

- ITEM\_BARCODE = PE907615
- CONTAINER\_BARCODE = PE900875
  - NAME = Stratigraphic Table
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = STRAT\_COLUMN
- DESCRIPTION = Offshore-Onshore Operational  
Stratigraphic Table (figure 2 from WCR)  
for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED = 31/01/96
  - W\_NO = W1125
  - WELL\_NAME = Wallaby Creek-2
  - CONTRACTOR = Cultus Petroleum NL
  - CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)



OFFSHORE-ONSHORE OPERATIONAL STRATIGRAPHIC TABLE

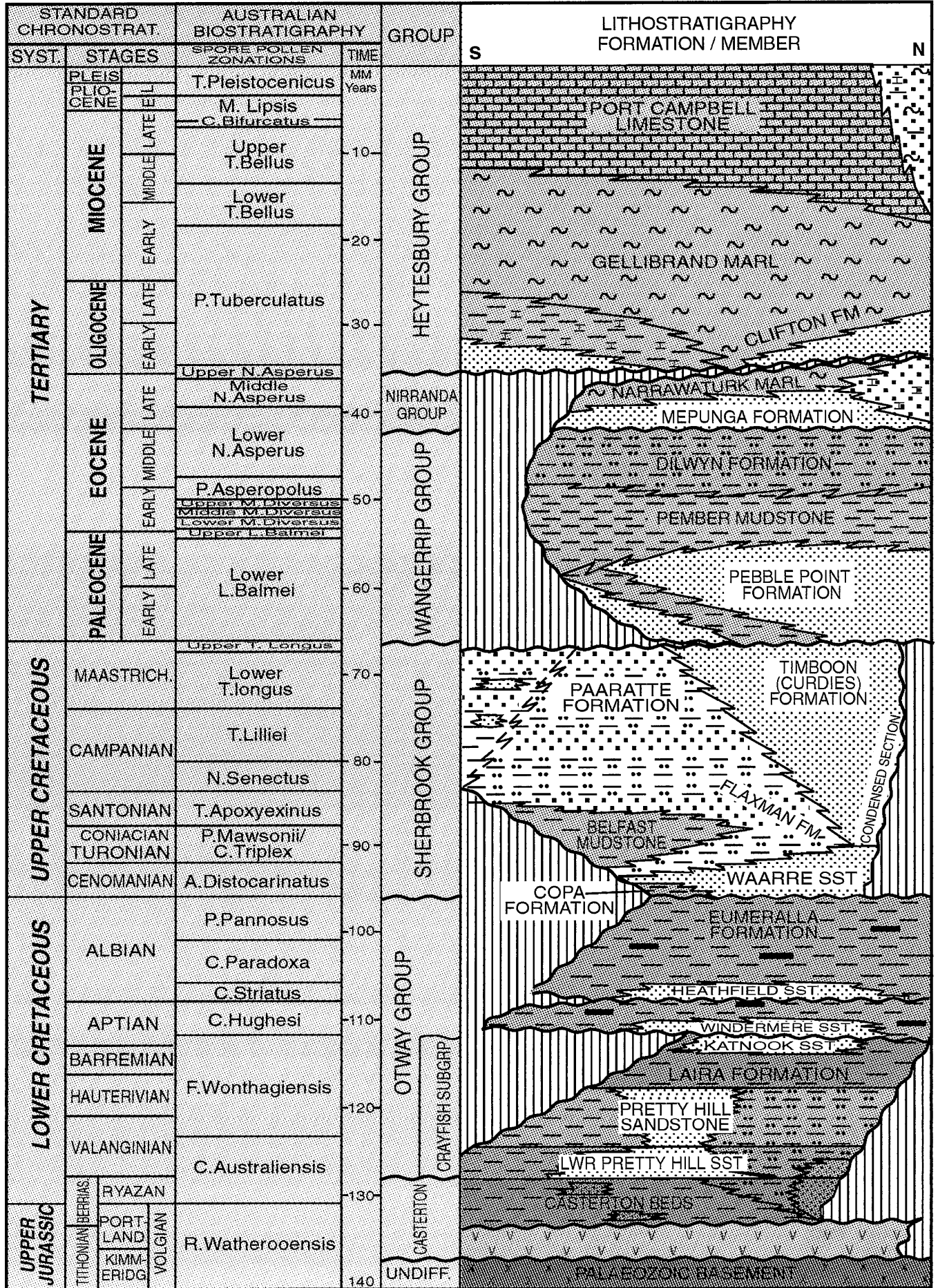


FIGURE 2

GFE Resources Ltd  
WALLABY CREEK-2

PPL1 Otway Basin

Drilling Progress Curve

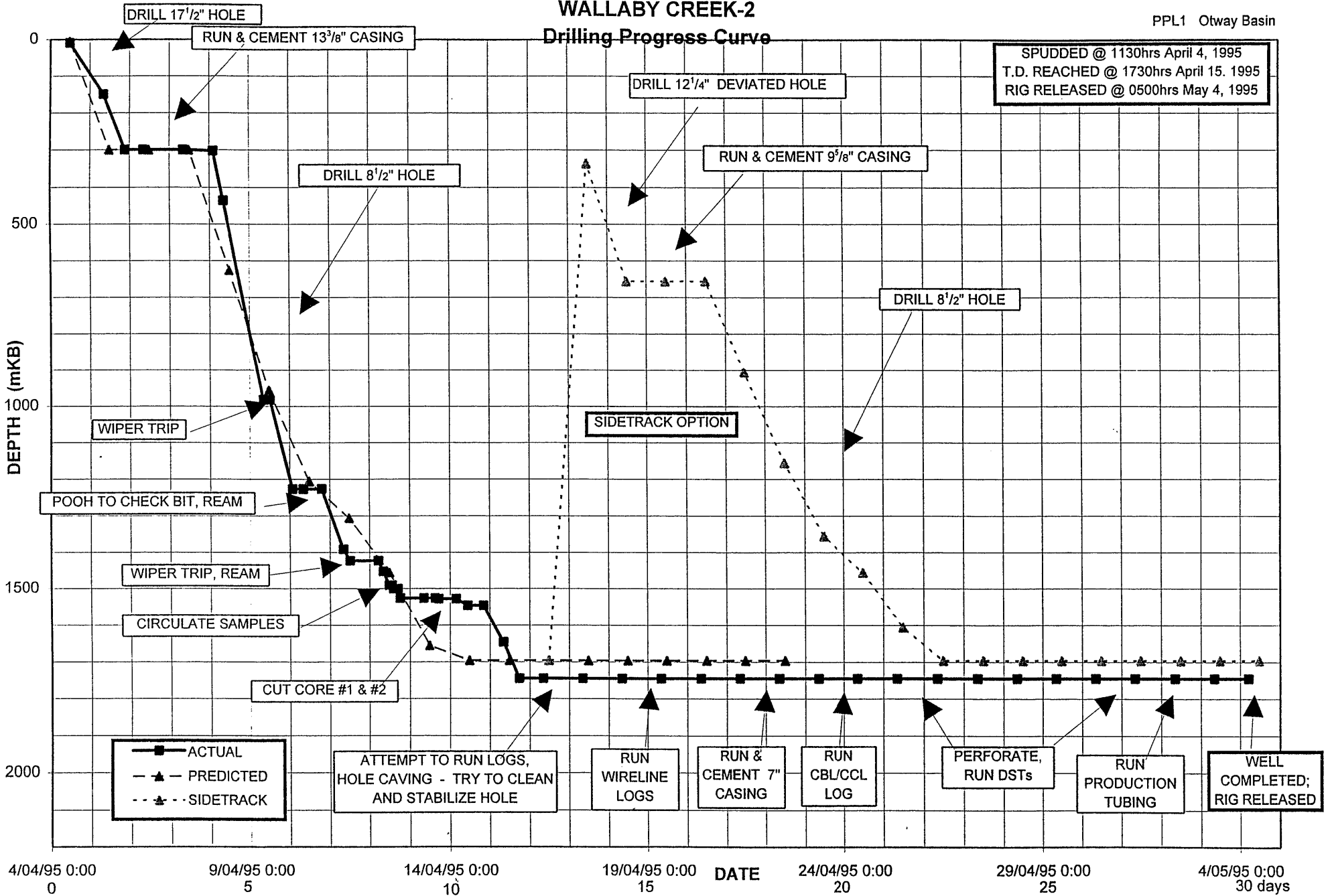
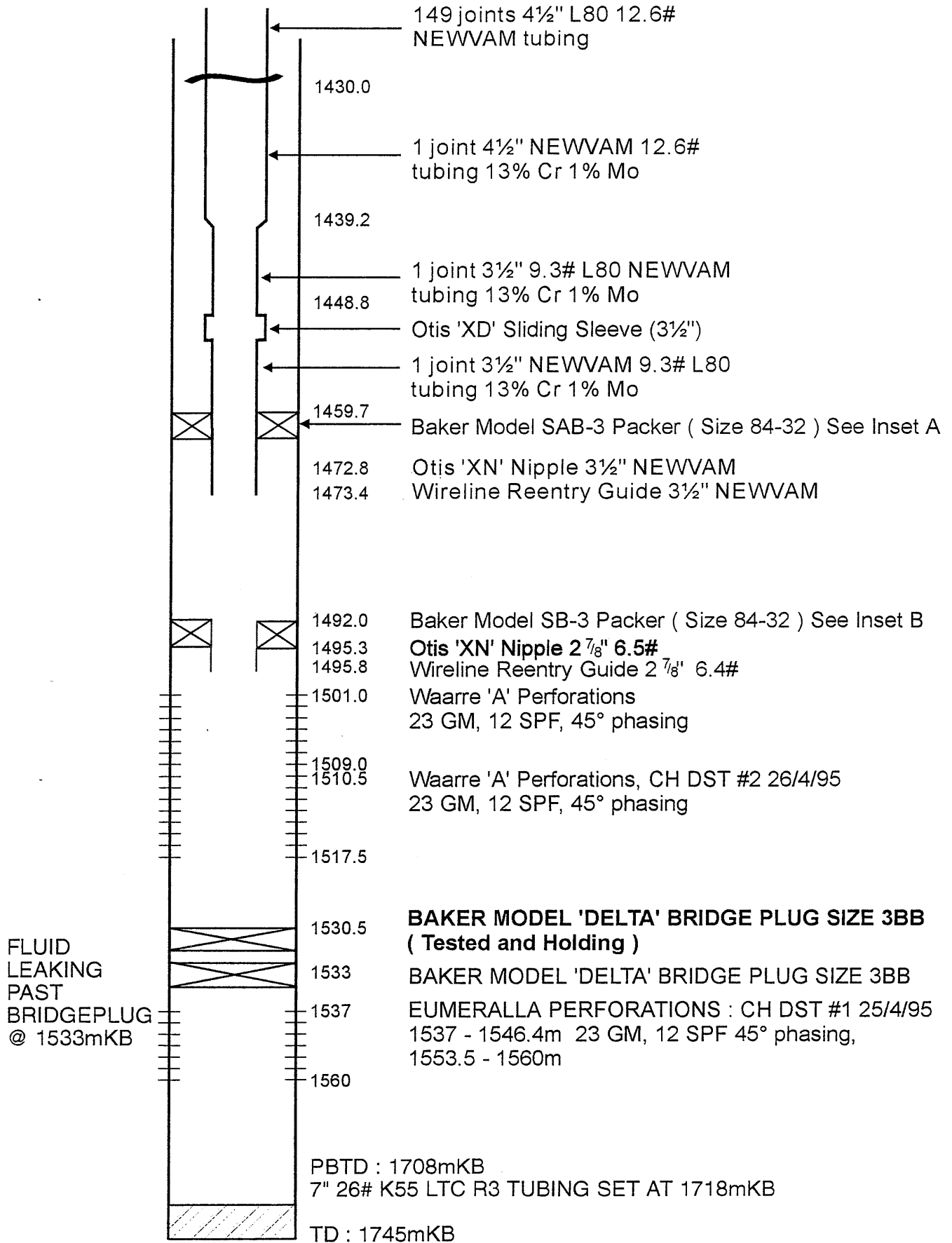


FIGURE 3



GFE Resources Ltd

# WALLABY CREEK-2 WELLBORE SCHEMATIC



WALLCK2A

FIGURE 4



# WALLABY CREEK FIELD RFT DATA

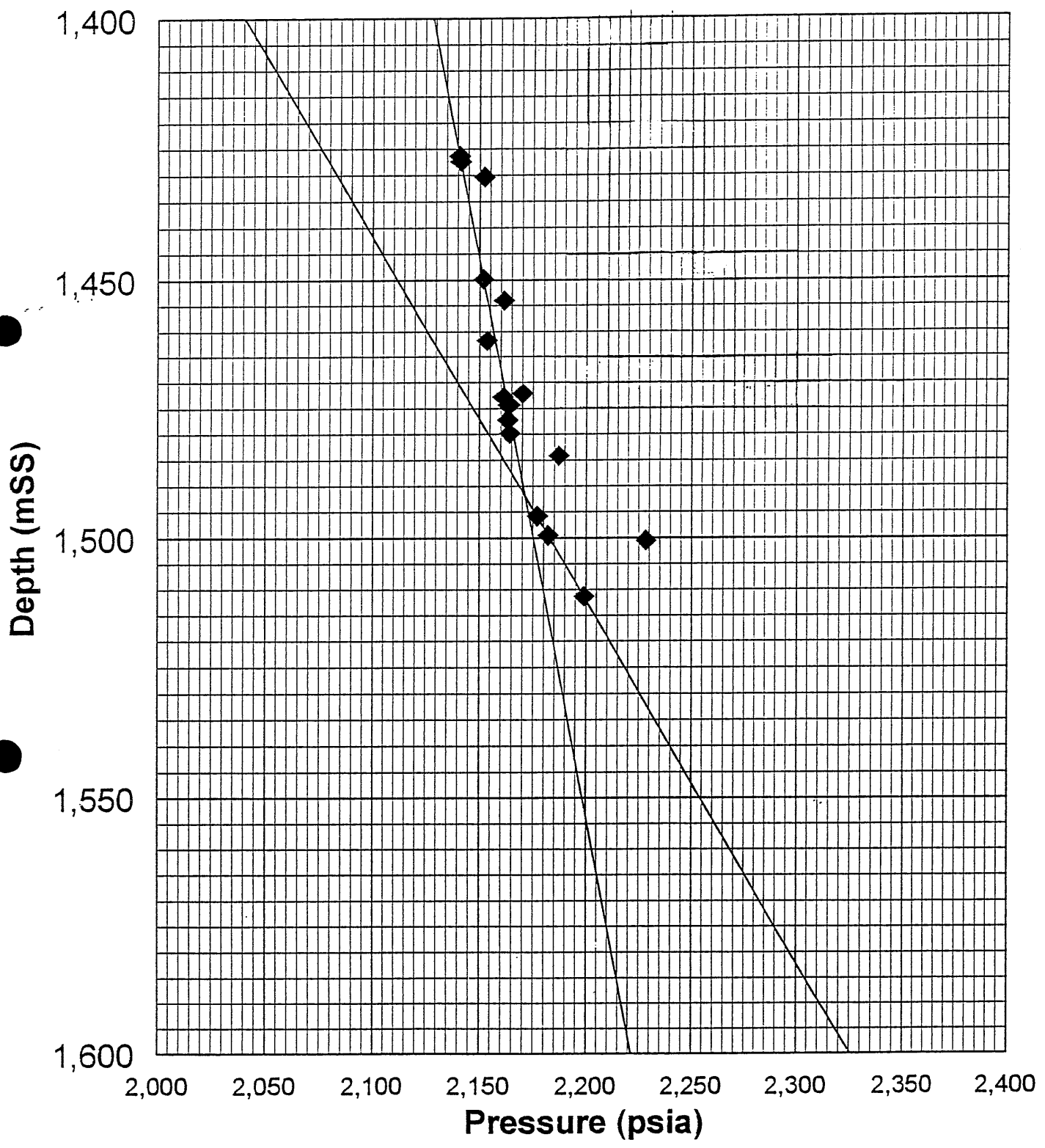


FIGURE 5

*Appendix 1*

APPENDIX 1

# **APPENDIX 1**

## **RIG SPECIFICATIONS**

## INVENTORY - RIG #11

<b>CARRIER</b>	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.
<b>SUBSTRUCTURE</b>	17' floor height - 14' below table beams with plates in base.
<b>DRAWWORKS</b>	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.
<b>ROTARY TABLE</b>	National Rotary Table Model C-175.
<b>DERRICK</b>	Cooper Derrick Model 118-365. Ground height 118'. Maximum rated static hook load 350000 lbs with 10 lines. Mast raised, lowered and telescoped hydraulically.
<b>CROWN BLOCK</b>	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.
<b>HOOK BLOCK</b>	National Hook Block Model 435 G-175. 175 ton capacity. 4-35" sheaves grooved for 1- $\frac{1}{8}$ " line.
<b>SWIVEL</b>	P-200 National.
<b>KELLY SPINNER</b>	Foster Model K-77
<b>SLUSH PUMPS</b>	No. 1: National 8-P-80 Slush Pump. 6 $\frac{1}{4}$ " x 8 $\frac{1}{2}$ " Triplex single acting driven by Cat. D398TA Diesel Engine. No. 2: National 7-P-50 Slush Pump driven by Cat D379TA Diesel Engine.
<b>PULSATION DAMPENER</b>	1 each Hydрил Pulsation Dampener type K20-3000.
<b>MUD SYSTEM</b>	2 x 300 bbl tanks incorporating 80 bbl pill tank and 40 bbl trip tank.
<b>SHAKERS</b>	Triton NNF Screening Machine (Linear Motion).
<b>DEGASSER</b>	Drilco Atmospheric Degasser Standard Pit. 7 $\frac{1}{2}$ H.P. 60 Hz 230v.
<b>DESANDER</b>	Demco Model 122. Two, 12" cone with Warman 6" x 4" Centrifugal pump driven by 50 H.P. Electric Motor.

<b>DESILTER</b>	Pioneer Economaster Model T12-E4. 12 x 4" cones with Warman 6" x 4" Centrifugal pump, driven by a 50 H.P. Electric Motor.
<b>MUD MIXING PUMP</b>	Warman 6" x 4" Centrifugal pump driven by a 50 H.P. Electric Motor.
<b>MUD AGITATORS</b>	4 only Brandt Mud Agitator Model MA 7.5.
<b>B.O.P'S &amp; ACCUMULATOR</b>	10" x 3000 P.S.I. Shaffer Double Gate B.O.P. with 2 <sup>3</sup> / <sub>8</sub> ", 2 <sup>7</sup> / <sub>8</sub> ", 3 <sup>1</sup> / <sub>2</sub> ", 4 <sup>1</sup> / <sub>2</sub> ", 5 <sup>1</sup> / <sub>2</sub> ", 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.
<b>CHOKE MANIFOLD</b>	Cameron 5000 psi.
<b>SPOOL</b>	10" x 3000 x 10" x 3000 Flanged Drilling Spool with 3" x 3000 flanged choke and kill outlets.
<b>INSTRUMENTATION</b>	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 Volume Totaliser (M.V.T.)
<b>AUTOMATIC DRILLER</b>	Satellite Automatic Driller Model SA100-50-1500.
<b>WIRELINE STRIPPER</b>	Guiberson Oil Saver Type H-4.
<b>SURVEY UNIT</b>	Totco 8 Deg Recorder.
<b>MUD LAB</b>	Baroid Rig Laboratory Model 821.
<b>KELLY</b>	5 <sup>1</sup> / <sub>4</sub> " HEX Kelly. 2 <sup>13</sup> / <sub>16</sub> " I.D. x 40' long with 6 <sup>5</sup> / <sub>8</sub> " API Reg. L.H. Box up 4" I.F. Pin down.
<b>UPPER KELLY VALVE</b>	Upper Kelly Cock. 10000 test 6 <sup>5</sup> / <sub>8</sub> " API Reg. L.H. Connections.
<b>LOWER KELLY VALVE</b>	Hydril Kelly Guard. 4 <sup>1</sup> / <sub>4</sub> " - 10000 P.S.I. 4" I.F. Pin and Box.
<b>KELLY DRIVE BUSHING</b>	Varco Type 4 KRS Kelly Drive Bushing.
<b>DRILL PIPE</b>	7000' Drill Pipe 4 <sup>1</sup> / <sub>2</sub> " O.D. 16.60 lb. Grade E Range 2 with 4" I.F. x 18 degree taper tool joints.
<b>DRILL COLLARS</b>	20 each Drill Collars 6 <sup>1</sup> / <sub>4</sub> " O.D. slick 2 <sup>13</sup> / <sub>16</sub> " I.D. x 30' long with 4 <sup>1</sup> / <sub>2</sub> " XH pin and box connections.

<b>FISHING TOOLS</b>	To suit pipe, collars and tubing.
<b>SUBSTITUTES</b>	To suit drill string.
<b>HANDLING TOOLS</b>	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.
<b>WELDING EQUIPMENT</b>	Lincoln Electric Welder Model 400AS.
<b>AIR COMPRESSORS</b>	Sullair compressor Package Model 10-30.
<b>AC GENERATOR</b>	2 each Caterpillar 3408TA AC Generator model SR-4. 1800 rpm 60 hz 275 kw.
<b>FUEL TANKS</b>	2 each 10,000 litre - Skid Mounted.
<b>WATER TANK</b>	400 bbl tank with two Warman 3 x 2 pumps driven by 24 hp electric motors.
<b>PIPE RACKS</b>	5 sets 30 feet in length.
<b>CATWALKS</b>	2 piece Catwalk drill pipe construction 42" height.
<b>RADIO</b>	Codan Mobile Transceiver.
<b>TRANSPORTATION</b>	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.

**CAMP**

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*

APPENDIX 2

# **APPENDIX 2**

## **DRILLING FLUID RECAP**



**M-I Drilling Fluids** L.L.C.



**FDC4**

**DRILLING FLUIDS DATA MANAGEMENT SYSTEM**

**GFE RESOURCES LTD  
WALLABY CREEK 2  
PPL 1  
OTWAY BASIN**



M-I Drilling Fluids L.L.C.

F D C 4  
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Operator : GFE RESOURCES LTD  
Well Name : WALLABY CREEK 2  
Field/Area : PPL 1  
Description : APPRAISAL  
Location : OTWAY BASIN  
Warehouse : ADELAIDE  
Contractor : CENTURY DRILLING

Spud Date : 04/04/95  
TD Date : 04/25/95  
Loc.Code :  
Dist Engr : COOPER G  
Sales Engr : COBB J  
Sales Engr :  
Well Number : W0002

Comments : ALL REPORTS TO 24:00 AS PER THE IADC REPORT

Type	Size in	Depth m	TVD m	Hole in	MaxMW lb/gal	Mud 1	Mud 2	Drilling Problem	Days	Cost
Liner	13.375	298	298	17.500	8.8	FW NACL BRINE		NO PROBLEMS	2	1430
Liner	7.000	1718	1718	8.500	9.6	PHPA/KCL/MUD		NO PROBLEMS	9	36584

Depth: 1745 m TVD : 1745 m Water Depth: m Drilling Days: 12 Total Mud Cost: 38014

# M-I TRACKER

M-I Drilling Fluids L.L.C.

25/04/95 - 21 Days

TD = 1,745 mtrs

TVD = 1,745 mtrs

Spud = 4/04/95

MW = 9.35

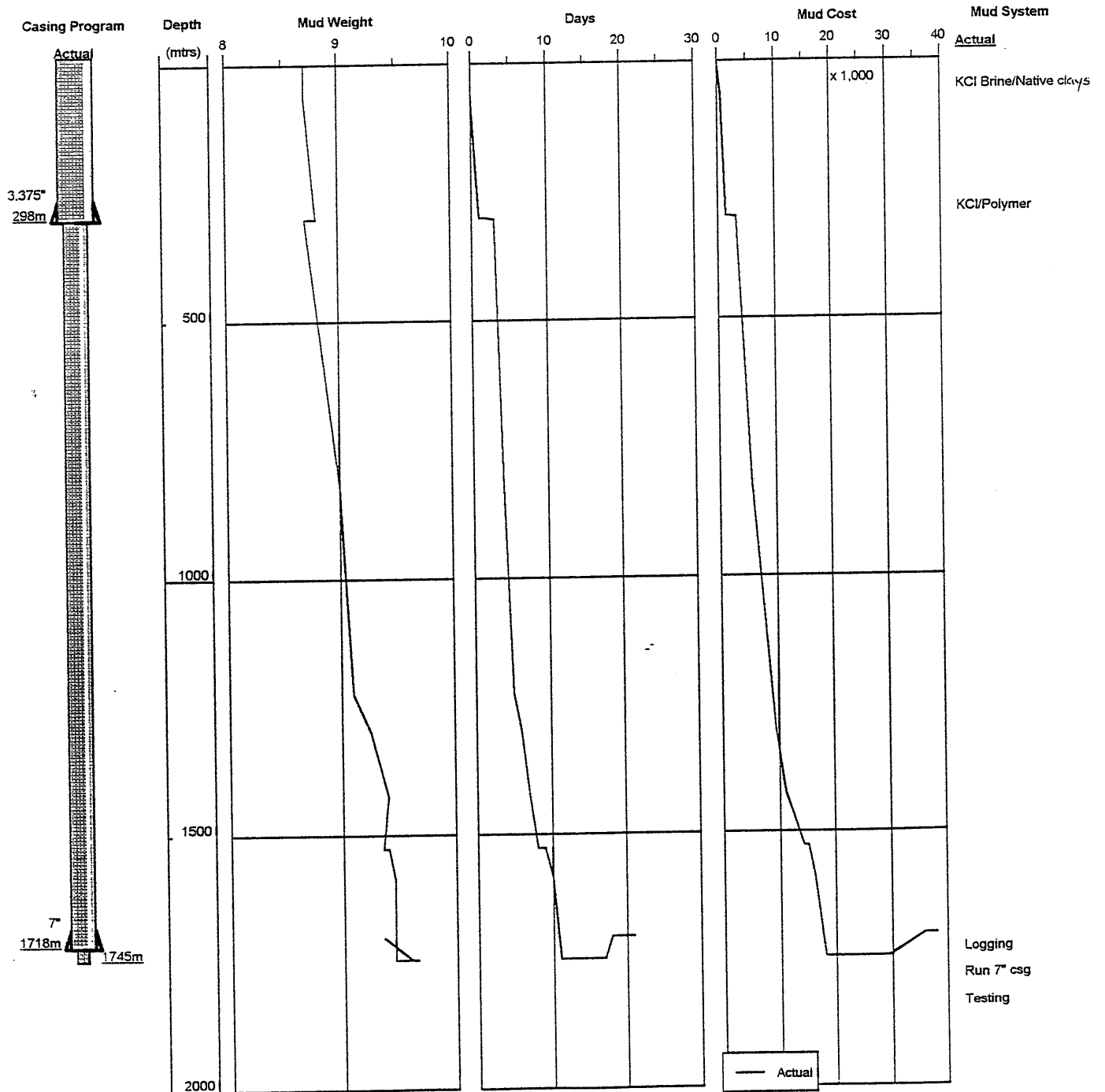
Mud Cost = \$ 38,014

GFE Resources

Wallaby Creek No 2

Otway Basin - Victoria.

Drilled with Century 11



# GFE RESOURCES

## WELL : WALLABY CREEK 2

1. INTRODUCTION
2. DISCUSSION BY INTERVAL
3. DAILY DISCUSSION REPORT
4. PRODUCT USAGE BY INTERVAL
5. DAILY VOLUME SUMMARY SHEETS
6. TOTAL MATERIAL CONSUMPTION
7. HYDRAULICS
8. BIT RECORD
9. WEEKLY INVENTORY SHEETS
10. DAILY RECAP
11. DAILY CHEMICAL ADDITIONS
12. DAILY MUD REPORTS

M-I AUSTRALIA PTY LTD

# SECTION 1



# INTRODUCTION

M-I AUSTRALIA PTY LTD

# **M-I Australia Pty. Ltd.**

## INTRODUCTION:

GFE Resources appraisal well, Wallaby Creek 2, was spudded by Century Drilling Rig 11 on 4 April 1995. The well was located in the Otway Basin in permit PPL-1, onshore, South Western Victoria. The Wallaby Creek gas field is located 8 km north west of the township of Port Campbell, with Wallaby Creek 2 at latitude 38° 34' 09.030" south and longitude 142° 54' 34.862 east. The height of the rotary table above ground level was 6 meters. The primary objectives were both the Waarre C units and Waarre A units.

The well was drilled to a total depth of 1745 meters in 12 drilling days without any major problems and with promising gas shows in both the Waarre units "C" and "A". At first attempt to log the hole, it presented a problem in the form of caving in from the Gellibrand Marl. After the mud weight was raised to 9.6 ppg an extensive logging program was completed without further problems. The 7" production casing was set at 1718 meters, in preparation for the commencement of a testing and completion program.

Age	Formation	Lithology	Depth (RKB) meters	
Tertiary	Port Campbell Limestone	Calcarenite	6	
	Gellibrand Marl	Marl	126	
	Clifton Formation	Calcarenite/interbed Claystone	436	
	Narrawaturk Marl	Marl	465	
	Mepunga Formation	Sandstone/interbed Claystone	532	
	Dilwyn Formation	Sandstone/interbed Claystone	578	
	Pember Mudstone	Claystone	777	
	Pebble Point Formation	Sandstone/interbed Claystone	824.5	
	Late Cretaceous	Paaratte Sandstone	Sandstone	895
		Paaratte Formation	Claystone/grad to Sandstone	1206
Skull Creek Mudstone		Claystone/interlamin Sandstone	1322	
Nullawarre Greensand		Claystone/occ grad to Sandstone	1371	
Belfast Mudstone		Claystone	1393	
Waarre Units "C"		Sandstone	1479	
Waarre Units "B"		Claystone	1489	
	Waarre Units "A"	Sandstone	1496	
Early Cretaceous	Eumeralla Formation	Sandstone/Claystone	1532	
		<b>TOTAL DEPTH</b>	<b>1745</b>	

\* Provisional based on mud log.

# SECTION 2





**DISCUSSION BY  
INTERVAL**

M-I AUSTRALIA PTY LTD

# **M-I Australia Pty. Ltd.**

Interval	6 - 300 Meters	17.1/2" Hole	13.3/8" Casing
----------	----------------	--------------	----------------

MUD TYPE	:	3/4% KCl/NATIVE CLAY SPUD MUD
HOLE PROBLEMS	:	NONE
MUD PROPERTIES	:	
		Mud Weight : 8.6 - 8.8 ppg
		Viscosity : 32 - 49 sec/qt
		Plastic Viscosity : 5 - 10 cps
		Yield Point : 10 - 35 lb/100 sq ft
		Gels Initial : 2 - 5 lb/100 sq ft
		pH : 8.3 - 9.1
		MBT : 10 - 18 ppb
		Low Gravity Solids : 1.7 - 3.2%
		KCl % by weight : 0.4 - 0.75%

## OPERATIONS:

Wallaby Creek 2 was spudded at 1130 hours on 4 April, 1995. The 17.1/2" hole was drilled to 300 meters averaging an ROP of 15 m/hr. The well was spudded with 3/4% KCl in water. Additions of pre hydrated Gel maintained a minimum viscosity through the Port Campbell Limestone.

On entering the Gellibrand Marl, the native clays rapidly built viscosity. As viscosity became excessive, water and Spersene CF were added to the active system to thin the mud, whilst also maintaining the KCl concentration, thus preventing the formation of mud rings.

At 300 meters a wiper trip was conducted and 5 meters of fill was encountered on bottom on running in. The 17.1/2" drilling assembly was pulled, working tight hole from 220 - 228 meters.

The 13.3/8" casing was run to 298.17 meters. While circulating the casing, the mud was diluted with water to reduce the viscosity to less than 40 sec/qt. The casing was cemented without problems, displacing the cement with mud. Thus mud formed the basis for the mud system used in the 8.1/2" interval.

## DRILLING FLUIDS:

In preparation to spudding, 3/4% by weight KCl, in water, was made-up to a volume of 400 bbl. In reserve 80 bbl of 20 lb/bbl Gel was pre hydrated. The well was spudded with 3/4% KCl in water. Additions of the pre hydrated Gel maintained a minimum viscosity through the Port Campbell Limestone. A further 65 bbl of 20 lb/bbl Gel was pre hydrated and was kept in reserve but as it was not needed, it was held for the 8.1/2" hole section.

# **M-I Australia Pty. Ltd.**

Interval	6 - 300 Meters	17.1/2" Hole	13.3/8" Casing
----------	----------------	--------------	----------------

The full surface system was utilized to enable the running of the desilter and desander. Mud weight remained at or below 8.8 ppg. This can be attributed primarily to the dilution rate of 4 bbl/m needed to reduce viscosity whilst drilling the Marl.

As mentioned previously, on entering the Gellibrand Marl, the native clays rapidly built viscosity. As viscosity became excessive, water and Spersene CF were added to the active system to thin the mud, thus preventing the formation of mud rings.

The KCl concentration ranged between 0.4% and 0.75% by weight. As greater than 3 lb of KCl per bbl of active system was added, it was evident that significant but not excessive depletion of the potassium ion was occurring.

## **SOLIDS CONTROL EQUIPMENT:**

A Triton linear motion shaker was fitted with 2 x 50 mesh and 1 x 84 mesh screens for the whole interval. Some losses were evident over the shaker mainly during back-reaming at the end of the joint, though this was not significant.

As expected the desilter (12 x 4" cones) and the desander (2 x 12" cones) proved their effectiveness whilst the Limestone was being drilled through with underflow weights of 11.8 ppg at 3.5 bph for the desilter and 12.9 ppg at 3.6 bph for the desander. In comparison during drilling of the Marl the underflow weights were 9.3 ppg at 9.0 bph and 9.5 ppg at 2.4 bph for the desilter and desander respectively. Although they weren't as effective during the Marl the greater flow rate of 11.4 bph combined, provided assistance in making room for light volume.

## **CONCLUSIONS AND RECOMMENDATIONS:**

The interval cost for the 17.1/2" section was \$1,430.00 which is comparable to the projected cost of \$1,392.00. Although the viscosity building nature of the native clay saved money in that less Gel was used, the excessive viscosity resulted in greater KCl usage and also the need for the lignosulphonate.

This mud system quickly drilled the 17.1/2" hole section without problems including no mud rings associated with the last well. It is therefore recommended that future wells in this area use this mud system for the top hole.

# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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MUD TYPE	:	KCl/POLYMER
HOLE PROBLEMS	:	HOLE CAVINGS FROM MARL PRIOR TO LOGGING
MUD PROPERTIES	:	
		Mud Weight : 8.7 - 9.6+ ppg
		Viscosity : 34 - 47 sec/qt
		Plastic Viscosity : 8 - 23 cps
		Yield Point : 9 - 23 lb/100 sq ft
		Gels 10"/10' : 3/5 - 7/12 lb/100 sq ft
		Fluid Loss : 5.0 - 12.8 cc/30 min
		pH : 8.5 - 10.2
		Chlorides : 4,700 - 21,500 mg/l
		Total Hardness : 40 - 240 mg/l
		Excess Sulphite : 40 - 200 mg/l
		MBT : 9 - 25 ppb
		Low Gravity Solids : 2.3 - 7.2%
		Drill Solids : 1.3 - 5.6%
		KCl % by weight : 0.9 - 4.0%

## OPERATIONS:

After nipping up and pressure testing the BOP's, a 12.1/4" bit was run in tagging cement at 283.63 meters. The surface equipment was pressure tested, before drilling out the float, shoetrack and 3 meters of new hole with the 12.1/4" bit to 303 meters. During circulation, 150 bbls of concentrated KCl/Polymer premix was blended into the active system thus raising the KCl concentration by weight to 1%. The hole was circulated clean prior to conducting a FIT to an EMW of 25.7 ppg. The 12.1/4" bit was pulled so as to make-up an 8.1/2" drilling assembly.

The 8.1/2" hole was drilled from 303 - 895 meters averaging a rate of penetration of about 50 m/hr. At this rate the mud weight was rising rapidly and was needed to be controlled by the dumping of settled solids, diluting with KCl/Polymer premixes and thus utilization of all available solids control equipment.

The Paaratte, primarily a sandstone formation, was entered at 895 meters. Temporary downhole losses totalling 30 bbls coinciding with a drill break, occurred between 900 and 910 meters. There were no further downhole losses while drilling but there were downhole losses on subsequent trips of between 20 - 40 bbl per trip. While drilling the Paaratte formation the rate of penetration varied from 90 - 50 - 20 m/hr as the lithology changed from massive sandstone (895 - 939 meters) to interbedded sandstone (939 - 1206 meters) to interbedded claystone (1206 - 1322 meters).

# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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Prior to making a 35 stand wiper trip at 982 meters, the KCl concentration by weight was raised to 3% and the fluid loss reduced to less than 7 cc's. Tight hole on the trip out was worked at 892, 883, 854, 796, 681 and from 528 - 499 meters. On running in the hole was reamed from 528 - 518 meters, with a clear run before encountering 2 meters of fill on bottom.

Drilling of the 8.1/2" hole continued from 982 meters. High torque was experienced as the depth approached 1227 meters. No more penetration was achieved at this depth, so the bit was pulled, working tight hole from 1103 - 1007 meters on the trip out.

Bit 3 was made-up, along with additions of the BHA of a near bit reamer, bit sub, drill collar, stabilizer and shock sub. On running in, this "stiffer" assembly was reamed from 701 meters to bottom. Bit 3 was broken in and the 8.1/2" hole drilled from 1227 - 1424 meters, averaging an ROP of 15 m/hr primarily through claystone bearing formations. A survey at 1337 meters displayed an inclination of 1.1/4°. Bottoms up was circulated prior to pulling out to install a 3000 psi McEvoy valve in the Braden head. Tight hole was worked from 1315 - 1306 meters and from 1277 - 1258 meters, and backreamed from 1249 - 1239 meters and from 1230 - 1220 meters, with further working of pipe needed from 1210 - 1105 meters. After installing the McEvoy valve, the BOP was tested to 3000 psi.

Bit 3 was re-run in the hole, reaming from 1000 - 1039 meters and from 1076 - 1424 meters. Tight hole was worked from 1230 - 1262 meters. A minimum mud weight of 9.3 ppg was needed for entering the Waarre formation. Reaming had risen the mud weight from 9.2+ - 9.3+ ppg. The KCl content was steady at 3% by weight, and was maintained at this concentration to total depth.

The 8.1/2" hole was drilled from 1424 - 1491 meters. A maximum gas of 2430 units was received at 1483 meters from entering the Waaree unit "C". At 1491 meters the hole was circulated for 5 minutes before pulling up above the gas column and circulating up a sample. This procedure was repeated after drilling to 1501 meters and again at 1527 meters. A maximum gas of 2300 units was received from entering the Waarre units "A". A wiper trip was made to 970 meters, working tight hole from 1344 - 1000 meters, with a maximum overpull of 50,000 lb thereafter. On running in the hole was reamed from 1491 - 1520 meters and then washed to bottom. The pipe was circulated clean prior to pulling out to core. The mud weight was maintained at 9.3+ ppg. As tight hole was persistently being experienced through primarily the Paaratte formation, the fluid loss was reduced further to 5.6 cc to alleviate this problem.

Part of the drilling assembly was laid out and a core barrel picked and made-up. The core barrel was run in, the hole being washed/reamed from 1453 - 1466 meters and from 1511 - 1527 meters tagging bottom. Only 2 meters of depth was cored before the coring assembly was pulled to clear the blocked inner barrel. The coring assembly was run back in, reaming the hole from 1511 - 1529 meters. A core was cut from 1529 - 1547 meters before being pulled, retrieving 100% of the core. During the trip the sandtrap and settling pit were dumped of settled solids/solids laden mud.

# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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Bit 5 was made-up along with the BHA. On running in the hole, circulation was broken to precautionary ream from 1497 - 1547 meters. The 8.1/2" hole was reamed from 1586 meters to the total depth of 1745 meters with an average ROP of 15 m/hr from the Eumeralla formation. A survey at 1578 meters indicated the hole to be at 1.1/4°. Mud weight was maintained at 9.4+ ppg for this section of drilling.

Bottoms up was circulated prior to pulling out for a wiper trip to 971 meters. Tight hole was worked and pipe stuck at 1545 meters freed by back reaming with the slips in the rotary table. Tight hole continued from 1555 - 1565 meters before receiving a clear run. On running back in, the hole was washed to bottom from 1728 meters encountering 5 meters of fill. The hole was circulated clean. A survey conducted at 1722 meters indicated the hole to be 1°. The 8.1/2" drilling assembly was pulled to run wireline logs with BPB.

BPB were rigged up. Log 1 failed to pass 492 meters. On running in with the 8.1/2" bit, the bridge was tagged at 492 meters and reamed to 500 meters. Bottoms up was circulated from 545 meters. On pulling out the hole collapsed and pipe had to be freed at 481 meters. The instable hole was circulated raising the yield point to 20 lb/100 sq ft with Polypac R to ensure the cavings were being cleared, before pulling out to log.

In attempting to log, the tool failed to pass 337 meters and on running in with the drillstring, bridges were tagged and reamed at 337, 478, 525 and 544 meters before running in to bottom tagging fill at 1722 meters. Teutonic stresses were relieving the cavings in the upper Marl. The cavings were coming over the shaker in a uniform, dry state. As there was still downhole losses occurring during trips it was decided not to weight up at this stage but to allow the Marl to relieve itself, whilst monitoring the condition of the hole and still ensuring all cavings are clearing the hole. Upon request from the operator the KCl content by weight was raised to 4%. The hole was swept with 50 bbls of Hi Vis before pulling up to 774 meters where a carbide was dropped indicating the hole to be 46 bbls over-gauge to this depth. Another 50 bbl Hi Vis sweep was pumped at 583 meters before spotting a 140 bbl Hi Vis pill and pulling out.

In attempting to log the tool failed to pass 786 meters and on running in with the drillstring, bridges were tagged and reamed at 786 and 1719 meters before running in to the bottom tagging fill at 1740 meters. At this stage it was apparent that another solution was needed, so the mud weight was raised to 9.6 ppg (in a reduced surface system) to hole back the Marl. Pre hydrated Gel was used to viscosify the mud which also gave it extra body, as the Polypac R was losing its effectiveness and was becoming shear thinning.

# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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Logging commenced with run 1 DLL-GR-MLL-BHC but due to tool failure it had to be repaired and re-run. Logging continued with run 2 PDS-CNS-CL-GR, run 3 MBD and run 4 AST. A wiper trip was made with no problem, running in to bottom encountering 8 meters of fill. The hole was circulated to ensure an even 9.6 ppg weight and good viscosity with additions of pre hydrated Gel and Polymer. Logging continued with run 5 RFT-GR, run 6 VDL-GR and run 7 CST. BPB were rigged down and the drillstring was run in, working sticky hole from 1021 - 1023 meters and encountering 4 meters of fill on bottom.

The hole was circulated rebuilding viscosity with XCD and Polypac R prior to pulling out sideways to run 7" production casing. Conqor 303 was used on the drillstring on pulling on to inhibit corrosion. The casing was run and landed at 1718 meters without problem. The casing was circulated, reducing the viscosity to 38 sec/qt prior to cementing.

## **DRILLING FLUIDS:**

A concentrated KCl/Polymer premix of 150 bbl was made-up and blended into the active mud (425 bbls) saved from the previous hole section, while drilling out the float, shoetrack and 3 meters of new hole. The mud was pretreated with Sodium Bicarbonate against cement contamination. Although the pH did rise to 10.2, the viscosity was unaffected.

Mud weight was controlled throughout the well by the running of the desilter and desander and also through dumping and diluting. Mud was allowed to rise to control down hole formation pressures. During drilling of the Waarre formation it was maintained at 9.3+ ppg and allowed to rise to 9.4+ ppg by total depth. A mud weight of 9.6 ppg was needed to hold back the top hole Marl caving in prior to successful logging.

The fluid loss ranged from the initial 12.8 cc down to 5.0 cc. As the depth increased the fluid loss was lowered to meet the fluid loss control needs of different formations. The fluid loss was lowered to less than 8 cc by 800 meters and to less than 7 by 982 meters. CMC LV and Polypac R were the fluid control agents used with a preference towards Polypac R when additional viscosity was needed. When repeated tight hole was experienced in the Paaratte formation the fluid loss was lowered to 5.6 cc, thus alleviating the problem. After which the fluid loss was maintained between 5.0 and 5.6 cc.

The initial KCl concentration was 1% by weight which was raised to 3% by weight a per programmed by 982 meters. During this 8.1/2" interval there weren't any problems in the way of dispersive or swelling clays, the cuttings remaining fairly dry and intact. The KCl content was raised to 4% when the Marl was caving in prior to successful logging. As the cavings were dry, it is in question whether the KCl was of benefit in inhibiting the Marl as it may have been dehydrating and shrinking the clays thus making it susceptible to Teutonic stress relief.

# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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As there was, for the most part, a MBT greater than 12 lb/bbl, there was no need for additions of pre hydrated Gel, although it was used prior to successful logging to increase viscosity in the mud.

When available, sump fluid was recycled for volume in the form of Polymer premixes. This also benefited in lowering the sump volume and to reclaim some of the Polymers and KCl dumped. Bacban III was added to this to guard against bacterial or algae growth. An excess of sulphite ranging between 40 and 200 mg/l was maintained in the active system to inhibit oxygen corrosion.

## **SOLIDS CONTROL EQUIPMENT:**

The triton linear motion shaker was initially fitted with 1 x 50 and 2 x 84 mesh screens for drilling out the float, shoetrack and 3 meters of new hole with the 12.1/4" bit. A screen was changed out prior to breaking in the 8.1/2" bit and the rest of the section was drilled with 3 x 84 mesh screens. There were no significant losses over the shaker even though during fast drilling the cuttings volume did push the screen size to the limit.

The desilter had a underflow weight ranging between 0.3 and 1.0 ppg heavier than the active mud weight with an underflow rate ranging between 3.5 - 9.5 gpm. Continuing repairs accounted for the variation in the effectiveness of the desilter as much as changes in the formation and drilling rate.

Although the desander consistently threw out an underflow weight greater than 13 ppg, for the most part it was at a slightly low rate of discharge ie with less than 1 gpm. Drilling through sandstone eg the Paaratte did improve upon this with an underflow rate of 1.8 gpm.

## **CONCLUSIONS AND RECOMMENDATIONS:**

The 8.1/2" interval was drilled in 9 days with the total depth of 1745 meters being reached on 15 April, 1995. The interval cost at this stage was \$16,624.00 which evaluates to \$11.50 per meter or \$8.77 per barrel. This compares favourably with the projected \$15.48 per meter or \$7.55 per barrel. The higher cost per barrel can be attributed to the use of 3% by weight KCl from 980 meters. The suggested program originally based the cost on using 1% KCl for the whole section unless problems were encountered. The use of 3% KCl probably accounts for the lower dilution rate of 1.31 bbl/m needed for drilling this section that the proposed 2.05 bbl/m, as it would be providing greater inhibition. Even though the higher KCl concentration produced a greater cost per barrel, the lower dilution rate provided the corresponding saving in cost per meter.



# **M-I Australia Pty. Ltd.**

Interval	300 - 1745 Meters	8.1/2" Hole	7" Casing
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Unfortunately, initial attempts to log the well were unsuccessful as the top hole Marl was collapsing in creating bridges. Teutonic stresses were relieving cavings. Products ie Polypac R, XCD and pre hydrated Gel, were used to produce viscosity in the form of sweeps, pill spotting and general raising of the yield point in the active system. The KCl content was also raised to 4% by weight in hope of providing greater inhibition. The Marl was eventually held back by raising the mud weight to 9.6 ppg with Barite. Il this conditioning of the mud produced a final mud cost for the interval of \$28,072.00 which was 13% over the projected cost of \$24,790.00 (based on 3% KCl).

This mud system drilled the 8.1/2" interval quickly with no major problems. The collapsing of the top hole Marl as Teutonic stresses relieved themselves was most probably related to time. It must be remembered that this was the same Marl that was drilled in the 17.1/2" interval which was very dispersive. Consideration should be given to the affect of higher concentrations of KCl in freshwater formations ie in reference to dehydration and shrinking of the formation clays in contact with mud filtrate. It is recommended that in future wells in this area that the same mud system be used for drilling this interval but possibly with a lower KCl concentration and only raising the concentration when needed. It is also recommended that a contingent of XCD Polymer be kept on site as it provides better and more reliable yield point viscosity than does Polypac R, especially in non-drilling scenarios.

# **M-I Australia Pty. Ltd.**

Interval	1701.6 Meters	Testing & Completion	6.276" Hole 7" Casing
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MUD TYPE : INHIBITED KCl 9 SG = 1.12)

MUD PROPERTIES :

Brine Weight : 9.35 ppg  
pH : 9.5 - 9.7  
Chlorides : 100,000 mg/l  
Total Hardness : 160 - 200 mg/l  
KCl % by weight : 18.75%

**TESTING AND COMPLETION OPERATIONS:**

The wellhead and BOP's were nipped up. The BOP's were pressure tested prior to running in with a 6" bit and scraper on 2.7/8" tubing. The scraper was worked from 1465 - 1503 meters. Cement was tagged at 1701.6 meters. A Hi Vis sweep of 10 bbl was reverse circulated out and chased with the inhibited KCl brine displacement. The bit was pulled back to 1570 meters and a 1% by weight KCl in freshwater was spotted across the perforation interval of 1450 - 1570 meters. The tubing was pulled. BPB were rigged up and the CBL run. After pressure testing the lines and BOP, BPB and the lubricator were rigged up to perforate. BPB were run in perforating the following intervals: 1 - 1533.5 - 1559.85 meters, 2 - 1543.4 - 1546.4 meters and 3 - 1537 - 1543.35 meters. BPB and the lubricator were rigged down. The well was observed at the choke.

The 6" bit and scraper were run in the hole periodically stopping to flow check. The pipe was reciprocated from 1554 - 1572 meters. At 1572 meters, the 1% KCl in freshwater was reverse circulated out, recovering this fluid into the desilter pit. The pipe was run in to bottom. A 15 bbl Hi Vis sweep was pumped and reverse circulated out, dumping the Hi Vis on return to surface. The bit and scraper were pulled out of the hole to conduct cased hole DST 1.

The mud engineer was released on 25 April, 1995.

**COMPLETION FLUID:**

Initially 350 bbls of KCl brine to a weight of 9.35 ppg (SG - 1.12) was made-up. This brine was inhibited with Cronox 2-100, while additionally made volume was inhibited with Conqor 303. The pH was raised to 9.7 with Caustic Soda. Additional volume was needed due to dead brine volume in spare pits once the hole was displaced to brine, and due to surface losses when dumping sweeps or 1% KCl brine.

# **M-I Australia Pty. Ltd.**

Interval	1701.6 Meters	Testing & Completion	6.276" Hole 7" Casing
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A total of 40 bbls of Hi Vis was made-up with Polypac R and freshwater in the pill tank. Sweeps of 10 - 15 bbl each were pumped, circulated out and dumped prior to displacing to the brine and both cased hole DST's. As the trough does not go as far as the pill tank, these sweeps could not be reclaimed.

The 1% KCl brine was made-up by diluting down the 18.75% brine in the desilter pit. This was used to spot across the perforation zones. When the 1% KCl brines were circulated out, they were reclaimed back into the desilter pit.

# SECTION 3



**DAILY DISCUSSION  
REPORT**

M-I AUSTRALIA PTY LTD

===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD . Contractor : CENTURY DRILLING Description : APPRAISAL Page: 1  
 Well Name : WALLABY CREEK 2 Field/Area : PPL 1 Location : OTWAY BASIN Well: W0002  
 =====

Date : 04/04/95 Depth : 65.0 Day : 1  
 The 17.1/2" hole was spudded with the 0.75% by weight KCl brine. The full surface system was used so as to run the desilter & desander. Some additions of prehydrated gel were added to the system to maintain a minimum viscosity. The 17.1/2" hole was drilled to 59 m, with a survey at 28 m (3/4 deg), before pulling out to install a 17.1/2" stabilizer. On running in, the stabilizer was reamed from 21.7 to 50 m. The hole was continued to be drilled from 59 to 65 m.

Date : 05/04/95 Depth : 300.0 Day : 2  
 Prior to entering the Marl, the viscosity was 35 sec/qt. The Marl native clays were allowed to build the viscosity, and no more Gel was added. The 17.1/2" hole was drilled from 65 to 215 m, with surveys giving a maximum survey of 1 deg at 84m. The hole was circulated to condition the mud as the viscosity was rapidly increasing. Water and Spersene CF were used to thin the mud whilst maintaining the KCl concentration which was showing evidence of some depletion. The hole was continued to be drilled, with surveys, to the total depth of this section of 300m. The hole was circulated clean prior to pulling out for a wiper trip.

Date : 06/04/95 Depth : 300.0 Day : 3  
 On running back in, 5m of fill was encountered. Bottoms up was circulated, prior to pulling out, where tight hole was worked from 220 to 228m. The 17.1/2" bit, bit sub, 8" drill collars and stabiliser were broken and laid out. The 13.3/8" casing was rigged up and run, installing 4 centralizers. The casing was circulated 1.5 times its capacity, during which the mud was diluted with water to reduce the viscosity to 40 sec/qt. The casing was cemented and the cement displaced with mud. This mud will form the basis of the mud system used in the 8.1/2" interval.

Date : 07/04/95 Depth : 303.0 Day : 4  
 The BOPs were nipped up and pressure tested with "Dowell". A concentrated KCl/Polymer premix of 150 bbl was made up, recycling the sump water where possible. The surface mud system was pretreated against cement contamination with bicarbonate of soda. A 12.1/4" bit, bit sub & crossover were made up and ran in the hole, picking up 2 x 6.1/4" drill collars. The cement was tagged at 283.63 m. The hydril, outside kill, upper, lower kelly cock were pressure tested. The float, shoe track and 3 m of new hole to 303 m, were drilled. The mud remained stable as far as viscosity, though the pH did rise to about 10. The hole was circulated clean prior to conducting a FIT to a EMW of 25.7 ppg. The 12.1/4" bit was pulled and a 8.1/2" drilling assembly was made up.

===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD	Contractor : CENTURY DRILLING	Description : APPRAISAL	Page: 2
Well Name : WALLABY CREEK 2	Field/Area : PPL 1	Location : OTWAY BASIN	Well: W0002

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Date : 08/04/95 Depth : 822.0 Day : 5

A stabilizer and jars were picked up on running in with the 8.1/2" bit. The corrosion rings were installed. Circulation was broken and the 8.1/2" hole drilled from 303 to 822m with surveys (maximum 1 deg @ 356m). The fluid loss was reduced to less than 8 cc by 800m using CMC LV and Polypac R. With a ROP over 25 m/hr the mud weight rose quickly, which had to be controlled by dumping settled solids, diluting via polymer premixes and running the desander & desilter. Potassium chloride was maintained at approximately 1% by weight. The oxygen scavenger OS-1 was added for corrosion control. The sump water was recycled, so as a precautionary action, the bactericide Bacban III was added.

Date : 09/04/95 Depth : 1208.0 Day : 6

The 8.1/2" hole was drilled from 822 to 982 m, before pulling out for a 35 stand wiper trip. Tight hole was worked at 892, 883, 854, 796, 681 and from 528 to 499m. On running in 20ft of drilling line was slipped. The hole was reamed from 528 to 518m, and then continued running in encountering 2 m of fill on bottom. Drilling continued from 982 to 1222 m. Surveys were conducted at 969m (3/4 deg) & 1171m (1 deg). The KCl concentration was increased from 1% to 3% by weight. Temporary down hole losses totally 30 bbl, to the Paaratte Formation was experienced from 900 to 910m. The fluid loss was reduced to less than 7 cc/30min with CMC LV and Polypac R.

Date : 10/04/95 Depth : 1291.0 Day : 7

The 8.1/2" hole was drilled from 1222 to 1227m experiencing high torque. As no penetration could be achieved the bit was pulled, tight hole being worked from 1103 to 1007m. Bit #3 and the BHA were made up and run in. The hole was reamed from 701 to bottom. Bit #3 was broken in and the 8.1/2" hole drilled from 1227 to 1295m. As the weight rose to 9.1+ - 9.2 ppg the desilter was put to use. Approximately 3% by weight KCl was maintained. Fluid loss was controlled and viscosity built with Polypac R.

Date : 11/04/95 Depth : 1424.0 Day : 8

The 8.1/2" hole was drilled from 1295 to 1424m, with a survey at 1377m of 1.1/4 deg. Bottoms up was circulated prior to pulling out. Tight hole was worked from 1315 to 1306m and from 1277 to 1258m. The kelly was picked up to back ream from 1249 to 1239m and again from 1230 to 1220m. On continuing to pull out, tight hole was worked from 1210 to 1105m. A 3000psi McEvoy Valve was installed in the Braden Head. The BOP was tested to 3000psi. Bit #3 was rerun in the hole, where the hole was reamed from 1000 to 1039m and from 1076 to 1172m. A 9.3ppg mud weight was maintained. Polypac R was used to provide viscosity and for fluid loss control. Make up water for premixes was recycled from the sump.

Date : 11/04/95 Depth : 1431.0 Day : 8

Mud weight rose during reaming of hole.

===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 3  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTHWAY BASIN      Well: W0002

Date : 12/04/95      Depth : 1527.0      Day : 9

On running in, it was necessary to ream from 1172 to 1424m, working the tight hole from 1230 to 1262m and from 1376 to 1424m. The 8.1/2" hole was drilled from 1424 to 1491m. A maximum gas of 2430 units was received from drilling into the Waarre Formation at 1483m. At 1491m the hole was circulated for 5 minutes before pulling up above the gas column and circulating up a sample. This procedure was repeated after drilling to 1501m and again after drilling to 1527m. A wiper trip was made to 970m. Tight hole was worked from 1344 to 1000m with a maximum overpull of 50,000 lb thereafter. On running in the hole was reamed from 1491 to 1510m. Mud weight was controlled through dumping and diluting and the solids control equipment. The fluid loss was reduced to 5.6cc

Date : 13/04/95      Depth : 1529.0      Day : 10

The hole was continued to be reamed & washed to bottom of 1527m. The hole was circulated clean, and the pipe slugged prior to pulling out. Part of the drilling assembly was laid out and a core barrel was picked & made up. The core barrel was run in; the hole being washed/reamed from 1453 to 1466m and from 1511 to 1527 where bottom was tagged. A 15 minute spacer was circulated before picking up a pup joint and dropping the ball. The 8.1/2" hole was cored from 1527 to 1529m. The hole was circulated establishing the mud weight steady at 9.4 ppg. The core barrel was pulled out and of the 2m of core, 1.12m (56%) was actually retrieved. The inner barrel was cleared and the bit checked. The core barrel was run in picking up the kelly to clear the bit at 476 & 821m.

Date : 14/04/95      Depth : 1586.0      Day : 11

The core barrel was continued to be run in, clearing it at 1008, 1123, 1238, 1257 and 1333m. The hole was reamed from 1511 to 1529m and then circulated prior to dropping the ball and cutting core #2 from 1529 to 1547m. The core barrel was pulled out of the hole, working tight hole from 1534 to 1520m. The core barrel was broken and laid out, retrieving 18.4 m of core. The sandtrap and settling pit was dumped of high/settled solids mud. Bit #5 was made up along with the BHA. On running in the hole, circulation was broken to precautionary ream from 1497 to 1547m. The 8.1/2" hole was then drilled from 1547 to 1586m. Polypac R & CMC LV were used to control the fluid loss (5.6cc), with a preference for Polypac R to maintain viscosity.

Date : 15/04/95      Depth : 1745.0      Day : 12

The 8.1/2" hole was drilled from 1586m to the total depth of 1745m with a survey at 1578m of 1.1/4 deg. Mud weight was control through dilution and the running of the desilter & desander, resulting in a weight consistently ranging from 9.4+ to 9.5 ppg. Bottoms up was circulated prior to pulling out for a wiper trip to 971m. Tight hole had to be work, and pipe stuck at 1545m freed, with the kelly being picked up to back ream with slips in the rotary table. Tight hole continued from 1555 to 1565m before receiving a clear run. On running back in, the hole was washed to bottom from 1728m encountering 5m of fill. The hole was then circulated clean.



===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 4  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN      Well: W0002

Date : 16/04/95      Depth : 1745.0      Day : 13  
 Continued circulating the hole clean with a survey conducted at 1722m of 1 deg ,before pulling out to run wireline logs. BPB were rigged up and commence running log #1 (DLL-GR-MLL-BHC) but failed to go pass 492m. BPB were rigged down. On running in the bridge was tagged at 492m and reamed to 500m. Bottoms up was circulated from 545m. On pulling out the hole collapse & pipe had to be freed at 481m. The instable hole was circulated raising the yield point to 20 lb/100sq.ft to clear cavings. Pipe was pulled out & BPB ran log #1 again failing to go pass 337m. BPB were rigged down. On running in the bridge was tagged at 337m. The hole was circulated clean before running in to a bridge at 478m. The bridge was washed & reamed. The hole was then circulated clean.

Date : 17/04/95      Depth : 1745.0      Day : 14  
 The hole was reamed from 478 to 506m, and circulated clean at 519m. On running in bridges were encountered at 525 & 544m and were reamed out. Fill was tagged at 1722m and was thus reamed to bottom. The mud was circulated raising the KCl concentration to 4% by weight. The hole was swept with a 50 bbl Hi-Vis pill, before pulling out, up to 1159m. Bottoms up was circulated here, and at 774m, were a carbide was dropped indicating the hole was 46 bbl overgauge at this depth. Another 50 bbl Hi-Vis sweep was circulated through at 583m. A 140bbl Hi-Vis pill was spotted at this depth prior to pulling out. BPB were rigged up and run #1 failed to pass 786m. On running in circulation was broken & the bridge tagged at 786m. Polypac R was used for the Hi-Vis pills.

Date : 18/04/95      Depth : 1745.0      Day : 15  
 A bridge was tagged at 1719m on running in, and was reamed from 1719 to 1735m. The hole was washed to bottom, encountering 5m of fill. The mud system was circulated. Viscosity was rebuilt with prehydrated gel / polymer premixes, also providing weight control at this stage through dilution. The system was treated with Bacban III to inhibit possible bacteria action. The active system volume was reduced and weighted up to 9.6 ppg, before pulling out of the hole. BPB were rigged up, and log #1 was run in which resulted in tool failure. It was pulled and repaired. Logging recommenced with run #1 DLL-GR-MLL-BHC, followed by run #2 PDS-CNS-CAL-GR.

Date : 19/04/95      Depth : 1745.0      Day : 16  
 The well was continued to be logged with BPB; run #2 PDS-CNS-CL-GR, run #3 MBD , and run #4 AST. 40 bbl of 30 ppb gel was made up and left to hydrate. On running in the hole circulation was broken at 1728m. A fill of 8 m was encountered on bottom which was reamed out. In the 3 hours the mud was circulated the prehydrated gel was brought over and Polypac R added for viscosity. Mud weight remained stable at 9.6 ppg. The string was pulled and BPB were rigged up to log. Run #5, RFT-GR, was commenced.

===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 5  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN      Well: W0002

Date : 20/04/95      Depth : 1745.0      Day : 17  
 Wireline logging was continued with BPB: run #5 RFT-GR, run #6 VDL-GR and run #7 CST. BPB were rigged down and the bit and BHA were made up. On running in the drilling line was slipped and cut. Sticky hole had to be worked from 1021 to 1023 m.

Date : 21/04/95      Depth : 1745.0      Day : 18  
 On running in, 4 m of fill was encountered, and washed to bottom. The mud was circulated and viscosity built with Polypac R and XCD polymer. The drill pipe and BHA were laid out sideways, using 1/2 drum of conqor303 to inhibit the pipe. The 7" casing rams were changed in. The 7" casing was run and landed at 1718m. A gel/water solution was made up. The surface equipment were rigged and headed up. The hole was circulated clean, allowing the viscosity of the mud to drop, to that specified for cementing.

Date : 22/04/95      Depth : 1745.0      Day : 19  
 The casing was circulated cleaning the hole and reducing the mud viscosity to 38 s/qt. A 10 bbl preflush was pumped prior to pressure testing the surface lines. The 7" casing was cemented displacing the cement with water. Casing was set at 1718 m. While nipping up the wellhead and BOP, the mud tanks were dumped and cleaned before making up 350 bbl of inhibited KCl brine to a mud weight of 9.35 ppg (S.G. = 1.12) in readiness for the testing and completion program.

Date : 23/04/95      Depth : 1745.0      Day : 20  
 Pressure testing of the BOP continued. Polypac R in fresh water was used to make up 40 bbl of Hi-Vis (120 s/qt). A 6" bit and scraper was made up and run in on 2.7/8" tubing, working the scaper from 1465 to 1503 m. Cement was tagged at 1701.6 m. The surface equipment was headed up prior to reverse circulating out 10 bbl of Hi-Vis chased with the KCl brine displacement. The bit was pulled back to 1570 m and a 1% by weight KCl in fresh water was spotted across the perforation interval of 1450 to 1570 m. The tubing was pulled to 1429 and run back in to 1570 as the brine was "U" tubing. The brine was circulated and conditioned in preparation to re-spotting the 1% KCl.

Date : 24/04/95      Depth : 1745.0      Day : 21  
 The brine was circulated and conditioned to an even 9.35 ppg weight before fresh water/1% KCl was spotted across the perforation interval of 1450 to 1570 m. The tubing was pulled. BPB were rigged up and the CBL run. The BOP and lines were pressure tested. The lubricator and BPB were rigged up to perforate. BPB were run in and the intervals perforated were; #1 - 1553.5 to 1559.85 m, #2 - 1543.4 to 1546.4 m, and #3 - 1537 to 1543.35 m. BPB and the lubricator were rigged down. The well was observed at the choke. The bit and scraper were run in the hole.

===== M-I DRILLING FLUIDS DAILY DISCUSSION =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 6  
Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN      Well: W0002  
=====

Date : 25/04/95      Depth : 1745.0

Day : 22

The 6" bit and scraper were run in the hole stopping for flow checks. The pipe was reciprocated from 1554 to 1572 m. At 1572 m, the fresh water/1% KCl was reverse circulated out, recovering this fluid into the desilter pit. The pipe was run in to bottom. A 15 bbl Hi-Vis pill was pumped and reverse circulated out, dumping the Hi-Vis on return to surface. The bit and scraper were pulled out of the hole to conduct cased hole DST #1.

The mud engineer was released on this day, 25 April, 1995.

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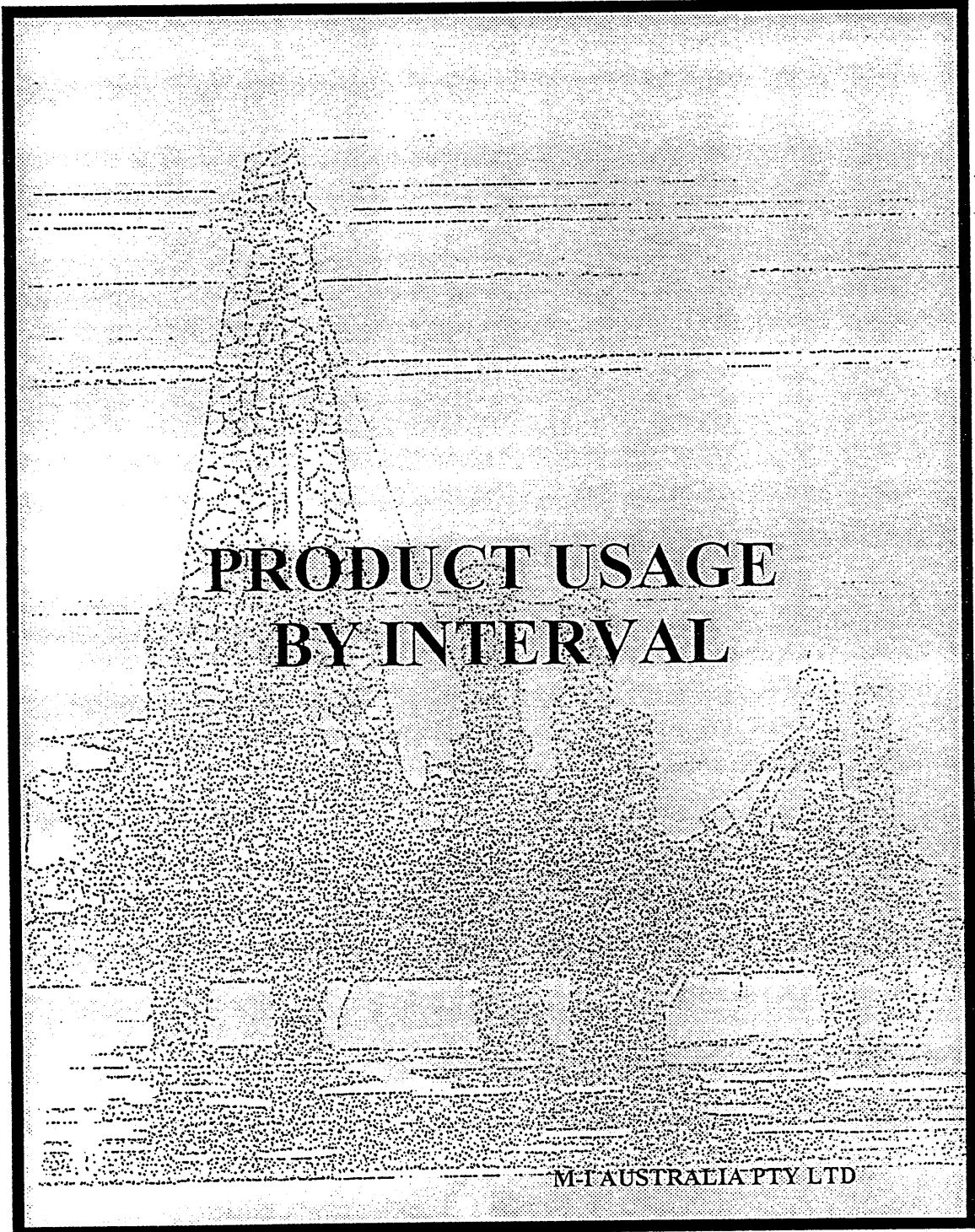
M-I Drilling Fluids Co

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

11-05-95

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SECTION 4



**PRODUCT USAGE  
BY INTERVAL**

M-I AUSTRALIA PTY LTD

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**SUMMARY OF PRODUCT USAGE FOR 17.5" INTERVAL FROM 4/4/95 - 6/4/95, 6 - 300m**

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Caustic Soda	25 KG SX	5	22.35	111.75
M-I Gel	25 KG SX	55	9.44	519.20
Potassm Chloride	25 KG SX	57	11.46	653.22
Soda Ash	25 KG SX	1	8.94	8.94
Sodium Bicarb	25 KG SX	1	15.34	15.34
Spersene CF	50 LB SX	3	40.55	121.65

\*\*\* INTERVAL WATER-BASE MUD COST TOTAL = 1,430.10

\*\*\* TOTAL MUD COST FOR INTERVAL = 1,430.10

*M-I Drilling Fluids L.I* DRILLING FLUIDS DATA MANAGEMENT S) W0002 April 28, 1995

Meters Drilled	294 meters
Days	3 days
Bbls Mud Used	1180 bbl
Cost per Meter	\$4.86
Cost per Day	\$476.70
Cost per bbl	\$1.21

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**BREAKDOWN OF COST BY PRODUCT GROUP FOR 17.1/2" INTERVAL, 04/04/95 - 06/04/95, 6.0 - 300.0 m**

<b>WATER BASE MUD PRODUCTS</b>	<b>Cost</b>	<b>% Total</b>
1 - BENTONITE	519.20	36.3
2 - SALTS	653.22	45.7
3 - ALKALIES	136.03	9.5
4 - DISPERSANTS	121.65	8.5
<b>WATER BASE MUD TOTAL COST</b>	<b>1,430.10</b>	<b>100.0</b>

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM

W0002

April 28, 1995

DRILLING COST AND CONSUMPTION SHEET

OPERATOR : GFE RESOURCES LTD.											
WELL : WALLABY CREEK No 2.											
17.1/2" INTERVAL						Product Consumption & Concentration					
DATE	DEPTH	METERS DRILLED	WATER ADDED	MUD BUILT	MUD DUMPED	M-I Gel 25 kg sx	NaOH 25 kg sx	KCl 25 kg sx	Soda Ash 25 kg sx	Bicarb 25 kg sx	Spersene CF 50 lb sx
4-Apr	65	59		480	85	30	2	25		1	
5-Apr	300	235	555	65	380	25	3	32	1		3
6-Apr	300	0	80	0	290						
<b>TOTALS</b>		294	635	545	755	55	5	57	1	1	3
<b>PROJECTED</b>		300		993		72	3	46	-	-	0
<b>LB/BBL IN ACTIVE SYSTEM</b>						2.56	0.23	2.66	0.05	0.05	0.13
<b>PROJECTED LBS/BBL IN ACTIVE SYSTEM</b>						20	0.25 - 0.50	3.00	as required	as required	as required
<b>INTERVAL COST</b>			\$1,430.10	<b>PROJECTED</b>		<b>INTERVAL COST</b>			\$1,391.97		
<b>COST PER METER</b>			\$4.86			<b>COST PER METER</b>			\$4.64		
<b>COST PER BARREL</b>			\$1.21			<b>COST PER BARREL</b>			\$1.40		
<b>DILUTION PER METER</b>			4.01	bbl/mtr			<b>DILUTION PER METER</b>			3.31	bbl/mtr
<b>INTERVAL LENGTH</b>			294	mtrs			<b>INTERVAL LENGTH</b>			300	mtrs
<b>TOTAL BARRELS REQ.</b>			1180	bbls			<b>TOTAL BARRELS REQ.</b>			993	bbls



**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**SUMMARY OF PRODUCT USAGE FOR 8.5" INTERVAL FROM 7/4/95 - 21/4/95, 300 - 1745m**

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Bacban III	6 LB JUG	3	109.34	328.02
CMC TG LV	25 KG SX	63	61.23	3857.49
Caustic Soda	25 KG SX	17	22.35	379.95
Conqor 303	208 LT DM	1	393.36	393.36
M-I Bar	25 KG SX	200	5.53	1106.00
M-I Gel	25 KG SX	162	9.44	1529.28
OS-1	25 KG SX	10	50.95	509.50
Polypac R	25 KG SX	97	131.74	12778.78
Potassm Chloride	25 KG SX	543	11.46	6222.78
Sodium Bicarb	25 KG SX	8	15.34	122.72
XCD	25 KG SX	2	422.29	844.58

\*\*\* INTERVAL WATER-BASE MUD COST TOTAL = 28,072.46

\*\*\* TOTAL MUD COST FOR INTERVAL = 28,072.46

M-I Drilling Fluids L.I DRILLING FLUIDS DATA MANAGEMENT S) W0002 April 28, 1995

Meters Drilled	1445 meters
Days	15 days
Bbls Mud Used	2365 bbl
Cost per Meter	\$19.43
Cost per Day	\$1,871.50
Cost per bbl	\$11.87

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**BREAKDOWN OF COST BY PRODUCT GROUP FOR 8.1/2" INTERVAL, 07/04/95 - 21/04/95, 300.0 - 1745.0 m**

WATER BASE MUD PRODUCTS	<u>Cost</u>	<u>% Total</u>
1 - WEIGHT MATERIAL	1,106.00	3.9
2 - BENTONITE	1,529.28	5.4
3 - VISCOSIFIERS	844.58	3.0
4 - FLUID LOSS CONTROL	16,636.27	59.3
5 - SALTS	6,222.78	22.2
6 - ALKALIES	502.67	1.8
7 - INHIBITORS	1,230.88	4.4
<b>WATER BASE MUD TOTAL COST</b>	<b>28,072.46</b>	<b>100.0</b>

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM

W0002

April 28, 1995

DRILLING COST AND CONSUMPTION SHEET

GFE RESOURCES LTD.																
LABY CREEK No 2.																
VAL				Product Consumption & Concentration												
DEPTH	METERS	WATER	MUD	MUD	M-I Gel	M-I Bar	NaOH	KCl	Polypac R	CMC LV	OS-1	Bacban3	Bicarb	XCD	Conqor303	
	DRILLED	ADDED	BUILT	DUMPED	25 kg sx	25 kg sx	25 kg sx	25 kg sx	25 kg sx	25 kg sx	25 kg sx	6 lb jug	25 kg sx	25 kg sx	208 ll dr	
Continued forward from 17.1/2" interval			425													
303	3		150	53			1	35	5	10			3			
822	519		320	259	20			26	8	10	2	1	3			
1222	400		260	102	20		3	107	8	9	2					
1295	73			81			1	15	3							
1424	129		190	196			1	50	5	7	1		1			
1527	103		200	144			2	60	13	11	1					
1529	2		55	29			20	1	15	2	2	1				
1586	57		115	114				2	25	5	3					
1745	159		180	142					40	6	10					
1745	0		80	70				1		7						
1745	0		170	160				1	110	19		1				
1745	0		165	92	91	139		2	48	7		1	1			
1745	0		40	48	22	39		2	12	6		1	1			
1745	0		0	41		2				1	1					
1745	0	15	0	62	9					2				2	0.5	
	1445	15	2350	1593	162	200	17	543	97	63	10	3	7	2	0.5	
	1397		2870		260		25	-	78	76	20	3	-	-	-	
ACTIVE SYSTEM					4.59	15.60	0.48	12.69	2.26	1.47	0.23	0.008	0.16	0.17	1.37	
LBS/BBL IN ACTIVE SYSTEM					5.0 - 8.0	as req.	0.25 - 0.50	3.5 - 14.4	1.0 - 1.5	1.0 - 2.0	as req.	as req.	treat cmt	as req.	as req.	
COST		\$28,072.46	PROJECTED		INTERVAL COST				\$21,673.05							
PER METER		\$19.43			COST PER METER				\$15.48							
PER BARREL		\$11.87			COST PER BARREL				\$7.55							
PER METER		1.64	bbl/mtr		DILUTION PER METER				2.05 bbl/mtr							
LENGTH		1445	mtrs		INTERVAL LENGTH				1397 mtrs							
BARRELS REQ.		2365	bbbls		TOTAL BARRELS REQ.				2870 bbbls							

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**SUMMARY OF PRODUCT USAGE FOR COMPLETION PROGRAM FROM 22/4/95 - 25/4/95**

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
CMC TG LV	25 KG SX	1	61.23	61.23
Caustic Soda	25 KG SX	2	22.35	44.70
Cronox 2-100	208 LT DM	1	871.25	871.25
Lime	20 KG SX	1	6.00	6.00
M-I Gel	25 KG SX	2	9.44	18.88
Polypac R	25 KG SX	3	131.74	395.22
Potassm Chloride	25 KG SX	620	11.46	7105.20
Soda Ash	25 KG SX	1	8.94	8.94

\*\*\* INTERVAL WATER-BASE MUD COST TOTAL = 8,511.42

\*\*\* TOTAL MUD COST FOR INTERVAL = 8,511.42

M-I Drilling Fluids L.I DRILLING FLUIDS DATA MANAGEMENT SY W0002 April 28, 1995

Days	4 days
Bbls Brine Used	450 bbl
Cost per Day	\$2,127.86
Cost per bbl	\$18.91

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

BREAKDOWN OF COST BY PRODUCT GROUP FOR TESTING & COMPLETION PROGRAM, 22/04/95 - 25/04/95

WATER BASE MUD PRODUCTS	Cost	% Total
1 - BENTONITE	18.88	0.2
2 - FLUID LOSS CONTROL	456.45	5.4
3 - SALTS	7,105.20	83.5
4 - ALKALIES	59.64	0.7
5 - INHIBITORS	871.25	10.2
WATER BASE MUD TOTAL COST	8,511.42	100.0

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM

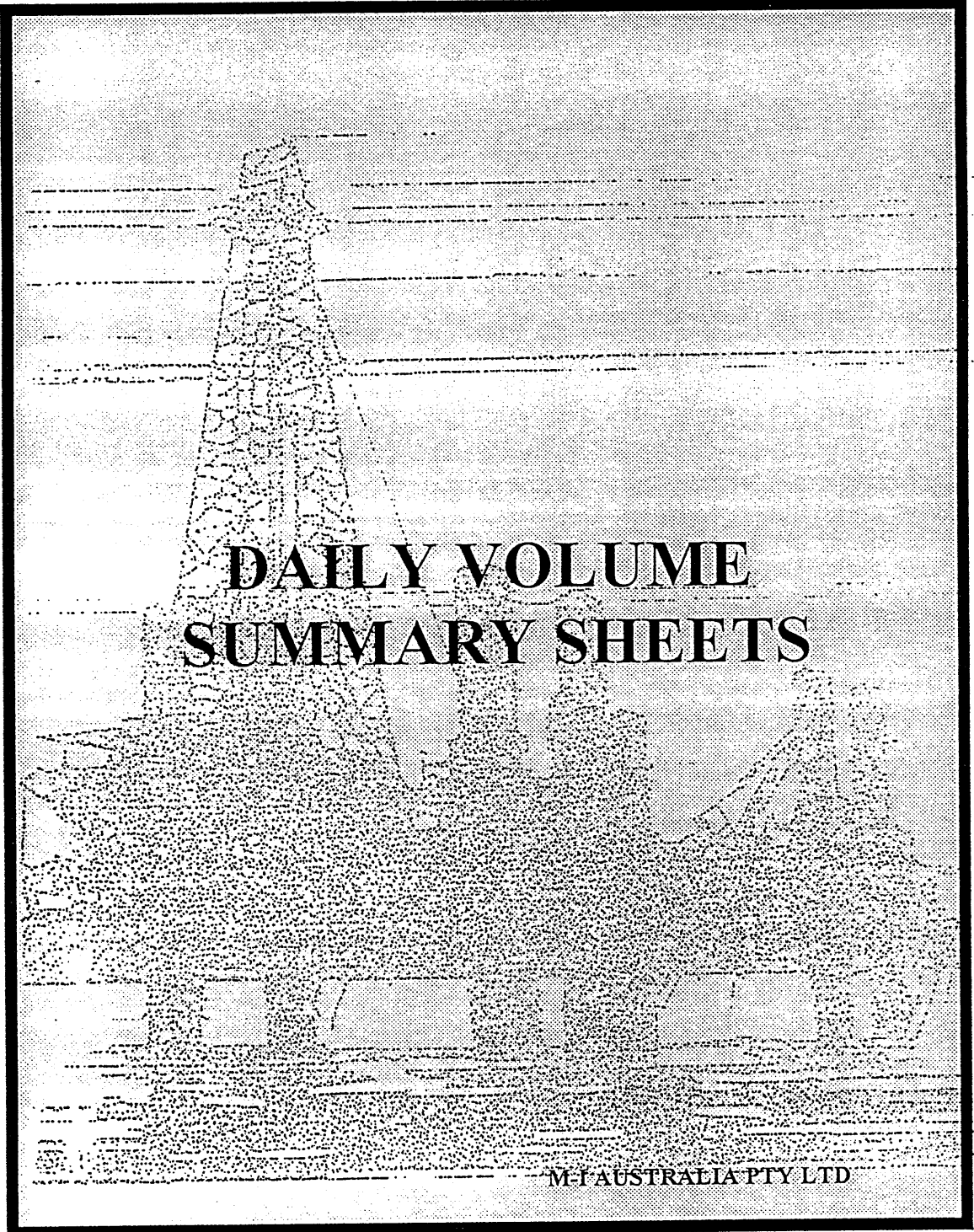
W0002

April 28, 1995

DRILLING COST AND CONSUMPTION SHEET

GFE RESOURCES LTD.													
LABY CREEK No 2													
COMPLETION INTERVAL					Product Consumption & Concentration								
DEPTH	METERS	HI VIS	BRINE	VOLUME	KCL	Cronox 2100	Conqor303	NaOH	Polypac R	MI-Gel	Soda Ash	Lime	CMC LV
	DRILLED	BUILT	BUILT	DUMPED	25 kg sx	208 lt dr	208 lt dr	25 kg sx	25 kg sx	25 kg sx	25 kg sx	20 kg sx	25 kg sx
1701.6	0		350		475	1		2					
1701.6	0	40		54	60				3	1			
1701.6	0		60	65	80		0.5				1	1	
1701.6	0			21	5					1			1
	0	40	410	140	620	1	0.5	2	3	2	1	1	1
ACTIVE SYSTEM					83.17	0.51	0.24	0.27	4.13	-	-	-	-
D LBS/BBL IN ACTIVE SYSTEM					71	0.5	0.25	0.25	4-5	gates	damaged	damaged	inv. corr.
COST		\$8,511.42		PROJECTED	INTERVAL COST			n/a					
BARREL		\$18.91			COST PER BARREL			n/a					
BARRELS REQ.		450 bbls			TOTAL BARRELS REQ.			350 bbls					

# SECTION 5



**DAILY VOLUME  
SUMMARY SHEETS**

M-I AUSTRALIA PTY LTD



17.1/2" Hole

Mud Volume Status					Mud Volume Built						Mud Volume Lost							
Date	Depth	Hole	Surf	Res	Total	Mud	Water	Oil	Bar	Daily	Cummul	Solids	Surf	Dump	Hole	Casing	Daily	Cummul
1995	m		Active		Vol	Built	Added	Added	Added	Total	Built	Equip				Plugs	Total	Lost
4-Apr	65	56	325	14	395	480				480	480	25	30	30			85	85
5-Apr	300	270	300	65	635	65	555			620	1100	172	118	90			380	465
6-Apr	300	149	211	65	425		80			80	1180			290			290	755

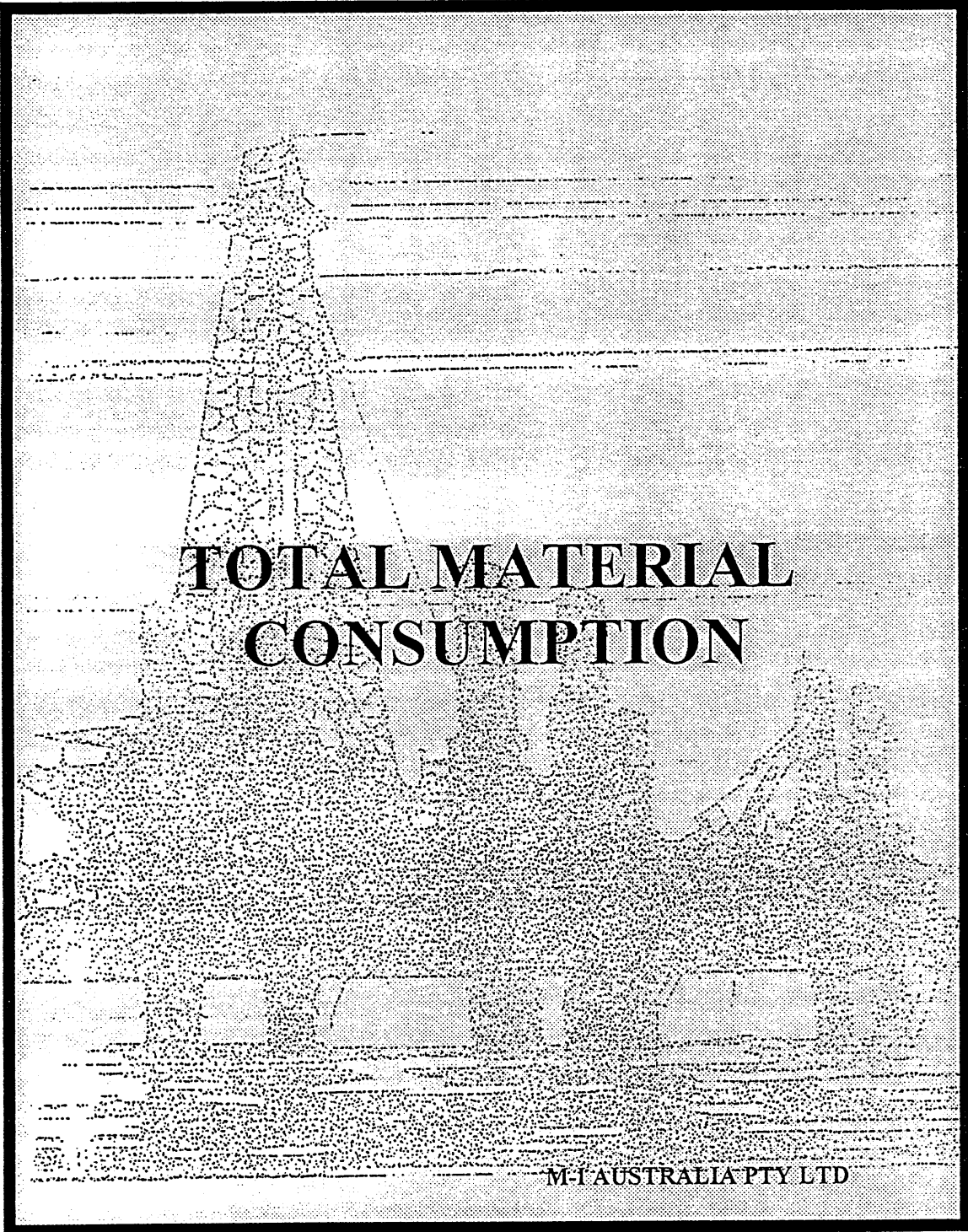
8.1/2" Hole

Mud Volume Status						Mud Volume Built						Mud Volume Lost							
Date 1995	Depth m	Hole	Surf Active	Res	Total Vol	Mud Built	Water Added	Oil Added	Bar Added	Daily Total	Cummul Built	Solids Equip	Surf	Dump	Hole	Casing Plugs	Daily Total	Cummul Lost	
Carried forward from 17.1/2" interval																		0	0
7-Apr	303	130	392		522	150				150	575		8	45			53	53	
8-Apr	822	238	345		583	320				320	895	145	34	80			259	312	
9-Apr	1222	323	418		741	260				260	1155	48	14	10	30		102	414	
10-Apr	1295	338	322		660					0	1155	57	24				81	495	
11-Apr	1424	365	246	43	654	190				190	1345	139	37	20			196	691	
12-Apr	1527	387	275	48	710	200				200	1545	104	30	10			144	835	
13-Apr	1529	386	300	50	736	55				55	1600	5	5		19		29	864	
14-Apr	1586	400	320	17	737	115				115	1715	16	10	60	28		114	978	
15-Apr	1745	433	327	15	775	180				180	1895	81	5	40	16		142	1120	
16-Apr	1745	456	275	54	785	80				80	1975	23	10		37		70	1190	
17-Apr	1745	434	361		795	170				170	2145	68	7	50	35		160	1350	
18-Apr	1745	434	165	269	868	165				165	2310	40	5	10	37		92	1442	
19-Apr	1745	434	168	258	860	40				40	2350		5	10	33		48	1490	
20-Apr	1745	434	145	240	819					0	2350		3		38		41	1531	
21-Apr	1745	422	205	145	772		15			15	2365		8	15	39		62	1593	
22-Apr	1745				0					0	2365			705		67	772	2365	

Testing & Completion

Brine Volume Status						Volume Built						Brine Volume Lost						
Date 1995	Depth m	Hole	Surf Active	Res	Total Vol	Brine Built	H <sub>2</sub> O Built	Water Added	Salt Added	Daily Total	Cummul Built	Solids Equip	Surf	Dump	Hole	Casing Plugs	Daily Total	Cummul Lost
22-Apr	1701.6		350		350	350				350	350						0	0
23-Apr	1701.6	203	103	30	336		40			40	390		45	9			54	54
24-Apr	1701.6	203	98	30	331	60				60	450		50	15			65	119
25-Apr	1701.6	203	92	15	310					0	450		6	15			21	140

SECTION 6



**TOTAL MATERIAL  
CONSUMPTION**

M-I AUSTRALIA PTY LTD

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL

Well Name : WALLABY CREEK 2 Field/Area : PPL 1 Location : OTWAY BASIN

**SUMMARY OF TOTAL PRODUCT USAGE FOR WELL FROM 4/4/95 - 25/4/95, 6 - 1745m**

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Bacban III	6 LB JUG	3	109.34	328.02
CMC TG LV	25 KG SX	64	61.23	3918.72
Caustic Soda	25 KG SX	24	22.35	536.40
Conqor 303	208 LT DM	1	393.36	393.36
Cronox 2-100	208 LT DM	1	871.25	871.25
Lime	20 KG SX	1	6.00	6.00
M-I Bar	25 KG SX	200	5.53	1106.00
M-I Gel	25 KG SX	219	9.44	2067.36
OS-1	25 KG SX	10	50.95	509.50
Polypac R	25 KG SX	100	131.74	13174.00
Potassm Chloride	25 KG SX	1220	11.46	13981.20
Soda Ash	25 KG SX	2	8.94	17.88
Sodium Bicarb	25 KG SX	9	15.34	138.06
Spersene CF	50 LB SX	3	40.55	121.65
XCD	25 KG SX	2	422.29	844.58

\*\*\* INTERVAL WATER-BASE MUD COST TOTAL = 38,013.98

\*\*\* TOTAL MUD COST FOR INTERVAL = 38,013.98

M-I Drilling Fluids L.I DRILLING FLUIDS DATA MANAGEMENT S1 W0002 April 28, 1995

Total Meters Drilled	1745 meters
Total Days	22 days
Total Bbls Mud Used	3915 bbl
Total Cost per Meter	\$21.78
Total Cost per Day	\$1,727.91
Total Cost per bbl	\$9.71

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

BREAKDOWN OF TOTAL MATERIAL COST BY PRODUCT GROUP 04/04/95 - 25/04/95, 6.0 - 1745.0 m

	<i>Cost</i>	<i>% Total</i>
WATER BASE MUD PRODUCTS		
1 - WEIGHT MATERIAL	1,106.00	2.9
2 - BENTONITE	2,067.36	5.4
3 - VISCOSIFIERS	844.58	2.2
4 - FLUID LOSS CONTROL	17,092.72	45.0
5 - SALTS	13,981.20	36.8
6 - ALKALIES	698.34	1.8
7 - DISPERSANTS	121.65	0.3
8 - INHIBITORS	2,102.13	5.5
WATER BASE MUD TOTAL COST	38,013.98	100.0

**M-I DRILLING FLUIDS PRODUCT SUMMARY**

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

**BREAKDOWN OF TOTAL PRODUCT USAGE BY GROUP 04/04/95 - 25/04/95, 6.0 - 1745.0 m  
WATER BASE MUD**

PRODUCT CATEGORY

PRODUCTS USED

WEIGHT MATERIAL

M-I Bar

BENTONITE

M-I Gel

VISCOIFIERS

XCD

FLUID LOSS CONTROL

CMC TG LV

Polypac R

SALTS

Potassm Chloride

ALKALIES

Caustic Soda

Lime

Soda Ash

Sodium Bicarb

DISPERSANTS

Spersene CF

INHIBITORS

Bachan III

Conqor 303

Cronox 2-100

OS-1

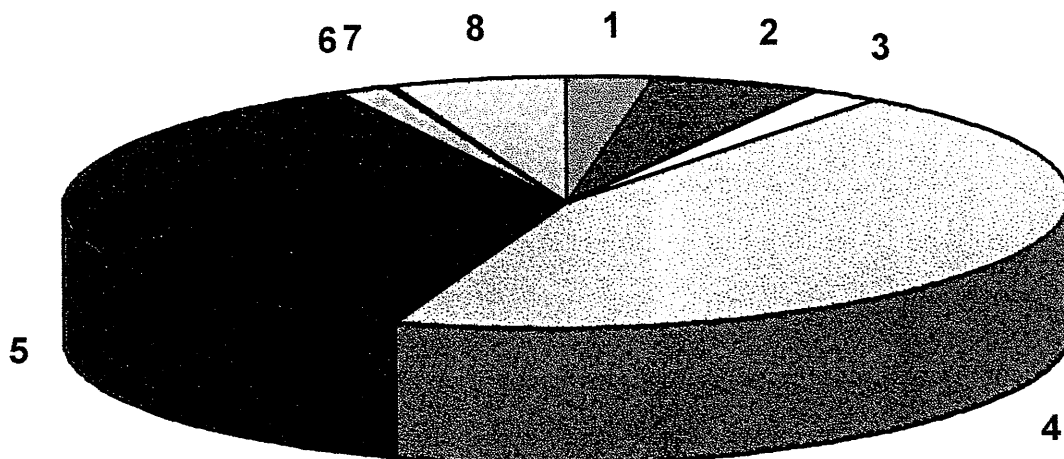




Operator : GFE RESOURCES LTD  
Well Name : WALLABY CREEK 2  
Description : APPRAISAL  
Field/Area : PPL 1  
Location : OTWAY BASIN

**COST  
ANALYSIS**

BREAKDOWN OF COST BY PRODUCT GROUP 04/04/95 - 25/04/95, 6.0 - 1745.0 m



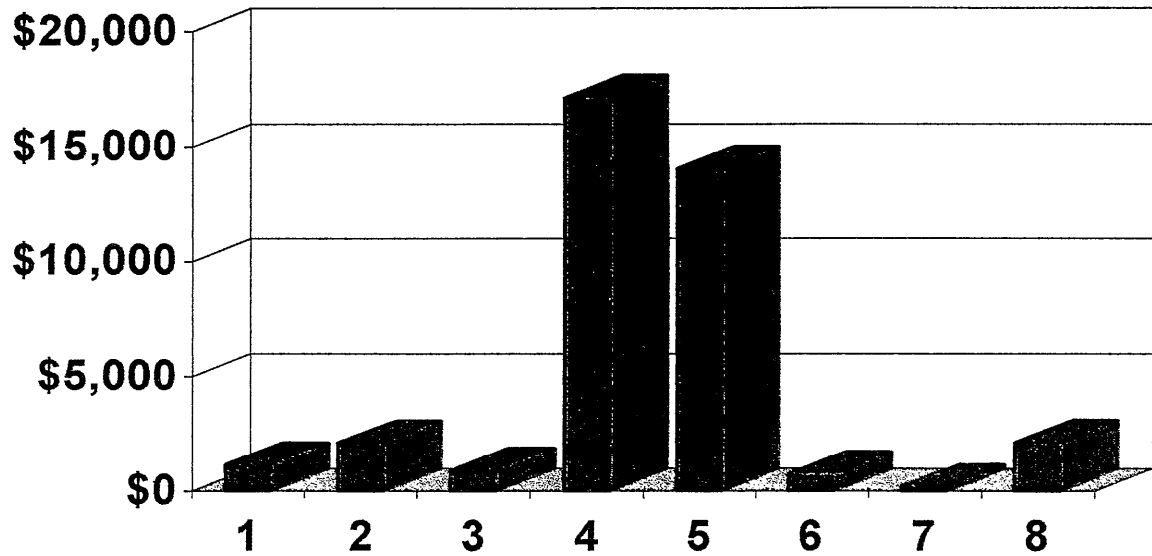
WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	1,106.00	2.9
2 - BENTONITE	2,067.36	5.4
3 - VISCOSIFIERS	844.58	2.2
4 - FLUID LOSS CONTROL	17,092.72	45.0
5 - SALTS	13,981.20	36.8
6 - ALKALIES	698.34	1.8
7 - DISPERSANTS	121.65	0.3
8 - INHIBITORS	2,102.13	5.5
<b>WATER BASE MUD TOTAL COST</b>	<b>38,013.98</b>	<b>100.0</b>



Operator : GFE RESOURCES LTD  
Well Name : WALLABY CREEK 2  
Description : APPRAISAL  
Field/Area : PPL 1  
Location : OTWAY BASIN

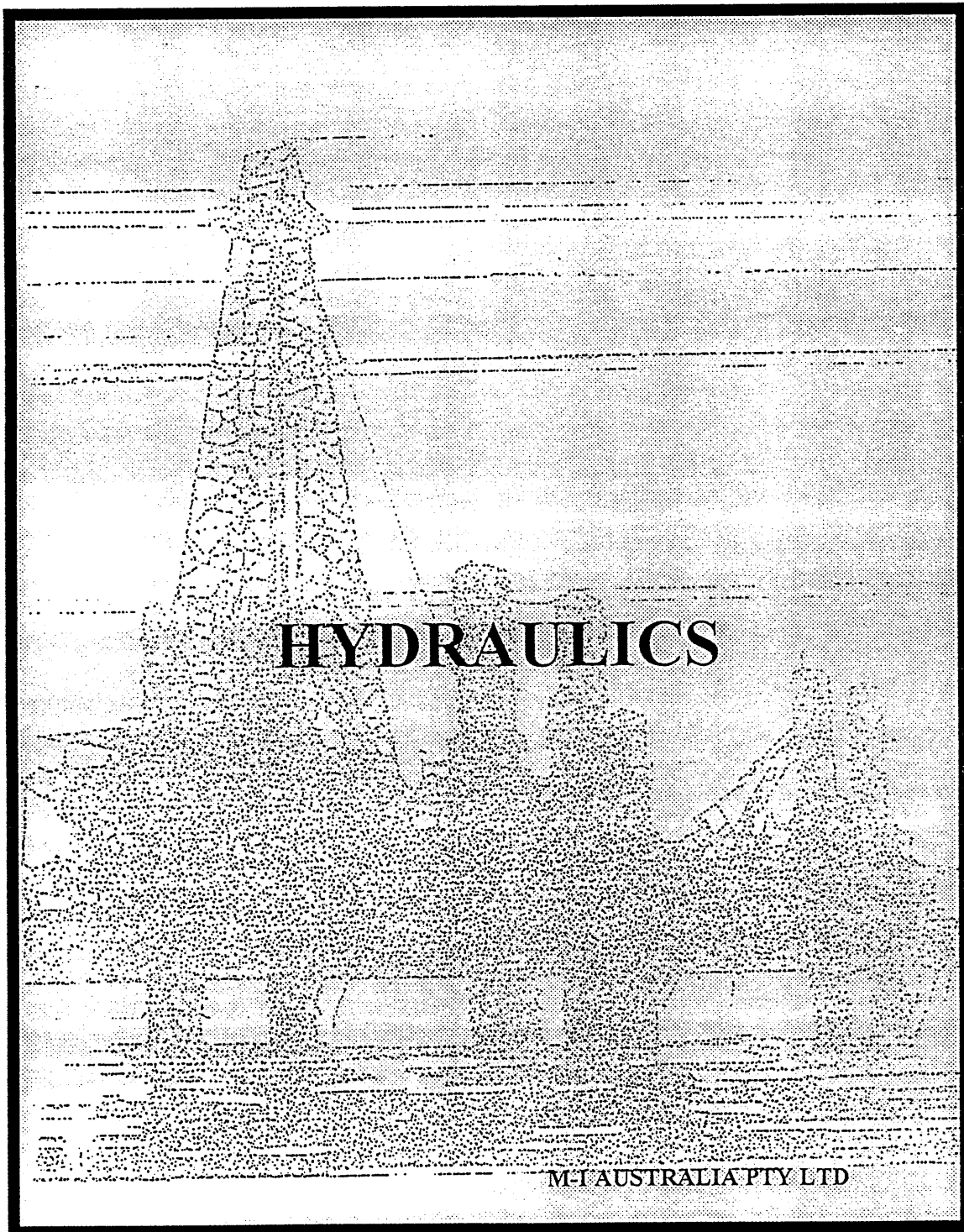
**COST  
ANALYSIS**

BREAKDOWN OF COST BY PRODUCT GROUP 04/04/95 - 25/04/95, 6.0 - 1745.0 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	1,106.00	2.9
2 - BENTONITE	2,067.36	5.4
3 - VISCOSIFIERS	844.58	2.2
4 - FLUID LOSS CONTROL	17,092.72	45.0
5 - SALTS	13,981.20	36.8
6 - ALKALIES	698.34	1.8
7 - DISPERSANTS	121.65	0.3
8 - INHIBITORS	2,102.13	5.5
<b>WATER BASE MUD TOTAL COST</b>	<b>38,013.98</b>	<b>100.0</b>

SECTION 7



# HYDRAULICS

M-I AUSTRALIA PTY LTD

**M-I DRILLING FLUIDS HYDRAULICS RECAP**

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PFL 1

Location: OTHAY BASIN

	04/04/95	05/04/95	06/04/95	07/04/95	08/04/95	09/04/95	10/04/95	11/04/95	12/04/95
*Date	04/04/95	05/04/95	06/04/95	07/04/95	08/04/95	09/04/95	10/04/95	11/04/95	12/04/95
*Depth	65.0	300.0	300.0	303.0	822.0	1208.0	1291.0	1424.0	1527.0
*Days Since Spud	1	2	3	4	5	6	7	8	9
<b>*RHEOLOGICAL PROPERTIES</b>									
Mud Wt -lb/gal	8.6	8.8	8.7	8.7	9.0	9.1	9.1	9.4	9.4
Plastic Visc -cps	5	107	7	11	15	12	14	16	16
Yield Point -lb/100ft2	10	35	19	12	18	12	15	17	16
3-rpm Rdg -Fann deg	2	5	3	2	3	2	3	3	4
np Value	0.415	0.810	0.344	0.564	0.540	0.585	0.568	0.570	0.585
Kp -lb-sec <sup>n</sup> /100ft2	1.2047	0.9713	3.2522	0.7305	1.2121	0.6685	0.8962	1.0070	0.8913
na Value	0.438	0.727	0.469	0.530	0.521	0.540	0.493	0.521	0.452
Ka -lb-sec <sup>n</sup> /100ft2	1.0453	1.6307	1.4897	0.8984	1.3691	0.8850	1.4332	1.3691	2.0434
<b>*FLOW DATA</b>									
Flow Rate -gal/min	650	702	0	299	326	326	326	326	300
Pump Pressure -psi	250	900	0	800	1300	1425	1500	1550	1375
Pump -hhp	95	369	***	140	247	271	285	295	241
<b>*PRESSURE LOSSES</b>									
Drill String -psi	***	***	***	***	388	433	466	514	468
Bit -psi	***	***	***	***	1140	1140	1160	1180	1000
Annulus -psi	***	***	***	***	43	43	59	70	79
Total System -psi	***	***	***	***	1571	1616	1685	1764	1547
<b>*BIT HYDRAULICS</b>									
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -#	***	***	***	***	87	80	77	76	73
Bit -hhp	***	***	***	***	216	217	220	225	175
Bit HSI (Index)	***	***	***	***	3.80	3.80	3.90	4.00	3.10
Jet Velocity -m/sec	***	***	***	***	114.5	114.5	114.5	114.5	105.4
Impact Force -lbs	***	***	***	***	570	574	580	593	502
<b>*DRILL COLLARS ANNULUS</b>									
Velocity -m/min	20.0	19.6	***	20.1	73.4	73.4	73.4	73.4	67.5
Critical Vel -m/min	49.9	123.8	***	63.9	114.4	90.5	105.7	111.5	114.1
Reynolds Number	690	237	***	503	1429	2011	1612	1485	1266
Crit Re (Lam - Tran)	2871	2474	***	2743	2757	2731	2795	2757	2851
<b>*DRILL PIPE ANNULUS</b>									
Velocity -m/min	14.3	15.4	***	16.4	17.9	17.9	17.9	17.9	16.4
Critical Vel -m/min	44.3	107.1	***	57.5	73.1	56.6	69.8	71.3	78.8
Reynolds Number	487	209	***	433	342	507	358	356	252
Crit Re (Lam - Tran)	2871	2474	***	2743	2757	2731	2795	2757	2851
<b>*HOLE CLEANING</b>									
Slip Velocity -m/min	21.3	7.5	***	21.1	15.0	20.4	15.8	14.4	12.7
Rising Velocity -m/min	-7.1	7.9	***	-4.7	2.9	-2.5	2.0	3.5	3.7
Lifting Capacity -#	***	51	***	***	16	***	11	19	23
Cuttings Conc -#	***	2.54	***	***	7.75	***	4.90	3.14	2.72
Penetration Rate -m/hr	7.7	13.4	***	3.0	25.3	20.5	11.2	12.3	11.4
<b>*CASING SHOE PRESSURES</b>									
ECD -lb/gal	8.6	8.8	***	8.7	9.1	9.1	9.2	9.4	9.4
ECD+Cuttings -lb/gal	***	9.1	***	***	10.0	***	9.8	9.8	9.7
<b>*TOTAL DEPTH PRESSURES</b>									
ECD -lb/gal	8.6	8.9	***	8.7	9.3	9.3	9.4	9.6	9.7
ECD+Cuttings -lb/gal	***	9.2	***	***	10.2	***	10.0	10.0	10.0

**M-I DRILLING FLUIDS HYDRAULICS RECAP**

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

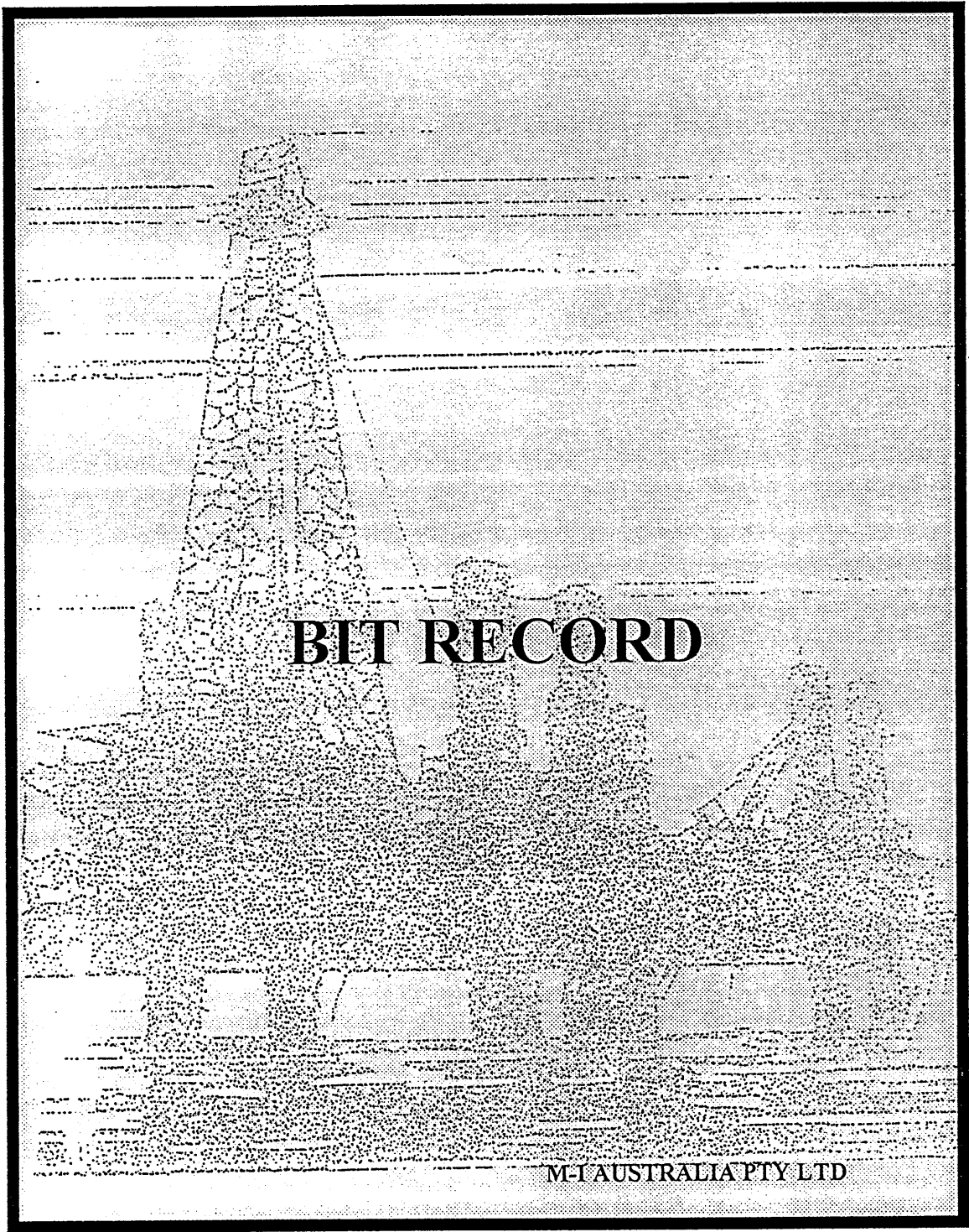
Well Name: WALLABY CREEK 2

Field/Area: FFL 1

Location: OTWAY BASIN

*Data	13/04/95	14/04/95	15/04/95	16/04/95	17/04/95	18/04/95	19/04/95	20/04/95	21/04/95	
*Depth	1529.0	1586.0	1745.0	1745.0	1745.0	1745.0	1745.0	1745.0	1745.0	
*Days Since Spud	10	11	12	13	14	15	16	17	18	
<b>*RHEOLOGICAL PROPERTIES:</b>										
Mud Wt -lb/gal	9.4	9.4	9.5	9.6	9.4	9.6	9.6	9.6	9.6	
Plastic Visc -cps	16	17	16	21	19	20	22	23	23	
Yield Point -lb/100ft2	16	15	15	20	19	20	20	20	19	
3-rpm Rdg -Fann deg	4	4	4	5	4	18	4	4	4	
np Value	0.585	0.614	0.600	0.596	0.585	0.585	0.607	0.618	0.630	
Kp -lb-sec^n/100ft2	0.8913	0.7405	0.7843	1.0618	1.0584	1.1141	1.0154	0.9740	0.8833	
na Value	0.452	0.452	0.445	0.457	0.489	0.173	0.511	0.516	0.511	
Ka -lb-sec^n/100ft2	2.0434	2.0434	2.0665	2.5320	1.9227	14.4745	1.8557	1.8403	1.8557	
<b>*FLOW DATA:</b>										
Flow Rate -gal/min	251	326	326	0	326	326	326	300	0	
Pump Pressure -psi	525	1575	1625	0	0	0	0	550	0	
Pump -hhp	77	300	309	***	***	***	***	96	***	
<b>*PRESSURE LOSSES:</b>										
Drill String -psi	***	568	580	***	596	***	***	***	***	
Bit -psi	***	1190	1200	***	***	***	***	***	***	
Annulus -psi	***	85	91	***	103	***	***	***	***	
Total System -psi	***	1843	1871	***	959	***	***	***	***	
<b>*BIT HYDRAULICS:</b>										
Nozzles -1/32 inch	/ /	11/11/11	11/11/11	18/17/13	18/17/13	/ /	/ /	/ /	/ /	
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	
Bit Pressure -%	***	76	74	***	***	***	***	***	***	
Bit -hhp	***	227	227	***	49	***	***	***	***	
Bit RSI (Index)	***	4.00	4.00	***	0.90	***	***	***	***	
Jet Velocity -m/sec	***	114.5	114.5	***	53.2	***	***	***	***	
Impact Force -lbs	***	599	600	***	278	***	***	***	***	
<b>*DRILL COLLARS ANNULUS:</b>										
Velocity -m/min	56.5	73.4	73.4	***	73.4	73.4	73.4	67.5	***	
Critical Vel -m/min	113.7	113.3	111.3	***	124.1	142.2	129.6	131.3	***	
Reynolds Number	966	1455	1496	***	1267	965	1187	1030	***	
Crit Re (Lam - Tran)	2851	2851	2861	***	2800	3232	2770	2763	***	
<b>*DRILL PIPE ANNULUS:</b>										
Velocity -m/min	13.7	17.9	17.9	***	17.9	17.9	17.9	16.4	***	
Critical Vel -m/min	78.5	78.2	77.4	***	82.3	126.0	83.9	84.5	***	
Reynolds Number	192	290	292	***	279	91	277	243	***	
Crit Re (Lam - Tran)	2851	2851	2861	***	2800	3232	2770	2763	***	
<b>*HOLE CLEANING:</b>										
Slip Velocity -m/min	12.6	12.6	12.8	***	11.5	1.0	10.8	10.7	***	
Rising Velocity -m/min	1.1	5.3	5.1	***	6.3	16.9	7.0	5.7	***	
Lifting Capacity -%	8	30	29	***	35	94	39	35	***	
Cuttings Conc -%	0.40	0.76	1.67	***	***	***	***	***	***	
Penetration Rate -m/hr	0.5	4.5	9.6	***	***	***	***	***	***	
<b>*CASING SHOE PRESSURES:</b>										
ECD -lb/gal	9.5	9.5	9.5	***	9.5	9.8	9.7	9.7	***	
ECD+Cuttings -lb/gal	9.5	9.6	9.7	***	***	***	***	***	***	
<b>*TOTAL DEPTH PRESSURES:</b>										
ECD -lb/gal	9.7	9.8	9.8	***	9.8	10.2	10.0	10.0	***	
ECD+Cuttings -lb/gal	9.7	9.8	10.0	***	***	***	***	***	***	

SECTION 8



**BIT RECORD**

M-I AUSTRALIA PTY LTD



### Bit & Hydraulic Record

Contractor		Century Drilling		Rig No		11		Location		PPL 1		Well		Wallaby Creek 2					
Operator				GFE Resources Ltd				Otway basin, Onshore, S.W. Victoria				Engineer				J COBB			
Pump Name		Size		Liner Size/Stroke		Drill Collars O.D. x I.D. x Length		Drill Pipe		Tool Joint		Wt/Length lb/ft		Pump Output Bbls/Stk					
National		8P80 7P50		6/8.5 5.5/7.75		6.1/4"x2.1/4"x30'		4.1/2" grade E		4" IF x 18 deg		16.6		0.07050 0.0540					
Date	Run no	Size in.	Make	Type	Jet Size	Depth Out	Meters Drilled	Hours Run	Weight On Bit	R.P.M	Pump Pressure	Vert Dev.	Stks/min	Ann Vel m/min	Condition T-B-G				
4-Apr-95	1RR	17.5	SEC	SS33S	OUT	300m	294m	26	5-Oct	120	900	0.5	120/130	17	1-1-In				
8-Apr-95	2	8.5	HTC	ATJ05	3x11	1227m	924m	41.5	10/15	110	1425	1	110	47	1-4-In				
10-Apr-95	3	8.5	HTC	ATJ05	3x11	1424m	197m	15.5	20-25	80-90	1575	1.25	110	47	1-1-In				
12-Apr-95	4RR	8.5	HTC	ATJ05	3x11	1527m	103m	9.0	28	75	1375	1.25	101	43	1-2-o1/16				
13-Apr-95	CH1	8.5	D.B.	CD502	w/c	1547.4m	20.4m	3.0	25	60	525	1.25	85	36	40/50%- 1/16				
14-Apr-95	5	8.5	VAREL	ETD417	3x11	1745m	198m	20.5	25	90/100	1625	1	110	47	1-1-In				
17-Apr-95	5RR	8.5	VAREL	ETD417	13,17,18	1745m	0m						101	43					
18-Apr-95	6RR	8.5	HTC	ATJ05	Open	1745m	0m						110	47					

Remarks

SECTION 9



**WEEKLY INVENTORY  
SHEETS**

MFL AUSTRALIA PTY LTD

DATE:	4-Apr-95	5-Apr-95	6-Apr-95	7-Apr-95	8-Apr-95	9-Apr-95	10-Apr-95	Total for Week
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Product Name	Unit	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	
Bacban III	6 lb jug	4			4			4			4			4		1	3			3			3	0	1	3	
Calcium Chloride	25 kg sx	39			39			39			39			39			39			39			39	0	0	39	
Caustic Soda	25 kg sx	42		2	40		3	37			37		1	36			36		3	33		1	32		0	10	32
CMC LV	25 kg sx	66			66			66			66		10	56		10	46		9	37			37		0	29	37
Conqor 303A	208 lt dr	0			0			0			0			0			0			0			0		0	0	
Defoam A	25 ltr dr	5			5			5			5			5			5			5			5		0	5	
Kwikseal M	40 lb sx	30			30			30			30			30			30			30			30		0	30	
Lime	20 kg sx	17			17			17			17			17			17			17			17		0	17	
M-I Bar	25 kg sx	160			160			160			160			160	160		320			320			320	160	0	320	
M-I Gel	25 kg sx	186		30	156	144	25	275			275			275	20	255		20	235			235	144	95	235		
Mica M	50 lb sx	30			30			30			30			30			30			30			30		0	30	
OS-1	25 kg sx	7			7			7			7			7	2	5		2	3			3		0	4	3	
Pipelax	208 lt dr	2			2			2			2			2			2			2			2		0	2	
Polypac R	25 kg sx	67			67			67		5	62			62	8	54		8	46		3	43		0	43		
Polyplus Powder	25 kg sx	30			30			30			30			30			30			30			30		0	30	
Potassm Chloride	25kg sx	145		25	120		32	88			88		35	53	240	26	267		107	160		15	145	240	240	145	
Soda Ash	25 kg sx	18			18		1	17			17			17			17			17			17		0	17	
Soda Bicarbonate	25 kg sx	12		1	11			11			11		3	8		3	5			5			5		0	7	5
Spersene CF	50 lb sx	16			16		3	13			13			13			13			13			13		0	13	

Week2

WEEKLY INVENTORY SHEETS

Wallaby Creek 2

DATE:

11-Apr-95	12-Apr-95	13-Apr-95	14-Apr-95	15-Apr-95	16-Apr-95	17-Apr-95	Total for Week
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Product Name	Unit	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	
Bacban III	6 lb jug	3	3		6			6			6			6			6			6	3	0	6	
Calcium Chloride	25 kg sx	39			39			39			39			39			39			39	0	0	39	
Caustic Soda	25 kg sx	32		1	31		2	29		1	28		2	26		1	25		1	24	0	8	24	
CMC LV	25 kg sx	37	40	7	70		11	59		2	57		3	54		10	44			44	40	33	44	
Conqor 303A	208 lt dr	0			0			0			0		2	2			2			2	2	0	2	
Defoam A	25 ltr dr	5			5			5			5			5			5			5	0	0	5	
Kwikseal M	40 lb sx	30			30			30			30			30			30			30	0	0	30	
Lime	20 kg sx	17			17			17			17			17			17			17	0	0	17	
M-I Bar	25 kg sx	320	320		640			640		20	620			620			620			620	320	20	620	
M-I Gcl	25 kg sx	235			235			235			235			235			235			235	0	0	235	
Mica M	50 lb sx	30			30			30			30			30			30			30	0	0	30	
OS-1	25 kg sx	3	40	1	42		1	41		1	40			40			40		1	39	40	4	39	
Pipelax	208 lt dr	2			2			2			2			2			2			2	0	0	2	
Polypac R	25 kg sx	43	32	5	70		13	57		2	55		5	50		6	44		7	37	19	18	37	
Polyplus Powder	25 kg sx	30			30			30			30			30			30			30	0	0	30	
Potassm Chloride	25kg sx	145	160	50	255		60	195		15	180		25	155		80	40			195	110	85	240	85
Soda Ash	25 kg sx	17			17			17			17			17			17			17	0	0	17	
Soda Bicarbonate	25 kg sx	5		1	4			4			4			4			4			4	0	1	4	
Spersene CF	50 lb sx	13			13			13			13			13			13			13	0	0	13	

DATE:

18-Apr-95	19-Apr-95	20-Apr-95	21-Apr-95	22-Apr-95	23-Apr-95	24-Apr-95	Total for Week
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Product Name	Unit	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	
Bacban III	6 lb jug	6		1	5		1	4			4			4			4			4			4	0	2	4	
Calcium Chloride	25 kg sx	39			39			39			39			39			39			39			39	0	0	39	
Caustic Soda	25 kg sx	24		2	22		2	20			20		2	18			18			18			18	0	6	18	
CMC LV	25 kg sx	44			44			44		1	43			43			43			43			43	0	1	43	
Conqor 303A	208 lt dr	2			2			2		1	1			1			1			1			1	0	1	1	
Cronox 2-100	208 lt dr	0			0			0		1	1			1		1	0			0			0	1	1	0	
Defoam A	25 ltr dr	5			5			5			5			5			5			5			5	0	0	5	
Kwikseal M	40 lb sx	30			30			30			30			30			30			30			30	0	0	30	
Lime	20 kg sx	17			17			17			17			17		1	16			17			17	0	1	16	
M-I Bar	25 kg sx	629		139	481		39	442		2	440			440			440			440			440	0	180	449	
M-I Gel	25 kg sx	235		91	144		22	122			122		9	113			113		1	112			112	0	123	112	
Mica M	50 lb sx	30			30			30			30			30			30			30			30	0	0	30	
OS-1	25 kg sx	39		1	38		1	37			37			37			37			37			37	0	2	37	
Pipelax	208 lt dr	2			2			2			2			2			2			2			2	0	0	2	
Polypac R	25 kg sx	18	32	7	43		6	57		1	56		2	54			54		3	51			51	32	19	51	
Polyplus Powder	25 kg sx	30			30			30			30			30			30			30			30	0	0	30	
Potassm Chloride	25kg sx	85	160	48	297		12	185			185	240		425	200	475	150		60	90			90	80	10	600	675
Soda Ash	25 kg sx	17			17			17			17			17			17		1	16			16	0	1	16	
Soda Bicarbonate	25 kg sx	4		1	3			3			3			3			3			3			3	0	1	3	
Spersene CF	50 lb sx	13			13			13			13			13			13			13			13	0	0	13	
XCD polymer	25 kg sx	0			0		19	19			19		2	17	-17		0			0			0	2	2	0	

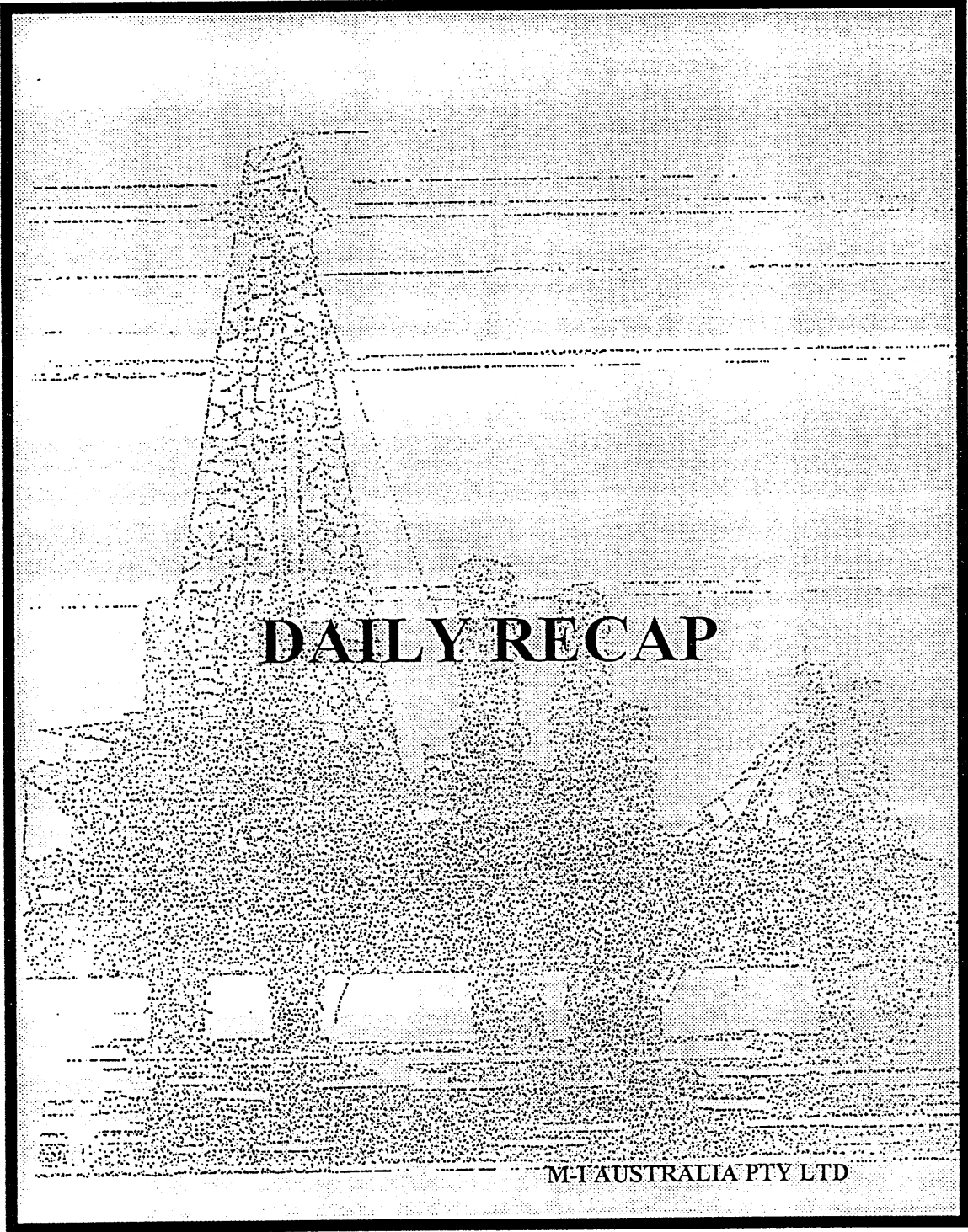
DATE:

25-Apr-95	26-Apr-95	27-Apr-95	28-Apr-95	29-Apr-95	30-Apr-95	1-May-95	Total for Week
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Product Name	Unit	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal	Recd	Used	Bal
Bacban III	6 lb jug	4			4			4			4			4			4			4	0	0	4			4
Calcium Chloride	25 kg sx	39			39			39			39			39			39			39	0	0	39			39
Caustic Soda	25 kg sx	18			18			18			18			18			18			18	0	0	18			18
CMC LV	25 kg sx	42		1	42			42			42			42			42			42	0	1	42			42
Conqor 303A	208 lt dr	1			1			1			1			1			1			1	0	0	1			1
Cronox 2-100	208 lt dr	0			0			0			0			0			0			0	0	0	0			0
Defoam A	25 ltr dr	5			5			5			5			5			5			5	0	0	5			5
Kwikseal M	40 lb sx	30			30			30			30			30			30			30	0	0	30			30
Lime	20 kg sx	16			16			16			16			16			16			16	0	0	16			16
M-I Bar	25 kg sx	440			440			440			440			440			440			440	0	0	440			440
M-I Gel	25 kg sx	112		1	111			111			111			111			111			111	0	1	111			111
Mica M	50 lb sx	30			30			30			30			30			30			30	0	0	30			30
OS-1	25 kg sx	37			37			37			37			37			37			37	0	0	37			37
Pipelax	208 lt dr	2			2			2			2			2			2			2	0	0	2			2
Polypac R	25 kg sx	31			31			31			31			31			31			31	0	0	31			31
Polyplus Powder	25 kg sx	30			30			30			30			30			30			30	0	0	30			30
Potassm Chloride	25kg sx	10	240	5	245			245			245			245			245			245	240	5	245			245
Soda Ash	25 kg sx	16			16			16			16			16			16			16	0	0	16			16
Soda Bicarbonate	25 kg sx	3			3			3			3			3			3			3	0	0	3			3
Spersene CF	50 lb sx	13			13			13			13			13			13			13	0	0	13			13
XCD polymer	25 kg sx	0			0			0			0			0			0			0	0	0	0			0

SECTION 10





**DAILY RECAP**

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

Date - Day	04/04/95- 1	04/04/95- 1	05/04/95- 2	05/04/95- 2	06/04/95- 3	07/04/95- 4	07/04/95- 4
Depth/TVD -m	65.0 /65.0	113.0 /113.0	300.0 /300.0	300.0 /300.0	300.0 /300.0	303.0 /303.0	386 /386
Activity	DRILLING	Supplement 1	POOH	Supplement 1	BOP	M/U 8.5"BIT	Supplement 1
Mud Type Code	208		208		208	206	
Hole Size -in	17.5		17.5		17.5	12.25	
Circ Volume -bbl	381		570		360	522	
Flow Rate -gal/min	650		702			299	
Circ Pressure -psi	250		900			800	
Avg ROP -m/hr	7.7		13.4			3	
Sample From	FL 23:15	FL 05:30	FL 22:00	PIT 05:15	PIT 23:30	FL 21:30	FL 06:00
Flow Line Temp ^F	65	65	75			60	60
Mud Wt -lb/gal	8.6	8.7	8.8	8.8	8.7	8.7	8.7
Channel Vis -s/qt	32 @ 65 ^F	37 @ 62 ^F	49 @ 70 ^F	44 @ 70 ^F	40 @ 55 ^F	37 @ 60 ^F	34 @ 60 ^F
-cps	5 @ 65 ^F	7 @ 60 ^F	107 @ 60 ^F	6 @ 60 ^F	7 @ 55 ^F	11 @ 60 ^F	8 @ 60 ^F
YF/R3 -lb/100ft2	10 / 2	14 / 2	35 / 5	31 / 5	19 / 3	12 / 2	9 / 2
10s/10m Gel	3 / 5	3 / 6	7 / 24	6 / 18	4 / 12	3 / 6	3 / 5
API Filtrate -cm3						12	12.8
HTHP Filtrate -cm3							
Cake API/HT -1/32	3 /	3 /	4 /	4 /	3 /	1 /	1 /
Solids -%vol	1.9	2.7	3.5	3.5	2.7	2.7	2.7
Oil/Water -%vol	/ 98.1	/ 97.3	/ 96.5	/ 96.5	/ 97.3	/ 97.3	/ 97.3
Sand -%vol	0.9	0.3	0.25	0.2	0.2		TR
MBT -lb/bbl	10	15	18	17	12	10	9
pH	9.1 @ 65 ^F	8.5 @ 60 ^F	8.5 @ 60 ^F	8.5 @ 60 ^F	8.3 @ 55 ^F	10.2 @ 60 ^F	10 @ 60 ^F
Alkal Mud (Pm)	0.2	0.1	0.1	0.1		0.4	0.4
Pf/Mf	0.12 / 0.45	0.05 / 0.35	0.05 / 0.3	0.05 / 0.3	/	0.35 / 0.8	0.35 / 0.7
Chlorides -mg/L	3800	4100	3900	3400	2800	6100	6300
Hardness (Ca)-mg/L	110	180	80	60	60	180	120
K+ MG/L	3150	3150	2600	2200	550	5200	5700
KCL % WT	0.6	0.6	0.5	0.4	0.1	1	1.1
Daily Mud Cost -	630		800			1740	
Cumml Mud Cost -	630		1430		1430	3171	
Sales Engineer	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J
Products Used	CAUS 2		CAUS 3			CAUS 1	
	GEL 30		GEL 25			KCL 35	
	KCL 25		KCL 32			BCAR 3	
	BCAR 1		SODA 1			CMCL 10	
			SPCF 3			PACR 3	

Remarks

04/04 : Spud 17.1/2" w/ KCl brine. Drill - 59m. Install stab. Ream stab 22-59m.  
 : Drill 59-65m. Add PHG for vis. Run SCE.  
 05/04 : Allow native clays to build vis. Drill 17.1/2" 65-215m.  
 : Circ & lower high vis w/ water & Spersene. Drill to 300m.  
 06/04 : RIM, 5m fill. Circ. POOH work tight 220-228m. Run 13.3/8" csg. Circ & dilute mud. Cat & displ w/ mud  
 07/04 : Nipple up BOP. M/u conc KCl/Polymer premix. Pretreat mudw/ bicarb. Drill cat & 3m hole. Circ.  
 : Conduct FIT @303m to a EMW of 25.7 ppg. POOH. M/u 8.5" bit.

**M-I DRILLING FLUIDS RECAP**

Operator : GFE RESOURCES LTD.

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

Date - Day	08/04/95- 5	08/04/95- 5	09/04/95- 5	09/04/95- 6	10/04/95- 7	10/04/95- 7	11/04/95- 8
Depth/TVD -m	822.0 /822.0	924.0 /924.0	1208.0/1208.0	1227.0/1227.0	1291.0/1291.0	1363.0/1363.0	1424/1424
Activity	DRILLING	Supplement 1	DRILLING	Supplement 1	DRILLING	Supplement 1	RIH/REAMING
Mud Type Code	206		206		206		206
Hole Size -in	8.5		8.5		8.5		8.5
Circ Volume -bbl	583		741		660		
Flow Rate -gal/min	326		326		326		326
Circ Pressure -psi	1300		1425		1500		1550
Avg ROP -m/hr	25.3		20.5		11.2		12.3
Sample From	FL 24:00	FL 05:30	FL 23:00	PIT 05:30	FL 23:30	FL 05:30	FL 23:30
Flow Line Temp -°F	75	76	76		78	78	69
Mud Wt -lb/gal	9	9	9.1	9.1	9.1	9.3	9.4
Funnel Vis -s/qt	42 @ 70 °F	40 @ 70 °F	38 @ 70 °F	36 @ 70 °F	41 @ 72 °F	40 @ 72 °F	42 @ 64 °F
CV -cps	15 @ 63 °F	14 @ 63 °F	12 @ 63 °F	11 @ 60 °F	14 @ 61 °F	14 @ 61 °F	16 @ 60 °F
/R3 -lb/100ft2	18 / 3	16 / 3	12 / 2	10 / 2	15 / 3	14 / 3	17 / 3
10s/10m Gel	4 / 10	4 / 10	3 / 7	3 / 5	4 / 10	4 / 10	4 / 9
API Filtrate -cm3	7.1	7.2	6.9	6.9	6.8	7	6.9
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	15	15	15.3	15.8	16.1	16.8	17.5
Oil/Water -%vol	/ 95.0	/ 95.0	/ 94.7	/ 94.2	/ 93.9	/ 93.2	/ 92.5
Sand -%vol	0.6	0.8	0.7	0.5	0.6	0.6	0.6
MBT -lb/bbl	13	15	17	17	18	18	18
pH	8.8 @ 57 °F	8.5 @ 58 °F	9.0 @ 57 °F	9.0 @ 55 °F	9.1 @ 61 °F	9.0 @ 61 °F	8.8 @ 58 °F
Alkal Mud (Pm)	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Pf/Mf	0.12 / 0.45	0.08 / 0.4	0.1 / 0.45	0.1 / 0.45	0.12 / 0.45	0.1 / 0.5	0.08 / 0.45
Chlorides -mg/L	6700	6800	16500	15500	15500	15500	16000
Hardness (Ca)-mg/L	180	200	200	200	240	240	220
K+ Mg/L	4700	4700	16000	15500	15500	15500	15500
KCL % WT	0.9	0.9	3	2.9	2.9	2.9	2.9
SULPHITE	100	80	120	100	50	160	60
Daily Mud Cost -	2410		3189		589		1749
Cumal Mud Cost -	5581		8770		9359		11108
Sales Engineer	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J
Products Used	GEL 20		CAUS 3		CAUS 1		CAUS 1
	KCL 26		GEL 20		KCL 15		KCL 50
	BCAR 3		KCL 107		PACR 3		BCAR 1
	CMCL 10		CMCL 9				CMCL 7
	PACR 8		PACR 8				PACR 5
	OS-1 2		OS-1 2				OS-1 1
	BAC3 1						

Remarks  
 08/04 : RIH, p/a stab & jars. Drill 8.1/2" 303-822m w/- surveys. Reduce fluid loss to < 8cc.  
 : Control mud weight. Recycle sump water.  
 09/04 : Drill 822-1222m w/ wiper trip @982m. Worked tight hole 892, 883, 854, 796, 681, 528-499m.  
 : Raised KCl to 3%. 30 bbl lost to Paaratte formation.  
 10/04 : Drill 8.5" 1222-1227m. Hi torque, no penetration. POOH tight hole 1103-1007m.  
 : Change bit & BHA. RIH. Ream f/ 701 to 1227m. Drill 1227 to 1295m.  
 11/04 : Drill 1295-1224.Circ.POOH.Tight 1315-1306,1277-1258,1210-1205.B/ream1249-1239,1230-1220.BOP.RIH.

**M-I DRILLING FLUIDS RECAP**

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Date - Day	11/04/95- 8	12/04/95- 9	12/04/95- 9	13/04/95- 10	13/04/95- 10	14/04/95- 11	14/04/95- 11
Depth/TVD -m	1431.0/1431.0	1527	1527.0/1527.0	1529.0/1529.0	1531.0/1531.0	1586	1626/1626
Activity	Supplement 1	REAMING	Supplement 1	RIH TO CORE	Supplement 1	DRILLING	Supplement 1
Mud Type Code		206		206		206	
Hole Size -in		8.5		8.5		8.5	
Circ Volume -bbl		662		686		720	
Flow Rate -gal/min		300		251		326	
Circ Pressure -psi		1375		525		1575	
Avg ROP -m/hr		11.4		0.5		4.5	
Sample From	FL 05:45	FL 19:30	PIT 05:00	FL 17:30	FL 05:30	FL 24:00	FL 05:30
Flow Line Temp -°F	73	84		80	78	80	80
Mud Wt -lb/gal	9.4	9.4	9.4	9.4	9.4	9.4	9.4
Funnel Vis -s/qt	41 @ 68 °F	41 @ 80 °F	47 @ 76 °F	41 @ 76 °F	40 @ 76 °F	42 @ 74 °F	40 @ 74 °F
YV -cps	15 @ 60 °F	16 @ 68 °F	17 @ 72 °F	16 @ 62 °F	16 @ 62 °F	17 @ 58 °F	16 @ 58 °F
YP/RS -lb/100rt2	16 / 3	16 / 4	23 / 4	16 / 4	15 / 4	15 / 4	14 / 4
10s/10m Gel	4 / 9	5 / 10	5 / 12	5 / 11	5 / 10	5 / 9	5 / 9
API Filtrate -cm3	7	6.1	5.6	5.5	5.5	5.6	5.6
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	7.9	7.5	7.5	7.81	8.2	8.2	8.2
Oil/Water -%vol	/ 92.1	/ 92.5	/ 92.5	/ 92.2	/ 91.8	/ 91.8	/ 91.8
Sand -%vol	0.5	0.5	0.4	0.5	0.5	0.5	0.3
MBT -lb/bbl	18	19	19	20	20	20	20
pH	8.7 @ 60 °F	8.7 @ 65 °F	8.6 @ 65 °F	8.8 @ 60 °F	8.8 @ 60 °F	9.1 @ 58 °F	9.0 @ 58 °F
Alkal Mud (Pm)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pf/MF	0.06 / 0.4	0.06 / 0.5	0.05 / 0.55	0.08 / 0.45	0.08 / 0.45	0.12 / 0.6	0.1 / 0.6
Chlorides -mg/L	16000	17500	17000	17000	17500	17000	17500
Hardness (Ca)-mg/L	220	100	120	80	80	80	80
K+ MG/L	15500	16000	16000	16000	16000	16000	16000
KCL % WT	2.9	3	3	3	3	3	3
SULPHITE	40	60	40	150	120	120	100
Daily Mud Cost -		3169		742		1174	
Cumal Mud Cost -		14278		15019		16193	
Sales Engineer	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J
Products Used		CAUS 2 KCL 60 CMCL 11 PACR 13 OS-1 1		CAUS 1 KCL 15 CMCL 2 PACR 2 OS-1 1 BAR 20		CAUS 2 KCL 25 CMCL 3 PACR 5	

Remarks

12/04 : Ream 1172-1424m. Drill to 1491,1501,1527 and circ up sample. POOH to 970m, tight hole 1344-1000m.  
: Reduce fluid loss.  
13/04 : Ream/wash btm. Circ. POOH. M/u & RIH with core bbl. Wash/ream 14353-1466 & 1511- btm. Core 2m.  
: POOH, retrieve 56%. RIH to core.  
14/04 : RIH.Ream 1511-1529m. Cut core 1529-1547m. POOH,work tight1534-1520m. Ret 18.4m core (100%).  
: M/u bit & BHA. RIH. Drill to 1586m.

M-I DRILLING FLUIDS RECAP

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well-Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Date - Day	15/04/95- 12	15/04/95- 12	16/04/95- 13	16/04/95- 13	17/04/95- 14	17/04/95- 14	18/04/95- 15
Depth/TVD -m	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745	1745/1745
Activity	POOH TO LOG	Supplement 1	CIRCULATING	Supplement 1	RIH	Supplement 1	LOGGING
Mud Type Code	206		206		206		206
Hole Size -in	8.5		8.5		8.5		8.5
Circ Volume -bbl	760		731		795		599
Flow Rate -gal/min	326				326		326
Circ Pressure -psi	11625						
Avg. ROP -m/hr	9.6						
Sample From	EL 24:00	PIT 05:30	EL 17:00	PIT 05:30	EL 17:30	PIT 05:45	EL 12:00
Flow Line Temp -^F	85		78		74		82
Mud Wt -lb/gal	9.5	9.5	9.6	9.4	9.4	9.4	9.6
Funnel Vis -s/qt	141 @ 80 ^F	140 @ 70 ^F	145 @ 72 ^F	147 @ 72 ^F	143 @ 70 ^F	142 @ 70 ^F	143 @ 76 ^F
-cps	16 @ 62 ^F	16 @ 62 ^F	21 @ 60 ^F	23 @ 60 ^F	19 @ 60 ^F	17 @ 60 ^F	20 @ 62 ^F
W/B3 -lb/100ft2	15 / 4	14 / 4	20 / 5	21 / 5	19 / 4	17 / 4	20 / 1.8
10x/10m Gel	5 / 9	5 / 9	7 / 12	7 / 12	6 / 11	5 / 10	5 / 10
API Filtrate -cm3	5.9	6	5.3	5.1	5.2	5.1	5.3
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	8.4	8.4	9	8.3	8.2	8.2	8.7
Oil/Water -%vol	/ 91.6	/ 91.6	/ 91.0	/ 91.7	/ 91.8	/ 91.8	/ 91.3
Sand -%vol	0.4	0.3	0.5	0.5	0.3	0.2	0.2
MBT -lb/bbl	20	20	22	20	20	22	25
pH	8.6 @ 62 ^F	8.5 @ 62 ^F	8.7 @ 60 ^F	8.7 @ 60 ^F	8.8 @ 60 ^F	9.1 @ 60 ^F	9.2 @ 62 ^F
Alkal Mud (Pm)	0.1	0.1	0.1	0.1	0.1	0.2	0.2
PF/MF	0.06 / 0.6	0.05 / 0.6	0.07 / 0.65	0.07 / 0.65	0.08 / 0.65	0.12 / 0.65	0.14 / 0.7
Chlorides -mg/L	18000	17500	16500	16000	22000	21500	21500
Hardness (Ca) -mg/l	120	120	1600	160	200	200	200
K+ MG/L	16000	16000	15500	14900	21500	21500	21500
KCL % WT	3	3	2.9	2.8	4	4	4
SULPHITE	60	40	20	180	80	100	60
Daily Mud Cost -	1861		1945		3837		3320
Cumal Mud Cost -	18054		18999		22836		26156
Sales Engineer	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J
Products Used	KCL 40 CMCL 10 PACR 6		CAUS 1 PACR 7		CAUS 1 KCL 110 PACR 19 OS-1 1		CAUS 2 GEL 91 KCL 48 BCAR 1 PACR 7 OS-1 1 BAC3 1 BAR 139

Remarks  
 15/04 : Drill 8.1/2" 1586-1745m(TD). Wiper trip-971m. Freed stuckpipe @1545m. Tight 1555-1565m.  
 : RIH, wash from 1728m. Circ.  
 16/04 : Circ. POOH. BPB r#1 -492m, no go.RIH, ream 492-500m. Circ. Hole collapse 481m.Circ & raise YP.  
 : POOH. Attempt RIH w/ BPB log #1 - hung up @ 337m. RIH. Tag bridges & Circ @ 337 & 478m.  
 17/04 : Ream 478-506. Bridges 525 & 544m. Fill @1722m. Ream-btm. Circ, raise KCL to 4%. Sweep HI-Vis.  
 : Circ 1159, 774, 583m. Spot HI-Vis. Run log #1 w/ BPB failed to pass 786m.  
 18/04 : Bridge @1719.Ream-1745.Wash-btm.Circ.Add PHG/polymer.Wt up-9.6ppg.POOH.Log w/-BPB.Run #1 #2.

M-I DRILLING FLUIDS RECAP

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Date - Day	18/04/95- 15	19/04/95- 16	19/04/95- 16	20/04/95- 17	20/04/95- 17	21/04/95- 18	21/04/95- 18
Depth/TVD -m	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745.0/1745.0	1745/1745
Activity	Supplement 1	LOGGING	Supplement 1	CIRCULATING	Supplement 1	CIRC 7" CSG	Supplement 1
Mud Type Code	206	206	206	206	206	206	206
Hole Size -in	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	602	602	602	579	579	627	627
Flow Rate -gal/min	326	326	326	300	300	300	300
Circ Pressure -psi				550	550		
Avg ROP -m/hr							
Sample From	PIT 05:30	FL 19:00	PIT 05:30	FL 24:00	FL 03:15	PIT 15:30	FL 01:00
Flow Line Temp -°F	81	81	81	68	78	78	78
Mud Wt -lb/gal	9.6	9.6	9.6	9.6	9.6	9.6	9.6
Annul Vis -s/qt	44 @ 70 °F	45 @ 76 °F	43 @ 76 °F	45 @ 64 °F	44 @ 72 °F	45 @ 70 °F	38 @ 70 °F
Yield -cps	22 @ 62 °F	22 @ 62 °F	20 @ 62 °F	23 @ 60 °F	21 @ 60 °F	23 @ 60 °F	18 @ 60 °F
YP/RS -lb/100ft <sup>2</sup>	19 / 4	20 / 4	18 / 4	20 / 4	19 / 4	19 / 4	10 / 3
10s/10m Gel	6 / 12	6 / 12	5 / 10	6 / 11	5 / 9	6 / 10	3 / 5
API Filtrate -cm <sup>3</sup>	5.5	5.1	5.2	5	5	5.1	5.2
HTHP Filtrate -cm <sup>3</sup>							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	8.7	8.6	8.6	8.6	9	9	8.7
Oil/Water -%vol	/ 91.3	/ 91.4	/ 91.4	/ 91.4	/ 91.0	/ 91.0	/ 91.3
Sand -%vol	0.15	0.25	0.15	0.2	0.2	0.1	0.2
MBT -lb/bbl	25	25	25	25	25	25	24
pH	9.0 @ 62 °F	9.4 @ 62 °F	9.3 @ 62 °F	9.1 @ 62 °F	9.1 @ 62 °F	9.0 @ 60 °F	8.8 @ 60 °F
Alkal Mud (Pm)	0.1	0.2	0.2	0.1	0.1	0.1	0.1
Pt/Mf	0.1 / 0.7	0.17 / 0.8	0.16 / 0.8	0.12 / 0.8	0.12 / 0.75	0.1 / 0.8	0.08 / 0.8
Chlorides -mg/L	21500	21500	21500	21500	21500	21500	19500
Hardness (Ca) -mg/L	200	80	80	160	140	180	180
K+ MG/L	21500	21500	21500	21500	21500	21500	19900
KCL % WT	4	4	4	4	4	4	3.7
SULPHITE	40	200	160	140	140	120	80
Daily Mud Cost -		1556		204		1586	
Cumal Mud Cost -		27712		27916		29503	
Sales Engineer	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J	COBB J
Products Used		CAUS 2		CMCL 1		GEL 9	
		GEL 22		PACR 1		PACR 2	
		KCL 12		BAR 2		XCD 2	
		PACR 6				CNQS 1	
		OS-1 1					
		BAC3 1					
		BAR 39					

Remarks

19/04 : Log w/ BPB runs #2-4. M/u 40bbl PHG. RIH. Ream 1737-1745m. Circ.  
 : Add PHG & Polypac for vis. POOH. Log w/ BPB run #5 RFT.  
 20/04 : Log w/BPB, run #5 RFT, #6 VDL & #7 CST. M/u bit & BHA. RIH. Work sticky hole 1021-1023m.  
 21/04 : RIH, wash 4m to btm. Circ inc, Vis. POOH sideways. Csg runs to 7". Run csg.  
 : Circ hole clean, lower viscosity.

**M-I DRILLING FLUIDS RECAP**

Operator : GFE RESOURCES LTD

Contractor : CENTURY DRILLING

Description : APPRAISAL

Well Name : WALLABY CREEK 2

Field/Area : PPL 1

Location : OTWAY BASIN

Date - Day	22/04/95- 19	23/04/95- 20	24/04/95- 21	25/04/95- 22
Depth/TVD -m	1701.6	1701.6	1701.6	1701.6
Activity	TESTING BOP	CIRCULATING	RIH SCRAPER	CHDST #1
Mud Type Code	51	51	51	51
Hole Size -in	6	6	6	6
Circ Volume -bbl	350	305	301	280
Flow Rate -gal/min		250	250	250
Circ Pressure -psi				
Avg ROP -m/hr				
Sample From	PIT 05:30	FL 24:00	PIT 19:30	FL 04:15
Flow Line Temp -°F		68		
Mud Wt -lb/gal	9.4	9.4	9.4	9.4
Annular Vis -s/qt	@ 70 °F	@ 70 °F	@ 70 °F	@ 70 °F
RV -cps	@ 60 °F	@ 60 °F	@ 60 °F	@ 60 °F
YP/RS -lb/100ft2	/	/	/	/
10s/10m Gel	/	/	/	/
API Filtrate -cc/3				
HTHP Filtrate -cc/3				
Cake API/HT -1/32"	/	/	/	/
Solids -%vol		8.1	8.1	8.1
Oil/Water -%vol	/	/ 91.9	/ 91.9	/ 91.9
Sand -%vol				
MBT -lb/bbl				
pH	9.8 @ 60 °F	9.7 @ 60 °F	9.7 @ 58 °F	9.6 @ 58 °F
Alkal Mud (Pm)	0.2	0.2	0.2	0.2
Ff/Mf	0.22 / 1.0	0.2 / 1.0	0.2 / 1.0	0.18 / 1.1
Chlorides -mg/L	98000	100000	100000	100000
Hardness (Ca)-mg/L	160	160	200	160
K+ MG/L	108000	110000	110000	110000
KCL % WT	18.4	18.75	18.75	18.75
Daily Mud Cost -	6359	1092	932	128
Cumal Mud Cost -	35862	36954	37886	38014
Sales Engineer	COBB J	COBB J	COBB J	COBB J
Products Used	CAUS 2 KCL 475 CRNX 1	GEL 1 KCL 60 PACR 3	KCL 80 SODA 1 LIME 1	GEL 1 KCL 5 CMCL 1

**Remarks**

- 22/04 : Circ csg. Test surface equip. Cmt csg. Nipple up wellhead & BOP.  
: Clean pits. M/u 350bbl inhibited KCl brine, SG=1.12
- 23/04 : P/T BOP. M/u 40bbl HiVis. RIH w 6" bit & scraper. Tag cmtat 1701.6m.  
: Pump Hi-Vis. Displace w brine. Pull 1570. Spot 1% KCl/water.
- 24/04 : Spot 1% KCl/water. Run CBL. Test BOP. Perforate 1553.5 -1559.85, 1543.4-1546.4, 1537- 1543.35m.  
: RIH w/ bit & scraper.
- 25/04 : RIH bit & scraper. Recip pipe 1554-1572. Circ out 1% KCl/water. RIH btm. Sweep HiVis. POOH CHDST#1.

SECTION 11





**DAILY CHEMICAL  
ADDITIONS**

M-I AUSTRALIA PTY LTD

===== M-I DRILLING FLUIDS DAILY MUD ADDITIONS =====

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL Page: 1  
 Well Name : WALLABY CREEK 2 Field/Area : PPL 1 Location : OTWAY BASIN Well: W0002

Date	04/04/95	05/04/95	06/04/95	07/04/95	08/04/95	09/04/95	10/04/95
Depth	-m: 65.0	300.0	300.0	303.0	822.0	1208.0	1291.0
Daily Mud Cost	: 630	800		1740	2410	3189	589
Cumulative Mud Cost	: 630	1430	1430	3171	5581	8770	9359
Bacban III 6 LB JU:					1		
CMC TG LV 25 KG S:				10	10	9	
CRNX 208 LT :							
Caustic Soda 25 KG S: 2		3		1		3	1
Conqor 303 208 LT :							
Lime 18.5 KG:							
M-I Bar 25 KG S:							
M-I Gel 25 KG S: 30		25			20	20	
OS-1 25 KG S:					2	2	
Polypac R 25 KG S:				5	8	8	3
Potassm Chloride 25 KG S: 25		32		35	26	107	15
Soda Ash 25 KG S:		1					
Sodium Bicarb 25 KG S: 1				3	3		
Spersene CF 50 LB S:		3					
XCD 25 KG S:							

===== M-I DRILLING FLUIDS DAILY MUD ADDITIONS =====

Operator : GFE RESOURCES LTD Contractor : CENTURY DRILLING Description : APPRAISAL Page: 2  
 Well Name : WALLABY CREEK 2 Field/Area : PPL 1 Location : OTWAY BASIN Well: W0002

Date	11/04/95	12/04/95	13/04/95	14/04/95	15/04/95	16/04/95	17/04/95
Depth -m:	1424.0	1527.0	1529.0	1586.0	1745.0	1745.0	1745.0
Daily Mud Cost	1749	3169	742	1174	1861	945	3837
Cumulative Mud Cost	11108	14278	15019	16193	18054	18999	22836
Bacban III 6 LB JU:					10		
CMC TG LV 25 KG S:	7	11	2	3			
CRNX 208 LT :							
Caustic Soda 25 KG S:	1	2	1	2		1	1
Conqor 303 208 LT :							
Lime 18.5 KG:							
M-I Bar 25 KG S:			20				
M-I Gel 25 KG S:							1
OS-1 25 KG S:	1		1				19
Polypac R 25 KG S:	5	13	2	5	6	7	
Potassm Chloride 25 KG S:	50	60	15	25	40		110
Soda Ash 25 KG S:							
Sodium Bicarb 25 KG S:	1						
Spersene CF 50 LB S:							
XCD 25 KG S:							

M-I Drilling Fluids Co

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

11-05-95

===== M-I DRILLING FLUIDS DAILY MUD ADDITIONS =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 3  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN      Well: W0002

	18/04/95	19/04/95	20/04/95	21/04/95	22/04/95	23/04/95	24/04/95
Date	: 18/04/95	19/04/95	20/04/95	21/04/95	22/04/95	23/04/95	24/04/95
Depth	-m: 1745.0	1745.0	1745.0	1745.0	1745.0	1745.0	1745.0
Daily Mud Cost	: 3320	1556	204	1586	6359	1092	932
Cumulative Mud Cost	: 26156	27712	27916	29503	35862	36954	37886
Bacban III	6 LB JU: 1	1					
CMC TG LV	25 KG S:		1				
CRNX	208 LT :				1		
Caustic Soda	25 KG S: 2	2			2		
Conqor 303	208 LT :			1			
Lime	18.5 KG:						1
M-I Bar	25 KG S: 139	39	2				
M-I Gel	25 KG S: 91	22		9		1	
OS-1	25 KG S: 1	1					
Polypac R	25 KG S: 7	6	1	2		3	
Potassm Chloride	25 KG S: 48	12			475	60	80
Soda Ash	25 KG S:						1
Sodium Bicarb	25 KG S: 1						
Spersene CF	50 LB S:						
XCD	25 KG S:			2			

M-I Drilling Fluids Co

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

11-05-95

===== M-I DRILLING FLUIDS DAILY MUD ADDITIONS =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Page: 4  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN      Well: W0002

```

Date                : 25/04/95
Depth               -m: 1745.0
Daily Mud Cost      : 128
Cumulative Mud Cost : 38014
Bacban III          6 LB JU:
CMC TG LV           25 KG S: 1
CRNX                208 LT :
Caustic Soda        25 KG S:
Conqor 303          208 LT :
Lime                18.5 KG:
M-I Bar             25 KG S:
M-I Gel             25 KG S: 1
OS-1                25 KG S:
Polypac R           25 KG S:
Potassm Chloride    25 KG S: 5
Soda Ash            25 KG S:
Sodium Bicarb       25 KG S:
Spersene CF         50 LB S:
XCD                 25 KG S:
    
```

===== M-I DRILLING FLUIDS PRODUCT SUMMARY =====

Operator : GFE RESOURCES LTD      Contractor : CENTURY DRILLING      Description : APPRAISAL      Well: W0002  
 Well Name : WALLABY CREEK 2      Field/Area : PPL 1      Location : OTWAY BASIN

=====

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 04/04/95 - 25/04/95, 65.0 m - 1745.0 m

WATER-BASE PROD	SIZE	AMOUNT
Bacban III	6 LB JUG	3
CMC TG LV	25 KG SX	64
CRNX	208 LT DM	1
Caustic Soda	25 KG SX	24
Conqor 303	208 LT DM	1
Lime	18.5 KG S	1
M-I Bar	25 KG SX	200
M-I Gel	25 KG SX	219
OS-1	25 KG SX	10
Polypac R	25 KG SX	100
Potassm Chloride	25 KG SX	1220
Soda Ash	25 KG SX	2
Sodium Bicarb	25 KG SX	9
Spersene CF	50 LB SX	3
XCD	25 KG SX	2

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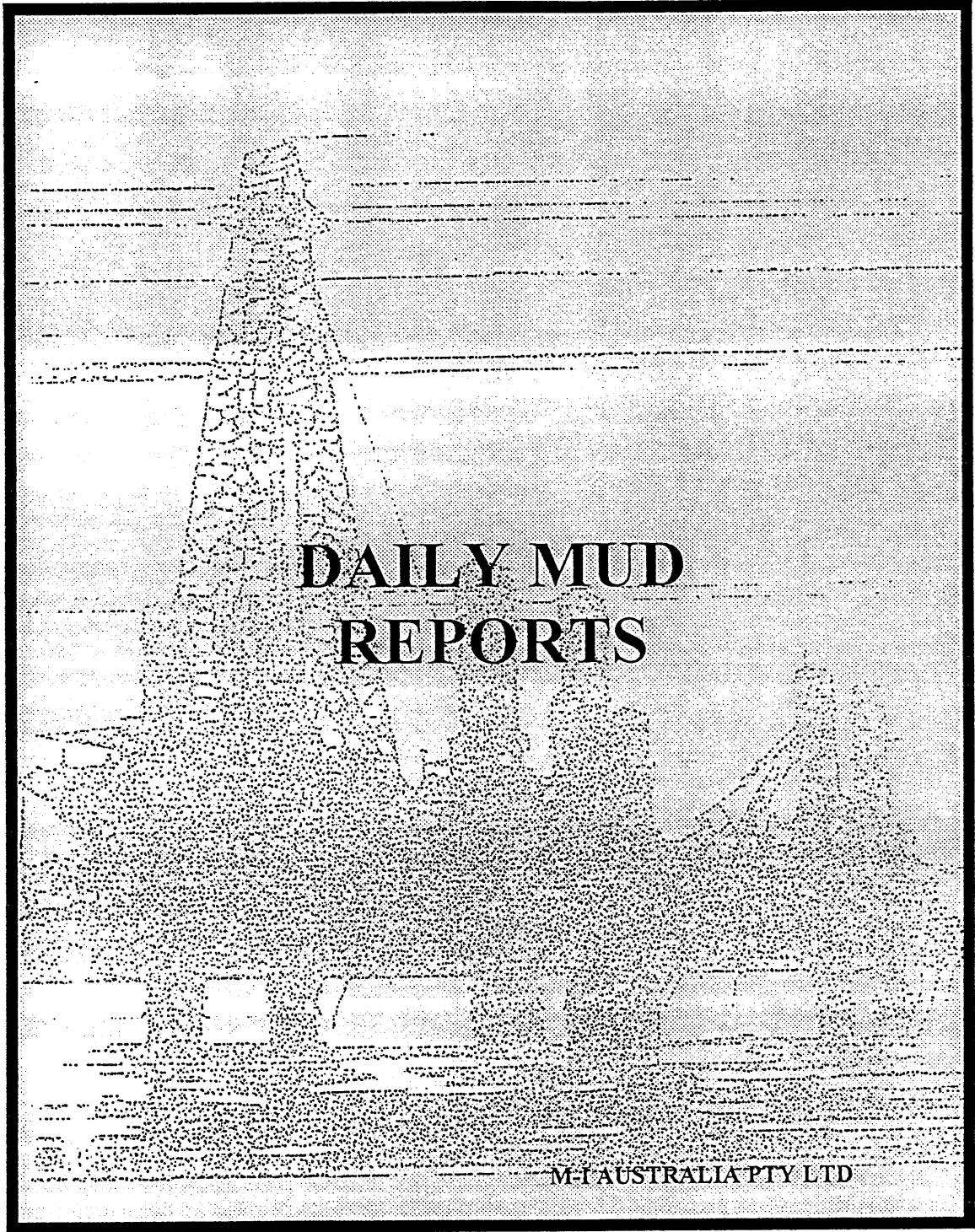
M-I Drilling Fluids Co

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

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11-05-95

SECTION 12



**DAILY MUD  
REPORTS**

M-I AUSTRALIA PTY LTD



Report No.: 1

API #:

Date: 04/04/95

Depth: 65.0 m

Well No.: W0002

Spud Date: 04/04/95

Activity: DRILLING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	17.500in	CASING				MUD VOLUME (bbl)	
Nozzles		Casing OD	20.000 in	Liner OD		Hole Volume	60
Drill Pipe 1 OD	4.500 in 8 m	Casing ID	19.000in	Liner ID		Pits Volume	321
Drill Pipe 2 OD	6.250 in 37.6 m	Casing TD	18.0 m	Liner TD		Circulating volume	381
Drill Collar OD	8.000 in 19.5 m	Casing TVD	18.0 m	Liner TVD		Mud	FW NATIVE MUD

MUD PROPERTIES	Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From	FL 23:15	FL 05:30			Flow Rate	-gal/min 650
Flow Line Temp	65 °F	65 °F			DP Annular Vel	-m/min 18.2
Depth/TVD	-m 65.0 /65.0	113.0 /113.0			DC Annular Vel	-m/min 20.0
Mud Wt	-lb/gal 8.6	8.7			DP Critical Vel	-m/min 47.6
Funnel Visc	-s/qt 32 @ 65 °F	37 @ 62 °F			DC Critical Vel	-m/min 49.9
Plastic Visc	-cps 5 @ 65 °F	7 @ 60 °F			Circ. Pressure	-psi 250
YP/R3	-lb/100ft <sup>2</sup> /deg 10 /2	14 /2			Bottoms Up	-min 3.7
10s/10m Gel	-lb/100ft <sup>2</sup> 3 /5	3 /6			Total Circ Time	-min 24.6
API F Loss	-cc/30 min				SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min				NaCl	0.0 / 1
Cake API/HT	-1/32" 3 /	3 /			KCl	0.2 / 2
Solids	-% Vol 1.9	2.7			Low Gravity Solids	1.7 / 16
Oil/Water	-% Vol /98.1	/97.3			Bentonite	1.0 / 9
Sand	-% Vol 0.9	0.3			Drill Solids	0.7 / 6
MBT	-lb/bbl 10.0	15.0			Weight Material	N/A / N/A
pH	9.1 @ 65 °F	8.5 @ 60 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)	0.2	0.1			Inert/React	0.56 Average SG 2.60
Pf/Mf	0.12 / 0.45	0.05 / 0.35			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l 3800	4100			Shaker #1	50/50/84 11
Hardness Ca	110	180			Shaker #2	
K+ MG/L	3150	3150			Shaker #3	
KCL % WT	0.6	0.6			Shaker #4	
					Mud Cleaner	
np Value	0.415	0.415			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft 1.20474	1.68663			Desander	2 X 12" 3.5
na Value	0.438	0.511			Desilter	12 X 4" 3.5
Ka	-lb-sec <sup>n</sup> /100ft 1.04531	0.92787			Degasser	

**Remarks:**

The 17.1/2" hole was spudded with the 0.75% by weight KCl brine. The full surface system was used so as to run the desilter & desander. Some additions of prehydrated gel were added to the system to maintain a minimum viscosity. The 17.1/2" hole was drilled to 59 m, with a survey at 28 m (3/4 deg), before pulling out to install a 17.1/2" stabilizer. On running in, the stabilizer was reamed from 21.7 to 50 m. The hole was continued to be drilled from 59 to 65 m.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	480
Mud Received	466
Mud Disposed	85
S.C.Equipmen	25
Surface	30
Dumped	30

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
630

Cumul Cost \$  
630



Report No.: 2

API #:

Date: 04/05/95

Depth: 300.0 m

Well No.: W0002

Spud Date: 04/04/95

Activity: POOH

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

		CASING			MUD VOLUME (bbl)				
Nozzles		17.500in			Casing OD	20.000 in	Liner OD	Hole Volume	275
Drill Pipe 1 OD	4.500 in	79 m	Casing ID	19.000in	Liner ID		Pits Volume	295	
Drill Pipe 2 OD	4.500 in	55.2 m	Casing TD	18.0 m	Liner TD		Circulating volume	570	
Drill Collar OD	6.250 in	165.5m	Casing TVD	18.0 m	Liner TVD		Mud	FW NATIVE MUD	

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA			
Sample From		FL 22:00	PIT 05:15			Flow Rate	-gal/min	702	
Flow Line Temp		75 °F				DP Annular Vel	-m/min	18.3	
Depth/TVD	-m	300.0 /300.0	300.0 /300.0			DC Annular Vel	-m/min	19.6	
Mud Wt	-lb/gal	8.8	8.8			DP Critical Vel	-m/min	114.0	
Funnel Visc	-s/qt	49 @ 70 °F	44 @ 70 °F			DC Critical Vel	-m/min	123.8	
Plastic Visc	-cps	107 @ 60 °F	6 @ 60 °F			Circ. Pressure	-psi	900	
YP/R3	-lb/100ft <sup>2</sup> /deg	35 /5	31 /5			Bottoms Up	-min	16.0	
10s/10m Gel	-lb/100ft <sup>2</sup>	7 /24	6 /18			Total Circ Time	-min	34.1	
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)			
HTHP F Loss	-cc/30 min					NaCl		0.1 / 1	
Cake API/HT	-1/32"	4 /	4 /			KCl		0.2 / 2	
Solids	-% Vol	3.5	3.5			Low Gravity Solids		3.2 / 29	
Oil/Water	-% Vol	/96.5	/96.5			Bentonite		1.8 / 17	
Sand	-% Vol	0.25	0.2			Drill Solids		1.4 / 13	
MBT	-lb/bbl	18.0	17.0			Weight Material		N/A / N/A	
pH		8.5 @ 60 °F	8.5 @ 60 °F			Chemical Conc		- / 0.0	
Alkal Mud (Pm)		0.1	0.1			Inert/React	0.62	Average SG	2.60
Ca/Mf		0.05 / 0.3	0.05 / 0.3			SOLIDS EQUIPMENT			
Chlorides	-mg/l	3900	3400			Shaker #1	Size	Hours	
Hardness Ca		80	60			Shaker #2	50/50/84	20	
K+ MG/L		2600	2200			Shaker #3			
KCL % WT		0.5	0.4			Shaker #4			
						Mud Cleaner			
np Value		0.810	0.217			Centrifuge			
Kp	-lb-sec <sup>n</sup> /100ft	0.97134	10.22192			Desander	2 X 12"	19	
na Value		0.727	0.435			Desilter	12 X 4"	14	
Ka	-lb-sec <sup>n</sup> /100ft	1.63067	2.62574			Degasser			

**Remarks:**

Prior to entering the Marl, the viscosity was 35 sec/qt. The Marl native clays were allowed to build the viscosity, and no more Gel was added. The 17.1/2" hole was drilled from 65 to 215 m, with surveys giving a maximum survey of 1 deg at 84m. The hole was circulated to condition the mud as the viscosity was rapidly increasing. Water and Spersene CF were used to thin the mud whilst maintaining the KCl concentration which was showing evidence of some depletion. The hole was continued to be drilled, with surveys, to the total depth of this section of 300m. The hole was circulated clean prior to pulling out for a wiper trip.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	555
Mud Built	65
Mud Received	569
Mud Disposed	380
S.C.Equipmen	172
Surface	118
Dumped	90

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
800

Cumul Cost \$  
1430



Report No.: 3

API #:

Date: 04/06/95

Depth: 300.0 m

Well No.: W0002

Spud Date: 04/04/95

Activity: BOP

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

		CASING			MUD VOLUME (bbl)	
17.500in		Casing OD	20.000 in	Liner OD	Hole Volume	
Nozzles		Casing ID	19.000in	Liner ID	Pits Volume	
Drill Pipe 1 OD	4.500 in 79 m	Casing TD	18.0 m	Liner TD	Circulating volume	
Drill Pipe 2 OD	4.500 in 55.2 m	Casing TVD	18.0 m	Liner TVD	Mud FW NATIVE MUD	
Drill Collar OD	6.250 in 165.5m					

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		PIT 23:30				Flow Rate	-gal/min
Flow Line Temp						DP Annular Vel	-m/min
Depth/TVD	-m	300.0 /300.0				DC Annular Vel	-m/min
Mud Wt	-lb/gal	8.7				DP Critical Vel	-m/min 60.4
Funnel Visc	-s/qt	40 @ 55 °F				DC Critical Vel	-m/min 63.1
Plastic Visc	-cps	7 @ 55 °F				Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg	19 /3				Bottoms Up	-min
10s/10m Gel	-lb/100ft <sup>2</sup>	4 /12				Total Circ Time	-min
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	3 /				KCl	0.0 / 0
Solids	-% Vol	2.7				Low Gravity Solids	2.6 / 23
Oil/Water	-% Vol	797.3				Bentonite	1.2 / 11
Sand	-% Vol	0.2				Drill Solids	1.4 / 13
MBT	-lb/bbl	12.0				Weight Material	N/A / N/A
pH		8.3 @ 55 °F				Chemical Conc	- / 0.0
Alkal Mud (Pm)						Inert/React	0.94 Average SG 2.60
Cl/Mf						SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	2800				Shaker #1	50/50/84 1.5
Hardness Ca		60				Shaker #2	
K+ MG/L		550				Shaker #3	
KCL % WT		0.1				Shaker #4	
						Mud Cleaner	
np Value		0.344				Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	3.25216				Desander	2 X 12" 0
na Value		0.469				Desilter	12 X 4" 0
Ka	-lb-sec <sup>n</sup> /100ft	1.48969				Degasser	

**Remarks:**

On running back in, 5m of fill was encountered. Bottoms up was circulated, prior to pulling out, where tight hole was worked from 220 to 228m. The 17.1/2" bit, bit sub, 8" drill collars and stabiliser were broken and laid out. The 13.3/8" casing was rigged up and run, installing 4 centralizers. The casing was circulated 1.5 times its capacity, during which the mud was diluted with water to reduce the viscosity to 40 sec/qt. The casing was cemented and the cement displaced with mud. This mud will form the basis of the mud system used in the 8.1/2" interval.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	80
Mud Built	
Mud Received	80
Mud Disposed	290
S.C.Equipmen	
Surface	
Dumped	290

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
0

Cumul Cost \$  
1430



Report No.: 4

API #:

Date: 04/07/95

Depth: 303.0 m

Well No.: W0002

Spud Date: 04/04/95

Activity: M/U 8.5"BIT

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRIASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit		CASING			MUD VOLUME (bbl)			
12.250in		Casing OD	13.375 in	Liner OD	Hole Volume 130			
Nozzles		Casing ID	12.515in	Liner ID	Pits Volume 392			
Drill Pipe 1 OD	4.500 in 84 m	Casing TD	298.2 m	Liner TD	Circulating volume 522			
Drill Pipe 2 OD	4.500 in 55.0 m	Casing TVD	298.2 m	Liner TVD	Mud FW POLYMER			
Drill Collar OD	6.250 in 164.0m							
MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA		
Sample From		FL 21:30	FL 06:00			Flow Rate	-gal/min 299	
Flow Line Temp		60 °F	60 °F			DP Annular Vel	-m/min 16.4	
Depth/TVD	-m	303.0 /303.0	386.0 /386.0			DC Annular Vel	-m/min 20.1	
Mud Wt	-lb/gal	8.7	8.7			DP Critical Vel	-m/min 57.5	
Funnel Visc	-s/qt	37 @ 60 °F	34 @ 60 °F			DC Critical Vel	-m/min 63.9	
Plastic Visc	-cps	11 @ 60 °F	8 @ 60 °F			Circ. Pressure	-psi 800	
YP/R3	-lb/100ft <sup>2</sup> /deg	12 /2	9 /2			Bottoms Up	-min 17.1	
10s/10m Gel	-lb/100ft <sup>2</sup>	3 /6	3 /5			Total Circ Time	-min 73.3	
API F Loss	-cc/30 min	12.0	12.8			SOLIDS ANALYSIS (% / lb/bbl)		
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1	
Cake API/HT	-1/32"	1 /	1 /			KCl	0.3 / 3	
Solids	-% Vol	2.7	2.7			Low Gravity Solids	2.3 / 21	
Oil/Water	-% Vol	/97.3	/97.3			Bentonite	1.0 / 9	
Sand	-% Vol		TR			Drill Solids	1.3 / 12	
MBT	-lb/bbl	10.0	9.0			Weight Material	N/A / N/A	
pH		10.2 @ 60 °F	10 @ 60 °F			Chemical Conc	- / 0.0	
Alkal Mud (Pm)		0.5	0.5			Inert/React	1.08 Average SG 2.60	
Pf/Mf		0.35 / 0.8	0.35 / 0.7			SOLIDS EQUIPMENT Size Hours		
Chlorides	-mg/l	6100	6300			Shaker #1	50/84/84 1.5	
Hardness Ca		180	120			Shaker #2		
K+ MG/L		5200	5700			Shaker #3		
KCL % WT		1.0	1.1			Shaker #4		
						Mud Cleaner		
np Value		0.564	0.556			Centrifuge		
Kp	-lb-sec <sup>n</sup> /100ft	0.73048	0.56578			Desander	2 X 12" 0	
na Value		0.530	0.465			Desilter	12 X 4" 0	
Ka	-lb-sec <sup>n</sup> /100ft	0.89845	0.99998			Degasser		
<b>Remarks:</b>						MUD VOLUME ACCOUNTING (bbl)		
<p>The BOPs were nipped up and pressure tested with "Dowell". A concentrated KCl/Polymer premix of 150 bbl was made up, recycling the sump water where possible. The surface mud system was pretreated against cement contamination with bicarbonate of soda. A 12.1/4" bit, bit sub &amp; crossover were made up and ran in the hole, picking up 2 x 6.1/4" drill collars. The cement was tagged at 283.63 m. The hydril, outside kill, upper, lower kelly cock were pressure tested. The float, shoe track and 3 m of new hole to 303 m, were drilled. The mud remained stable as far as viscosity, though the pH did rise to about 10. The hole was circulated clean prior to conducting a FIT to a EMW of 25.7 ppg. The 12.1/4" bit was pulled and a 8.1/2" drilling assembly was made up.</p>						Oil Added		
						Water Added		
						Mud Built		150
						Mud Received		215
						Mud Disposed		53
						S.C.Equipmen		
						Surface		8
						Dumped		45
						Daily Cost \$		1740
						Cumul Cost \$		3171

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
1740

Cumul Cost \$  
3171







# WATER BASE MUD REPORT

Report No.: 5

API #:

Date: 04/08/95

Depth: 822.0 m

Well No.: W0002

Spud Date: 04/04/95

Activity: DRILLING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

		CASING			MUD VOLUME (bbl)	
Bit	8.500 in	Casing OD	13.375 in	Liner OD	Hole Volume	238
Drill Pipe 1 OD	4.500 in	Casing ID	12.515 in	Liner ID	Pits Volume	345
Drill Pipe 2 OD	4.500 in	Casing TD	298.2 m	Liner TD	Circulating volume	583
Drill Collar OD	6.250 in	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 24:00	FL 05:30			Flow Rate	-gal/min 326
Flow Line Temp		75 °F	76 °F			DP Annular Vel	-m/min 46.8
Depth/TVD	-m	822.0 / 822.0	924.0 / 924.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.0	9.0			DP Critical Vel	-m/min 93.4
Funnel Visc	-s/qt	42 @ 70 °F	40 @ 70 °F			DC Critical Vel	-m/min 114.4
Plastic Visc	-cps	15 @ 63 °F	14 @ 63 °F			Circ. Pressure	-psi 1300
YP/R3	-lb/100ft <sup>2</sup> / deg	18 / 3	16 / 3			Bottoms Up	-min 26.5
10s/10m Gel	-lb/100ft <sup>2</sup>	4 / 10	4 / 10			Total Circ Time	-min 75.1
API F Loss	-cc/30 min	7.1	7.2			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	0.3 / 3
Solids	-% Vol	5.0	5.0			Low Gravity Solids	4.5 / 41
Oil/Water	-% Vol	/95.0	/95.0			Bentonite	1.0 / 10
Sand	-% Vol	0.6	0.8			Drill Solids	3.5 / 32
MBT	-lb/bbl	13.0	15.0			Weight Material	N/A / N/A
pH		8.8 @ 57 °F	8.5 @ 58 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.2	0.1			Inert/React	2.16 / Average SG 2.60
PI/MF		0.12 / 0.45	0.08 / 0.4			SOLIDS EQUIPMENT	
Chlorides	-mg/l	6700	6800			Shaker #1	Size 84/84/84 Hours 22
Hardness Ca		180	200			Shaker #2	
K+ MG/L		4700	4700			Shaker #3	
KCL % WT		0.9	0.9			Shaker #4	
SULPHITE		100	80			Mud Cleaner	
np Value		0.540	0.552			Centrifuge	
Kp	-lb-sec^n/100ft	1.21212	1.02270			Desander	2 X 12" 19
na Value		0.521	0.500			Desilter	12 X 4" 16
Ka	-lb-sec^n/100ft	1.36906	1.41607			Degasser	

**Remarks:**

A stabilizer and jars were picked up on running in with the 8.1/2" bit. The corrosion rings were installed. Circulation was broken and the 8.1/2" hole drilled from 303 to 822m with surveys (maximum 1 deg @ 356m). The fluid loss was reduced to less than 8 cc by 800m using CMC LV and Polypac R. With a ROP over 25 m/hr the mud weight rose quickly, which had to be controlled by dumping settled solids, diluting via polymer premixes and running the desander & desilter. Potassium chloride was maintained at approximately 1% by weight. The oxygen scavenger OS-1 was added for corrosion control. The sump water was recycled, so as a precautionary action, the bactericide Bacban III was added.

**MUD VOLUME ACCOUNTING (bbl)**

Oil Added	
Water Added	
Mud Built	320
Mud Received	320
Mud Disposed	259
S.C.Equipmen	145
Surface	34
Dumped	80

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
2410

Cumul Cost \$  
5581



# M-I Drilling Fluids LLC

## WATER BASE MUD REPORT

Report No.: 6

API #:

Date: 04/09/95

Depth: 1208.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: DRILLING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit		CASING			MUD VOLUME (bbl)	
Bit	8.500 in	Casing OD	13.375 in	Liner OD	Hole Volume	320
Bit Sizes	1 1/11/11/ / / 1/32"	Casing ID	12.515 in	Liner ID	Pits Volume	421
Drill Pipe 1 OD	4.500 in 976 m	Casing TD	298.2 m	Liner TD	Circulating volume	741
Drill Pipe 2 OD	4.500 in	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER
Drill Collar OD	6.250 in 176.6m					

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 23:00	PIT 05:30			Flow Rate	-gal/min 326
Flow Line Temp		76 °F				DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1208.0/1208.0	1227.0/1227.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.1	9.1			DP Critical Vel	-m/min 73.2
Funnel Visc	-s/qt	38 @ 70 °F	36 @ 70 °F			DC Critical Vel	-m/min 90.5
Plastic Visc	-cps	12 @ 63 °F	11 @ 60 °F			Circ. Pressure	-psi 1425
YP/R3	-lb/100ft <sup>2</sup> /deg	12 / 2	10 / 2			Bottoms Up	-min 34.8
10s/10m Gel	-lb/100ft <sup>2</sup>	3 / 7	3 / 5			Total Circ Time	-min 95.5
API F Loss	-cc/30 min	6.9	6.9			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	5.3	5.8			Low Gravity Solids	4.5 / 41
Oil/Water	-% Vol	194.7	194.2			Bentonite	1.5 / 14
Sand	-% Vol	0.7	0.5			Drill Solids	3.0 / 27
MBT	-lb/bbl	17.0	17.0			Weight Material	N/A / N/A
pH		9.0 @ 57 °F	9.0 @ 55 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	1.41 Average SG 2.60
Pf/Mf		0.1 / 0.45	0.1 / 0.45			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	16500	15500			Shaker #1	84/84/84 20.5
Hardness Ca		200	200			Shaker #2	
K+ MG/L		16000	15500			Shaker #3	
KCL % WT		3.0	2.9			Shaker #4	
SULPHITE		120	100			Mud Cleaner	
np Value		0.585	0.607			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	0.66847	0.50769			Desander	2 X 12" 20
na Value		0.540	0.511			Desilter	12 X 4" 4
Ka	-lb-sec <sup>n</sup> /100ft	0.88501	0.92787			Degasser	

**Remarks:**

The 8.1/2" hole was drilled from 822 to 982 m, before pulling out for a 35 stand wiper trip. Tight hole was worked at 892, 883, 854, 796, 681 and from 528 to 499m. On running in 20ft of drilling line was slipped. The hole was reamed from 528 to 518m, and then continued running in encountering 2 m of fill on bottom. Drilling continued from 982 to 1222 m. Surveys were conducted at 969m (3/4 deg) & 1171m (1 deg). The KCl concentration was increased from 1% to 3% by weight. Temporary down hole losses totally 30 bbl, to the Paaratte Formation was experienced from 900 to 910m. The fluid loss was reduced to less than 7 cc/30min with CMC LV and Polypac R.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	260
Mud Received	260
Mud Disposed	102
S.C.Equipment	48
Surface/Dump	24
Down Hole	30

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
3189

Cumul Cost \$  
8770



# M-1 Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 7

API #:

Date: 04/10/95

Depth: 1291.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: DRILLING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in		CASING			MUD VOLUME (bbl)	
	11/11/11 / / / 1/32"		Casing OD	13.375 in	Liner OD	Hole Volume	338
Drill Pipe 1 OD	4.500 in	1057 m	Casing ID	12.515 in	Liner ID	Pits Volume	322
Drill Pipe 2 OD	4.500 in	55.2 m	Casing TD	298.2 m	Liner TD	Circulating volume	660
Drill Collar OD	6.250 in	178.4m	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER
MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 23:30	FL 05:30			Flow Rate	-gal/min 326
Flow Line Temp		78 °F	78 °F			DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1291.0/1291.0	1363.0/1363.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.1	9.3			DP Critical Vel	-m/min 87.6
Funnel Visc	-s/qt	41 @ 72 °F	40 @ 72 °F			DC Critical Vel	-m/min 105.7
Plastic Visc	-cps	14 @ 61 °F	14 @ 61 °F			Circ. Pressure	-psi 1500
YP/R3	-lb/100ft <sup>2</sup> /deg	15 /3	14 /3			Bottoms Up	-min 36.6
10s/10m Gel	-lb/100ft <sup>2</sup>	4 /10	4 /10			Total Circ Time	-min 85.0
API F Loss	-cc/30 min	6.8	7.0			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	6.1	6.3			Low Gravity Solids	4.6 / 42
Oil/Water	-% Vol	/93.9	/93.2			Bentonite	1.7 / 15
Sand	-% Vol	0.6	0.6			Drill Solids	2.9 / 27
MBT	-lb/bbl	18.0	18.0			Weight Material	N/A / N/A
pH		9.1 @ 61 °F	9.0 @ 61 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	1.31 Average SG 2.60
Pf/Mf		0.12 / 0.45	0.1 / 0.5			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	15500	15500			Shaker #1	84/84/84 16
Hardness Ca		240	240			Shaker #2	
K+ MG/L		15500	15500			Shaker #3	
KCL % WT		2.9	2.9			Shaker #4	
SULPHITE		50	160			Mud Cleaner	
np Value		0.568	0.585			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	0.89622	0.77989			Desander	2 X 12" 15
na Value		0.493	0.485			Desilter	12 X 4" 5
Ka	-lb-sec <sup>n</sup> /100ft	1.43317	1.45110			Degasser	

**Remarks:**

The 8.1/2" hole was drilled from 1222 to 1227m experiencing high torque. As no penetration could be achieved the bit was pulled, tight hole being worked from 1103 to 1007m. Bit #3 and the BHA were made up and run in. The hole was reamed from 701 to bottom. Bit #3 was broken in and the 8.1/2" hole drilled from 1227 to 1295m. As the weight rose to 9.1+ - 9.2 ppg the desilter was put to use. Approximately 3% by weight KCl was maintained. Fluid loss was controlled and viscosity built with Polypac R.

**MUD VOLUME ACCOUNTING (bbl)**

Oil Added	
Water Added	
Mud Built	
Mud Received	
Mud Disposed	81
S.C.Equipmen	57
Surface/Trip	24
Dumped	

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
589

Cumul Cost \$  
9359



# M-I Drilling Fluids LLC.

## WATER BASE MUD REPORT

Report No.: 8

API #:

Date: 04/11/95

Depth: 1424.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: RIH/REAMING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in		CASING				MUD VOLUME (bbl)	
	11/11/11/ / / 1/32"		Casing OD	13.375 in	Liner OD		Hole Volume	366
Drill Pipe 1 OD	4.500 in	1190 m	Casing ID	12.515 in	Liner ID		Pits Volume	-366
Drill Pipe 2 OD	4.500 in	55.2 m	Casing TD	298.2 m	Liner TD		Circulating volume	
Drill Collar OD	6.250 in	178.4m	Casing TVD	298.2 m	Liner TVD		Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 23:30	FL 05:45			Flow Rate	-gal/min 326
Flow Line Temp		69 °F	73 °F			DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1424.0/1424.0	1431.0/1431.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.4	9.4			DP Critical Vel	-m/min 91.0
Funnel Visc	-s/qt	42 @ 64 °F	41 @ 68 °F			DC Critical Vel	-m/min 111.5
Plastic Visc	-cps	16 @ 60 °F	15 @ 60 °F			Circ. Pressure	-psi 1550
YP/R3	-lb/100ft <sup>2</sup> /deg	17 /3	16 /3			Bottoms Up	-min 39.4
10s/10m Gel	-lb/100ft <sup>2</sup>	4 /9	4 /9			Total Circ Time	-min 0.0
API F Loss	-cc/30 min	6.9	7.0			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.0 / 10
Solids	-% Vol	7.5	7.9			Low Gravity Solids	6.8 / 62
Oil/Water	-% Vol	/92.5	/92.1			Bentonite	1.4 / 13
Sand	-% Vol	0.6	0.5			Drill Solids	5.4 / 50
MBT	-lb/bbl	18.0	18.0			Weight Material	N/A / N/A
pH		8.8 @ 58 °F	8.7 @ 60 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	2.45 Average SG 2.60
Pf/Mf		0.08 / 0.45	0.06 / 0.4			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	16000	16000			Shaker #1	84/84/84 13
Hardness Ca		220	220			Shaker #2	
K+ MG/L		15500	15500			Shaker #3	
KCL % WT		2.9	2.9			Shaker #4	
SULPHITE		60	40			Mud Cleaner	
np Value		0.570	0.569			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	1.00700	0.95159			Desander	2 X 12" 12
na Value		0.521	0.507			Desilter	12 X 4" 9.5
Ka	-lb-sec <sup>n</sup> /100ft	1.36906	1.39972			Degasser	

**Remarks:**

The 8.1/2" hole was drilled from 1295 to 1424m, with a survey at 1377m of 1.1/4 deg. Bottoms up was circulated prior to pulling out. Tight hole was worked from 1315 to 1306m and from 1277 to 1258m. The Kelly was picked up to back ream from 1249 to 1239m and again from 1230 to 1220m. On continuing to pull out, tight hole was worked from 1210 to 1105m. A 3000psi McEvoy Valve was installed in the Braden Head. The BOP was tested to 3000psi. Bit #3 was rerun in the hole, where the hole was reamed from 1000 to 1039m and from 1076 to 1172m. A 9.3ppg mud weight was maintained. Polypac R was used to provide viscosity and for fluid loss control. Make up water for premixes was recycled from the sump.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	190
Mud Received	147
Mud Disposed	196
S.C. Equipmen	139
Surface/Trip	37
Dumped	20

Sales Engineer  
BOBB J

Warehouse  
ADELAIDE

Daily Cost \$  
1749

Cumul Cost \$  
11108





Report No.: 9

API #:

Date: 04/12/95

Depth: 1527.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: REAMING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRIASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in	CASING				MUD VOLUME (bbl)	
Nozzles	11/11/11/ / / 1/32"	Casing OD	13.375 in	Liner OD	Hole Volume	388	
Drill Pipe 1 OD	4.500 in 1293 m	Casing ID	12.515in	Liner ID	Pits Volume	274	
Drill Pipe 2 OD	4.500 in 55.2 m	Casing TD	298.2 m	Liner TD	Circulating volume	662	
Drill Collar OD	6.250 in 178.4m	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER	

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 19:30	PIT 05:00			Flow Rate	-gal/min 300
Flow Line Temp		84 °F				DP Annular Vel	-m/min 43.1
Depth/TVD	-m	1527.0/	1527.0/1527.0			DC Annular Vel	-m/min 67.5
Mud Wt	-lb/gal	9.4	9.4			DP Critical Vel	-m/min 96.5
Funnel Visc	-s/qt	41 @ 80 °F	47 @ 76 °F			DC Critical Vel	-m/min 114.1
Plastic Visc	-cps	16 @ 68 °F	17 @ 72 °F			Circ. Pressure	-psi 1375
YP/R3	-lb/100ft <sup>2</sup> /deg	16 /4	23 /4			Bottoms Up	-min 45.2
10s/10m Gel	-lb/100ft <sup>2</sup>	5 /10	5 /12			Total Circ Time	-min 92.7
API F Loss	-cc/30 min	6.1	5.6			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 2
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	7.5	7.5			Low Gravity Solids	6.7 / 61
Oil/Water	-% Vol	192.5	192.5			Bentonite	1.5 / 14
Sand	-% Vol	0.5	0.4			Drill Solids	5.2 / 47
MBT	-lb/bbl	19.0	19.0			Weight Material	N/A / N/A
pH		8.7 @ 65 °F	8.6 @ 65 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	2.21 Average SG 2.60
Pf/Mf		0.06 / 0.5	0.05 / 0.55			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	17500	17000			Shaker #1	84/84/84 18
Hardness Ca		100	120			Shaker #2	
K+ MG/L		16000	16000			Shaker #3	
KCL % WT		3.0	3.0			Shaker #4	
SULPHITE		60	40			Mud Cleaner	
np Value		0.585	0.511			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	0.89130	1.76696			Desander	2 X 12" 16
na Value		0.452	0.500			Desilter	12 X 4" 8
Ka	-lb-sec <sup>n</sup> /100ft	2.04338	1.88809			Degasser	2.5

**Remarks:**

On running in, it was necessary to ream from 1172 to 1424m, working the tight hole from 1230 to 1262m and from 1376 to 1424m. The 8.1/2" hole was drilled from 1424 to 1491m. A maximum gas of 2430 units was received from drilling into the Waarre Formation at 1483m. At 1491m the hole was circulated for 5 minutes before pulling up above the gas column and circulating up a sample. This procedure was repeated after drilling to 1501m and again after drilling to 1527m. A wiper trip was made to 970m. Tight hole was worked from 1344 to 1000m with a maximum overpull of 50,000 lb thereafter. On running in the hole was reamed from 1491 to 1510m. Mud weight was controlled through dumping and diluting and the solids control equipment. The fluid loss was reduced to 5.6cc

M-I Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
3169

Cumul Cost \$  
14278

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	200
Mud Received	195
Mud Disposed	144
S.C.Equipmen	104
Surface/Trip	30
Dumped	10



# M-1 Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 10

API #:

Date: 04/13/95

Depth: 1529.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: RIH TO CORE

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

		CASING			MUD VOLUME (bbl)	
Blowholes	8.500 in	Casing OD	13.375 in	Liner OD	Hole Volume	388
Drill Pipe 1 OD	4.500 in 1282 m	Casing ID	12.515 in	Liner ID	Pits Volume	298
Drill Pipe 2 OD	4.500 in 55.2 m	Casing TD	298.2 m	Liner TD	Circulating volume	686
Drill Collar OD	6.250 in 191.8 m	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 17:30	FL 05:30			Flow Rate	-gal/min 251
Flow Line Temp		80 °F	78 °F			DP Annular Vel	-m/min 36.1
Depth/TVD	-m	1529.0/1529.0	1531.0/1531.0			DC Annular Vel	-m/min 56.5
Mud Wt	-lb/gal	9.4	9.4			DP Critical Vel	-m/min 96.1
Funnel Visc	-s/qt	41 @ 76 °F	40 @ 76 °F			DC Critical Vel	-m/min 113.7
Plastic Visc	-cps	16 @ 62 °F	16 @ 62 °F			Circ. Pressure	-psi 525
YP/R3	-lb/100ft <sup>2</sup> /deg	16 /4	15 /4			Bottoms Up	-min 54.0
10s/10m Gel	-lb/100ft <sup>2</sup>	5 /11	5 /10			Total Circ Time	-min 114.8
API F Loss	-cc/30 min	5.5	5.5			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	7.81	8.2			Low Gravity Solids	6.5 / 59
Oil/Water	-% Vol	/92.2	/91.8			Bentonite	1.7 / 15
Sand	-% Vol	0.5	0.5			Drill Solids	4.9 / 44
MBT	-lb/bbl	20.0	20.0			Weight Material	0 / 2
pH		8.8 @ 60 °F	8.8 @ 60 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	1.97 Average SG 2.63
Pf/Mf		0.08 / 0.45	0.08 / 0.45			SOLIDS EQUIPMENT	
Chlorides	-mg/l	17000	17500			Shaker #1	Size 84/84/84 Hours 7
Hardness Ca		80	80			Shaker #2	
K+ MG/L		16000	16000			Shaker #3	
KCL % WT		3.0	3.0			Shaker #4	
SULPHITE		150	120			Mud Cleaner	
np Value		0.585	0.600			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	0.89130	0.78428			Desander	2 X 12" 4
na Value		0.452	0.445			Desilter	12 X 4"
Ka	-lb-sec <sup>n</sup> /100ft	2.04338	2.06648			Degasser	0.5

**Remarks:**

The hole was continued to be reamed & washed to bottom of 1527m. The hole was circulated clean, and the pipe slugged prior to pulling out. Part of the drilling assembly was laid out and a core barrel was picked & made up. The core barrel was run in; the hole being washed/reamed from 1453 to 1466m and from 1511 to 1527 where bottom was tagged. A 15 minute spacer was circulated before picking up a pup joint and dropping the ball. The 8.1/2" hole was cored from 1527 to 1529m. The hole was circulated establishing the mud weight steady at 9.4 ppg. The core barrel was pulled out and of the 2m of core, 1.12m (56%) was actually retrieved. The inner barrel was cleared and the bit checked. The core barrel was run in picking up the kelly to clear the bit at 476 & 821m.

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	55
Mud Received	48
Mud Disposed	29
S.C. Equipmen	5
Surface/Trip	24
Dumped	

Daily Cost \$  
742

Cumul Cost \$  
15019



# M-I Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 11

API #:

Date: 04/14/95

Depth: 1586.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: DRILLING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in		CASING				MUD VOLUME (bbl)	
	Bit	11/11/11/ / / 1/32"		Casing OD	13.375 in	Liner OD		Hole Volume
Drill Pipe 1 OD	4.500 in	1352 m	Casing ID	12.515 in	Liner ID		Pits Volume	319
Drill Pipe 2 OD	4.500 in	55.2 m	Casing TD	298.2 m	Liner TD		Circulating volume	720
Drill Collar OD	6.250 in	178.4 m	Casing TVD	298.2 m	Liner TVD		Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 24:00	FL 05:30			Flow Rate	-gal/min 326
Flow Line Temp		80 °F	80 °F			DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1586.0/	1626.0/1626.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.4	9.4			DP Critical Vel	-m/min 95.8
Funnel Visc	-s/qt	42 @ 74 °F	40 @ 74 °F			DC Critical Vel	-m/min 113.3
Plastic Visc	-cps	17 @ 58 °F	16 @ 58 °F			Circ. Pressure	-psi 1575
YP/R3	-lb/100ft <sup>2</sup> /deg	15 /4	14 /4			Bottoms Up	-min 42.9
10s/10m Gel	-lb/100ft <sup>2</sup>	5 /9	5 /9			Total Circ Time	-min 92.8
API F Loss	-cc/30 min	5.6	5.6			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	8.2	8.2			Low Gravity Solids	7.3 / 67
Oil/Water	-% Vol	/91.8	/91.8			Bentonite	1.6 / 14
Sand	-% Vol	0.5	0.3			Drill Solids	5.8 / 52
MBT	-lb/bbl	20.0	20.0			Weight Material	-0 / -4
pH		9.1 @ 58 °F	9.0 @ 58 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	2.33 Average SG 2.54
Pf/Mf		0.12 / 0.6	0.1 / 0.6			SOLIDS EQUIPMENT	
Chlorides	-mg/l	17000	17500			Shaker #1	Size 84/84/84 Hours 15
Density Ca		80	80			Shaker #2	
K+ MG/L		16000	16000			Shaker #3	
KCL % WT		3.0	3.0			Shaker #4	
SULPHITE		120	100			Mud Cleaner	
						Centrifuge	
np Value		0.614	0.616			Desander	2 X 12" 13
Kp	-lb-sec <sup>n</sup> /100ft	0.74047	0.68576			Desilter	12 X 4"
na Value		0.452	0.438			Degasser	0.5
Ka	-lb-sec <sup>n</sup> /100ft	2.04338	2.09063				

**Remarks:**

The core barrel was continued to be run in, clearing it at 1008, 1123, 1238, 1257 and 1333m. The hole was reamed from 1511 to 1529m and then circulated prior to dropping the ball and cutting core #2 from 1529 to 1547m. The core barrel was pulled out of the hole, working tight hole from 1534 to 1520m. The core barrel was broken and laid out, retrieving 18.4 m of core. The sandtrap and settling pit was dumped of high/settled solids mud. Bit #5 was made up along with the BHA. On running in the hole, circulation was broken to precautionary ream from 1497 to 1547m. The 8.1/2" hole was then drilled from 1547 to 1586m. Polypac R & CMC LV were used to control the fluid loss (5.6cc), with a preference for Polypac R to maintain viscosity.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	115
Mud Received	148
Mud Disposed	114
S.C. Equipmen	16
Surface/Trip	38
Dumped	60

Sales Engineer  
BB J

Warehouse  
ADELAIDE

Daily Cost \$  
1174

Cumul Cost \$  
16193



Report No.: 12

API #:

Date: 04/15/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: POOH TO LOG

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in	CASING			MUD VOLUME (bbl)	
Drill Pipe 1 OD	11/11/11/ / / 1/32"	Casing OD	13.375 in	Liner OD	Hole Volume	434
Drill Pipe 2 OD	4.500 in 1511 m	Casing ID	12.515 in	Liner ID	Pits Volume	326
Drill Collar OD	4.500 in 55.2 m	Casing TD	298.2 m	Liner TD	Circulating volume	760
	6.250 in 178.4m	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 24:00	PIT 05:30			Flow Rate	-gal/min 326
Flow Line Temp		85 °F				DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1745.0/1745.0	1745.0/1745.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.5	9.5			DP Critical Vel	-m/min 94.4
Funnel Visc	-s/qt	41 @ 80 °F	40 @ 70 °F			DC Critical Vel	-m/min 111.3
Plastic Visc	-cps	16 @ 62 °F	16 @ 62 °F			Circ. Pressure	-psi 1625
YP/R3	-lb/100ft <sup>2</sup> /deg	15 /4	14 /4			Bottoms Up	-min 46.3
10s/10m Gel	-lb/100ft <sup>2</sup>	5 /9	5 /9			Total Circ Time	-min 97.9
API F Loss	-cc/30 min	5.9	6.0			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.2 / 2
Cake API/HT	-1/32"	1 /	1 /			KCl	1.1 / 10
Solids	-% Vol	8.4	8.4			Low Gravity Solids	6.9 / 63
Oil/Water	-% Vol	/91.6	/91.6			Bentonite	1.6 / 15
Sand	-% Vol	0.4	0.3			Drill Solids	5.3 / 49
MBT	-lb/bbl	20.0	20.0			Weight Material	0 / 4
pH		8.6 @ 62 °F	8.5 @ 62 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	2.16 Average SG 2.65
PT/Mf		0.06 / 0.6	0.05 / 0.6			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	18000	17500			Shaker #1	84/84/84 19
Hardness Ca		120	120			Shaker #2	
K+ MG/L		16000	16000			Shaker #3	
KCL % WT		3.0	3.0			Shaker #4	
SULPHITE		60	40			Mud Cleaner	
						Centrifuge	
np Value		0.600	0.616			Desander	2 X 12" 17
Kp	-lb-sec <sup>n</sup> /100ft	0.78428	0.68576			Desilter	12 X 4" 12
na Value		0.445	0.438			Degasser	
Ka	-lb-sec <sup>n</sup> /100ft	2.06648	2.09063				

**Remarks:**

The 8.1/2" hole was drilled from 1586m to the total depth of 1745m with a survey at 1578m of 1.1/4 deg. Mud weight was control through dilution and the running of the desilter & desander, resulting in a weight consistently ranging from 9.4+ to 9.5 ppg. Bottoms up was circulated prior to pulling out for a wiper trip to 971m. Tight hole had to be work, and pipe stuck at 1545m freed, with the kelly being picked up to back ream with slips in the rotary table. Tight hole continued from 1555 to 1565m before receiving a clear run. On running back in, the hole was washed to bottom from 1728m encountering 5m of fill. The hole was then circulated clean.

**MUD VOLUME ACCOUNTING (bbl)**

Oil Added	
Water Added	
Mud Built	180
Mud Received	182
Mud Disposed	142
S.C.Equipmen	81
Surface/Trip	21
Dumped	40

Sales Engineer

Warehouse

Daily Cost \$

Cumul Cost \$

BOBB J

ADELAIDE

1861

18054





# M-1 Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 13

API #:

Date: 04/16/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: CIRCULATING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in		CASING				MUD VOLUME (bbl)	
	Drill Pipe 1 OD	18/17/13/ / / 1/32"		Casing OD	13.375 in	Liner OD		Hole Volume
Drill Pipe 2 OD	4.500 in	1516 m	Casing ID	12.515 in	Liner ID		Pits Volume	297
Drill Collar OD	4.500 in	55.2 m	Casing TD	298.2 m	Liner TD		Circulating volume	731
	6.250 in	174.2m	Casing TVD	298.2 m	Liner TVD		Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 17:00	PIT 05:30			Flow Rate	-gal/min
Flow Line Temp		78 °F				DP Annular Vel	-m/min
Depth/TVD	-m	1745.0/1745.0	1745.0/1745.0			DC Annular Vel	-m/min
Mud Wt	-lb/gal	9.6	9.4			DP Critical Vel	-m/min 111.1
Funnel Visc	-s/qt	45 @ 72 °F	47 @ 72 °F			DC Critical Vel	-m/min 131.7
Plastic Visc	-cps	21 @ 60 °F	23 @ 60 °F			Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg	20 /5	21 /5			Bottoms Up	-min
10s/10m Gel	-lb/100ft <sup>2</sup>	7 /12	7 /12			Total Circ Time	-min
API F Loss	-cc/30 min	5.3	5.1			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.0 / 9
Solids	-% Vol	9.0	8.3			Low Gravity Solids	8.3 / 76
Oil/Water	-% Vol	/91.0	/91.7			Bentonite	1.7 / 15
Sand	-% Vol	0.5	0.5			Drill Solids	6.6 / 60
MBT	-lb/bbl	22.0	20.0			Weight Material	N/A / N/A
pH		8.7 @ 60 °F	8.7 @ 60 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	2.44 Average SG 2.60
PF/Mf		0.07 / 0.65	0.07 / 0.65			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	16500	16000			Shaker #1	84/84/84 7
Hardness Ca		1600	160			Shaker #2	
K+ MG/L		15500	14900			Shaker #3	
KCL % WT		2.9	2.8			Shaker #4	
SULPHITE		20	180			Mud Cleaner	
np Value		0.596	0.606			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	1.06179	1.07054			Desander	2 X 12" 6
na Value		0.457	0.472			Desilter	12 X 4" 5
Ka	-lb-sec <sup>n</sup> /100ft	2.53198	2.46943			Degasser	

**Remarks:**

Continued circulating the hole clean with a survey conducted at 1722m of 1 deg before pulling out to run wireline logs. BPB were rigged up and commence running log #1 (DLL-GR-MLL-BHC) but failed to go pass 492m. BPB were rigged down. On running in the bridge was tagged at 492m and reamed to 500m. Bottoms up was circulated from 545m. On pulling out the hole collapse & pipe had to be freed at 481m. The instable hole was circulated raising the yield point to 20 lb/100sq.ft to clear cavings. Pipe was pulled out & BPB ran log #1 again failing to go pass 337m. BPB were rigged down. On running in the bridge was tagged at 337m. The hole was circulated clean before running in to a bridge at 478m. The bridge was washed & reamed. The hole was then circulated clean.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	80
Mud Received	41
Mud Disposed	70
S.C.Equipmen	23
Surface	10
Down Hole	37

Sales Engineer  
BOBB J

Warehouse  
ADELAIDE

Daily Cost \$  
945

Cumul Cost \$  
18999



Report No.: 14

API #:

Date: 04/17/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: RIH

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit		CASING					MUD VOLUME (bbl)		
Bit	8.500 in	Casing OD	13.375 in	Liner OD		Hole Volume	434		
Nozzles	18/17/13/ / / 1/32"	Casing ID	12.515 in	Liner ID		Pits Volume	361		
Drill Pipe 1 OD	4.500 in 1516 m	Casing TD	298.2 m	Liner TD		Circulating volume	795		
Drill Pipe 2 OD	4.500 in 55.2 m	Casing TVD	298.2 m	Liner TVD		Mud	FW POLYMER		
Drill Collar OD	6.250 in 174.2m								
MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA			
Sample From		FL 17:30	PIT 05:45			Flow Rate	-gal/min 326		
Flow Line Temp		74 °F				DP Annular Vel	-m/min 46.8		
Depth/TVD	-m	1745.0/1745.0	1745.0/			DC Annular Vel	-m/min 73.4		
Mud Wt	-lb/gal	9.4	9.4			DP Critical Vel	-m/min 103.0		
Funnel Visc	-s/qt	43 @ 70 °F	42 @ 70 °F			DC Critical Vel	-m/min 124.1		
Plastic Visc	-cps	19 @ 60 °F	17 @ 60 °F			Circ. Pressure	-psi		
YP/R3	-lb/100ft <sup>2</sup> /deg	19 /4	17 /4			Bottoms Up	-min 46.3		
10s/10m Gel	-lb/100ft <sup>2</sup>	6 /11	5 /10			Total Circ Time	-min 102.4		
API F Loss	-cc/30 min	5.2	5.1			SOLIDS ANALYSIS (% / lb/bbl)			
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1		
Cake API/HT	-1/32"	1 /	1 /			KCl	1.4 / 13		
Solids	-% Vol	8.2	8.2			Low Gravity Solids	6.4 / 58		
Oil/Water	-% Vol	/91.8	/91.8			Bentonite	1.7 / 15		
Sand	-% Vol	0.3	0.2			Drill Solids	4.7 / 43		
MBT	-lb/bbl	20.0	22.0			Weight Material	N/A / N/A		
pH		8.8 @ 60 °F	9.1 @ 60 °F			Chemical Conc	- / 0.0		
Alkal Mud (Pm)		0.1	0.2			Inert/React	1.90 Average SG 2.60		
Pf/Mf		0.08 / 0.65	0.12 / 0.65			SOLIDS EQUIPMENT Size Hours			
Chlorides	-mg/l	22000	21500			Shaker #1	84/84/84 13		
Hardness Ca		200	200			Shaker #2			
K+ MG/L		21500	21500			Shaker #3			
KCL % WT		4.0	4.0			Shaker #4			
SULPHITE		80	100			Mud Cleaner			
np Value		0.585	0.585			Centrifuge			
Kp	-lb-sec <sup>n</sup> /100ft	1.05842	0.94700			Desander	2 X 12" 16		
na Value		0.489	0.465			Desilter	12 X 4" 13		
Ka	-lb-sec <sup>n</sup> /100ft	1.92271	1.99997			Degasser			
<b>Remarks:</b>						MUD VOLUME ACCOUNTING (bbl)			
<p>The hole was reamed from 478 to 506m, and circulated clean at 519m. On running in bridges were encountered at 525 &amp; 544m and were reamed out. Fill was tagged at 1722m and was thus reamed to bottom. The mud was circulated raising the KCl concentration to 4% by weight. The hole was swept with a 50 bbl Hi-Vis pill, before pulling out, up to 1159m. Bottoms up was circulated here, and at 774m, were a carbide was dropped indicating the hole was 46 bbl overgauge at this depth. Another 50 bbl Hi-Vis sweep was circulated through at 583m. A 140bbl Hi-Vis pill was spotted at this depth prior to pulling out. BPB were rigged up and run #1 failed to pass 786m. On running in circulation was broken &amp; the bridge tagged at 786m. Polypac R was used for the Hi-Vis pills.</p>						Oil Added			
						Water Added			
						Mud Built	170		
						Mud Received	224		
						Mud Disposed	160		
						S.C.Equipmen	68		
						Down Hole	35		
						Surface/Dump	57		
						Daily Cost \$	3837	Cumul Cost \$	22836
						M-I Sales Engineer	Warehouse		
COBB J	ADELAIDE								



Report No.: 15

API #:

Date: 04/18/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: LOGGING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRIASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

BIT		CASING				MUD VOLUME (bbl)	
Bit Size	8.500 in	Casing OD	13.375 in	Liner OD	Hole Volume	434	
Drill Pipe 1 OD	4.500 in 1516 m	Casing ID	12.515 in	Liner ID	Pits Volume	165	
Drill Pipe 2 OD	4.500 in 55.2 m	Casing TD	298.2 m	Liner TD	Circulating volume	599	
Drill Collar OD	6.250 in 174.2m	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER	

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From	FL 12:00		PIT 05:30			Flow Rate	-gal/min 326
Flow Line Temp	82 °F					DP Annular Vel	-m/min 46.8
Depth/TVD	-m 1745.0/1745.0	1745.0/1745.0				DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal 9.6	9.6				DP Critical Vel	-m/min 134.6
Funnel Visc	-s/qt 43 @ 76 °F	44 @ 70 °F				DC Critical Vel	-m/min 142.2
Plastic Visc	-cps 20 @ 62 °F	22 @ 62 °F				Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg 20 /18	19 /14				Bottoms Up	-min 46.3
10s/10m Gel	-lb/100ft <sup>2</sup> 5 /10	6 /12				Total Circ Time	-min 77.2
API F Loss	-cc/30 min 5.5	5.5				SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32" 1 /	1 /				KCl	1.4 / 13
Solids	-% Vol 8.7	8.7				Low Gravity Solids	6.5 / 59
Oil/Water	-% Vol /91.3	/91.3				Bentonite	2.3 / 21
Sand	-% Vol 0.2	0.15				Drill Solids	4.2 / 38
MBT	-lb/bbl 25.0	25.0				Weight Material	1 / 11
pH	9.2 @ 62 °F	9.0 @ 62 °F				Chemical Conc	- / 0.0
Alkal Mud (Pm)	0.2	0.1				Inert/React	1.35 Average SG 2.76
Pf/Mf	0.14 / 0.7	0.1 / 0.7				SOLIDS EQUIPMENT Size Hours	
Clrides	-mg/l 21500	21500				Shaker #1	84/84/84 12
Hardness Ca	200	200				Shaker #2	
K+ MG/L	21500	21500				Shaker #3	
KCL % WT	4.0	4.0				Shaker #4	
SULPHITE	60	40				Mud Cleaner	
np Value	0.585	0.619				Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft 1.11412	0.91951				Desander	2 X 12" 7
na Value	0.173	0.505				Desilter	12 X 4" 7
Ka	-lb-sec <sup>n</sup> /100ft 14.47452	1.87165				Degasser	

**Remarks:**

A bridge was tagged at 1719m on running in, and was reamed from 1719 to 1735m. The hole was washed to bottom, encountering 5m of fill. The mud system was circulated. Viscosity was rebuilt with prehydrated gel / polymer premixes, also providing weight control at this stage through dilution. The system was treated with Bacban III to inhibit possible bacteria action. The active system volume was reduced and weighted up to 9.6 ppg, before pulling out of the hole. BPB were rigged up, and log #1 was run in which resulted in tool failure. It was pulled and repaired. Logging recommenced with run #1 DLL-GR-MLL-BHC, followed by run #2 PDS-CNS-CAL-GR.

**MUD VOLUME ACCOUNTING (bbl)**

Oil Added	
Water Added	
Mud Built	165
Mud Received	165
Mud Disposed	92
S.C. Equipmen	40
Down Hole	37
Surface/Dump	15

Sales Engineer  
CUBB J

Warehouse  
ADELAIDE

Daily Cost \$  
3320

Cumul Cost \$  
26156



# M-1 Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 16

API #:

Date: 04/19/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: LOGGING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRASIAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in		CASING			MUD VOLUME (bbl)	
Drill Pipe 1 OD	4.500 in	1516 m	Casing OD	13.375 in	Liner OD	Hole Volume	434
Drill Pipe 2 OD	4.500 in	55.2 m	Casing ID	12.515 in	Liner ID	Pits Volume	168
Drill Collar OD	6.250 in	174.0m	Casing TD	298.2 m	Liner TD	Circulating volume	602
			Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 19:00	PIT 05:30			Flow Rate	-gal/min 326
Flow Line Temp		81 °F				DP Annular Vel	-m/min 46.8
Depth/TVD	-m	1745.0/1745.0	1745.0/1745.0			DC Annular Vel	-m/min 73.4
Mud Wt	-lb/gal	9.6	9.6			DP Critical Vel	-m/min 106.4
Funnel Visc	-s/qt	45 @ 76 °F	43 @ 76 °F			DC Critical Vel	-m/min 129.6
Plastic Visc	-cps	22 @ 62 °F	20 @ 62 °F			Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg	20 /4	18 /4			Bottoms Up	-min 46.3
10s/10m Gel	-lb/100ft <sup>2</sup>	6 /12	5 /10			Total Circ Time	-min 77.6
API F Loss	-cc/30 min	5.1	5.2			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.4 / 13
Solids	-% Vol	8.6	8.6			Low Gravity Solids	6.2 / 57
Oil/Water	-% Vol	/91.4	/91.4			Bentonite	2.3 / 21
Sand	-% Vol	0.25	0.15			Drill Solids	3.9 / 36
MBT	-lb/bbl	25.0	25.0			Weight Material	1 / 12
pH		9.4 @ 62 °F	9.3 @ 62 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.2	0.2			Inert/React	1.27 Average SG 2.79
Pf/Mf		0.17 / 0.8	0.16 / 0.8			SOLIDS EQUIPMENT	
Chlorides	-mg/l	21500	21500			Shaker #1	Size 84/84/84 Hours 3.5
Hardness Ca		80	80			Shaker #2	
K+ MG/L		21500	21500			Shaker #3	
KCL % WT		4.0	4.0			Shaker #4	
SULPHITE		200	160			Mud Cleaner	
						Centrifuge	
np Value		0.607	0.610			Desander	2 X 12"
Kp	-lb-sec <sup>n</sup> /100ft	1.01538	0.90520			Desilter	12 X 4"
na Value		0.511	0.489			Degasser	
Ka	-lb-sec <sup>n</sup> /100ft	1.85574	1.92271				

**Remarks:**

The well was continued to be logged with BPB; run #2 PDS-CNS-CL-GR, run #3 MBD, and run #4 AST. 40 bbl of 30 ppb gel was made up and left to hydrate. On running in the hole circulation was broken at 1728m. A fill of 8 m was encountered on bottom which was reamed out. In the 3 hours the mud was circulated the prehydrated gel was brought over and Polypac R added for viscosity. Mud weight remained stable at 9.6 ppg. The string was pulled and BPB were rigged up to log. Run #5, RFT-GR, was commenced.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	40
Mud Received	51
Mud Disposed	48
S.C.Equipmen	
Down Hole	33
Surface/Dump	15

Sales Engineer  
BB J

Warehouse  
ADELAIDE

Daily Cost \$  
1556

Cumul Cost \$  
27712





Report No.: 17

API #:

Date: 04/20/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: CIRCULATING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	8.500 in				CASING				MUD VOLUME (bbl)	
Nozzles					Casing OD	13.375 in	Liner OD		Hole Volume	434
Drill Pipe 1 OD	4.500 in	1516 m	Casing ID	12.515 in	Liner ID			Pits Volume	145	
Drill Pipe 2 OD	4.500 in	55.2 m	Casing TD	298.2 m	Liner TD			Circulating volume	579	
Drill Collar OD	6.250 in	174.1 m	Casing TVD	298.2 m	Liner TVD			Mud	FW POLYMER	

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 24:00	FL 03:15			Flow Rate	-gal/min 300
Flow Line Temp		68 °F	78 °F			DP Annular Vel	-m/min 43.1
Depth/TVD	-m	1745.0/1745.0	1745.0/1745.0			DC Annular Vel	-m/min 67.5
Mud Wt	-lb/gal	9.6	9.6			DP Critical Vel	-m/min 107.5
Funnel Visc	-s/qt	45 @ 64 °F	44 @ 72 °F			DC Critical Vel	-m/min 131.3
Plastic Visc	-cps	23 @ 60 °F	21 @ 60 °F			Circ. Pressure	-psi 550
YP/R3	-lb/100ft <sup>2</sup> /deg	20 /4	19 /4			Bottoms Up	-min 50.3
10s/10m Gel	-lb/100ft <sup>2</sup>	6 /11	5 /9			Total Circ Time	-min 81.1
API F Loss	-cc/30 min	5.0	5.0			SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1
Cake API/HT	-1/32"	1 /	1 /			KCl	1.4 / 13
Solids	-% Vol	8.6	9.0			Low Gravity Solids	6.2 / 57
Oil/Water	-% Vol	/91.4	/91.0			Bentonite	2.3 / 21
Sand	-% Vol	0.2	0.2			Drill Solids	3.9 / 36
MBT	-lb/bbl	25.0	25.0			Weight Material	1 / 12
pH		9.1 @ 62 °F	9.1 @ 62 °F			Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.1	0.1			Inert/React	1.27 Average SG 2.79
Pf/Mf		0.12 / 0.8	0.12 / 0.75			SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	21500	21500			Shaker #1	84/84/84
Hardness Ca		60	40			Shaker #2	
K+ MG/L		21500	21500			Shaker #3	
KCL % WT		4.0	4.0			Shaker #4	
SULPHITE		140	140			Mud Cleaner	
np Value		0.618	0.608			Centrifuge	
Kp	-lb-sec <sup>n</sup> /100ft	0.97403	0.96026			Desander	2 X 12"
na Value		0.516	0.500			Desilter	12 X 4"
Ka	-lb-sec <sup>n</sup> /100ft	1.84034	1.88809			Degasser	

**Remarks:**

Wireline logging was continued with BPB: run #5 RFT-GR, run #6 VDL-GR and run #7 CST. BPB were rigged down and the bit and BHA were made up. On running in the drilling line was slipped and cut. Sticky hole had to be worked from 1021 to 1023 m.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	
Mud Received	18
Mud Disposed	41
S.C.Equipmen	
Down Hole	38
Surface/Dump	3

Sales Engineer  
DOB J

Warehouse  
ADELAIDE

Daily Cost \$  
204

Cumul Cost \$  
27916



Report No.: 18

API #:

Date: 04/21/95

Depth: 1745.0m

Well No.: W0002

Spud Date: 04/04/95

Activity: CIRC 7" CSG

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit		CASING				MUD VOLUME (bbl)			
Bit	8.500 in	Casing OD	13.375 in	Liner OD	Hole Volume	434			
Drill Pipe 1 OD	4.500 in	Casing ID	12.515 in	Liner ID	Pits Volume	193			
Drill Pipe 2 OD	4.500 in	Casing TD	298.2 m	Liner TD	Circulating volume	627			
Drill Collar OD	6.250 in	Casing TVD	298.2 m	Liner TVD	Mud	FW POLYMER			
MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA			
Sample From		PIT 15:30	FL 01:00			Flow Rate	-gal/min		
Flow Line Temp			78 °F			DP Annular Vel	-m/min		
Depth/TVD	-m	1745.0/1745.0	1745.0/1745.0			DC Annular Vel	-m/min		
Mud Wt	-lb/gal	9.6	9.6			DP Critical Vel	-m/min		
Funnel Visc	-s/qt	45 @ 70 °F	38 @ 70 °F			DC Critical Vel	-m/min		
Plastic Visc	-cps	23 @ 60 °F	18 @ 60 °F			Circ. Pressure	-psi		
YP/R3	-lb/100ft <sup>2</sup> /deg	19 /4	10 /3			Bottoms Up	-min		
10s/10m Gel	-lb/100ft <sup>2</sup>	6 /10	3 /5			Total Circ Time	-min		
API F Loss	-cc/30 min	5.1	5.2			SOLIDS ANALYSIS (% / lb/bbl)			
HTHP F Loss	-cc/30 min					NaCl	0.1 / 1		
Cake API/HT	-1/32"	1 /	1 /			KCl	1.4 / 13		
Solids	-% Vol	9.0	8.7			Low Gravity Solids	7.1 / 64		
Oil/Water	-% Vol	/91.0	/91.3			Bentonite	2.2 / 20		
Sand	-% Vol	0.1	0.2			Drill Solids	4.8 / 44		
MBT	-lb/bbl	25.0	24.0			Weight Material	0 / 6		
pH		9.0 @ 60 °F	8.8 @ 60 °F			Chemical Conc	- / 0.0		
Alkal Mud (Pm)		0.1	0.1			Inert/React	1.57 Average SG 2.69		
Pf/Mf		0.1 / 0.8	0.08 / 0.8			SOLIDS EQUIPMENT Size Hours			
Chlorides	-mg/l	21500	19500			Shaker #1	84/84/84 4		
Free Ca		80	80			Shaker #2			
K+ MG/L		21500	19900			Shaker #3			
KCL % WT		4.0	3.7			Shaker #4			
SULPHITE		120	80			Mud Cleaner			
						Centrifuge			
np Value		0.630	0.716			Desander	2 X 12"		
Kp	-lb-sec^n/100ft	0.88325	0.34419			Desilter	12 X 4"		
na Value		0.511	0.485			Degasser			
Ka	-lb-sec^n/100ft	1.85574	1.45110			MUD VOLUME ACCOUNTING (bbl)			
<p><b>Remarks:</b></p> <p>On running in, 4 m of fill was encountered, and washed to bottom. The mud was circulated and viscosity built with Polypac R and XCD polymer. The drill pipe and BHA were laid out sideways, using 1/2 drum of conqor303 to inhibit the pipe. The 7" casing rams were changed in. The 7" casing was run and landed at 1718m. A gel/water solution was made up. The surface equipment were rigged and headed up. The hole was circulated clean, allowing the viscosity of the mud to drop, to that specified for cementing.</p>						Oil Added			
						Water Added	15		
						Mud Built			
						Mud Received	105		
						Mud Disposed	62		
						S.C.Equipmen			
						Down Hole	39		
Surface/Dump	23								
Sales Engineer						Daily Cost \$		Cumul Cost \$	
B J						1586		29503	
Warehouse									
ADELAIDE									



Report No.: 19

API #:

Date: 04/22/95

Depth: 1701.6m

Well No.: W0002

Spud Date: 04/04/95

Activity: TESTING BOP

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit Sizes	6.000 in		CASING			MUD VOLUME (bbl)	
	Drill Pipe 1 OD	2.825 in	1702 m	Casing OD	7.000 in	Liner OD	Hole Volume
Drill Pipe 2 OD			Casing ID	6.276 in	Liner ID	Pits Volume	146
Drill Collar OD			Casing TD	1701.6m	Liner TD	Circulating volume	350
			Casing TVD	1701.6m	Liner TVD	Mud	COMPLETION FLUID

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		PIT 05:30				Flow Rate	-gal/min
Flow Line Temp						DP Annular Vel	-m/min
Depth/TVD	-m	1701.6/				DC Annular Vel	-m/min
Mud Wt	-lb/gal	9.4				DP Critical Vel	-m/min
Funnel Visc	-s/qt					DC Critical Vel	-m/min
Plastic Visc	-cps					Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg					Bottoms Up	-min
10s/10m Gel	-lb/100ft <sup>2</sup>					Total Circ Time	-min
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	
Cake API/HT	-1/32"					KCl	
Solids	-% Vol					Low Gravity Solids	
Oil/Water	-% Vol					Bentonite	/
Sand	-% Vol					Drill Solids	/
MBT	-lb/bbl					Weight Material	
pH		9.8 @ 60 °F				Chemical Conc	
Alkal Mud (Pm)		0.2				Inert/React	Average SG
PI/Mf		0.22 / 1.0				SOLIDS EQUIPMENT	
Chlorides	-mg/l	98000				Shaker #1	Size Hours
Hardness Ca		160				Shaker #2	84/84/84
K+ MG/L		108000				Shaker #3	
KCL % WT		18.4				Shaker #4	
						Mud Cleaner	
						Centrifuge	
np Value						Desander	2 X 12"
Kp	-lb-sec <sup>n</sup> /100ft					Desilter	12 X 4"
na Value						Degasser	
Ka	-lb-sec <sup>n</sup> /100ft					MUD VOLUME ACCOUNTING (bbl)	

**Remarks:**

The casing was circulated cleaning the hole and reducing the mud viscosity to 38 s/qt. A 10 bbl preflush was pumped prior to pressure testing the surface lines. The 7" casing was cemented displacing the cement with water. Casing was set at 1718 m. While nipping up the wellhead and BOP, the mud tanks were dumped and cleaned before making up 350 bbl of inhibited KCl brine to a mud weight of 9.35 ppg (S.G. = 1.12) in readiness for the testing and completion program.

Oil Added	
Water Added	
Mud Built	350
Mud Received	
Mud Disposed	772
S.C.Equipmen	705
Casing	67
Surface/Dump	

Sales Engineer  
BOBB J

Warehouse  
ADELAIDE

Daily Cost \$  
6359

Cumul Cost \$  
35862



# M-I Drilling Fluids L.L.C.

## WATER BASE MUD REPORT

Report No.: 20

API #:

Date: 04/23/95

Depth: 1701.6m

Well No.: W0002

Spud Date: 04/04/95

Activity: CIRCULATING

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	6.000 in		CASING			MUD VOLUME (bbl)	
Blazies			Casing OD	7.000 in	Liner OD	Hole Volume	204
Drill Pipe 1 OD	2.825 in	1702 m	Casing ID	6.276 in	Liner ID	Pits Volume	101
Drill Pipe 2 OD			Casing TD	1701.6m	Liner TD	Circulating volume	305
Drill Collar OD			Casing TVD	1701.6m	Liner TVD	Mud	COMPLETION FLUID

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 24:00				Flow Rate	-gal/min 250
Flow Line Temp		68 °F				DP Annular Vel	-m/min 59.5
Depth/TVD	-m	1701.6/				DC Annular Vel	-m/min
Mud Wt	-lb/gal	9.4				DP Critical Vel	-m/min
Funnel Visc	-s/qt					DC Critical Vel	-m/min
Plastic Visc	-cps					Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg					Bottoms Up	-min 28.7
10s/10m Gel	-lb/100ft <sup>2</sup>					Total Circ Time	-min 51.2
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.4 / 5
Cake API/HT	-1/32"					KCl	7.6 / 66
Solids	-% Vol	8.1				Low Gravity Solids	0.3 / 3
Oil/Water	-% Vol	791.9				Bentonite	0.0 / 0
Sand	-% Vol					Drill Solids	0.4 / 3
MBT	-lb/bbl					Weight Material	N/A / N/A
pH		9.7 @ 60 °F				Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.2				Inert/React	- / Average SG 2.60
Pf/Mf		0.2 / 1.0				SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	100000				Shaker #1	84/84/84
Hardness Ca		160				Shaker #2	
K+ MG/L		110000				Shaker #3	
KCL % WT		18.75				Shaker #4	
						Mud Cleaner	
						Centrifuge	
np Value						Desander	2 X 12"
Kp	-lb-sec <sup>n</sup> /100ft					Desilter	12 X 4"
na Value						Degasser	
Ka	-lb-sec <sup>n</sup> /100ft						

**Remarks:**

Pressure testing of the BOP continued. Polypac R in fresh water was used to make up 40 bbl of Hi-Vis (120 s/qt). A 6" bit and scraper was made up and run in on 2.7/8" tubing, working the scaper from 1465 to 1503 m. Cement was tagged at 1701.6 m. The surface equipment was headed up prior to reverse circulating out 10 bbl of Hi-Vis chased with the KCl brine displacement. The bit was pulled back to 1570 m and a 1% by weight KCl in fresh water was spotted across the perforation interval of 1450 to 1570 m. The tubing was pulled to 1429 and run back in to 1570 as the brine was "U" tubing. The brine was circulated and conditioned in preparation to respotting the 1% KCl.

**MUD VOLUME ACCOUNTING (bbl)**

Oil Added	
Water Added	
Mud Built	40
Mud Received	10
Mud Disposed	45
S.C. Equipmen	
Dump	
Surface	45

Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
1092

Cumul Cost \$  
36954



# WELLSITE MUD INVENTORY

DAILY MUD INVENTORY REPORT - 23/04/95

Operator : GFE RESOURCES LTD  
Well Name : WALLABY CREEK 2  
Location : OTWAY BASIN

M-I Well No : W0002  
Report No :

### COST SUMMARY

Total Daily Cost (\$) : 1092.26  
Cumulative Cost (\$) : 36954.27

### MUD INVENTORY

Product Name	Unit	Price	Begin Invent	Recvd Today	Return Today	Used Today	Final Invent	Used Total	Daily Cost
Bacban III	6 LB JU	109.34	4				4	3	0.00
Calcium Chloride	25 KG S	17.80	39				39		0.00
Caustic Soda	25 KG S	22.35	18				18	24	0.00
Conqor 303	208 LT	393.36	1				1	1	0.00
CMC TG LV	25 KG S	61.23	43				43	63	0.00
Defoam-A	25 LT D	91.20	5				5		0.00
Kwik Seal M	40 LB S	40.89	30				30		0.00
Lime	20 KG S	6.00	17				17		0.00
M-I Bar	25 KG S	5.53	440				440	200	0.00
M-I Gel	25 KG S	9.44	113			1	112	218	9.44
Mica Medium	50 LB S	18.01	30				30		0.00
OS-1	25 KG S	50.95	37				37	10	0.00
Pipelax	208 LT	693.64	2				2		0.00
Polypac R	25 KG S	131.74	34			3	31	100	395.22
Polyplus Powder	25 KG S	173.25	30				30		0.00
Potassm Chloride	25 KG S	11.46	150			60	90	1135	687.60
Soda Ash	25 KG S	8.94	17				17	1	0.00
Sodium Bicarb	25 KG S	15.34	3				3	9	0.00
Spersene CF	50 LB S	40.55	13				13	3	0.00
XCD	25 KG S	422.29						2	0.00
Cronox 2-100	208 LT	871.25						1	0.00





# WATER BASE MUD REPORT

Report No.: 21

API #:

Date: 04/24/95

Depth: 1701.6m

Well No.: W0002

Spud Date: 04/04/95

Activity: RIH SCRAPER

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	6.000 in	CASING			MUD VOLUME (bbl)	
Nozzles		Casing OD	7.000 in	Liner OD		Hole Volume
Drill Pipe 1 OD	2.825 in	Casing ID	6.276 in	Liner ID		Pits Volume
Drill Pipe 2 OD		Casing TD	1701.6m	Liner TD		Circulating volume
Drill Collar OD		Casing TVD	1701.6m	Liner TVD		Mud
						COMPLETION FLUID

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		PIT 19:30				Flow Rate	-gal/min 250
Flow Line Temp						DP Annular Vel	-m/min 59.5
Depth/TVD	-m	1701.6/				DC Annular Vel	-m/min
Mud Wt	-lb/gal	9.4				DP Critical Vel	-m/min
Funnel Visc	-s/qt					DC Critical Vel	-m/min
Plastic Visc	-cps					Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg					Bottoms Up	-min 28.7
10s/10m Gel	-lb/100ft <sup>2</sup>					Total Circ Time	-min 50.6
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.4 / 5
Cake API/HT	-1/32"					KCl	7.6 / 66
Solids	-% Vol	8.1				Low Gravity Solids	0.3 / 3
Oil/Water	-% Vol	/91.9				Bentonite	0.0 / 0
Sand	-% Vol					Drill Solids	0.4 / 3
MBT	-lb/bbl					Weight Material	N/A / N/A
pH		9.7 @ 58 °F				Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.2				Inert/React	- Average SG 2.60
P/Mf		0.2 / 1.0				SOLIDS EQUIPMENT Size Hours	
Chlorides	-mg/l	100000				Shaker #1	84/84/84
Hardness Ca		200				Shaker #2	
K+ MG/L		110000				Shaker #3	
KCL % WT		18.75				Shaker #4	
						Mud Cleaner	
						Centrifuge	
np Value						Desander	2 X 12"
Kp	-lb-sec <sup>n</sup> /100ft					Desilter	12 X 4"
na Value						Degasser	
Ka	-lb-sec <sup>n</sup> /100ft						

**Remarks:**

The brine was circulated and conditioned to an even 9.35 ppg weight before fresh water/1% KCl was spotted across the perforation interval of 1450 to 1570 m. The tubing was pulled. BPB were rigged up and the CBL run. The BOP and lines were pressure tested. The lubricator and BPB were rigged up to perforate. BPB were run in and the intervals perforated were; #1 - 1553.5 to 1559.85 m, #2 - 1543.4 to 1546.4 m, and #3 - 1537 to 1543.35 m. BPB and the lubricator were rigged down. The well was observed at the choke. The bit and scraper were run in the hole.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	60
Mud Received	50
Mud Disposed	64
Dead Volume	14
Dump	
Surface	50

SI Sales Engineer  
COBB J

Warehouse  
ADELAIDE

Daily Cost \$  
932

Cumul Cost \$  
37886





# WATER BASE MUD REPORT

Report No.: 22

API #:

Date: 04/25/95

Depth: 1701.6m

Well No.: W0002

Spud Date: 04/04/95

Activity: CHDST #1

Operator: GFE RESOURCES LTD

Contractor: CENTURY DRILLING

Description: APPRAISAL

Well Name: WALLABY CREEK 2

Field/Area: PPL 1

Location: OTWAY BASIN

Report For: KEN SMITH

Bit	6.000 in	CASING			MUD VOLUME (bbl)	
Drill Pipe 1 OD	2.825 in	Casing OD	7.000 in	Liner OD	Hole Volume	204
Drill Pipe 2 OD	1702 m	Casing ID	6.276 in	Liner ID	Pits Volume	76
Drill Collar OD		Casing TD	1701.6m	Liner TD	Circulating volume	280
		Casing TVD	1701.6m	Liner TVD	Mud	COMPLETION FLUID

MUD PROPERTIES		Primary	# 1	# 2	# 3	CIRCULATION DATA	
Sample From		FL 04:15				Flow Rate	-gal/min 250
Flow Line Temp						DP Annular Vel	-m/min 59.5
Depth/TVD	-m	1701.6/				DC Annular Vel	-m/min
Mud Wt	-lb/gal	9.4				DP Critical Vel	-m/min
Funnel Visc	-s/qt					DC Critical Vel	-m/min
Plastic Visc	-cps					Circ. Pressure	-psi
YP/R3	-lb/100ft <sup>2</sup> /deg					Bottoms Up	-min 28.7
10s/10m Gel	-lb/100ft <sup>2</sup>					Total Circ Time	-min 47.0
API F Loss	-cc/30 min					SOLIDS ANALYSIS (% / lb/bbl)	
HTHP F Loss	-cc/30 min					NaCl	0.4 / 5
Cake API/HT	-1/32"					KCl	7.6 / 66
Solids	-% Vol	8.1				Low Gravity Solids	0.3 / 3
Oil/Water	-% Vol	/91.9				Bentonite	0.0 / 0
Sand	-% Vol					Drill Solids	0.4 / 3
MBT	-lb/bbl					Weight Material	N/A / N/A
pH		9.6 @ 58 °F				Chemical Conc	- / 0.0
Alkal Mud (Pm)		0.2				Inert/React	- / Average SG 2.60
PI/Mf		0.18 / 1.1				SOLIDS EQUIPMENT	
Chlorides	-mg/l	100000				Shaker #1	Size 84/84/84
Hardness Ca		160				Shaker #2	
K+ MG/L		110000				Shaker #3	
KCL % WT		18.75				Shaker #4	
						Mud Cleaner	
						Centrifuge	
np Value						Desander	2 X 12"
Kp	-lb-sec <sup>n</sup> /100ft					Desilter	12 X 4"
na Value						Degasser	
Ka	-lb-sec <sup>n</sup> /100ft						

**Remarks:**

The 6" bit and scraper were run in the hole stopping for flow checks. The pipe was reciprocated from 1554 to 1572 m. At 1572 m, the fresh water/1% KCl was reverse circulated out, recovering this fluid into the desilter pit. The pipe was run in to bottom. A 15 bbl Hi-Vis pill was pumped and reverse circulated out, dumping the Hi-Vis on return to surface. The bit and scraper were pulled out of the hole to conduct cased hole DST #1.

The mud engineer was released on this day, 25 April, 1995.

MUD VOLUME ACCOUNTING (bbl)	
Oil Added	
Water Added	
Mud Built	
Mud Received	
Mud Disposed	20
Dead Volume	
Dump	
Surface	20

Sales Engineer  
BOBB J

Warehouse  
ADELAIDE

Daily Cost \$  
128

Cumul Cost \$  
38014

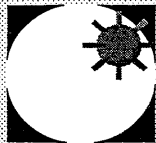


Appendix 3

APPENDIX 3

# **APPENDIX 3**

## **DAILY REPORT SUMMARY OF DRILLING OPERATIONS**



**G F E** Resources Ltd

# DRILLING OPERATIONS SUMMARY

## WALLABY CREEK - 2

<b>Permit:</b> PPL 1	<b>Spud Date:</b> 10 / 05 / 1995	<b>Rig:</b> Century Rig 11
<b>GFE Rep:</b> K. Smith	<b>Geologist:</b> D. Horner	

Time	Hours	Operations	Page: 1
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### 4 / 4 / 95

0600-1130	5½	Finish rigging up, drill rat hole and mouse hole and make pre-spud safety inspection.
1130-1700	5½	Spud-in and drill 17½" hole from 10m to 41m.
1700-1730	½	Circulate and survey at 28m.
1730-1930	2	Drill 17½" hole from 41m to 59m.
1930-2200	2½	Pull back and install 17½" stabiliser at 60 feet back from bit - no split bushings - stand 8" Drill Collars in derrick and place solid bushing on top of stabiliser with winch. Run in hole to 21.73m.
2200-2300	1	Ream limestone ledges with stabiliser from 21.73m to 50m.
2300-2400	1	Drill 17½" hole from 59m to 65m.

### 5 / 4 / 95

0000-0300	3	Drill 17½" hole from 65m to 96m.
0300-0330	½	Circulate and survey at 83m.
0330-0600	2½	Drill 17½" hole from 96m to 123m.
0600-0800	2	Drill 17½" hole from 123m to 150m.
0800-0830	½	Circulate and survey at 137m.
0830-1130	3	Drill 17½" hole from 150m to 205m.
1130-1230	1	Circulate hole clean and survey at 192m.
1230-1300	½	Drill 17½" hole from 205m to 215m.
1300-1400	1	Circulate and condition mud - cuttings starting to stick together and viscosity increasing.
1400-1730	3½	Drill 17½" hole from 215m to 262m.
1730-1800	½	Circulate and survey at 249m.
1800-2100	3	Drill 17½" hole from 262m to 300m.
2100-2200	1	Circulate hole clean.
2200-2230	½	Survey at 287m.
2230-2400	1½	Wiper trip to surface - strap out.

## 6 / 4 / 95

0000-0130	1½	Wiper trip to surface - strap out. Run in hole - 5m of fill.
0130-0230	1	Circulate hole clean prior to running casing.
0230-0330	1	Pull out of hole - work tight hole at 220m to 218m.
0330-0530	2	Break and lay out 17½" stabiliser, 2 x 8" Drill Collars and 17½" bit - no split bushing.
0530-0600	½	Rig up to run 13 <sup>3</sup> / <sub>8</sub> " casing.
0600-0730	1½	Rig up to run 13 <sup>3</sup> / <sub>8</sub> " surface casing.
0730-1200	4½	Run 13 <sup>3</sup> / <sub>8</sub> " surface casing.
1200-1300	1	Pick up landing joint, try to loosen collar, head up Dowell.
1300-1400	1	Circulate casing and condition mud.
1400-1530	1½	Pump pre-flush, pressure test lines to 2000 psi, mix 1172 sacks class "A" cement and displace.
1530-2200	6½	Wait on cement.
2200-2300	1	Slack off, cut casing collar and lay out landing joint and conductor barrel.
2300-2400	1	Install casing bowl.

## 7 / 4 / 95

0000-0600	6	Nipple up BOP's.
0600-1600	10	Nipple up BOP's and function test.
1600-1800	2	Pressure test flare line to 1500 psi, pipe rams to 300 psi, all choke manifold valves, manual choke line valve and inside kill line valve and pipe rams to 3000 psi before cup tester failed. Pressure test blind rams to 1000 psi.
1800-2000	2	Make up 12¼" slick BHA and run in hole - tag cement at 283.63m.
2000-2030	½	Pressure test Hydril, HCR valve, upper and lower kelly cocks and outside kill line valve to 1000 psi.
2030-2130	1	Drill out float shoe track and 3m of new hole.
2130-2200	½	Circulate hole clean and mud weight balanced.
2200-2230	½	Run Formation Integrity Test at 303m with 8.7 ppg mud to 880 psi (EMW=25.7 ppg).
2230-2330	1	Pull out of hole to lay out 12¼" bit.
2330-2400	½	Make up 8½" BHA.

## 8 / 4 / 95

0000-0200	2	Make up 8½" BHA and run in hole - install corrosion rings.
0200-0400	2	Drill 8½" hole from 303 to 369m with low weight - string not fully stabilized in 13 <sup>3</sup> / <sub>8</sub> " casing.
0400-0430	½	Circulate and survey at 356m.
0430-0600	1½	Drill 8½" hole from 369 to 386m.
0600-1300	7	Drill 8½" hole from 386 to 570m.
1300-1330	½	Circulate and survey at 557m.
1330-2000	6½	Drill 8½" hole from 570 to 770m.
2000-2030	½	Circulate and survey at 757m.
2030-2400	3½	Drill 8½" hole from 770 to 822m.



## 9 / 4 / 95

0000-0600	6	Drill 8½" hole from 822 to 939m.
0600-0800	2	Drill 8½" hole from 939m. to 982m.
0800-0830	½	Circulate and survey at 969m.
0830-1000	1½	Wiper trip to casing shoe - tight hole at 892m to 883m at 854m, 796m, 681m. and 528m to 499m.
1000-1030	½	Slip 20 feet of drilling line at casing shoe.
1030-1200	1½	Run in hole - clean out bridge at 518m - 2 metres of fill.
1200-2130	9½	Drill 8½" hole from 982m to 1184m.
2130-2200	½	Circulate and survey at 1171m.
2200-2400	2	Drill 8½" hole from 1184m to 1222m.

## 10 / 4 / 95

0000-0130	1½	Drill 8½" hole from 1222m to 1227m - high torque and low penetration.
0130-0500	3½	Pull out of hole - work tight hole from 1103m to 1007m.
0500-0600	1	Check bit and stabilizer, service rig, caliper new stabilizer.
0600-0800	2	Make up bit #3 and reaming BHA and run in hole to casing shoe.
0800-0830	½	Slip 20 feet of drilling line.
0830-0930	1	Run in hole to 701m.
0930-1900	9½	Ream ledges from 701m to 1227m.
1900-2400	5	Drill 8½" hole from 1227m to 1295m.

## 11 / 4 / 95

0000-0600	6	Drill 8½" hole from 1295m to 1370m.
0600-0900	3	Drill 8½" hole from 1370m to 1405m.
0900-0930	½	Service Rig.
0930-1000	½	Survey at 1377m.
1000-1200	2	Drill 8½" hole from 1405m to 1424m.
1200-1230	½	Circulate hole clean prior to wiper trip to surface.
1230-1730	5	Wiper trip to surface - pick up kelly and circulate out from 1315m to 1306m, 1230m to 1220m and 1210m to 1195m. No tight hole after approx. 1100m.
1730-1800	½	Flow-check and change casing bowl valve to 3000lb McEvoy gate valve.
1800-1900	1	Pressure-test pipe rams and all choke manifold valves, HCR, manual choke-line valve and kill-line valves to 3000 psi and Hydril to 1500 psi.
1900-2000	1	Run in hole to casing shoe.
2000-2030	½	Slip 20 ft of drilling line.
2030-2130	1	Run in hole to 1000m.
2130-2400	2½	Pick up kelly and ream from 1000m to 1039m and 1076m to 1172m.

12 / 4 / 95

0000-0030	½	Lay out work singles.
0030-0130	1	Ream from 1172m to 1262m - tight hole from 1230m to 1262m.
0130-0230	1	Lay out work singles.
0230-0300	½	Ream from 1262m to 1357m.
0300-0330	½	Lay out work singles.
0330-0500	1½	Ream from 1357m to 1424m - tight hole from 1376m to 1424m.
0500-0600	1	Drill 8½" hole from 1424m to 1434m.
0600-1130	5½	Drill 8½" hole from 1434m to 1491m.
1130-1300	1½	Flow-check, circulate 5 minutes, pull two stands and circulate geological sample at 1491m.
1300-1400	1	Drill 8½" hole from 1491m to 1501m.
1400-1630	2½	Flow-check, circulate 5 minutes, pull three stands and circulate geological sample at 1501m.
1630-1800	1½	Drill 8½" hole from 1501m to 1527m.
1800-2000	2	Flow-check, circulate 5 minutes pull five stands and circulate geological sample at 1527m. Run in hole to bottom - 3.5 metres of loose fill.
2000-2230	2½	Wiper trip to 970m - tight hole from 1344m to 1000m. Maximum over-pull of 50000lbs. Break circulation to check for plugged jets and to wash stabilizer.
2230-2400	1½	Run in hole to 1491m and ream from 1491m to 1510m.

13 / 4 / 95

0000-0030	½	Ream from 1510m to 1520m and wash to 1527m - 3 metres of fill.
0030-0130	1	Circulate hole clean - flow-check and slug pipe with barite pill.
0130-0500	3½	Pull out of hole for core barrel - strap pipe.
0500-0600	1	Slip and cut drilling line at casing shoe.
0600-0800	2	Pull out of hole, lay out shock sub, stabilizer, bit sub and near-bit reamer.
0800-1000	2	Pick up, service and make up core barrel.
1000-1430	4½	Run in hole with core barrel. Wash and ream from 1453 to 1466m and from 1511 to 1527m.
1430-1500	½	Circulate fresh mud spacer, pick up pup joint and drop circulating ball.
1500-1700	2	Cut Core #1 from 1527 to 1529m.
1700-1730	½	Circulate and check for 9.4 ppg mud weight throughout system. OK.
1730-2030	3	Pull out of hole for suspected jammed core barrel.
2030-2200	1½	Retrieve 1.12m of core - clean formation shale out of top of inner barrel and circulating ball seat.
2200-2400	2	Run in hole with core barrel - pick up kelly at 476m and 821m and circulate when pipe started to back-flow while running in hole.

14 / 4 / 95

0000-0230	2½	Run in hole. Pick up kelly at 1008m, 1125m, 1238m, 1257m, and 1335m when pipe started to back-flow while running in hole.
0230-0330	1	Ream and clean from 1511m to 1529m.
0330-0600	2½	Cut Core #2 from 1529m to 1532m.
0600-1030	4½	Cut Core #2 from 1532 to 1547.4m.
1030-1400	3½	Pull out of hole to recover core.
1400-1600	2	Retrieve 18.4m of core. Break and lay out core barrel.
1600-1700	1	Make up Bit #5 with stiff BHA and run in hole.
1700-1730	½	Slip 20 feet of drilling line.

1730-1930	2	Run in hole to 1497m.
1930-2000	½	Break circulation and precautionary ream from 1497 to 1547m.
2000-2400	4	Drill 8½" hole from 1547 to 1586m.
<b>15 / 4 / 95</b>		
0000-0300	3	Drill 8½" hole from 1586 to 1606m.
0300-0330	½	Circulate and survey at 1578m.
0330-0600	2½	Drill 8½" hole from 1606 to 1633m .
0600-0730	1½	Pull out of hole to log. Lay out jars - recover survey barrel - strap pipe
0730-2400	16½	Rig up BPB and run logs - Run#1 AIS/MRS/BCA/SP/GR/CAL Run#2 AST. Run#3 PDS/CNS.
0600-0700	1	Drill 8½" hole from 1633m to 1645m.
0700-0730	½	Service rig.
0730-1730	10	Drill 8½" hole from 1645m to 1745m (Total Depth).
1730-1900	1½	Circulate geological sample at 1745m.
1900-1930	½	Wiper trip back to 1000m prior to logging.
1930-2030	1	Free stuck pipe at 1545m by back-reaming with slips in rotary table.
2030-2300	2½	Continue wiper trip to 971m and run in hole - tight hole from 1555m to 1565m.
2300-2330	½	Break circulation and wash to bottom from 1732m - 5m of fill.
2330-2400	½	Circulate hole clean prior to logging.
<b>16 / 4 / 95</b>		
0000-0100	1	Circulate hole clean.
0100-0130	½	Survey at 1722m.
0130-0500	3½	Pull out of hole to casing shoe, strapping pipe.
0500-0530	½	Slip 20 feet of drilling line.
0530-0600	½	Continue to pull out of hole.
0600-0700	1	Pull out of hole. Lay out shock sub, stabilizer and near-bit reamer.
0700-1000	3	Rig up BPB and run in hole with logging tool - unable to pass 492m. Rig down BPB.
1000-1130	1½	Run in hole to 487m.
1130-1200	½	Break circulation and tag bridge at 492m - ream to 500m. Run in hole to 545m and circulate to surface.
1200-1330	1½	Pull out of hole. Hole swabbing at 486m - pick up kelly. Hole packing-off and tight. Work pipe to circulate fully and free-up.
1330-1700	3½	Circulate hole and condition mud at 481m. Gellibrand Marl caving in.
1700-1830	1½	Pull out of hole to try to run logging tools. Pick up kelly at 372m to clear stabilizer.
1830-2100	2½	Rig up BPB and run in hole with logging tool - unable to pass 337m - rig down BPB.
2100-2200	1	Run in hole to casing shoe with pendulum assembly.
2200-2230	½	Replace broken tong line.
2230-2300	½	Run in hole to 327m and clean out bridge.
2300-2400	1	Run in hole to 478m and clean out bridge from 478m to 519m.
<b>17 / 4 / 95</b>		
0000-0130	1½	Circulate hole clean.

0130-0200	½	Run in hole to 525m and clean out bridge from 525m to 536m.
0200-0300	1	Circulate hole clean.
0300-0330	½	Run in hole to 544m and clean out bridge from 544m to 550m.
0330-0600	2½	Run in hole to top of fill at 1722m.
0600-0630	½	Break circulation and clean to bottom 1722m to 1745m.
0630-1200	5½	Circulate and condition mud - pump 120 viscosity sweep - dispersed to 56 secs while circulating.
1200-1300	1	Pull out of hole to 1159m and pick up kelly.
1300-1330	½	Circulate to clear annulus below marl.
1330-1400	½	Pull out of hole to 774m and pick up kelly.
1400-1500	1	Circulate to clear annulus below marl and circulate carbide bomb - hole 46bbl over-gauge.
1500-1530	½	Pull out of hole to 583m and pick up kelly.
1530-1630	1	Pump high viscosity sweep and spot high viscosity pill from 583m to 248m (assuming no pipe in hole).
1630-1800	1½	Pull out of hole to log with BPB.
1800-2000	2	Rig up BPB and run in hole with logging tool to bridge at 786.6m - rig down BPB.
2000-2100	1	Run in hole to casing shoe.
2100-2130	½	Slip 20 feet of drilling line.
2130-2200	½	Run in hole to 786m.
2200-2230	½	Pick up kelly and clean out bridge from 786m to 789m with 12,000lb weight.
2230-2400	1½	Run in hole - pick up kelly at 1293m and circulate pipe for back-flowing while running in hole.

**18 / 4 / 95**

0000-0030	½	Run in hole - bridge at 1719m - tag with 15,000lb.
0030-0100	½	Pick up kelly and clean out bridge from 1719m to 1735m and wash to bottom - 5 metres of fill.
0100-0600	5	Circulate and condition mud. Unable to raise viscosity with Polypac - mix and prehydrate gel and add to system.
0600-1200	6	Circulate and condition mud - raise viscosity to 44secs and weight to 9.6ppg.
1200-1500	3	Pull out of hole to log - chain out with pipe spinner - hole good.
1500-2400	9	Rig up BPB and run in hole with logging tool - tag bottom at 1740m. Tool failure - pull out and repair - run back in hole. Run #1 DLL/GR/MLL/BHC/CAL.

**19 / 4 / 95**

0000-0600	6	Continue logging with BPB. Run #2 PDS/CNS/CL/GR. Run #3 MBD.
0600-1230	6½	Continue logging with BPB. Run #4 AST. Rig down BPB.
1230-1300	½	Run in hole to casing shoe with 8½" pendulum assembly.
1300-1330	½	Slip 10 feet of drilling line.
1330-1530	2	Run in hole to 1723m.
1530-1600	½	Break circulation and ream from 1737m to bottom - 8 metres of fill.
1600-1900	3	Circulate and condition mud.
1900-2200	3	Pull out of hole to continue logging.
2200-2400	2	Rig up BPB and continue logging. Run #5 RFT / GR.

**20 / 4 / 95**

0000-0600	6	Continue logging with BPB. Run #5 RFT / GR.
0600-2000	14	Continue logging with BPB. Run #5 RFT/GR. Run #6 VSL /GR. Run #7 CSL/GR.
2000-2100	1	Run in hole to casing shoe with 8½" pendulum assembly.
2100-2200	1	Slip 15 feet and cut 95 feet of drilling line.
2200-2400	2	Continue running in hole. Work sticky hole at 1021m to 1023m.

**21 / 4 / 95**

0000-0030	½	Continue running in hole and clean to bottom - 4 metres of fill.
0030-0300	2½	Circulate and condition mud prior to running casing.
0300-0600	3	Pull out of hole laying down drill pipe. Chain out with pipe spinner.
0600-0730	1½	Lay out drill pipe - chain out with pipe-spinner.
0730-0800	½	Break kelly.
0800-1100	3	Lay out BHA.
1100-1300	2	Change pipe rams to 7" and rig up to run 7" casing.
1300-2200	9	Run 7" casing.
2200-2230	½	Load cement head and head-up casing.
2230-2400	1½	Circulate and condition mud prior to running casing.

**22 / 4 / 95**

0000-0030	½	Circulate and condition mud prior to running casing.
0030-0200	1½	Pressure test lines, pump pre-flush, mix and pump cement as per programme.
0200-0600	4	Try to lower slip and seal assembly to casing bowl. Unable to pass flow-nipple. Lower slip and seal assembly from below flow-nipple, but unable to set slips. Unbolt BOP and prepare to lift.
0600-0830	2½	Check slip and seal assembly. Call Cooper Oil Tools and set casing in slips at 150,000 lbs after getting instructions. Cut and lay out landing joint.
0830-1100	2½	Lay out 13 <sup>3</sup> / <sub>8</sub> " Hydril and ram gate, spacer spool and mud cross.
1100-1400	3	Install B section and energise with 6 sticks of packing and pressure-test to 3,000 psi.
1400-1500	1	Unload tubing with fork-lift.
1500-2130	6½	Nipple up BOP and function.
2130-2400	2½	Pressure test blind rams to 1,000 psi. Unable to achieve test on 2 <sup>3</sup> / <sub>8</sub> " pipe rams. Open BOP and check - one ram block inverted - corrected but still not able to test. Test Hydril to 1,500 psi.

**23 / 4 / 95**

0000-0030	½	Lay out cup tester.
0030-0600	5½	Rig up tubing tongs and prepare 2 <sup>3</sup> / <sub>8</sub> " work string.

0600-0630	½	Make up 6" bit and casing scraper.
0630-1930	13	Run in hole with casing scraper picking up 2 <sup>3</sup> / <sub>8</sub> " tubing - drifting problems due to internal rust scale. Work scraper from 1465m to 1503m. Tag cement at 1701.61m.
1930-2100	1½	Reverse circulate casing with 10 bbl hi-vis sweep ahead of 9.35 ppg brine solution to displace water.
2100-2200	1	Pull back to 1570m, head up and spot fresh water and 1% KCl solution across perforation interval at 1450m to 1570m.
2200-2300	1	Pull out of hole to 1429m - tubing back-flowing - run back in to 1570m..
2300-2400	1	Circulate and stabilise brine weight at 9.35 ppg.
<b>24 / 4 / 95</b>		
0000-0100	1	Re-spot fresh water and 1% KCl solution across perforation interval at 1450m to 1570m.
0100-0330	2½	Pull out of hole.
0330-0400	½	Slip 30 feet of drilling line.
0400-0600	2	Rig up BPB and run logs CBL/VDL/GR/CCL.
0600-0900	3	Run log with BPB - CBL/VDL/GR/CCL.
0900-0930	½	Pick up cup tester and pressure test 2 <sup>7</sup> / <sub>8</sub> " pipe rams - no test.
0930-1000	½	Work on 2 <sup>7</sup> / <sub>8</sub> " pipe rams.
1000-1030	½	Pressure test pipe rams, flare line, choke manifold valves, kill-line valves, HCR and manual valve to 2,000 psi.
1030-2200	11½	Rig up lubricator joint and BPB. Run in hole with perforating gun. Interval #1 from 1553.7m to 1560.05m. Interval #2 from 1543.4m to 1546.4m. Interval #3 from 1537.0m to 1543.35m.
2200-2400	2	Flow-check well. Install and check stabbing valve. Run in hole with scraper on 2 <sup>7</sup> / <sub>8</sub> " tubing. Take periodic flow-checks.
<b>25 / 4 / 95</b>		
0000-0030	½	Continue running in hole with scraper.
0030-0100	½	Repair hydraulic hose.
0100-0200	1	Continue running in hole with scraper to 1534m. Reciprocate scraper from 1534m to 1572m.
0200-0300	1	Reverse circulate casing at 1572m.
0300-0330	½	Continue running in hole to 1701m.
0330-0430	1	Pump high viscosity sweep and reverse circulate out of hole.
0430-0600	1½	Pull out of hole to pick up test tool. Take periodic flow-checks.
0600-0730	1½	Pull out of hole to pick up test tools.
0730-1000	2½	Pick up and make up test tools.
1000-1230	2½	Run in hole with test tool.
1230-1900	6½	Run cased-hole DST #1 from 1537.0m to 1560.05m with Baker Oil Tools.
1900-2000	1	Release packer and reverse-circulate contents of test-string. Recovered 12 bbls of formation water.

2000-2030	½	Rig down surface equipment.
2030-2330	3	Pull out of hole with test-tool.
2330-2400	½	Break and lay out test-tool.
<b>26 / 4 / 95</b>		
0000-0130	1½	Break and lay out test-tool.
0130-0200	½	Injection-test open perforations against blind rams to 1,000 psi at 0.5 bpm.
0200-0500	3	Rig up BPB and lubricator and run gauge ring and junk basket to 1610m.
0500-0600	1	Run 7" bridge plug in hole on BPB wire line and set at 1533m.
0600-0700	1	Run 7" bridge plug on BPB wire line and set at 1533m.
0700-0730	½	Pressure test bridge plug to 1,000 psi.
0730-1030	3	Run in hole with perforating gun. Perforated Interval #4 from 1510.50m to 1516.85m. Rig down BPB and lubricator.
1030-1230	2	Pick up and make up test-tool.
1230-1600	3½	Run in hole with test-tool. Check torque of all connections.
1600-1630	½	Rig up surface equipment, pressure test lines and hold safety meeting.
1630-2100	4½	Run cased-hole DST #2 from 1510.5m to 1516.85m with Baker Oil Tools.
2100-2400	3	Cased-hole DST #2 - test-tool on final shut-in.
<b>27 / 4 / 95</b>		
0000-0500	5	Cased-hole DST #2 - test-tool on final shut-in.
0500-0600	1	Cased-hole DST #2 - open test-tool to fill sample chamber with any fluids. Close tool and blow down pressure to flare pit.
0600-0630	½	Cased hole DST #2 - blow down pressure to flare pit and rig down surface equipment.
0630-0930	3	Pull out of hole with test-tool. Recovered 1.3 bbls of formation water.
0930-1000	½	Break and lay out test-tool. Recover recorders.
1000-1030	½	Gas-cut fluid bubbling in annulus. Pull tool, shut well in and record shut-in pressures.
1030-1230	2	Rig up Dowell to kill-line and circulate gas-cut fluid out through choke until pressures equalised at zero. Observe well. Suspect that gas-bubble followed test-tool up hole.
1230-1300	½	Break and lay out test-tool.
1300-1630	3½	Make up 6" bit on casing scraper and run in hole. Flow-check every ten stands. Work scraper from 1503m to 1522m. Tag bridge plug at 1533m with 10,000 lbs.
1630-1830	2	Head up 2 <sup>7</sup> / <sub>8</sub> " tubing, pump 10 bbl high viscosity sweep and circulate hole to stable 9.35 ppg mud weight.
1830-2130	3	Flow-check and pull out of hole to pick up test-tool.
2130-2300	1½	Pick up and make up test-tool.
2300-2330	½	Slip 38 feet of drilling line.
2330-2400	½	Load recorders and make up test-tool.
<b>28 / 4 / 95</b>		
0000-0100	1	Make up test-tool.

0100-0400	3	Run in hole with test-tool - lightly tag bridge plug.
0400-0430	½	Head up surface equipment and hold safety meeting.
0430-0600	1½	Set packer and run DST equipment from 1529m to 1533m to check integrity of bridge plug.
0600-1100	5	Bridge plug integrity test with DST equipment.
1100-1500	4	Rig down surface equipment and pull out of hole. Recovered 245 metres of formation water.
1500-1600	1	Break and lay out test-tools.
1600-1830	2½	Make up 6" bit on scraper and run in hole with flow-checks.
1830-1900	½	Head up circulating equipment.
1900-2030	1½	Circulate and condition brine to 9.35 ppg and build volume.
2030-2330	3	Pull out of hole to run perforating gun.
2330-2400	½	Rig up BPB and lubricator for perforating.
<b>29 / 4 / 95</b>		
0000-0500	5	Run perforating gun with BPB. Perforated Interval #5 from 1502.65m to 1509.0m. Perforated Interval #6 from 1501.0m to 1502.60m. Observe well behaviour at de-gasser line with periodic circulation across well head. Rig down BPB.
0500-0600	1	Run in hole with 6" bit on scraper.
0600-0730	1½	Run in hole with casing scraper. Reciprocate from 1501m to 1509m.
0730-0900	1½	Pump sweep and circulate bottoms up.
0900-1130	2½	Pull out of hole.
1130-1630	5	Rig up BPB and lubricator. Run in hole with junk basket and gauge ring. Pick up Delta bridge plug and run in hole and set at 1531m. Rig down BPB.
1630-1730	1	Pick up and make up test-tool.
1730-1800	½	Repair hydraulic hose.
1800-1830	½	Pick up and make up test-tool.
1830-2130	3	Run in hole with test-tool. Run 300 metres of water cushion in test string.
2130-2230	1	Head up and test surface equipment and flare-line to 2,000 psi.
2230-2400	1½	Use DST equipment to test integrity of bridge plug at 1531m.
<b>30 / 4 / 95</b>		
0000-0230	2½	Use DST equipment to test integrity of bridge plug at 1531m. Pull free and pull back to 1492m.
0230-0600	3½	Wait on daylight to resume testing. Monitor well behaviour.
0600-0700	1	Wait on daylight to resume testing. Monitor well behavior.
0700-1500	8	Set packer at 1496m and run Cased-hole DST #3 from 1501m to 1509m. Pull free at 1447 hrs.
1500-1530	½	Drop bar and reverse circulate test string. Recovered 2.3 bbls of gas-cut fluid.
1530-1730	2	Run in hole to 1531m. Circulate bottoms up from below perforations and condition brine to a stable 9.35 ppg.
1730-2030	3	Pull out of hole with test-tool. Flow-check every 10 stands.
2030-2230	2	Recover recorders and lay out test-tools.
2230-2300	½	Change out elevator links.



2300-2330	½	Make up sliding sleeve and SB3 production packer.
2330--2400	½	Run in hole with production packer.
<b>01 / 5 / 95</b>		
0000-0200	2	Run in hole with production packer.
0200-0230	½	Measure in and soft tag bridge plug at 1531m.
0230-0300	½	Spot 1% KCl solution from 1531m to 1480m.
0300-0600	3	Rig up a tubing head compatible with both Dowell and Expertest equipment to set production packer.
0600-0700	1	Rig up tubing head compatible with both Dowell and Expertest equipment to set production packer.
0700-0730	½	Pressure test head and lines to 3,000 psi.
0730-0900	1½	Set packer at 1492m with 2,000 psi, test annulus to 500 psi, shear ball at 3,200 psi and re-test annulus to 500 psi.
0900-1030	1½	Rig up Expertest to run gauge ring. Rig down on instructions before running tool.
1030-1100	½	Unlatch 2 <sup>7</sup> / <sub>8</sub> " work string from permanent production packer.
1100-1200	1	Rig up to lay out 2 <sup>7</sup> / <sub>8</sub> " work string. Move Expertest and clear catwalk.
1200-1800	6	Lay out 2 <sup>7</sup> / <sub>8</sub> " work string.
1800-2030	2½	Lay out kelly and tubing tongs. Install 4½" pipe rams.
2030-2130	1	Pressure test pipe rams, choke manifold valves, HCR, manual valve and kill-line valves to 2,000 psi and Hydril and flare line to 1,500 psi.
2130-2400	2½	Rig up to run 4½" tubing. Rig up Enterra. Pick up tail pipe and packer while Enterra working on tongs.
<b>02 / 5 / 95</b>		
0000-0600	6	Hold safety meeting with Enterra operator, make up tubing BHA and run 4½" tubing with Enterra.
0600-0830	2½	Run 4½" New Vam tubing with Enterra.
0830-0900	¾	Make up stabbing valve and substitutes to match New Vam to Expertest.
0900-0930	¾	Run 4½" New Vam tubing.
0930-1000	¾	Wait on confirmation of proposal to make correlation run with BPB.
1000-1030	¾	Make up tubing hanger and pup-joints to land with.
1030-1600	5½	Rig up BPB. Change bridle on BPB wire line. Run BPB tool to check packer setting depth and rig down BPB.
1600-1630	½	Land tubing hanger in tubing spool - tighten hold-down studs. Wireline Re-entry Guide landed at 1474 mKB.
1630-2030	4	Rig up Expertest - gauge ring unable to pass stabbing valve - rig down and lay out valve. Rig up Expertest BOP on top of 4½" tubing and run gauge ring, plug and prong.
2030-2200	1½	Rig up Dowell and pressure test line to 3,000 psi. Try to set packer - unable to, due to down-hole leakage.
2200-2400	2	Rig up Expertest and retrieve prong and check that SSD is closed.

03 / 5 / 95

0000-0130	1½	Re-run prong and run gauge ring to ensure positive location of prong.
0130-0230	1	Rig up Dowell and set packer with 3,000 psi and test annulus to 1,000 psi. Remove landing joint, close blind rams and pressure test tubing to 2,000 psi due to slight pressure-drop at setting of packer. Suspected leakage at soft make-up to tubing hanger.
0230-0400	1½	Rig up Expertest and open SSD.
0400-0430	½	Install Back-pressure Valve and pressure test to 1,000 psi.
0430-0600	1½	Tear out BOP.
0600-0700	1	Tear out BOP's.
0700-1030	3½	Install Christmas Tree. Pressure test tie-down assembly, RX49 flange, lower hanger neck seals, hanger body seals, hanger neck seals and ¼ NPT plug.
1030-1200	1½	Install Baker choke manifold between well-head and flare-line.
1200-1400	2	Pressure test all Christmas Tree valves in turn to 3,000 psi. Pressure test underside of valves to 1,000 psi.
1400-1500	1	Rig up Expertest lubricator and pressure test to 2,000 psi.
1500-1530	½	Pressure test choke manifold and lines to 2,000 psi.
1530-1630	1	Circulate 74.4 bbls of 9.35 ppg inhibited brine with 340 ppm Bac-ban and approximately 160 litres of Conqor, and spot 65 bbls of diesel in tubing.
1630-1700	½	Run wire line in hole with Expertest and close SSD.
1700-1730	½	Pressure test tubing to 2000 psi.
1730-1930	2	Run wire line in hole with Expertest and retrieve prong. Hold 270 psi at well-head. Run wire line in hole and retrieve plug. Rig down.
1930-2000	½	Pressure test annulus to 1,000 psi.
2000-2030	½	Hold safety meeting and discuss duties of crew prior to flowing well.
2030-2400	3½	Bring well on stream and flow in flare pit to clean up after completion. Recover diesel and record pressure build-up.

4 / 5 / 95

0000-0130	1½	Flow well to clean up through ½" choke. Record pressures to a stable 1,420 psi.
0130-0200	½	Shut well in and record shut-in pressures to 1,860 psi.
0200-0500	3	Install Back Pressure valve in Christmas Tree with Cooper Oil Tools. Bleed off pressure to check BPV holding OK. Release Rig.

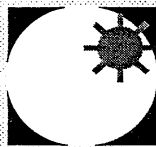
Appendix 4

# **APPENDIX 4**

**A. CUTTING DESCRIPTIONS**

**B. DAILY REPORT**

**LITHOLOGICAL DESCRIPTIONS**



**G F E** Resources Ltd

# CUTTINGS DESCRIPTION

**WELL NAME:** WALLABY CREEK - 2

**DATE:** 16 January, 1996

**GEOLOGIST:** D. Horner

**PAGE:** 1

Interval (m)	%	Description
6-10	100	<b>Calcarenite:</b> medium orange brown, moderately argillaceous and iron oxide rich, granular texture, common forams, friable, fair inferred porosity.
10-15	100	<b>Calcarenite:</b> medium orange brown, trace off white, trace red, granular to cryptocrystalline texture, common forams, trace bryozoa, friable to moderately hard, fair inferred porosity.
15-20	100	<b>Calcarenite:</b> light orange to yellow, off white and red in part, very lutitic, occasionally cryptocrystalline, trace fossil fragments including forams and bryozoa, friable to moderately hard, fair inferred porosity.
20-25	100	<b>Calcarenite:</b> white to yellow orange, occasionally medium grey and very argillaceous, cryptocrystalline to lutitic, trace fossil fragments including bryozoa and forams, trace black and brown iron oxide rich nodules, friable to occasionally hard, fair inferred porosity.
25-30	100	<b>Calcarenite:</b> light grey to light yellow orange, sucrosic to cryptocrystalline texture, occasionally medium grey and grading to marl, common black carbonaceous detritus, trace glauconite, common to abundant fossil fragments including bryozoa, shell fragments, forams, sponge spicules, gastropods and echinoid spines, friable, fair inferred porosity.
30-35	100	<b>Calcarenite:</b> light grey to occasionally yellow orange and red, sucrosic to cryptocrystalline texture, slightly argillaceous, common to abundant fossil fragments including bryozoa, shell fragments, forams, sponge spicules, gastropods and echinoid spines, friable, fair inferred porosity.
35-40	100	<b>Calcarenite:</b> light grey, very fine to coarse grained, dominantly medium, sucrosic texture, common fossil fragments as for 30-35m, slightly argillaceous, friable to moderately hard, poor inferred porosity.
40-45	100	<b>Calcarenite:</b> light grey, very fine to coarse grained, dominantly medium, sucrosic texture, trace black carbonaceous detritus, trace glauconite, common to abundant fossil fragments including bryozoa, shell fragments, forams, sponge spicules, gastropods and echinoid spines, friable, fair inferred porosity.
45-50	100	<b>Calcarenite:</b> light brown grey, very fine to medium, slightly argillaceous, common fossil fragments as for 40-45m, sucrosic texture, friable to moderately hard, poor inferred porosity.
50-55	100	<b>Calcarenite:</b> light brown grey, common yellow orange, very fine to medium, slightly argillaceous, common fossil fragments as for 40-45m, sucrosic texture, friable to moderately hard, poor inferred porosity.
55-60	100	<b>Calcarenite:</b> light to medium grey, very fine to fine grained, slightly to moderately argillaceous, sucrosic texture, slightly cryptocrystalline, trace fossil fragments, friable to moderately hard, poor visual porosity.
60-65	100	<b>Calcarenite:</b> as for 55 to 60m.
65-70	100	<b>Calcarenite:</b> light to medium brown grey, trace yellow orange, very fine to fine grained, slightly to moderately argillaceous, lutitic to cryptocrystalline texture, trace fossil fragments especially bryozoa and forams, friable to moderately hard, poor visual porosity.

Interval (m)	%	Description	PAGE: 2
70-75	100	<b>Calcarenite:</b> light to medium grey, very fine to fine grained, slightly to moderately argillaceous, sucrosic texture, slightly cryptocrystalline, trace fossil fragments, friable to moderately hard, poor visual porosity.	
75-80	100	<b>Calcarenite:</b> light to medium grey, very fine grained, lutitic to cryptocrystalline texture, trace black carbonaceous flecks, trace to common fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spine and sponge spicules, slightly to moderately argillaceous, friable to moderately hard, very poor inferred porosity.	
80-85	100	<b>Calcarenite:</b> medium grey, moderately to very argillaceous, very fine grained, lutitic to sucrosic texture, trace fossil fragments, trace black carbonaceous flecks, friable, very poor visual porosity.	
85-90	100	<b>Calcarenite:</b> light to medium grey, very fine grained, lutitic to sucrosic texture, trace black carbonaceous flecks, trace fossil fragments, slightly to moderately argillaceous, friable, very poor visual porosity.	
90-95	100	<b>Calcarenite:</b> medium grey, moderately to very argillaceous, very fine grained, lutitic to sucrosic texture, trace fossil fragments, trace black carbonaceous flecks, friable, very poor visual porosity.	
95-100	100	<b>Calcarenite:</b> light to medium grey, very fine grained, lutitic to sucrosic texture, trace black carbonaceous flecks, trace fossil fragments, slightly to moderately argillaceous, friable, very poor visual porosity.	
100-105	100	<b>Calcarenite:</b> off white to light grey, very fine to dominantly fine grained, sucrosic texture, trace fossil fragments, slightly argillaceous, trace black carbonaceous flecks, rare glauconite, friable, very poor visual porosity.	
105-110	100	<b>Calcarenite:</b> light grey, very fine to dominantly fine grained, sucrosic texture, trace fossil fragments, slightly argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.	
110-115	100	<b>Calcarenite:</b> as for 105 to 110m.	
115-120	100	<b>Calcarenite:</b> light grey, very fine grained, sucrosic texture, trace fossil fragments, moderately argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.	
125-130	50	<b>Calcarenite:</b> light grey, very fine grained, sucrosic texture, trace fossil fragments, moderately argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.	
	50	<b>Marl:</b> medium brown grey, soft, trace fossil fragments, rare pyrite, trace glauconite, sticky, moderately dispersive, non fissile.	
130-135	100	<b>Marl:</b> medium grey to dominantly medium brown grey, trace to common fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace glauconite, trace pyrite, soft, sticky, non fissile.	
135-140	100	<b>Marl:</b> as for 130 to 135m.	
140-145	100	<b>Marl:</b> as for 130 to 135m with fossil fragments increasing to common.	
145-150	100	<b>Marl:</b> medium brown grey, occasionally medium grey, common fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace glauconite, trace pyrite, soft, sticky, non fissile.	
150-155	100	<b>Marl:</b> as for 145 to 150m.	
155-160	100	<b>Marl:</b> as for 145 to 150m.	
160-165	100	<b>Marl:</b> as for 145 to 150m.	
165-170	100	<b>Marl:</b> medium brown grey, occasionally medium grey, common to abundant fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace glauconite, trace pyrite, soft, sticky, non fissile.	

Interval (m)	%	Description	PAGE: 3
170-175	100	<u>Marl</u> : as for 165 to 170m.	
175-180	100	<u>Marl</u> : medium brown grey, common to abundant fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite especially as fossil replacement, trace very fine to fine quartz sand grains, rare black carbonaceous detritus, very soft,sticky,non fissile.	
180-185	100	<u>Marl</u> : as for 175 to 180m.	
185-190	100	<u>Marl</u> : as for 175 to 180m.	
190-195	100	<u>Marl</u> : as for 175 to 180m.	
195-200	100	<u>Marl</u> : as for 175 to 180m.	
200-205	100	<u>Marl</u> : medium brown grey, common to abundant fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite especially as fossil replacement, trace very fine to fine quartz sand grains, rare black carbonaceous detritus, very soft,sticky,non fissile.	
205-210	100	<u>Marl</u> : as for 200 to 205m.	
210-215	100	<u>Marl</u> : as for 200 to 205m.	
215-220	100	<u>Marl</u> : as for 200 to 205m.	
220-225	100	<u>Marl</u> : medium brown grey to medium grey, rare pyrite, rare black carbonaceous detritus, rare glauconite,common to abundant fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite fossil replacement, rare very fine to fine quartz sand grains, very soft,sticky,non fissile.	
225-230	100	<u>Marl</u> : as for 220 to 225m.	
230-235	100	<u>Marl</u> : as for 220 to 225m.	
235-240	100	<u>Marl</u> : as for 220 to 225m.	
240-245	100	<u>Marl</u> : as for 220 to 225m.	
245-250	100	<u>Marl</u> : as for 220 to 225m but becoming less calcareous.	
250-255	100	<u>Marl</u> : medium brown grey to medium grey, rare pyrite, rare black carbonaceous detritus, rare glauconite,common fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite fossil replacement, rare very fine to fine quartz sand grains, very soft,sticky,non fissile.	
255-260	100	<u>Marl</u> : as for 250 to 255m.	
260-265	100	<u>Marl</u> : as for 250 to 255m.	
265-270	100	<u>Marl</u> : as for 250 to 255m.	
270-275	100	<u>Marl</u> : as for 250 to 255m.	
275-280	100	<u>Marl</u> : as above, medium brown grey to medium grey, rare pyrite, rare black carbonaceous detritus, rare glauconite,common fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite fossil replacement, rare very fine to fine quartz sand grains, very soft,sticky,non fissile.	
280-285	100	<u>Marl</u> : as for 275 to 280m.	
285-290	100	<u>Marl</u> : as for 275 to 280m.	

Interval (m)	%	Description	PAGE: 4
290-295	100	<u>Marl:</u> as for 275 to 280m.	
295-300	100	<u>Marl:</u> as above, medium brown grey to medium grey, rare pyrite, rare black carbonaceous detritus, rare glauconite, common fossil fragments including bryozoa, forams, gastropods, bivalve, echinoid spines and sponge spicules, trace pyrite fossil replacement, rare very fine to fine quartz sand grains, very soft, sticky, non fissile.	
300-310	100	<u>Marl:</u> medium brown grey, medium to dark grey, occasionally medium green grey, common fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, rare very fine to medium quartz sand grains, soft, non fissile.	
310-315	100	<u>Marl:</u> as for 300 to 310m.	
315-320	100	<u>Marl:</u> medium brown grey, medium to dark grey, occasionally medium green grey, common fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, soft, non fissile.	
320-330	100	<u>Marl:</u> as for 315 to 320m.	
330-335	100	<u>Marl:</u> medium brown grey, medium to dark grey, occasionally medium green grey, abundant fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, soft, non fissile.	
335-340	100	<u>Marl:</u> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, soft, non fissile.	
340-350	100	<u>Marl:</u> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, common very fine quartz sand grains, trace micromica, soft, non fissile.	
350-360	100	<u>Marl:</u> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, soft, non fissile.	
360-370	100	<u>Marl:</u> as for 350 to 360m.	
370-380	100	<u>Marl:</u> as for 350 to 360m.	
380-390	100	<u>Marl:</u> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments including bryozoa, shell fragments, forams, echinoid spines and sponge spicules, trace black carbonaceous flecks, trace micromica, soft, non fissile.	
390-400	100	<u>Marl:</u> as for 380 to 390m.	
400-410	100	<u>Marl:</u> medium green grey to medium grey, occasionally dark grey to dark brown grey, common fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace black carbonaceous flecks and detritus, trace micromica, soft, non fissile.	
410-420	100	<u>Marl:</u> as for 410 to 420m.	
420-430	100	<u>Marl:</u> light to medium green grey, light to medium brown grey, light to medium grey, common fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace black carbonaceous flecks and detritus, trace micromica, soft, non fissile.	
430-435	100	<u>Marl:</u> light to medium green grey, light to medium brown grey, light to medium grey, abundant fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace black carbonaceous flecks and detritus, trace micromica, soft, non fissile.	



Interval (m)	%	Description	PAGE: 5
435-440	100	<b>Calcarenite:</b> red brown, very coarse grained, abundant dark brown iron oxide pellets, common bryozoa and shell fragments, trace very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, friable to moderately hard, fair inferred porosity, no oil fluorescence	
440-450	50	<b>Calcarenite:</b> off white to red brown, very coarse grained, abundant dark brown iron oxide pellets, common bryozoa and shell fragments, abundant very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, friable to moderately hard, fair inferred porosity, no oil fluorescence	
	50	<b>Marl:</b> medium green grey to medium brown, light to medium grey, abundant fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace black carbonaceous flecks and detritus, trace micromica, soft, non fissile.	
450-460	20	<b>Calcarenite:</b> off white to red brown, very coarse grained, common dark brown iron oxide pellets, common bryozoa and shell fragments, abundant very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, common glauconite, friable to moderately hard, fair inferred porosity, no oil fluorescence	
	80	<b>Marl:</b> medium green grey, abundant fossil fragments including bryozoa, forams, bivalves, gastropods, echinoid spines and sponge spicules, trace black carbonaceous flecks and detritus, trace micromica, soft, non fissile.	
460-470	100	<b>Marl:</b> medium to dark brown grey, common to abundant fossil fragments, trace glauconite, moderately silty to very finely arenaceous, trace micromica, soft, non fissile.	
	Trace	<b>Calcarenite:</b> as for 450 to 460m.	
470-480	100	<b>Marl:</b> dark brown grey to very dark grey, common fossil fragments, trace pyrite, trace micromica, trace glauconite, moderately carbonaceous, soft, very dispersive, non fissile.	
	Trace	<b>Calcarenite:</b> as for 450 to 460m.	
480-490	100	<b>Marl:</b> medium to dark brown, common glauconite, common fossil fragments, trace pyrite, trace micromica, soft, non fissile.	
490-500	100	<b>Marl:</b> as for 480 to 490m.	
500-510	100	<b>Marl:</b> as for 480 to 490m.	
510-520	100	<b>Marl:</b> as for 480 to 490m.	
520-530	100	<b>Marl:</b> light to dark brown grey, common fossil fragments, common glauconite, trace micromica, moderately carbonaceous in part, trace pyrite, soft, moderately dispersive, non fissile.	
530-540	60	<b>Marl:</b> as for 520 to 530m.	
	40	<b>Sandstone:</b> medium brown, very fine to grit, dominantly very coarse, subrounded to rounded, poor to moderately sorted, strong calcareous cement in part, abundant medium to dark brown argillaceous matrix - matrix supported, strong orange-brown stain on quartz grains, trace glauconite, trace fossil fragments, friable to moderately hard, very poor visual porosity, no oil fluorescence.	
540-550	40	<b>Sandstone:</b> as for 530 to 540m but often with strong calcareous cement.	
	60	<b>Claystone:</b> medium to dark brown, moderately carbonaceous, often abundant dispersed very fine to grit brown stained quartz grains, common fossil fragments, trace glauconite, trace micromica, soft, very dispersive, non fissile.	
550-560	90	<b>Sandstone:</b> medium brown, very fine to grit, dominantly medium to coarse, subrounded, moderately sorted, trace strong calcareous cement, common to abundant medium brown argillaceous matrix, strong brown stain on quartz grains, trace brown iron oxide pellets, trace fossil fragments, friable, poor inferred porosity, no oil fluorescence.	
	10	<b>Claystone:</b> as for 540 to 550m.	

560-570	100	<u><b>Sandstone:</b></u> as for 550 to 560m but dominantly medium grained.
570-580	90	<u><b>Sandstone:</b></u> light brown grey, very fine to very coarse, dominantly medium to coarse, subangular to rounded, dominantly subrounded, moderately sorted, weak silica cement, common to abundant medium to dark brown argillaceous matrix, common light brown stain on quartz grains, trace grey green cherty lithics, trace black to dark brown carbonaceous detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
	10	<u><b>Claystone:</b></u> medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.
580-590	60	<u><b>Sandstone:</b></u> light brown grey, very fine to grit, dominantly medium to coarse, subangular to rounded, dominantly subrounded, moderately sorted, weak silica cement, common to abundant medium to dark brown argillaceous matrix, common light brown stain on quartz grains, trace grey green cherty lithics, trace black to dark brown carbonaceous detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
	40	<u><b>Claystone:</b></u> as for 570 to 580m.
590-600	60	<u><b>Claystone:</b></u> as for 570 to 580m.
	40	<u><b>Sandstone:</b></u> as for 580 to 590m.
600-610	70	<u><b>Sandstone:</b></u> light brown, very fine to grit, dominantly coarse, angular to rounded, dominantly subrounded, poorly sorted, weak silica cement, abundant dark brown argillaceous and silt matrix - matrix supported, weak brown stain on quartz grains, trace black carbonaceous detritus, trace pyrite, friable, poor inferred porosity, no oil fluorescence.
	30	<u><b>Claystone:</b></u> as above, medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.
610-620	40	<u><b>Sandstone:</b></u> as for 600 to 610m.
	60	<u><b>Claystone:</b></u> as for 600 to 610m.
620-630	70	<u><b>Sandstone:</b></u> as for 600 to 610m.
	30	<u><b>Claystone:</b></u> as for 600 to 610m.
630-640	50	<u><b>Sandstone:</b></u> as above, light brown, very fine to grit, dominantly coarse, angular to rounded, dominantly subrounded, poorly sorted, weak silica cement, abundant dark brown argillaceous and silt matrix - matrix supported, weak brown stain on quartz grains, trace black carbonaceous detritus, trace pyrite, friable, poor inferred porosity, no oil fluorescence.
	50	<u><b>Claystone:</b></u> as above, medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.
640-650	60	<u><b>Sandstone:</b></u> as for 630 to 640m.
	40	<u><b>Claystone:</b></u> as for 630 to 640m.
650-660	60	<u><b>Sandstone:</b></u> as for 630 to 640m.
	40	<u><b>Claystone:</b></u> as for 630 to 640m.
660-670	20	<u><b>Sandstone:</b></u> as for 630 to 640m.
	80	<u><b>Claystone:</b></u> as above, medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.

Interval (m)	%	Description	PAGE: 7
670-680	30	<b>Sandstone:</b> as for 630 to 640m.	
	70	<b>Claystone:</b> as for 660 to 670m.	
680-690	20	<b>Sandstone:</b> as for 630 to 640m.	
	80	<b>Claystone:</b> as for 660 to 670m.	
690-700	80	<b>Sandstone:</b> light brown, very fine to grit, dominantly coarse, angular to rounded, dominantly subrounded, poor to moderately sorted, weak silica cement, common to abundant dark brown argillaceous matrix - matrix supported in part, common light brown stain on quartz grains, trace brown clay lithics, trace green grey cherty lithics, rare glauconite, rare black carbonaceous detritus, trace pyrite, friable, poor to occasionally good visual porosity, no oil fluorescence.	
	20	<b>Claystone:</b> medium to dominantly dark brown grey, slightly to occasionally very silty, nil to abundant dispersed very fine to grit quartz sand grains grading in part to argillaceous, trace glauconite, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.	
700-710	90	<b>Sandstone:</b> light brown, very fine to grit, dominantly very coarse, occasional pebbles, angular to rounded, dominantly subrounded, poor to moderately sorted, weak silica cement, common to abundant dark brown argillaceous matrix - matrix supported in part, common light brown stain on quartz grains, trace brown clay lithics, trace green grey cherty lithics, rare glauconite, rare black carbonaceous detritus, trace pyrite, friable, poor to occasionally good visual porosity, no oil fluorescence.	
	10	<b>Claystone:</b> as for 690 to 700m.	
710-720	70	<b>Sandstone:</b> as for 700 to 710m.	
	30	<b>Claystone:</b> as for 690 to 700m.	
720-730	100	<b>Sandstone:</b> light brown, very fine to grit, dominantly coarse, occasional pebbles, angular to rounded, dominantly subrounded, poor to moderately sorted, weak silica cement, trace to common dark brown argillaceous matrix - matrix supported in part, common light brown stain on quartz grains, trace brown clay lithics, trace green grey cherty lithics, rare glauconite, rare black carbonaceous detritus, trace pyrite, friable, good visual porosity, no oil fluorescence.	
730-740	100	<b>Sandstone:</b> as for 720 to 730m.	
	Trace	<b>Claystone:</b> medium to dominantly dark brown grey, slightly to occasionally very silty, nil to abundant dispersed very fine to grit quartz sand grains grading in part to argillaceous sandstone, trace glauconite, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non fissile.	
740-750	90	<b>Sandstone:</b> light brown, very fine to grit, dominantly coarse, occasional pebbles, angular to rounded, dominantly subrounded, poor to moderately sorted, weak silica cement, trace to abundant dark brown argillaceous matrix - matrix supported in part, common light brown stain on quartz grains, trace brown clay lithics, trace green grey cherty lithics, rare glauconite, rare black carbonaceous detritus, trace pyrite, friable, fair visual porosity, no oil fluorescence.	
	10	<b>Claystone:</b> as for 730 to 740m.	
750-760	100	<b>Sandstone:</b> light brown, very fine to grit, dominantly coarse, occasional pebbles, angular to rounded, dominantly subrounded, poor to moderately sorted, weak silica cement, trace to common dark brown argillaceous matrix - matrix supported in part, common light brown stain on quartz grains, trace brown clay lithics, trace green grey cherty lithics, rare glauconite, rare black carbonaceous detritus, trace pyrite, friable, good visual porosity, no oil fluorescence.	
	Trace	<b>Claystone:</b> as for 730 to 740m.	

Interval (m)	%	Description	PAGE: 8
760-770	100	<u>Sandstone</u> : as for 750 to 760m.	
	Trace	<u>Claystone</u> : as for 750 to 760m.	
770-780	90	<u>Claystone</u> : medium to dark brown, moderately to very silty, common very fine dispersed quartz sand grains, trace pyrite and marcasite, rare black carbonaceous detritus, trace micromica and coarse muscovite flakes, very soft, very dispersive, non fissile	
	10	<u>Sandstone</u> : as for 750 to 760m.	
780-790	100	<u>Claystone</u> : as for 770 to 780m.	
790-800	100	<u>Claystone</u> : medium to dark brown, moderately to very silty, common to abundant very fine dispersed quartz sand grains, trace pyrite and marcasite, rare black carbonaceous detritus, trace micromica and coarse muscovite flakes, very soft, very dispersive, non fissile	
800-810	100	<u>Claystone</u> : as for 790 to 800m.	
810-820	100	<u>Claystone</u> : as for 790 to 800m.	
820-825	100	<u>Claystone</u> : as for 790 to 800m.	
825-830	95	<u>Claystone</u> : medium to dark brown, trace medium to dark green, common very fine to medium quartz sand grains, common glauconite and dark brown iron oxide pellets, trace coarse green mica flakes, trace pyrite, trace micromica, soft, very dispersive, non fissile.	
	5	<u>Sandstone</u> : medium brown, very fine to medium, subangular, moderately sorted, strong calcareous cement in part, common dark brown iron oxide pellets, trace glauconite, trace coarse green mica flakes, trace pyrite, friable to moderately hard, very poor visual porosity, no oil fluorescence.	
830-840	40	<u>Sandstone</u> : light brown, very fine to grit, dominantly coarse to very coarse, subangular to subrounded, poorly sorted, weak silica cement, abundant medium green argillaceous matrix in part, common brown stain on quartz grains, trace dark brown iron oxide pellets, trace glauconite, trace coarse green and clear mica flakes, friable, very poor visual porosity, no oil fluorescence	
	60	<u>Claystone</u> : medium to dark green, medium to dark brown, slightly silty, abundant dispersed very fine to grit quartz sand grains in part, common glauconite in part, trace black carbonaceous detritus, trace coarse muscovite flakes and micromica, soft, very dispersive and washing from samples, non fissile	
840-850	100	<u>Sandstone</u> : medium brown, very fine to grit, dominantly very coarse, angular to subangular, poor to moderate sorting, weak silica cement, common to abundant dark brown iron oxide rich argillaceous matrix, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable, fair inferred porosity, no oil fluorescence.	
850-860	100	<u>Sandstone</u> : medium brown, very fine to grit, dominantly very coarse, angular to subangular, poor to moderate sorting, weak silica cement, trace to common dark brown iron oxide rich argillaceous matrix, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable, fair to good inferred porosity, no oil fluorescence.	
860-870	100	<u>Sandstone</u> : light to medium brown, very fine to grit, dominantly coarse to very coarse, angular to subangular, moderately sorted, weak silica cement, trace to common medium to dark brown argillaceous matrix, trace dark brown iron oxide pellets, trace glauconite, trace coarse green mica flakes, friable, fair to good visual porosity, no oil fluorescence.	
870-880	80	<u>Sandstone</u> : as for 860 to 870m.	
	20	<u>Claystone</u> : dark brown grey, moderately to very silty, nil to abundant dispersed very fine to grit qtz sand grains - in part grading to argillaceous sandstone, trace glauconite, trace coarse green mica flakes, trace micromica, trace pyrite, soft, very dispersive, non fissile.	
880-885	30	<u>Sandstone</u> : as for 860 to 870m.	

Interval (m)	%	Description	PAGE: 9
	70	<u>Claystone</u> : as for 870 to 880m.	
885-895	60	<u>Sandstone</u> : light to medium brown, very fine to grit, dominantly medium, angular to subangular, moderately sorted, weak silica cement, trace to common medium to dark brown argillaceous matrix, trace dark brown iron oxide pellets, trace glauconite, trace coarse green mica flakes, friable, fair to good visual porosity, no oil fluorescence.	
	40	<u>Claystone</u> : as for 870 to 880m.	
895-900	100	<u>Sandstone</u> : light brown grey, very fine to pebble, dominantly grit, angular to subrounded, very poorly sorted, weak silica cement, trace to common yellow to orange to red quartz grains, trace pyrite, friable, very good visual porosity, no oil fluorescence	
	Trace	<u>Claystone</u> : as for 870 to 880m.	
900-910	100	<u>Sandstone</u> : as for 895 to 900m.	
910-920	100	<u>Sandstone</u> : light brown grey, very fine to pebble, dominantly very coarse, angular to subrounded, very poorly sorted, weak silica cement, trace to common yellow to orange to red quartz grains, trace coarse green mica flakes, trace black carbonaceous detritus, trace grey green cherty lithics, trace pyrite, friable, very good visual porosity, no oil fluorescence	
920-930	100	<u>Sandstone</u> : light brown grey, very fine to pebble, dominantly very coarse, angular to subrounded, very poorly sorted, weak silica cement, trace to common yellow to orange to red quartz grains, trace coarse green mica flakes, trace black carbonaceous detritus, trace to common red green and grey volcanic cherty lithics, trace pyrite, friable, very good visual porosity, no oil fluorescence	
930-940	100	<u>Sandstone</u> : very light brown, very fine to pebble, dominantly grit, angular to subangular, poorly sorted, weak silica cement, trace medium brown argillaceous and silt matrix, common yellow to orange quartz grains, trace to common grey to green to brown to red volcanic lithics, trace green mica flakes, trace black coal detritus, trace pyrite, very good inferred porosity, no oil fluorescence.	
940-950	100	<u>Sandstone</u> : as for 930 to 940m.	
950-960	100	<u>Sandstone</u> : as for 930 to 940m.	
960-970	100	<u>Sandstone</u> : very light brown, very fine to pebble, dominantly grit, angular to subangular, poorly sorted, weak silica cement, trace medium brown argillaceous and silt matrix, trace yellow to orange quartz grains, trace grey to green to brown to red volcanic lithics, trace green mica flakes, trace black coal detritus, trace pyrite, very good inferred porosity, no oil fluorescence.	
970-980	100	<u>Sandstone</u> : very light brown, very fine to pebble, dominantly grit, angular to subangular, poorly sorted, weak silica cement, trace strong pyrite cement, trace medium brown argillaceous and silt matrix, trace yellow to orange quartz grains, trace grey to green to brown to red volcanic lithics, trace green mica flakes, trace black coal detritus, trace pyrite, very good inferred porosity, no oil fluorescence.	
980-990	90	<u>Sandstone</u> : as for 970 to 980m but with abundant contamination after wiper trip.	
	10	<u>Claystone</u> : probable contamination	
990-1000	80	<u>Sandstone</u> : as for 970 to 980m	
	20	<u>Claystone</u> : medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive and washing from samples, non fissile	

1000-1010	50	<b>Sandstone:</b> very light brown, very fine to grit, dominantly coarse to very coarse, angular to subangular, poor to moderately sorted, weak silica cement, trace weak calcareous cement, trace medium brown argillaceous and silt matrix, trace yellow to orange quartz grains, trace grey to green to brown to red volcanic lithics, trace green mica flakes, trace black coal detritus, trace pyrite, good inferred porosity, no oil fluorescence.
	50	<b>Claystone:</b> as for 990 to 1000m
1010-1020	30	<b>Sandstone:</b> as for 1000 to 1010m
	70	<b>Claystone:</b> as for 990 to 1000m
1020-1030	100	<b>Sandstone:</b> very light brown, very fine to grit, dominantly coarse to very coarse, angular to subangular, poor to moderately sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant medium grey to medium brown grey argillaceous and silt matrix, trace green grey lithics, trace black coaly detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence.
1030-1040	80	<b>Sandstone:</b> as for 1020 to 1030m
	20	<b>Claystone:</b> as above, medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive and washing from samples, non fissile
1040-1050	40	<b>Sandstone:</b> as for 1020 to 1030m
	60	<b>Claystone:</b> medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace to common medium brown cryptocrystalline dolomite, trace to common pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive and washing from samples, non fissile
1050-1060	90	<b>Claystone:</b> as for 1040 to 1050m
	10	<b>Sandstone:</b> as for 1020 to 1030m
1060-1070	80	<b>Claystone:</b> as for 1040 to 1050m
	20	<b>Sandstone:</b> as for 1020 to 1030m
1070-1080	100	<b>Sandstone:</b> very light brown, very fine to pebble, dominantly very coarse to grit, angular to subangular, poor to moderately sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant medium grey to medium brown grey argillaceous and silt matrix, trace green grey and rare red lithics, trace black coaly detritus, trace pyrite, friable, good inferred porosity, no oil fluorescence.
1080-1090	100	<b>Sandstone:</b> as for 1070 to 1080m.
1090-1100	90	<b>Sandstone:</b> as for 1070 to 1080m but becoming dominantly coarse to very coarse grained.
	10	<b>Claystone:</b> medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, trace very fine to fine off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive and washing from samples, non fissile
1100-1110	100	<b>Sandstone:</b> very light brown, very fine to pebble, dominantly very coarse, angular to subangular, poor to moderately sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant medium grey to medium brown grey argillaceous and silt matrix, trace green grey and rare red lithics, trace black coaly detritus, trace pyrite, friable, good inferred porosity, no oil fluorescence.

Interval (m)	%	Description	PAGE: 11
1110-1120	30	<b>Sandstone:</b> as for 1100 to 1110m	
	70	<b>Claystone:</b> medium brown to medium grey, moderately to very silty, occasionally very finely arenaceous, trace to common black carbonaceous flecks and coaly detritus, trace to common pyrite, trace to occasionally abundant very fine partially altered feldspar grains, trace micromica, soft, very dispersive, non fissile.	
1120-1130	95	<b>Claystone:</b> as for 1110 to 1120m	
	5	<b>Sandstone:</b> as for 1100 to 1110m	
1130-1140	70	<b>Sandstone:</b> light brown, very fine to grit, dominantly coarse, angular to subrounded, dominantly subangular, poorly sorted, weak silica cement, trace moderately strong calcareous cement, common medium brown grey argillaceous and silt matrix, trace grey green and red volcanic lithics, trace black coaly detritus, trace pyrite, friable, fair to good visual porosity, no oil fluorescence.	
	30	<b>Claystone:</b> as for 1110 to 1120m	
1140-1150	100	<b>Sandstone:</b> as for 1130 to 1140m	
1150-1160	100	<b>Sandstone:</b> light grey to light brown grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak to moderate silica cement, trace weak calcareous cement, trace medium brown grey argillaceous and silt matrix, trace pyrite, trace grey green cherty lithics, trace black coaly detritus, friable, fair to good inferred porosity, no oil fluorescence	
1160-1170	80	<b>Claystone:</b> light to medium grey, medium brown grey, moderately silty, often very finely arenaceous, trace to common black carbonaceous detritus and flecks, trace pyrite, trace medium brown cryptocrystalline dolomite, trace to common very fine to fine partially altered feldspar grains, trace micromica, soft, very dispersive, non fissile	
	20	<b>Sandstone:</b> light grey, very fine to grit, dominantly fine, angular to subangular, moderately sorted, moderate silica and calcareous cements, common very light brown argillaceous matrix, common very fine to fine partially altered feldspar grains, trace black carbonaceous detritus, trace clear and green mica flakes, trace grey green lithics, trace pyrite, friable to moderately hard, poor visual porosity, no oil fluorescence	
1170-1180	100	<b>Sandstone:</b> light grey, very fine to grit, dominantly medium to coarse, angular to subangular, moderately sorted, moderate silica and calcareous cements, trace to common light brown argillaceous matrix, trace to common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace to common black coaly detritus, trace pyrite, moderately hard, poor visual porosity, no oil fluorescence	
1180-1190	70	<b>Sandstone:</b> light grey, very fine and grit, angular to subangular, poorly sorted, moderate silica and calcareous cements, abundant white argillaceous matrix in part, common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace black coaly detritus, trace to common pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> light grey, very calcareous, slightly silty, often very finely arenaceous, common very fine to fine partially altered feldspar grains, common pyrite, trace to common medium brown cryptocrystalline dolomite, trace micromica, trace black coaly detritus, firm, very dispersive, non fissile	
1190-1200	80	<b>Sandstone:</b> light grey, very fine to grit, dominantly medium to coarse, angular to subangular, moderately sorted, moderate silica and calcareous cements, trace to common light brown argillaceous matrix, trace to common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace to common black coaly detritus, trace pyrite, moderately hard, poor visual porosity, no oil fluorescence	
	20	<b>Claystone:</b> as for 1180 to 1190m	

Interval (m)	%	Description	PAGE: 12
1210-1220	70	<b>Sandstone:</b> light grey, very fine and grit, angular to subangular, poorly sorted, moderate silica and calcareous cements, abundant white argillaceous matrix in part, common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace black coaly detritus, trace to common pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> light grey, very calcareous, slightly silty, often very finely arenaceous, common very fine to fine partially altered feldspar grains, common pyrite, trace to common medium brown cryptocrystalline dolomite, trace micromica, trace black coaly detritus, firm, very dispersive, non fissile	
1220-1228	80	<b>Sandstone:</b> as for 1210 to 1220m	
	20	<b>Claystone:</b> as for 1210 to 1220m.	
1228-1230	50	<b>Sandstone:</b> contaminated with abundant cavings after trip	
	50	<b>Claystone:</b> contaminated with abundant cavings after trip	
1230-1240	60	<b>Sandstone:</b> very light brown, very fine to fine, dominantly fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white argillaceous matrix, trace very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
	40	<b>Claystone:</b> medium grey to medium brown, very silty in part, common medium brown cryptocrystalline dolomite, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus, trace pyrite, firm, very dispersive, non to slightly subfissile	
1240-1250	90	<b>Sandstone:</b> very light brown grey, very fine to coarse, dominantly medium, angular to subangular, moderately to well sorted, weak silica and calcareous cements, trace off white argillaceous matrix, trace yellow quartz grains, trace coarse mica flakes, trace black coal detritus, trace pyrite, friable, fair to good visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> as for 1230 to 1240m	
1250-1260	70	<b>Sandstone:</b> as for 1240 to 1250m	
	30	<b>Claystone:</b> as for 1230 to 1240m	
1260-1270	40	<b>Sandstone:</b> light grey to very light brown grey, very fine to very coarse, dominantly fine and coarse, angular to subangular, strong silica and calcareous cements, trace white argillaceous matrix, trace green red and brown lithics, trace partially altered feldspar grains, trace black coaly detritus, common pyrite often as cement, trace coarse mica flakes, hard, poor visual porosity, no oil fluorescence	
	60	<b>Claystone:</b> medium grey to medium brown, very silty in part, common medium brown cryptocrystalline dolomite, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus, common pyrite, firm, very dispersive, non to slightly subfissile	
1270-1275	40	<b>Sandstone:</b> light grey to very light brown grey, very fine to occasionally very coarse, dominantly fine, angular to subangular, strong silica and calcareous cements, trace white argillaceous matrix, trace green red and brown lithics, trace partially altered feldspar grains, trace black coaly detritus, common pyrite often as cement, trace coarse mica flakes, hard, poor visual porosity, no oil fluorescence	
	60	<b>Claystone:</b> as for 1260 to 1270m.	
1275-1280	90	<b>Claystone:</b> medium grey to medium brown grey, occasionally light grey, moderately to very silty, occasionally very finely arenaceous, moderately calcareous, trace dispersed very fine to fine off white partially altered feldspar grains, trace black carbonaceous detritus and flecks, trace pyrite, trace micromica, firm, slightly subfissile	



Interval (m)	%	Description	PAGE: 13
	10	<b>Sandstone:</b> light grey to very light brown grey, very fine to fine, dominantly fine, angular to subangular, strong silica and calcareous cements, trace to common white argillaceous matrix, trace green red and brown lithics, trace to common partially altered feldspar grains, trace black coaly detritus, trace pyrite, trace mica flakes, hard, very poor visual porosity, no oil fluorescence	
1280-1285	95	<b>Claystone:</b> medium grey to medium brown grey, occasionally light grey, common dark grey and very carbonaceous, moderately to very silty, occasionally very finely arenaceous, moderately calcareous, trace dispersed very fine to fine off white partially altered eldspar grains, trace black carbonaceous detritus and flecks, trace pyrite, trace micromica, firm, slightly subfissile	
	5	<b>Sandstone:</b> as for 1275 to 1280m	
1285-1290	95	<b>Claystone:</b> medium grey to medium brown grey, occasionally light grey, moderately to very silty, occasionally very finely arenaceous, moderately calcareous, trace dispersed very fine to fine off white partially altered eldspar grains, trace black carbonaceous detritus and flecks, trace pyrite, trace micromica, firm, slightly subfissile	
	5	<b>Sandstone:</b> off white to very light brown grey, very fine to fine, dominantly very fine, subangular, well sorted, moderately strong calcareous and silica cements, common to abundant white argillaceous matrix, trace grey green and red lithics, trace very fine mica flakes, trace very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
1290-1295	95	<b>Claystone:</b> medium grey to medium brown grey, occasionally light grey, moderately to very silty, occasionally very finely arenaceous, moderately calcareous, trace medium brown cryptocrystalline dolomite, trace dispersed very fine to fine off white partially altered eldspar grains, trace black carbonaceous detritus and flecks, trace pyrite, trace micromica, firm, slightly subfissile	
	5	<b>Sandstone:</b> as for 1285 to 1290m	
1295-1300	100	<b>Claystone:</b> as for 1290 to 1295m	
1300-1305	100	<b>Claystone:</b> as for 1290 to 1295m	
1305-1310	95	<b>Claystone:</b> as for 1290 to 1295m	
	5	<b>Sandstone:</b> light grey to light brown grey, very fine, subangular, moderately sorted, moderate calcareous and silica cement, common to abundant off white argillaceous matrix, trace red and brown lithics, common partially altered feldspar grains, trace brown and clear mica flakes, trace carbonaceous detritus, trace pyrite, moderately hard, no visual porosity, no oil fluorescence.	
1310-1315	95	<b>Claystone:</b> as for 1290 to 1295m	
	5	<b>Sandstone:</b> as for 1305 to 1310m	
1315-1320	100	<b>Claystone:</b> medium grey to medium brown grey, occasionally light grey, common dark grey and very carbonaceous, moderately to very silty, occasionally very finely arenaceous, moderately calcareous, trace medium brown cryptocrystalline dolomite, trace dispersed very fine to fine off white partially altered eldspar grains, trace black carbonaceous detritus and flecks, trace pyrite, trace micromica, firm, slightly subfissile	
	Trace	<b>Sandstone:</b> as for 1305 to 1310m	
1320-1325	100	<b>Claystone:</b> medium brown grey, occasionally light and dark brown grey, occasionally light to dark grey, moderately silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, trace medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile	
1325-1330	100	<b>Claystone:</b> as for 1320 to 1325m	

Interval (m)	%	Description	PAGE: 14
1330-1335	100	<u>Claystone</u> : as for 1320 to 1325m	
1335-1340	100	<u>Claystone</u> : as for 1320 to 1325m	
1340-1345	100	<u>Claystone</u> : medium to dark brown grey, occasionally light and dark grey, occasionally light to dark grey, moderately silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile	
1345-1350	100	<u>Claystone</u> : as for 1340 to 1345m	
1350-1355	95 5	<u>Claystone</u> : as for 1340 to 1345m <u>Sandstone</u> : light brown grey, very fine, subangular, well sorted, moderate calcareous cement, common light brown argillaceous and silt matrix, abundant off white partially altered feldspar grains, common very fine greenish grey lithics, trace black carbonaceous flecks, moderately hard, no visual porosity, no oil fluorescence	
1355-1360	100 Trace	<u>Claystone</u> : as above, medium to dark brown grey, occasionally light and dark brown grey, occasionally light to dark grey, moderately silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile <u>Sandstone</u> : as for 1350 to 1355m	
1360-1365	95 5	<u>Claystone</u> : as for 1355 to 1360m <u>Sandstone</u> : as for 1350 to 1355m	
1365-1370	100 Trace	<u>Claystone</u> : as above, medium to dark brown grey, occasionally light and dark brown grey, occasionally light to dark grey, very silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace to common black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile <u>Sandstone</u> : as for 1350 to 1355m	
1370-1375	100	<u>Claystone</u> : medium to dark brown grey, occasionally light and dark brown grey, occasionally light to dark grey, very silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace to common black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile	
1375-1380	95 5	<u>Claystone</u> : medium to dark brown grey, very silty, slightly to moderately calcareous, trace very fine off white partially altered feldspar grains, common black carbonaceous flecks, trace black carbonaceous detritus, trace medium brown cryptocrystalline dolomite, trace micromica, firm, slightly subfissile <u>Sandstone</u> : light brown grey, very fine to grit, dominantly coarse, angular to subangular, very poorly sorted, weak silica cement, common to abundant white to medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, friable with dominantly loose grains in sample, poor inferred porosity, no oil fluorescence	
1380-1385	100 Trace	<u>Claystone</u> : as for 1375 to 1380m <u>Sandstone</u> : as for 1375 to 1380m	

Interval (m)	%	Description	PAGE: 15
1385-1390	95  5	<u>Claystone:</u> medium to dark brown grey, very silty, slightly to moderately calcareous, trace very fine off white partially altered feldspar grains, common black carbonaceous flecks, trace black carbonaceous detritus, common medium brown cryptocrystalline dolomite, trace micromica, firm, slightly subfissile  <u>Sandstone:</u> as for 1375 to 1380m	
1390-1395	100	<u>Claystone:</u> as for 1385 to 1390m but in part medium to dark grey	
1395-1400	100	<u>Claystone:</u> medium to dark grey, occasionally medium to dark brown grey, moderately to very silty. moderately calcareous, common very fine off white partially altered feldspar grains, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, slightly subfissile	
1400-1405	100	<u>Claystone:</u> medium to dark grey, occasionally medium to dark brown grey, moderately to very silty. moderately calcareous, moderately carbonaceous, common very fine off white partially altered feldspar grains, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, slightly subfissile	
1405-1410	100	<u>Claystone:</u> medium to dark grey, occasionally medium to dark brown grey, moderately to very silty. moderately calcareous, moderately carbonaceous, common very fine off white partially altered feldspar grains, trace glauconite, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, slightly subfissile	
1410-1415	100	<u>Claystone:</u> as for 1405 to 1410m	
1415-1420	100	<u>Claystone:</u> medium to dark grey, occasionally medium to dark brown grey, moderately to very silty. moderately calcareous, moderately carbonaceous, common very fine off white partially altered feldspar grains, common glauconite, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, minor very fine to fine grained <u>Sandstone</u> laminae, trace pyrite, trace micromica, firm, slightly subfissile	
1420-1425	100	<u>Claystone:</u> as for 1415 to 1420m	
1425-1430	100	<u>Claystone:</u> medium to dark grey, common medium to dark brown grey, moderately to very silty. moderately calcareous, moderately carbonaceous, common very fine off white partially altered feldspar grains, common glauconite, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, minor very fine to fine grained sandstone laminae, trace pyrite, trace micromica, firm, slightly subfissile	
1430-1435	100	<u>Claystone:</u> medium to dark brown grey, medium to dark grey, moderately to very silty. moderately calcareous, moderately carbonaceous, common very fine off white partially altered feldspar grains, common to abundant glauconite, common black carbonaceous flecks, common to abundant medium brown cryptocrystalline dolomite, minor very fine to fine grained sandstone laminae, trace pyrite, trace micromica, firm, slightly subfissile	
1435-1440	100	<u>Claystone:</u> medium to dark brown grey, medium to dark grey, moderately to very silty. moderately calcareous, slightly carbonaceous, trace very fine off white partially altered feldspar grains, common to abundant glauconite, trace to common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile	
1440-1445	100	<u>Claystone:</u> medium to dark brown grey, medium to dark grey, moderately to very silty. moderately calcareous, slightly carbonaceous, trace very fine off white partially altered feldspar grains, common to abundant glauconite, trace to common black carbonaceous flecks, trace medium brown cryptocrystalline dolomite, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile	
1445-1450	100	<u>Claystone:</u> as for 1440 to 1445m	

Interval (m)	%	Description	PAGE: 16
1450-1455	100	<b>Claystone:</b> as above, medium to dark grey, medium to dark brown grey, moderately to very silty, slightly calcareous, common glauconite, trace to common medium brown cryptocrystalline dolomite, slightly carbonaceous, trace very fine off white partially altered feldspar grains, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, slightly subfissile	
1455-1460	100	<b>Claystone:</b> as for 1450 to 145m but with trace calcite infilled fractures	
1460-1465	100	<b>Claystone:</b> as for 1450 to 1455m	
1465-1470	100	<b>Claystone:</b> as for 1450 to 1455m	
1470-1475	100	<b>Claystone:</b> as above, medium to dark grey, common medium brown grey, moderately to very silty, slightly calcareous, common glauconite, trace to common medium brown cryptocrystalline dolomite, slightly carbonaceous, trace very fine off white partially altered feldspar grains, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, slightly subfissile	
1475-1480	100	<b>Claystone:</b> as above, medium to dark grey, trace medium brown grey, moderately to very silty, slightly calcareous, common glauconite, abundant medium brown cryptocrystalline dolomite, slightly carbonaceous, trace very fine off white partially altered feldspar grains, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, slightly subfissile	
1480-1485	10	<b>Claystone:</b> as for 1475 to 1480m	
	90	<b>Sandstone:</b> light grey, very fine to grit, dominantly medium, poor to moderate sorting, weak to moderate silica cement, nil to trace white argillaceous matrix, trace black coal detritus, common pyrite, friable, good visual porosity, no oil fluorescence.	
1485-1490	70	<b>Sandstone:</b> very light grey, very fine to grit, dominantly medium, moderately sorted, weak to moderate silica cement, nil to trace white argillaceous matrix, trace black coal detritus, common pyrite, friable, good visual porosity, no oil fluorescence.	
	30	<b>Claystone:</b> medium brown grey, moderately to very silty, common black carbonaceous flecks, common pyrite, common very fine partly altered feldspar grains in part, trace to common micromica, very dispersive and washing from sample, slightly subfissile.	
1490-1495	10	<b>Sandstone:</b> off white to medium brown, very fine to fine, dominantly very fine, subangular, moderately sorted, strong calcareous and dolomite cement, abundant off white argillaceous matrix in part, trace black coaly detritus, common pyrite, hard, very poor visual porosity	
	90	<b>Claystone:</b> medium brown grey to medium grey, moderately to very silty, trace very fine to fine dispersed quartz and partly altered feldspar grains, trace glauconite, common pyrite, trace to common micromica, firm, very dispersive and washing from samples, slightly subfissile.	
1495-1500	70	<b>Sandstone:</b> off white to medium brown, very fine to coarse, dominantly fine, subangular, poorly sorted, strong silica, calcareous and dolomite cements, common white to light brown argillaceous and silt matrix in part, common black coal detritus, common pyrite, common partly altered feldspar grains in part, trace to common light green glauconite especially where dolomitic, moderately hard, poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> medium brown grey, moderately to very silty, abundant dispersed very fine to fine dispersed quartz and partly altered feldspar grains in part, common black carbonaceous flecks, trace glauconite, common pyrite, very calcareous and dolomitic in part, common micromica, moderately hard, slightly subfissile	
1500-1505	90	<b>Sandstone:</b> very light brown, very fine to medium, dominantly medium, subangular, moderately sorted, moderate silica and weak calcareous cement, common to abundant white argillaceous matrix, common black coal detritus, common light brown partially altered feldspar grains, trace green grey brown and red lithics, trace pyrite, friable to moderately hard, poor to fair visual porosity, no oil fluorescence	

Interval (m)	%	Description	PAGE: 17
	10	<b>Claystone:</b> medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile	
1505-1510	90	<b>Sandstone:</b> light brown, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica and weak calcareous cement, common to abundant white argillaceous matrix, common to abundant light brown partially altered feldspar grains, trace green, grey, brown and red lithics, trace pyrite, friable to moderately hard, poor to fair visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> as for 1500 to 1505m	
1510-1515	70	<b>Sandstone:</b> light brown, very fine to grit, dominantly fine to medium, moderately sorted, moderate silica and calcareous cement, common to abundant white argillaceous matrix, common to abundant light brown partially altered feldspar grains, trace green grey and brown lithics, common black coal detritus, trace pyrite, moderately hard, poor to very poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, abundant very fine to fine quartz grains in part grading to sandstone, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile	
1515-1520	90	<b>Sandstone:</b> light brown, very fine to coarse, dominantly medium, subangular, moderately to well sorted, moderate silica and weak calcareous cement, abundant white argillaceous matrix, abundant very fine to fine partially altered feldspar grains, trace brown green and grey lithics, common black carbonaceous detritus, trace pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> as for 1510 to 1515m	
1520-1525	90	<b>Sandstone:</b> light brown, very fine to medium, dominantly fine, subangular, moderately sorted, moderate silica and weak calcareous cement, common white argillaceous matrix, abundant light brown very fine to medium partially altered feldspar grains, common green grey and brown lithics, trace red lithics, trace black coal detritus, trace pyrite, moderately hard, very poor visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, abundant very fine to fine quartz grains in part grading to sandstone, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile	
1525-1527	90	<b>Sandstone:</b> as for 1520 to 1525m	
	10	<b>Claystone:</b> as for 1520 to 1525m	
1527-1529	100	<b>Core-1</b> cut 1527-1529m recovered 1527-1528.12m (56%) Sandstone: light brown, very fine to medium grained, dominantly fine to medium grained, subangular, moderately to well sorted, moderate silica and trace calcareous cements, abundant greenish grey lithics, abundant altered feldspars grading to light brown argillaceous matrix, trace brown and red lithics, trace coarse brown mica flakes, moderately hard to hard, nil to trace intergranular porosity, no oil fluorescence 1528.12-1529m - No recovery.	
1529-1532.2	100	<b>Core-2</b> Cut 1529-1547.4m Recovered 1529-1547.4m (100%) Massive SANDSTONE with wavy 20-90 degree cross bedding or stress distorted bedding SANDSTONE: very light brown, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, nil to occasionally moderate calcareous cement, common to abundant white to light brown argillaceous matrix, abundant partially altered feldspar grains, abundant grey green lithics, common brown lithics, trace black coal detritus, moderately hard, no visual porosity, no oil fluorescence	

1532.2-1545.3	100	Massive structureless SANDSTONE: light grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, nil to occasionally strong calcareous cement, common off white to occasionally light brown argillaceous matrix, common altered feldspar grains, abundant grey green lithics, common yellow brown to red lithics decreasing with depth, occasional medium brown grey clay clasts up to 3 cm diameter, trace black coal detritus, moderately hard, no visual porosity COAL: (detrital) black, earthy texture, wavy platy fracture, hard and brittle. Below 1536m and increasing with depth veining 1-5mm wide at 30-90 degree dip infilled by a medium brown translucent crystalline mineral giving dull to moderately bright yellow orange fluorescence with no cut.	
1545.3-1545.5	100	70% CLAYSTONE with irregularly shaped SANDSTONE clasts (probably fault distorted together) CLAYSTONE: light brownish grey, structureless but with occasional thin black coal flakes up to 3cm diameter SANDSTONE: light brown grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, non calcareous, moderate to abundant off white to light brown argillaceous matrix, common grey green lithics, trace brown lithics, trace to common black coal detritus, trace to abundant clay clasts, very poor visual porosity, no oil fluorescence	
1545.5-1546.5	100	Massive structureless SANDSTONE: light grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, common off white argillaceous matrix, common altered feldspar grains, abundant grey green lithics, trace to common brown lithics, trace black coal detritus, moderately hard, fair visual porosity, no oil fluorescence NOTE: Sandstone stained brown in parts from mud filtrate invasion	
1546.5-1547.4	100	SANDSTONE with abundant fault? distorted clay clasts up to 5cm diameter with fair vuggy (up to 1cm) porosity. SANDSTONE: light grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, common off white to light brown argillaceous matrix, common altered feldspar grains, abundant grey green lithics, trace to common brown lithics, common black coal detritus, moderately hard, fair vuggy porosity but probably very low permeability, no oil fluorescence	
1547.4-1550	90	<b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> medium grey to medium brown grey, trace black carbonaceous flecks and detritus, rare pyrite, non calcareous, firm, moderately dispersive, non fissile	
1550-1555	100	<b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, trace weak calcareous cement, abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
1555-1560	100	<b>Sandstone:</b> as for 1550 to 1555m.	
1560-1565	90	<b>Sandstone:</b> as for 1550 to 1555m.	
	10	<b>Claystone:</b> medium grey to medium brown grey, trace black carbonaceous flecks and detritus, rare pyrite, non calcareous, firm, moderately dispersive, non fissile	
1565-1570	60	<b>Sandstone:</b> as for 1550 to 1555m	
	40	<b>Claystone:</b> off white to light brown grey to light grey, trace black carbonaceous flecks and detritus, rare pyrite, non calcareous, firm, moderately dispersive, non fissile	
1570-1575	90	<b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, trace weak calcareous cement, common to abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> as for 1565 to 1570m.	

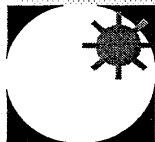
Interval (m)	%	Description	PAGE: 19
1575-1580	70	<u>Sandstone</u> : as for 1570 to 1575m	
	30	<u>Claystone</u> : as for 1565 to 1570m	
1580-1585	80	<u>Sandstone</u> : as for 1570 to 1575m	
	20	<u>Claystone</u> : as for 1565 to 1570m	
1585-1590	50	<u>Claystone</u> : off white to medium grey, light to medium brown grey, occasionally light green grey, trace black carbonaceous flecks and detritus, rare pyrite, non calcareous, firm, moderately dispersive, non fissile	
	50	<u>Sandstone</u> : light to medium grey, very fine to coarse, dominantly fine, subangular, moderately sorted, moderate silica cement, weak to occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
1590-1595	70	<u>Claystone</u> : as for 1585 to 1590m	
	30	<u>Sandstone</u> : as for 1585 to 1590m	
1595-1600	80	<u>Claystone</u> : as for 1585 to 1590m	
	20	<u>Sandstone</u> : as for 1585 to 1590m	
1600-1605	90	<u>Claystone</u> : as for 1585 to 1590m	
	10	<u>Sandstone</u> : as for 1585 to 1590m	
1605-1610	60	<u>Claystone</u> : as for 1585 to 1590m	
	40	<u>Sandstone</u> : as for 1585 to 1590m	
1610-1615	60	<u>Sandstone</u> : light to medium grey, very fine to coarse, dominantly fine, subangular, moderately sorted, moderate silica cement, weak to occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
	40	<u>Claystone</u> : light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non calcareous, firm, moderately dispersive, non fissile	
1615-1620	50	<u>Sandstone</u> : as for 1610 to 1615m	
	50	<u>Claystone</u> : as for 1610 to 1615m	
1620-1625	80	<u>Claystone</u> : as for 1610 to 1615m	
	20	<u>Sandstone</u> : as for 1610 to 1615m	
1625-1630	70	<u>Claystone</u> : as above, light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non calcareous, firm, moderately dispersive, non fissile	
	30	<u>Sandstone</u> : as for 1610 to 1615m	

Interval (m)	%	Description	PAGE: 20
1630-1635	60	<b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, weak to moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace brown mica flakes, trace to common black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence	
	40	<b>Claystone:</b> as for 1625 to 1630m	
1635-1640	70	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, weak calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> as above, light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non calcareous, firm, moderately dispersive, non fissile	
1640-1645	90	<b>Claystone:</b> light to medium green grey, occasionally light to medium grey, light to medium brown grey, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non calcareous, firm, moderately dispersive, slightly subfissile	
	10	<b>Sandstone:</b> as for 1635 to 1640m	
1645-1650	80	<b>Claystone:</b> as for 1640 to 1645m	
	20	<b>Sandstone:</b> as for 1635 to 1640m	
1650-1655	70	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, weak calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> as for 1640 to 1645m	
1655-1660	80	<b>Sandstone:</b> as for 1650 to 1655m	
	20	<b>Claystone:</b> as for 1640 to 1645m	
1660-1665	90	<b>Sandstone:</b> as for 1650 to 1655m	
	10	<b>Claystone:</b> as for 1640 to 1645m	
1665-1670	90	<b>Sandstone:</b> as above, medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, weak to moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence	
	10	<b>Claystone:</b> as for 1640 to 1645m	
1670-1675	90	<b>Sandstone:</b> as for 1665 to 1670m	
	10	<b>Claystone:</b> as for 1640 to 1645m	
1675-1680	80	<b>Sandstone:</b> as for 1665 to 1670m	
	20	<b>Claystone:</b> light to medium grey, light to medium green grey, light to medium brown grey, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non calcareous, firm, moderately dispersive, slightly subfissile	



Interval (m)	%	Description	PAGE: 21
1680-1685	70	<b>Claystone:</b> light to medium grey, light to medium green grey, light to medium brown grey, dominantly light grey, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non calcareous, firm, moderately dispersive, slightly subfissile	
	30	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence	
1685-1690	80	<b>Claystone:</b> as for 1680 to 1685m	
	20	<b>Sandstone:</b> as for 1680 to 1685m	
1690-1695	70	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence	
	30	<b>Claystone:</b> light to medium grey, light to medium green grey, light to medium brown grey, common light brown, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non calcareous, firm, moderately dispersive, slightly subfissile	
1695-1700	60	<b>Claystone:</b> as for 1690 to 1695m	
	40	<b>Sandstone:</b> as for 1690 to 1695m	
1700-1705	60	<b>Sandstone:</b> as for 1690 to 1695m	
	40	<b>Claystone:</b> as for 1690 to 1695m	
1705-1710	80	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence	
	20	<b>Claystone:</b> as for 1690 to 1695m	
1710-1715	90	<b>Claystone:</b> light to medium green grey, light to medium grey, light to medium brown grey, slightly silty, common black to dark brown carbonaceous detritus and flecks especially where brown, very slightly calcareous in part, rare pyrite, trace micromica, firm, slightly subfissile	
	10	<b>Sandstone:</b> as for 1705 to 1710m	
1715-1720	90	<b>Claystone:</b> as for 1710 to 1715m	
	10	<b>Sandstone:</b> as for 1705 to 1710m	
1720-1725	100	<b>Claystone:</b> as for 1710 to 1715m	
	trace	<b>Sandstone:</b> as for 1705 to 1710m	
1725-1730	90	<b>Claystone:</b> as for 1710 to 1715m but becoming slightly arenaceous in part.	
	10	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence	

Interval (m)	%	Description	PAGE: 22
1730-1735	90	<b>Claystone:</b> light to medium green grey, light to medium grey, light to medium brown grey, slightly silty, common black to dark brown carbonaceous detritus and flecks especially where brown, common very fine to quartz and partially altered feldspar grains in part, very slightly calcareous in part, rare pyrite, trace micromica, firm, slightly subfissile	
	10	<b>Sandstone:</b> as for 1725 to 1735m	
1735-1740	70	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.	
	30	<b>Claystone:</b> light to medium brown, light to medium grey, light to medium green grey, slightly silty, common black to dark brown carbonaceous detritus and flecks especially where brown, common very fine to quartz and partially altered feldspar grains in part, very slightly calcareous in part, rare pyrite, trace micromica, firm, slightly subfissile	
1740-1745	90	<b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.	
	10	<b>Claystone:</b> light to medium brown, light to medium grey, light to medium green grey, slightly silty, common black to dark brown carbonaceous detritus and flecks especially where brown, common very fine to quartz and partially altered feldspar grains in part, very slightly calcareous in part, rare pyrite, trace micromica, firm, slightly subfissile	
		TOTAL DEPTH 1745m.	



**GFE** Resources Ltd

# GEOLOGICAL SUMMARY

## WALLABY CREEK - 2

<b>Permit:</b> PPL1	<b>Spud Date:</b>	<b>Rig:</b> Century Rig 11
<b>GFE Rep:</b> K. Smith	<b>Geologist:</b> D. Horner	

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description
6-126	1-50 (10)	<b>Calcarenite:</b> light grey to light yellow orange, sucrosic to cryptocrystalline texture, occasionally medium grey and grading to marl, common black carbonaceous detritus, trace glauconite, common to abundant fossil fragments (including bryozoa, shell fragments, foraminifera, sponge spicules, gastropods and echinoid spines), friable, fair inferred porosity grading with depth to <b>Calcarenite:</b> light grey, very fine to dominantly fine grained, sucrosic texture, trace fossil fragments, slightly argillaceous, trace black carbonaceous flecks, rare glauconite, rare pyrite, friable, very poor visual porosity.
126-300	5-40 (20)	<b>Marl:</b> medium brown grey, common to abundant fossil fragments (including bryozoa, gastropods, bivalve, echinoid spines and sponge spicules), trace pyrite (especially as fossil replacement), trace very fine to fine quartz sand grains, rare black carbonaceous detritus, very soft, sticky, non-fissile.
300-386	17-60 (50)	<b>Marl:</b> medium brown grey, medium to dark grey, occasionally medium green grey, common fossil fragments (including bryozoa, shell fragments, foraminifera, echinoid spines and sponge spicules), trace black carbonaceous flecks, trace micromica, rare very fine to medium quartz sand grains, soft, non-fissile, below 335m becoming <b>Marl:</b> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments (including bryozoa, shell fragments, foraminifera, echinoid spines and sponge spicules), trace black carbonaceous flecks, trace micromica, soft, non-fissile.
386-436	30-70 (45)	<b>Marl:</b> medium green grey to medium brown grey, occasionally dark grey, abundant fossil fragments (including bryozoa, shell fragments, foraminifera, echinoid spines and sponge spicules), trace black carbonaceous flecks, trace micromica, soft, non-fissile.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 2
436-465	20-150 (70)	<p><b>Calcarenite:</b> red brown, very coarse grained, abundant dark brown iron oxide pellets, common bryozoa and shell fragments, trace very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, friable to moderately hard, fair inferred porosity, no oil fluorescence, grading with depth to</p> <p><b>Calcarenite:</b> off white to red brown, very coarse grained, common dark brown iron oxide pellets, common bryozoa and shell fragments, abundant very fine to grit iron oxide stained subrounded to rounded quartz sand grains, moderate iron oxide cement, common glauconite, friable to moderately hard, fair inferred porosity, no oil fluorescence, interbedded with</p> <p><b>Marl:</b> medium green grey, abundant fossil fragments (including bryozoa, foraminifera, bivalves, gastropods, echinoid spines and sponge spicules), trace black carbonaceous flecks and detritus, trace micromica, soft, non-fissile.</p>	
465-532	28-90 (40)	<p><b>Marl:</b> medium to dark brown, common glauconite, common fossil fragments, trace pyrite, trace micromica, soft, non-fissile.</p>	
532-578	3-90 (60)	<p><b>Sandstone:</b> medium brown, very fine to grit, dominantly medium to coarse, subrounded, moderately sorted, trace strong calcareous cement, common to abundant medium brown argillaceous matrix, strong brown stain on quartz grains, trace brown iron oxide pellets, trace fossil fragments, friable, poor inferred porosity, no oil fluorescence, interbedded with and grading to</p> <p><b>Claystone:</b> medium to dark brown, moderately carbonaceous, often abundant dispersed very fine to grit brown stained quartz grains, common fossil fragments, trace glauconite, trace micromica, soft, very dispersive, non-fissile.</p>	
578-777	3-265 (75)	<p><b>Sandstone:</b> light brown grey, very fine to grit, dominantly medium to coarse, subangular to rounded, dominantly subrounded, moderately sorted, weak silica cement, common to abundant medium to dark brown argillaceous matrix, common light brown stain on quartz grains, trace grey green cherty lithics, trace black to dark brown carbonaceous detritus, trace pyrite, friable, fair to good inferred porosity, no oil fluorescence, grading to and interbedded with</p> <p><b>Claystone:</b> medium to dark brown, nil to abundant dispersed very fine to grit quartz sand grains, slightly to moderately silty, trace pyrite, trace micromica, very soft, very dispersive and washing from samples, non-fissile.</p>	
777-824.5	12-30 (20)	<p><b>Claystone:</b> medium to dark brown, moderately to very silty, common to abundant very fine dispersed quartz sand grains, trace pyrite and marcasite, rare black carbonaceous detritus, trace micromica and coarse muscovite flakes, very soft, very dispersive, non-fissile.</p>	

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 3
824.5-895	6-170 (35)	<p><b>Sandstone:</b> medium brown, very fine to grit, dominantly very coarse, angular to subangular, poor to moderate sorting, weak silica cement, common to abundant dark brown iron oxide rich argillaceous matrix, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable, fair inferred porosity, in general becoming cleaner with better porosity with depth, no oil fluorescence, interbedded with and grading to</p> <p><b>Claystone:</b> medium to dark green, medium to dark brown, slightly silty, abundant dispersed very fine to grit quartz sand grains in part, common glauconite in part, trace black carbonaceous detritus, trace coarse muscovite flakes and micromica, soft, very dispersive and washing from samples, non-fissile.</p>	
895-939	20-250 (90)	<p><b>Sandstone:</b> light brown grey, very fine to pebbly, dominantly very coarse, angular to subrounded, very poorly sorted, weak silica cement, trace to common yellow to orange to red quartz grains, trace coarse green mica flakes, trace black carbonaceous detritus, trace to common red green and grey volcanic cherty lithics, trace pyrite, friable, very good visual porosity, no oil fluorescence.</p>	
939-1206	3-200 (50)	<p><b>Sandstone:</b> very light brown, very fine to pebbly, dominantly grit, angular to subangular, dominantly subangular, poorly sorted, weak silica cement, trace strong pyrite cement in part, trace weak to moderately strong calcareous cement in parts, trace medium brown argillaceous and silt matrix, trace yellow to orange quartz grains in general decreasing with depth, trace grey to green to brown to red volcanic lithics, trace green mica flakes, trace black coal detritus, trace pyrite, fair to good inferred porosity, no oil fluorescence, interbedded with and occasionally grading to</p> <p><b>Claystone:</b> medium grey to medium brown grey, moderately silty, trace black carbonaceous detritus and flecks, trace to common medium brown cryptocrystalline dolomite, trace to common pyrite, trace micromica, trace very fine to fine, off white partially altered feldspar grains, common dispersed quartz sand grains in part, soft, very dispersive and washing from samples, non-fissile.</p>	
1206-1228	1-60 (10)	<p><b>Claystone:</b> light grey, very calcareous, slightly silty, often very finely arenaceous, common very fine to fine partially altered feldspar grains, common pyrite, trace to common medium brown cryptocrystalline dolomite, trace micromica, trace black coaly detritus, firm, very dispersive, non-fissile interbedded with and grading to</p> <p><b>Sandstone:</b> light grey, very fine and grit, angular to subangular, poorly sorted, moderate silica and calcareous cements, abundant white argillaceous matrix in part, common partially altered feldspar grains, trace green grey lithics, trace clear and green mica flakes, trace black coaly detritus, trace to common pyrite, moderately hard, very poor visual porosity, no oil fluorescence.</p>	

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 4
1228-1322	4.5-60 (23)	<p><b>Claystone:</b> medium grey to medium brown, very silty in part, common medium brown cryptocrystalline dolomite, often very finely arenaceous with quartz and partially altered feldspar grains, slightly calcareous, trace black carbonaceous detritus, common pyrite, firm, very dispersive, non to slightly subfissile, interlaminated/interbedded with and grading to</p> <p><b>Sandstone:</b> very light brown, very fine to fine, occasionally medium to coarse with fair to good visual porosity, dominantly fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common white argillaceous matrix, trace very fine green and brown lithics, common very fine to fine off white partially altered feldspar grains, common very fine black carbonaceous grains, trace pyrite, moderately hard, very poor visual porosity, no oil fluorescence .</p>	
1322-1370	6-40 (15)	<p><b>Claystone:</b> medium to dark brown grey, occasionally light and dark grey, occasionally light to dark grey, moderately silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile, with minor interlaminated (and occasionally grading to)</p> <p><b>Sandstone:</b> light brown grey, very fine, subangular, well sorted, moderate calcareous cement, common light brown argillaceous and silt matrix, abundant off white partially altered feldspar grains, common very fine greenish grey lithics, trace black carbonaceous flecks, moderately hard, no visual porosity, no oil fluorescence.</p>	
1370-1371	12	<p><b>Claystone:</b> medium to dark brown grey, occasionally light to dark grey, moderately silty, moderately calcareous, common dispersed very fine to fine quartz and partially altered feldspar grains, common medium brown cryptocrystalline dolomite occasionally with very fine to fine green glauconite grains, trace black carbonaceous flecks and detritus, trace micromica, firm, moderately dispersive, slightly subfissile, with minor interlaminated (and occasionally grading to)</p> <p><b>Sandstone:</b> light brown grey, very fine, subangular, well sorted, moderate calcareous cement, common light brown argillaceous and silt matrix, abundant off white partially altered feldspar grains, common very fine greenish grey lithics, trace black carbonaceous flecks, moderately hard, no visual porosity, no oil fluorescence.</p>	
1371-1393	6-25 (15)	<p><b>Claystone:</b> medium to dark brown grey, very silty, slightly to moderately calcareous, trace very fine off white partially altered feldspar grains, common black carbonaceous flecks, trace black carbonaceous detritus, trace medium brown cryptocrystalline dolomite, trace micromica, firm, slightly subfissile, interlaminated to finely interbedded with minor</p> <p><b>Sandstone:</b> light brown grey, very fine to grit, dominantly coarse, angular to subangular, very poorly sorted, weak silica cement, common to abundant white to medium brown grey argillaceous and silt matrix, clear to opaque quartz grains, friable with dominantly loose grains in sample, poor inferred porosity, no oil fluorescence.</p>	

1393-1434	6-36 (13)	<b>Claystone:</b> medium to dark grey, occasionally medium to dark brown grey increasing with depth, moderately to very silty, moderately calcareous, moderately carbonaceous decreasing with depth, common very fine off white partially altered feldspar grains, common glauconite increasing with depth, common black carbonaceous flecks, common medium brown cryptocrystalline dolomite increasing with depth, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile.
1434-1479	6-18 (12)	<b>Claystone:</b> medium to brown dark grey, moderately to very silty, moderately calcareous, slightly carbonaceous, trace very fine off white partially altered feldspar grains, common to abundant glauconite, trace to common black carbonaceous flecks, trace to common medium brown cryptocrystalline dolomite, minor very fine to fine grained sandstone laminae in part, trace pyrite, trace micromica, firm, slightly subfissile
1479-1489	10-42 (30)	<b>Sandstone:</b> light grey, very fine to grit, dominantly medium, poor to moderate sorting, weak to moderate silica cement, nil to trace white argillaceous matrix, trace black coal detritus, common pyrite, friable, good visual porosity, no oil fluorescence.
1489-1496	7-10 (8)	<b>Claystone:</b> medium brown grey to medium grey, moderately to very silty, trace very fine to fine dispersed quartz and partly altered feldspar grains, trace glauconite, common pyrite, trace to common micromica, firm, very dispersive and washing from samples, slightly subfissile, with minor interlaminated  <b>Sandstone:</b> off white to medium brown, very fine to fine, dominantly very fine, subangular, moderately sorted, strong calcareous and dolomite cement, abundant off white argillaceous matrix in part, trace black coaly detritus, common pyrite, hard, very poor visual porosity
1496-1527	6-30 (22)	<b>Sandstone:</b> light brown, very fine to grit, dominantly fine to medium, moderately sorted, moderate silica and calcareous cement, common to abundant white argillaceous matrix, common to abundant light brown partially altered feldspar grains, trace green grey and brown lithics, common black coal detritus, trace pyrite, moderately hard, very poor visual porosity at top increasing to fair by 1508m and decreasing to very poor by 1525m, no oil fluorescence, with minor interlaminated  <b>Claystone:</b> medium grey, occasionally medium brown grey, moderately to dominantly very silty, common off white very fine to fine partially altered feldspar grains in part, abundant very fine to fine quartz grains in part grading to sandstone, common to abundant black coal detritus and flecks, slightly calcareous, trace pyrite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
1527-1529	1.3-24 (2)	Core #1 cut 1527-1529m, recovered 1527-1528.12m (56%). <b>Sandstone:</b> light brown, very fine to medium grained, dominantly fine to medium grained, subangular, moderately to well sorted, moderate silica and trace calcareous cements, abundant greenish grey lithics, abundant altered feldspars grading to light brown argillaceous matrix, trace brown and red lithics, trace coarse brown mica flakes, moderately hard to hard, nil to trace intergranular porosity, no oil fluorescence [1528.12-1529m - No recovery.]

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 6
1529-1532	1.2-1.3 (1.25)	Core #2 still in progress - cuttings non-definitive for description.	
1532-1547.4	3.2-5.5 (4)	<p><b>Sandstone:</b> light grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, nil to occasionally strong calcareous cement, common off white to occasionally light brown argillaceous matrix, common altered feldspar grains, abundant grey green lithics, common yellow brown to red lithics decreasing with depth, occasional medium brown grey clay clasts up to 3 cm diameter, trace black coal detritus, moderately hard, no visual porosity.</p> <p><b>Coal: (detrital)</b> black, earthy texture, wavy platy fracture, hard and brittle. Below 1536m and increasing with depth observe veining 1-5mm wide at 30-90 degree dip infilled by a medium brown translucent crystalline mineral giving dull to moderately bright yellow orange fluorescence with no cut. With minor claystone as clasts and distorted bedding at base.</p> <p><b>Claystone:</b> light brownish grey, structureless (but with occasional thin black coal flakes up to 3cm diameter).</p>	
1547.4-1557	14-21 (18)	<p><b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, trace weak calcareous cement, common to abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, very poor visual porosity, no oil fluorescence. Interbedded with minor <b>Claystone:</b> off white to light brown grey to light grey, trace black carbonaceous flecks and detritus, rare pyrite, non-calcareous, firm, moderately dispersive, non-fissile.</p>	
1557-1633	5-35 (12)	<p><b>Claystone:</b> light medium grey, light to medium brown grey, light to medium green grey, trace to common black carbonaceous flecks and detritus, rare pyrite, trace brown mica flakes, non-calcareous, firm, moderately dispersive, non-fissile, interbedded and laminated with</p> <p><b>Sandstone:</b> light to medium grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, moderate silica cement, weak to occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant off white to light brown partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, trace coarse brown mica flakes, moderately hard, very poor visual porosity, no oil fluorescence.</p>	
1633-1657	6-56 (30)	<p><b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, weak calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, moderately hard, poor visual porosity, no oil fluorescence. Interbedded with</p> <p><b>Claystone:</b> light to medium green grey, occasionally light to medium grey, light to medium brown grey, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non-calcareous, firm, moderately dispersive, slightly subfissile.</p>	



Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 7
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1657-1745	4-59 (15)	<p><b>Sandstone:</b> medium grey, very fine to coarse, dominantly medium, subangular, moderately sorted, moderate silica cement, moderate calcareous cement, common to abundant white argillaceous matrix, abundant off white partially altered feldspar grains, common to abundant green grey lithics, trace brown lithics, trace black coal detritus, rare pyrite, moderately hard, poor visual porosity, no oil fluorescence. Interbedded with</p> <p><b>Claystone:</b> light to medium grey, light to medium green grey, light to medium brown grey, common light brown, slightly silty, trace micromica, trace black carbonaceous flecks and detritus, non-calcareous, firm, moderately dispersive, slightly subfissile.</p>	
1745-		TD 1745m. No new formation drilled.	

Appendix 5

# **APPENDIX 5**

## **CORE DESCRIPTIONS & CORE ANALYSIS**

**ROUTINE CORE ANALYSIS REPORT**  
of  
**WALLABY CREEK NO 2**  
for  
**GFE RESOURCES LTD**  
by  
**ACS LABORATORIES PTY LTD**

17 May, 1995



GFE Resources Ltd  
Level 6, 6 Riverside Quay  
SOUTH MELBOURNE VIC 3205

Attention: Mr Kevin Lanigan

**REPORT: 005-212 - WELL NAME: Wallaby Creek No. 2**

**CLIENT REFERENCE:** GFE P/O No's : 4296 & 4297

**MATERIAL:** Conventional Cores No's #1 & #2

**LOCALITY:** PPL - 1. Onshore Otway Basin

**WORK REQUIRED:** Routine Core Analysis

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out.

A handwritten signature in black ink, appearing to read 'P. Farley'.

*by* **Warren Farley**  
Manager  
on behalf of ACS Laboratories Pty. Ltd.

ACS Laboratories Pty. Ltd. shall not be liable or responsible for any loss, cost, damages or expenses incurred by the client, or any other person or company, resulting from any information or interpretation given in this report. In no case shall ACS Laboratories Pty. Ltd. be responsible for consequential damages including, but not limited to, lost profits, damages for failure to meet deadlines and lost production arising from this report.

Brisbane  
Laboratory:

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ACS Laboratories Pty Ltd  
ACN: 008 273 005

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17 May, 1995



GFE Resources Ltd  
Level 6, 6 Riverside Quay  
SOUTH MELBOURNE VIC 3205

Attention: Mr Kevin Lanigan

**FINAL DATA REPORT - ROUTINE CORE ANALYSIS**

**REPORT: 005-212 WELL NAME: Wallaby Creek No. 2**

**LOGISTICS**

Core No. 1, 1527.00 - 1528.12m and Core No. 2, 1529.00 - 1547.40m were delivered to the ACS laboratory in Adelaide on the 20th of April by Nelsons Transport and consisted of 22 boxes in total.

**INTRODUCTION**

The following report includes tabular data of permeability to air, helium injection porosity, and density determinations. Additional analysis on selected plug samples required overburden determinations and measured grain densities. Data presented graphically includes a continuous core gamma log, a core log plot and several porosity versus permeability to air plots over selected intervals.

## STUDY AIMS

The analyses were performed with the following aims:

1. To provide depth correlation through provision of a continuous core gamma log over the cored interval.
2. To provide 72 hour air permeability, helium injection porosity and density data.
3. To determine the effect of overburden stress on air permeability and helium injection porosity data.
4. To measure absolute grain densities on crushed plug ends.

## SAMPLING

The core was sampled as follows:

- A. 1.5" diameter core plugs were drilled from the whole core at approximately 30cm intervals allowing for the sealed sections to remain intact, using tap water as lubricant. The core was orientated such that the plugs were drilled parallel to the bedding. These plugs are designated as the 'regular' (R) plugs.
- B. All 'regular' plugs were trimmed and offcuts bagged and retained. The offcuts are presently held in the ACS Adelaide laboratory pending instructions as to possible selection of petrology/palaeontology samples.
- C. In all 8 full diameter sections of 20-30cm were sealed at the wellsite and were left untouched during the course of this analysis.

The sampling procedure is illustrated with an 'example' analytical flow chart on the following page for easy reference.

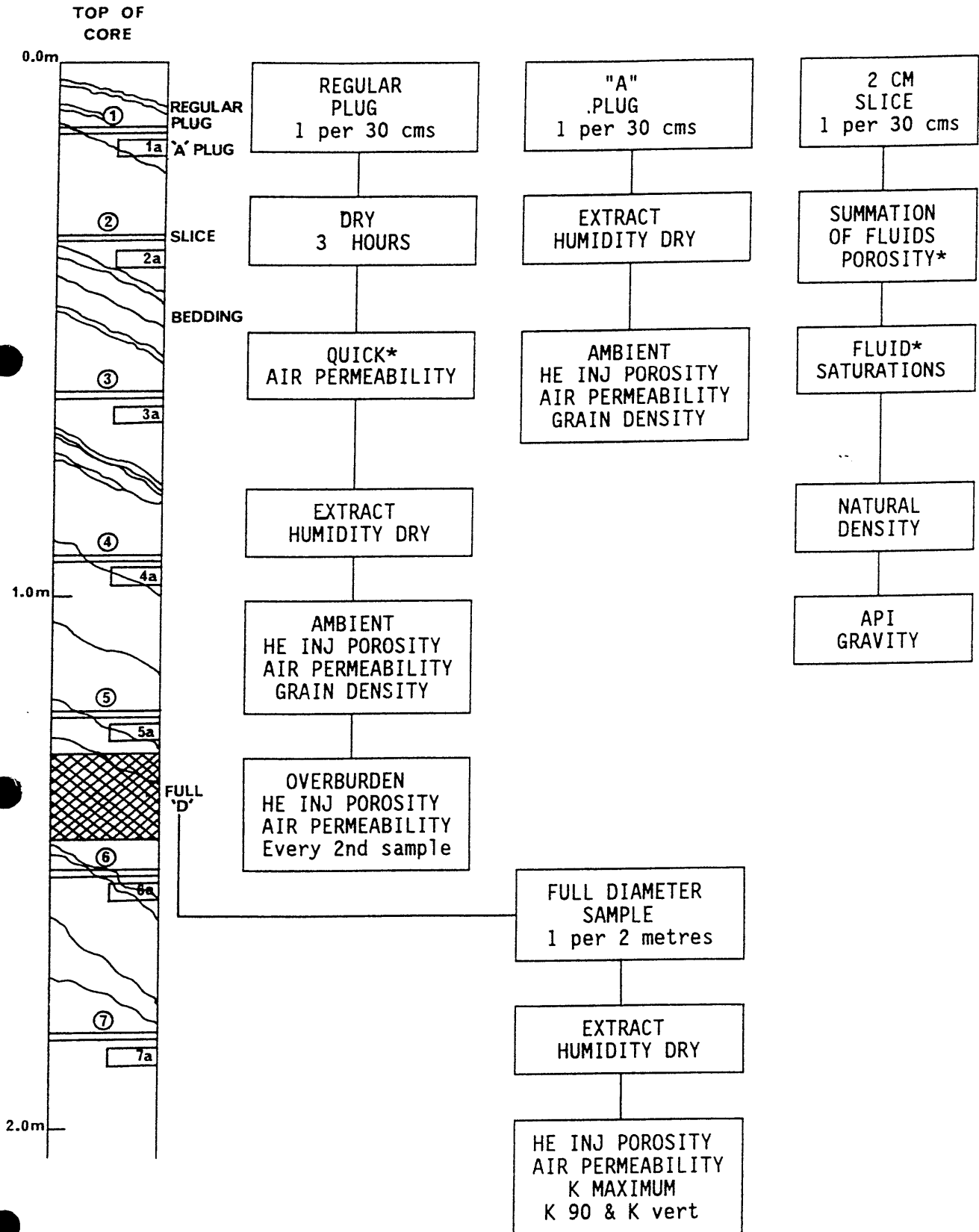
The core was sampled and analysed as follows:

### 1. CONTINUOUS CORE GAMMA

The core was laid out according to depth markings, and a continuous core gamma trace produced by passing the core beneath a gamma radiation detector. The detector is protected from extraneous radiation by a lead tunnel. The detector signal is amplified and digitised to produce a gamma trace for comparison with the downhole log.



# ANALYTICAL FLOW CHART



\* Data reported within 16 hours of receipt of core

## 2. SAMPLE EXTRACTION AND DRYING

After sampling as described earlier the 'regular' (R) set of plugs were dried at 80°C for 2 hours. The plugs were then placed in a Soxhlet extractor to remove hydrocarbons. When the chloroform/methanol mix in the Soxhlet was no longer discoloured, the core plugs were removed and checked under ultraviolet light to ensure all hydrocarbons had been removed.

After cleaning, all plugs were dried in a controlled humidity environment at 60°C and 40% relative humidity. The plugs were stored in an airtight plastic container and allowed to cool to room temperature before analysis.

## 3. AIR PERMEABILITY

Air permeability was determined on the 'regular' (R) plugs. These plugs are placed in a Hassler cell at a confining pressure of 250 psig (1720 kpa). This pressure is used to prevent bypassing of air around the sample when the measurement is made.

During the measurement a known air pressure is applied to the upstream face of the sample, creating a flow of air through the sample. Permeability for each sample is then calculated using Darcy's Law through knowledge of the upstream pressure and flow rate during the test, the viscosity of air and the plug dimensions.

## 4. HELIUM INJECTION POROSITY

The helium injection porosity of the extracted and dried 'regular' (R) core plugs was determined as follows. The plugs were sealed in a matrix cup and a known volume of Helium at 100psi reference pressure introduced to the cup. From the resultant pressure the unknown volume i.e. the grain volume was calculated using Boyles law, where  $P_1V_1 = P_2V_2$

The bulk volume of the plugs was determined by mercury immersion. The difference between the grain volume and the bulk volume is the pore volume and from this the porosity is calculated as the volume percentage of pore space with respect to the bulk volume. The porosity calculated using this technique is an effective porosity.

## 5. APPARENT GRAIN DENSITY

The apparent grain density is determined by dividing the weight of the plug by the grain volume determined from the helium injection porosity measurement.

## 6. POROSITY AND PERMEABILITY AT OVERBURDEN PRESSURE

To determine the porosity and permeability of the core plug at overburden pressure, the sample is placed in a heavy duty Hassler sleeve. The assembly is loaded into a thick walled hydrostatic cell capable of withstanding the simulated reservoir overburden stress. After loading, helium injection porosity and air permeability was determined at simulated reservoir load conditions of 2500psi. The overburden stress values used in these measurements were supplied by GFE Resources.

## 7. MEASURED GRAIN DENSITY

The measured grain densities were carried out on selected samples using core plug ends, which were crushed and then known weights placed in a calibrated pycnometer. Using an AR grade solvent with a known SG, the pycnometer is weighed in sequence, firstly with just the sample, then sample plus solvent and finally solvent alone. From these known weights and volumes the grain density of the sample is measured.

## 8. ROLLING AND SPECIFIED AVERAGES

These averages of both Helium injection porosity and permeability are obtained by using a 'rolling' three (3) point method. In the case of porosity a weighted arithmetic average is used:

$$\phi_{av(i+1)} = [\phi_i + 2\phi_{(i+1)} + \phi_{(i+2)}] / 4$$

In the case of permeability a weighted geometric average is used:

$$K_{av(i+1)} = 10^{[(\log_{10} K_i + 2 \log_{10} K_{(i+1)} + \log_{10} K_{(i+2)}) / 4]}$$

At any sample point, excluding the first and last, a rolling average is obtained by using the value at the specified sample point, the value before it and the value of the sample point after it. In the cases of the first and last sample points, only 2 sample points are used.

Using porosity as an example, the average of the first data point is obtained from the formula:

$$\phi_{av(i)} = [2\phi_i + \phi_{(i+1)}] / 3$$

The average at the final data point is obtained by:

$$\phi_{av(f)} = [\phi_{(f-1)} + 2\phi_{(f)}] / 3$$

The same method is used for permeability averages. At any break in the data the rolling averages are 're-started'.

Data Key:

$\phi$	=	porosity
K	=	permeability
i	=	initial
av	=	average
f	=	final

Specified averages are normal arithmetic averages which can be taken over any specified section of the core, as well as over the whole core.

On completion of the analysis the core was packed and boxed into the original core boxes and picked up by Challenger Geological Services on the 26th April 1995.

The core plugs and plug ends used in routine core analysis are currently stored with ACS Laboratories Pty Ltd in our Adelaide laboratory.

We have enjoyed working for GFE Resources Ltd on this project and look forward to working with you in the near future.

**END OF REPORT**

## CORE ANALYSIS FINAL REPORT

COMPANY	: GFE RESOURCES LTD	DATE	: 22/04/95
WELL	: WALLABY CREEK NO 2	FILE	: 5-212
FIELD	:	LOCATION	: PPL-1
CORE INTERVAL	: CORE #1 1527 - 1528.12 m	ACS LAB	: ADELAIDE
CORE INTERVAL	: CORE #2 1529 - 1547.40 m	ANALYST	: WWF
CORE INTERVAL	:		
CORE INTERVAL	:		

Sple No	Depth/Dir	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		He Inj	Roll $\phi$	ND	GD	Ka	Roll Ka	$\phi$	Oil %	H <sub>2</sub> O %	
1	1527.20 R	10.7			2.71	0.06					
2	1527.48 R	12.3			2.71	0.12					
3	1527.80 R	10.8			2.64	0.14					
4	1528.10 R	13.4			2.61	1.09					
5	1529.10 R	11.9			2.64	1.07					
6	1529.40 R	13.1			2.62	1.94					
7	1529.70 R	10.5			2.64	0.26					
8	1530.00 R	6.8			2.65	0.06					
9	1530.30 R	9.9			2.62	0.54					
10	1530.60 R	13.1			2.61	2.88					
11	1530.87 R	12.7			2.62	1.54					
12	1531.20 R	13.3			2.63	1.84					
13	1531.52 R	12.7			2.64	0.58					
14	1531.84 R	13.1			2.64	0.31					
15	1532.33 R	10.8			2.68	0.17					
16	1532.60 R	14.3			2.68	0.57					
17	1532.93 R	13.8			2.65	2.18					
18	1533.20 R	9.8			2.69	0.55					
19	1533.53 R	15.8			2.67	1.77					
20	1533.80 R	15.2			2.68	1.52					
21	1534.40 R	9.4			2.68	0.99					
22	1534.70 R	16.1			2.75	1.95					
23	1535.00 R	16.3			2.74	1.91					
24	1535.30 R	12.6			2.75	0.39					
25	1535.60 R	16.8			2.72	0.95					
26	1535.90 R	10.9			2.68	0.15					
27	1536.20 R	11.2			2.73	0.20					
28	1536.80 R	12.9			2.66	1.99					
29	1537.10 R	14.6			2.68	2.38					
30	1537.40 R	16.2			2.68	6.60					
31	1537.70 R	15.5			2.67	10.4					
32	1538.00 R	16.0			2.69	9.70					
33	1538.30 R	13.7			2.71	1.89					
34	1538.60 R	10.3			2.71	0.28					
35	1539.25 R	16.1			2.72	4.51					
36	1539.50 R	17.1			2.72	8.90					
37	1539.80 R	15.1			2.70	9.10					

Sple No	Depth/Dir	Porosity %		Density		Permeability (md)		Summation of Fluids			Remarks
		He Inj	Roll $\phi$	ND	GD	Ka	Roll Ka	$\phi$	Oil %	H <sub>2</sub> O %	
38	1540.10 R		14.5		2.72		5.00				
39	1540.40 R		18.5		2.69		4.31				
40	1540.70 R		16.8		2.80		0.35				
41	1541.00 R		17.5		2.71		3.64				
42	1541.30 R		17.4		2.68		3.43				
43	1541.60 R		19.2		2.71		3.03				
44	1542.50 R		17.1		2.71		3.81				
45	1542.78 R		17.7		2.74		16.3				
46	1543.15 R		17.0		2.77		5.60				
47	1543.40 R		17.7		2.75		7.50				
48	1543.70 R		16.2		2.70		5.10				
49	1544.00 R		15.9		2.73		3.29				
50	1544.30 R		12.3		2.70		0.88				
51	1544.60 R		17.7		2.70		3.08				
52	1544.90 R		17.3		2.70		5.90				
53	1545.20 R		14.8		2.71		1.86				
54	1545.53 R		15.9		2.76		3.68				
55	1545.80 R		18.0		2.74		6.20				
56	1546.05 R		14.7		2.83		0.61				
57	1546.50 R		9.3		2.77		0.05				
58	1546.90 R		18.2		2.71		2.59				

VF = Vertical Fracture; HF = Horizontal Fracture; MP = Mounted Plug; SP = Short Plug  
C# = Top of Core; B# = Bottom of Core; OWC = Probable Oil/Water Contact  
Tr = Probable Transition Zone; GC = Probable Gas Cap; NS = Not suitable for SCAL

## OVERBURDEN ANALYSIS FINAL REPORT

COMPANY	: GFE RESOURCES LTD	DATE	: 22/04/95
WELL	: WALLABY CREEK NO 2	FILE	: 5-212
FIELD	:	LOCATION	: PPL-1
CORE INTERVAL	: CORE #1 1527 - 1528.12 m	ACS LAB	: ADELAIDE
CORE INTERVAL	: CORE #2 1529 - 1547.40 m	ANALYST	: WWF
CORE INTERVAL	:		
CORE INTERVAL	:		

Sample I.D.			Ambient Porosity	Porosity at Overburden Pressure			Ambient Perm	Permeability at Overburden Pressure		
Sample No	Dir	Depth		psi 2500	psi 0	psi 0		psi 2500	psi 0	psi 0
6	R	1529.40	13.1	12.3			1.94	0.92		
22	R	1534.70	16.1	15.4			1.95	1.31		
29	R	1537.10	14.6	13.8			2.38	1.18		
37	R	1539.80	15.1	14.4			9.1	8.32		
45	R	1542.78	17.7	16.9			16.3	6.13		
52	R	1544.90	17.3	16.6			5.9	3.4		

## CORE ANALYSIS FINAL REPORT

COMPANY	: GFE RESOURCES LTD	DATE	: 22/04/95
WELL	: WALLABY CREEK NO 2	FILE	: 5-212
FIELD	:	LOCATION	: PPL-1
CORE INTERVAL	: CORE #1 1527 - 1528.12 m	ACS LAB	: ADELAIDE
CORE INTERVAL	: CORE #2 1529 - 1547.40 m	ANALYST	: WWF
CORE INTERVAL	:		
CORE INTERVAL	:		

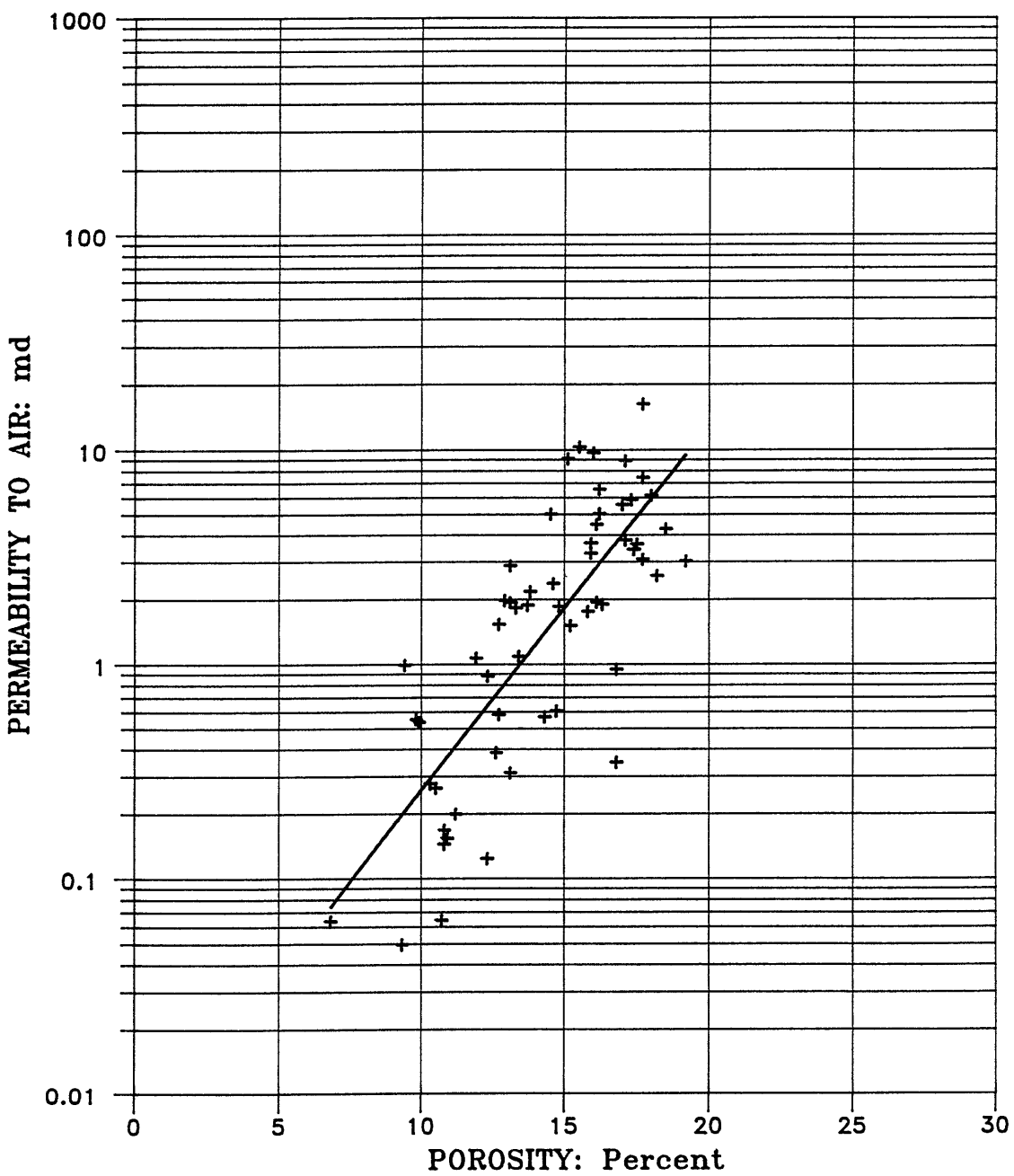
Sample Number	Depth	Grain Density	
		Calculated	Measured
2	1527.48	2.71	2.79
9	1530.30	2.62	2.65
30	1537.40	2.68	2.71
47	1543.40	2.75	2.76
54	1545.53	2.76	2.74



**POROSITY vs PERMEABILITY CROSSPLOTS**

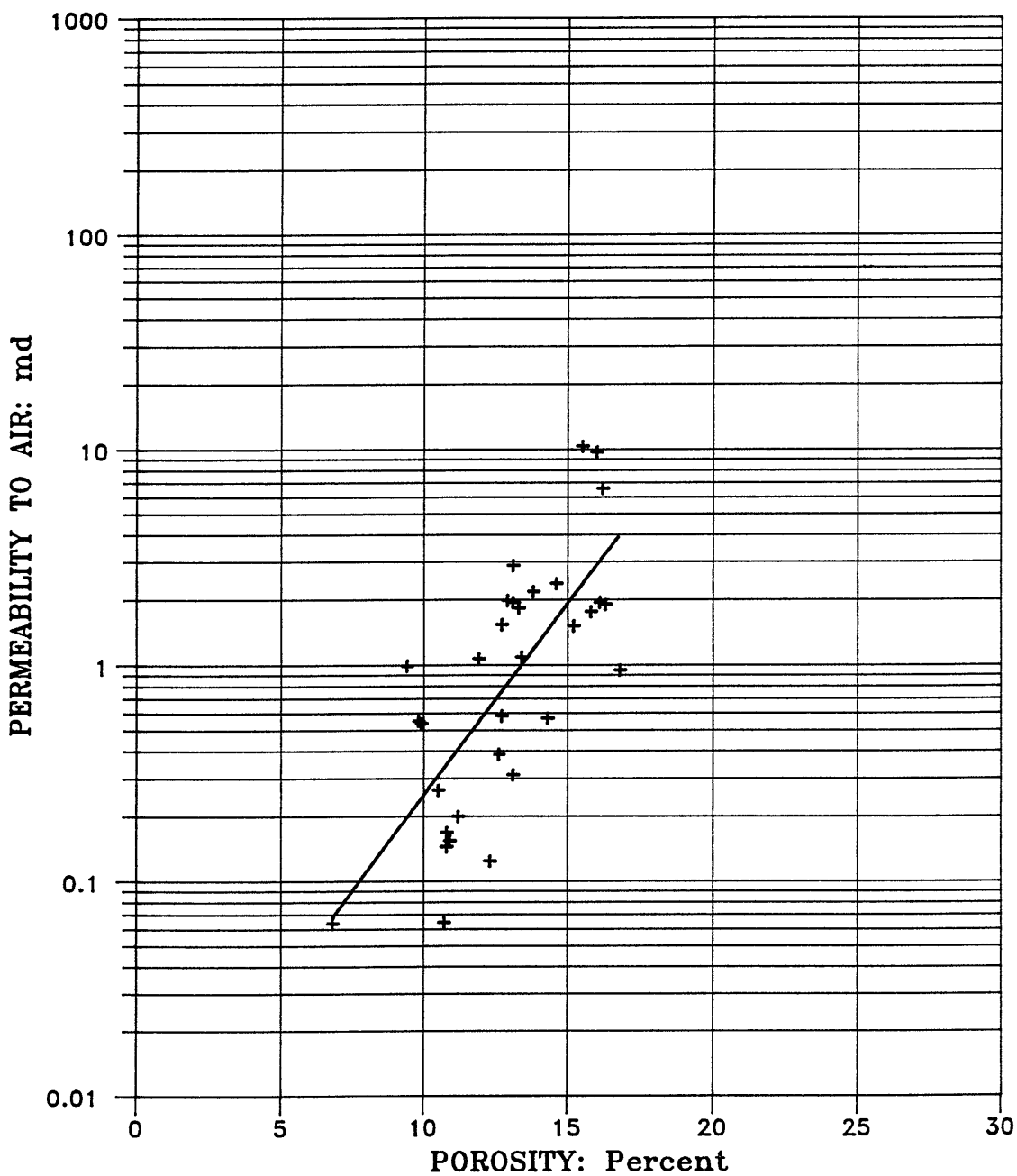
# POROSITY vs PERMEABILITY

Company: GFE RESOURCES LTD  
Well: WALLABY CREEK No 2  
Depth: 1527.00 - 1547.40 Metres



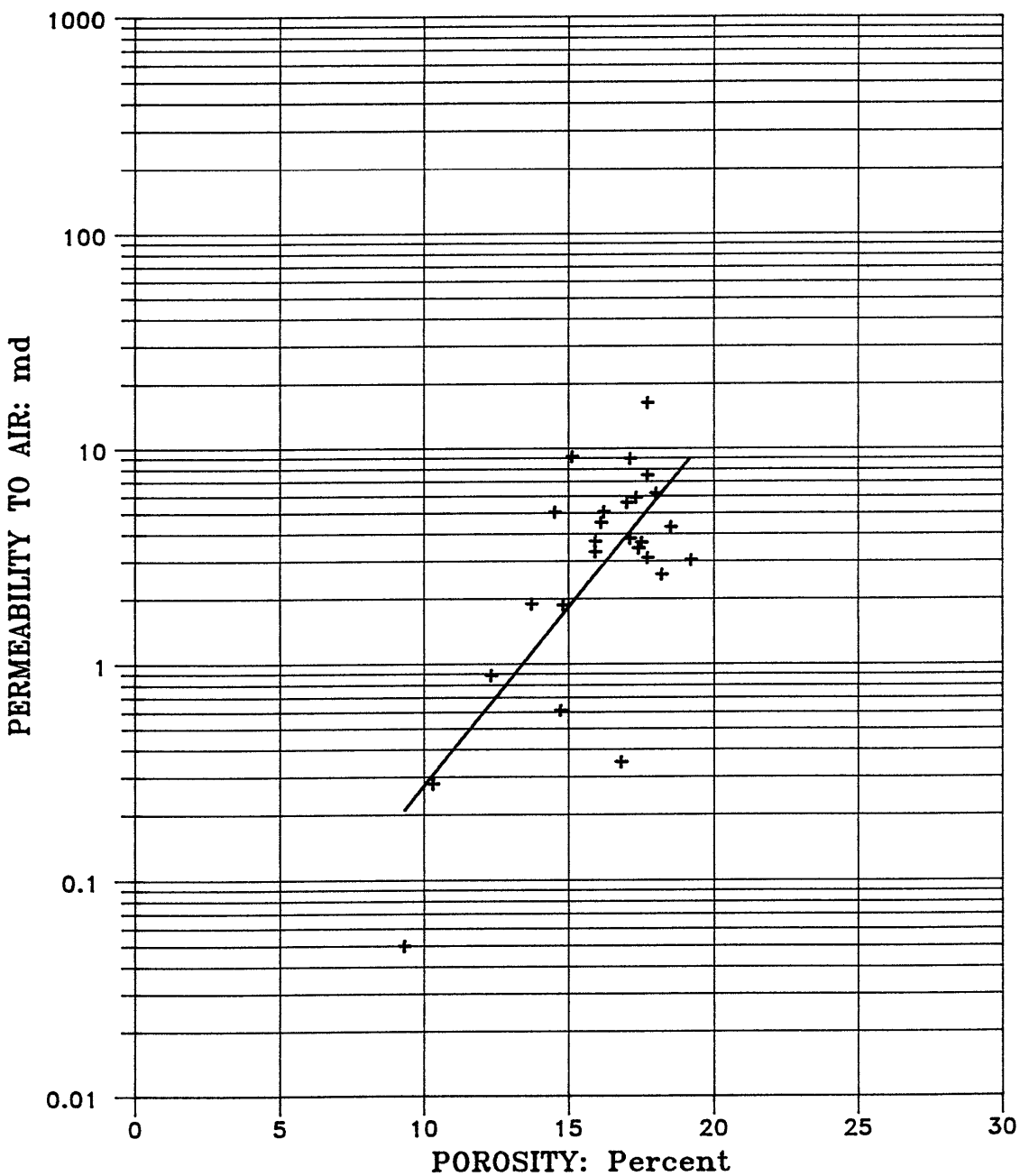
# POROSITY vs PERMEABILITY

Company: GFE RESOURCES LTD  
Well: WALLABY CREEK No 2  
Depth: 1527.00 - 1538.00 Metres



# POROSITY vs PERMEABILITY

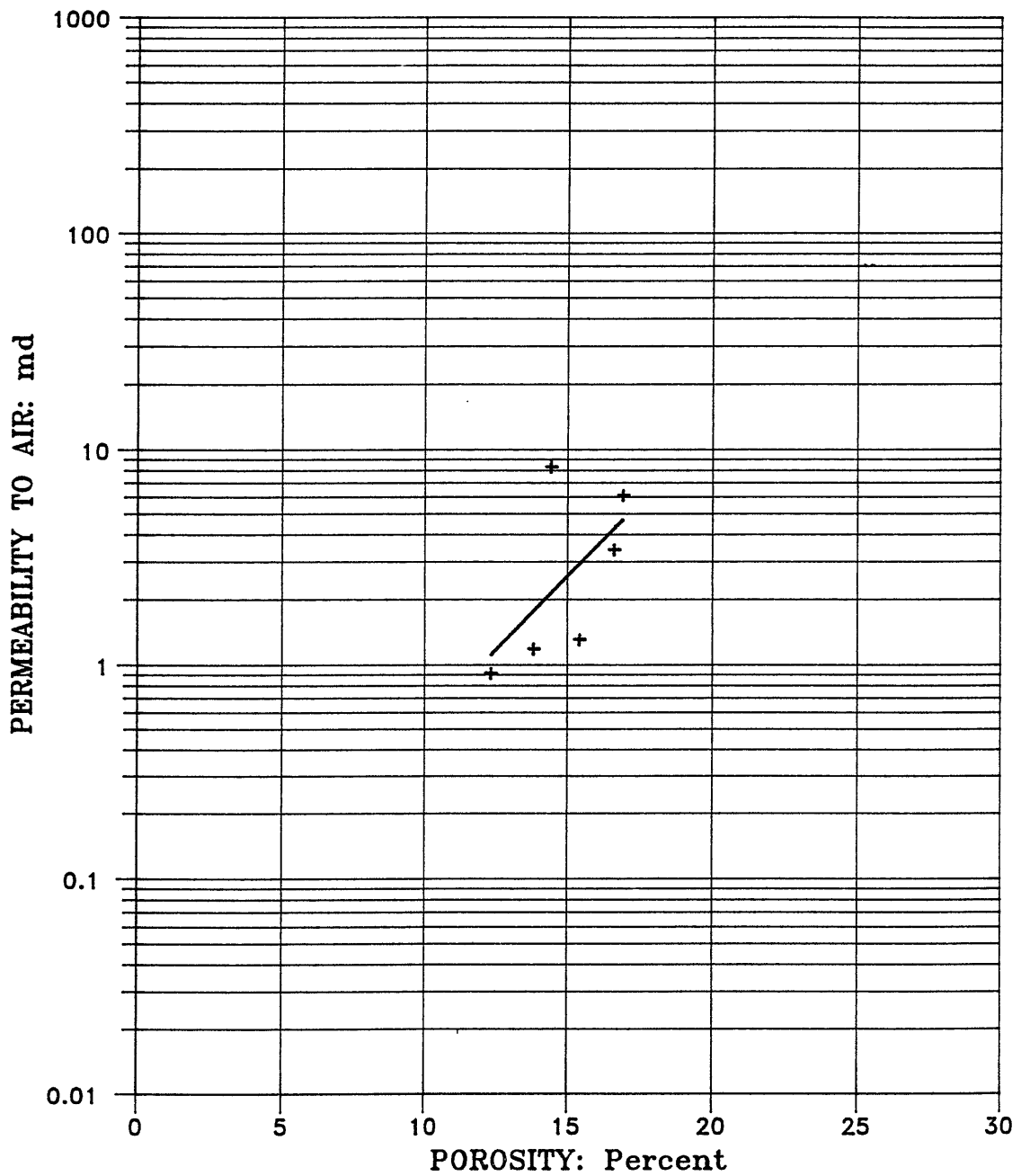
Company: GFE RESOURCES LTD  
Well: WALLABY CREEK No 2  
Depth: 1538.30 - 1547.40 Metres



**POROSITY vs PERMEABILITY AT OVERBURDEN  
CROSSPLOT**

# POROSITY vs PERMEABILITY At Overburden Pressure

Company: GFE RESOURCES LTD  
Well: WALLABY CREEK No 2  
Depth: 1529.40 - 1544.90 Metres  
OB Press: 2500



CORE PLOT

PE605035

This is an enclosure indicator page.  
The enclosure PE605035 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE605035 has the following characteristics:

- ITEM\_BARCODE = PE605035
- CONTAINER\_BARCODE = PE900875
  - NAME = Core plot
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = WELL\_LOG
- DESCRIPTION = Core Plot, 1:200, ACS Laboratories  
Australia, (enclosure from WCR) for  
Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED = 31/01/96
  - W\_NO = W1125
  - WELL\_NAME = Wallaby Creek-2
  - CONTRACTOR = ACS Laboratories Australia
  - CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)



PE907613

This is an enclosure indicator page.  
The enclosure PE907613 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907613 has the following characteristics:

ITEM\_BARCODE = PE907613  
CONTAINER\_BARCODE = PE900875  
    NAME = XLBase Core Log  
    BASIN = OTWAY  
    PERMIT = PPL/1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
DESCRIPTION = XLBase Core Log, Baker Huges Inteq,  
              (enclosure from WCR) for Wallaby  
              Creek-2  
REMARKS =  
DATE\_CREATED =  
DATE\_RECEIVED = 31/01/96  
    W\_NO = W1125  
    WELL\_NAME = Wallaby Creek-2  
CONTRACTOR = Baker Hughes Inteq  
CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

Appendix 6

# **APPENDIX 6**

## **SIDEWALL CORE DESCRIPTIONS**



**GFE** Resources Ltd

# SIDEWALL CORE DESCRIPTION

WELL NAME: Wallaby Creek-2  
GEOLOGIST: Dave Horner

DATE: 16 January, 1996  
PAGE: 1

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION
---------	-----------	------------	-------------

CUT 24 RECOVERED 24

1	1639.0	28	<b>Sandstone:</b> medium grey, very fine to medium, dominantly fine, subangular, moderately sorted, weak silica cement, non-calcareous, abundant white argillaceous matrix, common green grey lithics, common partially altered feldspar grains, trace black coal detritus, friable, very poor visual porosity, no oil fluorescence.
2	1599.5	17	<b>Claystone:</b> medium green grey, very slightly calcareous, trace micromica, soft to firm, non-fissile.
3	1589.5	35	<b>Siltstone:</b> light to medium grey, moderately to very argillaceous, trace to common black carbonaceous flecks, trace to common micromica, non-calcareous, firm, non-fissile.
4	1574.5	21	<b>Sandstone:</b> very light grey, very fine to medium, subangular, moderately to well sorted, very weak calcareous cement in part, abundant white argillaceous matrix (matrix supported), common green grey lithics, trace quartz grains, dominantly altered feldspar grains, friable, no visual porosity, no oil fluorescence.
5	1555.0	18	<b>Sandstone:</b> very light grey, very fine to medium, subangular, moderately to well sorted, very weak calcareous cement in part, abundant white argillaceous matrix (matrix supported), common green grey lithics, trace quartz grains, dominantly altered feldspar grains, friable, no visual porosity, no oil fluorescence.
6	1526.5	30	<b>Sandstone:</b> very light brown grey, very fine to medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, trace green grey lithics, trace black carbonaceous detritus and laminae, abundant partially altered feldspar grains, friable, very poor visual porosity, no oil fluorescence.
7	1523.5	19	<b>Sandstone:</b> very light brown grey, very fine to occasionally medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, trace green grey lithics, trace black carbonaceous detritus and laminae, trace brown lithics, abundant partially altered feldspar grains, friable, very poor visual porosity, no oil fluorescence. Interlaminated with <b>Claystone:</b> medium brown, common black carbonaceous detritus, trace micromica, non-fissile.
8	1519.0	20	<b>Sandstone:</b> very light brown grey, very fine to occasionally medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, trace green grey lithics, trace black carbonaceous detritus and laminae, trace brown lithics, abundant partially altered feldspar grains, friable, very poor visual porosity, no oil fluorescence. Interlaminated with 40% <b>Coal:</b> black, earthy texture, platy fracture, trace amber, firm to hard. Trace bright yellow gold fluorescence from amber, no cut.
9	1516.5	19	<b>Sandstone:</b> light brown, very fine to medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, non-calcareous, abundant light brown argillaceous matrix, trace grey green lithics, trace black carbonaceous detritus, abundant partially altered feldspars, friable, very poor visual porosity, no oil fluorescence.
10	1510.0	14	<b>Claystone:</b> medium to dark brown, very silty, non-calcareous, trace micromica, firm, slightly subfissile.

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION
11	1507.5	18	<b>Sandstone:</b> very light brown, very fine to dominantly fine, subangular, well sorted, no visual cement, common to abundant light brown argillaceous matrix, trace grey green lithics, trace partially altered feldspar grains, loose unconsolidated grains, possibly fair porosity, no oil fluorescence.
12	1504.5	24	<b>Sandstone:</b> light brown, very fine to medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, weak calcareous cement, abundant light brown argillaceous matrix, abundant partially altered feldspar grains, trace green lithics, trace to common black coaly detritus, friable, very poor visual porosity, no oil fluorescence.
13	1501.0	20	<b>Sandstone:</b> light brown, very fine to medium, dominantly fine, subangular, moderately to well sorted, weak silica cement, common light brown argillaceous matrix, abundant partially altered feldspar grains, trace green lithics, trace to common black coaly detritus, friable, very poor visual porosity, no oil fluorescence. Interlaminated with minor <b>Claystone:</b> medium to dark brown, very silty, non-calcareous, trace micromica, firm, non-fissile.
14	1495.0	20	<b>Claystone:</b> medium to dark brown, very silty, non-calcareous, trace micromica, firm, non-fissile, with minor interlaminated <b>Sandstone:</b> light grey to light green grey, very fine, subangular, well sorted, weak silica cement, abundant white argillaceous and silt matrix, common partially altered feldspar grains, trace very fine black carbonaceous grains, friable, no visual porosity, no oil fluorescence.
15	1485.0	20	<b>Sandstone:</b> light grey, stained brown by mud filtrate, very fine to medium, dominantly fine, subangular, moderately sorted, very weak silica cement, trace white argillaceous matrix, trace very fine black carbonaceous detritus, friable, very good visual porosity, no oil fluorescence.
16	1483.5	24	<b>Sandstone:</b> light grey, very fine to medium, dominantly fine, subangular, moderately sorted, very weak silica cement, common to abundant white argillaceous matrix, trace very fine black carbonaceous detritus, friable, very good visual porosity, no oil fluorescence.
17	1481.5	32	<b>Claystone:</b> medium to dark brown, trace dispersed medium quartz grains, slightly silty, slightly to moderately calcareous, trace micromica, very soft, non-fissile, intermixed with <b>Sandstone:</b> light grey, very fine to coarse, dominantly medium, subangular, poorly sorted, weak silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, common pyrite, common black coaly detritus, friable, poor to fair visual porosity, no oil fluorescence.
18	1475.0	35	<b>Claystone:</b> medium to dark brown, moderately silty, trace very fine glauconite, trace micromica, firm, non to slightly subfissile.
19	1470.0	25	<b>Claystone:</b> medium to dark brown, very silty, trace micromica, firm, non to slightly subfissile.
20	1461.5	41	<b>Claystone:</b> medium to dark brown, very silty, slightly calcareous, trace micromica, firm, non to slightly subfissile.
21	1453.0	35	<b>Claystone:</b> medium to dark brown, very silty, slightly calcareous, trace glauconite, trace micromica, firm, non to slightly subfissile.
22	1437.5	30	<b>Claystone:</b> medium to dark brown, moderately silty, non-calcareous, trace micromica, soft to firm, very slightly subfissile.
23	1415.0	30	<b>Claystone:</b> medium to dark brown, moderately silty, very slightly calcareous, trace glauconite, trace micromica, soft to firm, very slightly subfissile.
24	1392.0	34	<b>Siltstone:</b> medium brown, very argillaceous, common very fine partially altered feldspar grains, trace very fine black carbonaceous grains, non-calcareous, trace micromica, firm, very slightly subfissile.

Appendix 7

APPENDIX 7

# **APPENDIX 7**

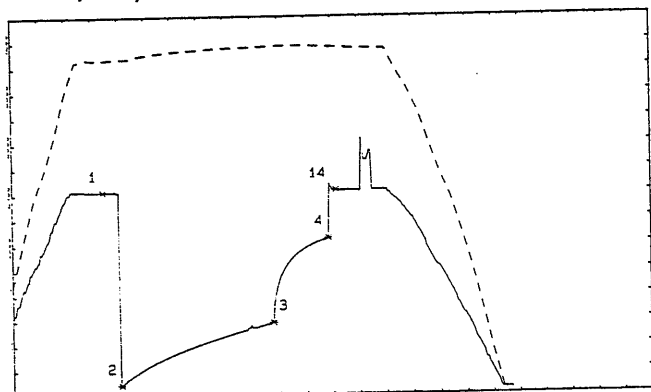
## **DRILL STEM TEST DATA**

DST #: 1  
 WALLABY CREEK # 2  
 5042.8 ft - 5118.3 ft

Location: INLINE 6765 XLINE 3560  
 Test Type: CASED HOLE  
 Formation: EUMERALLA

Recorder Number: 1783  
 Recorder Depth: 4997 ft

Test Date: 25/04/95



PRESSURE

psia

1)Initial Hydrostatic: 2426.2  
 2)Start of 1st Flow : 121.2  
 3)End of 1st Flow : 865.0  
 4)End of 1st Shut-in : 1866.2  
 14)Final Hydrostatic : 2433.7

TEST TIMES (MIN)

1st FLOW : 228.00  
 SHUTIN: 84.00

-----  
 BLOW DESCRIPTION:

THE TOOL WAS OPENED AT 13:47 HRS. DUE TO PROBLEMS ASSOCIATED WITH THE DOWNHOLE TOOL OPERATION AND SUBSEQUENT MEASURES TAKEN AT SURFACE i.e. OPENING AND CLOSING OF CHOKES AND BLEEDING DOWN OF STRING, VARIATIONS IN SURFACE BLOW ARE TOO NUMEROUS TO MENTION. TOOL CLOSED AT 17:35 HRS.

-----  
 LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 12.00 BBLs OF WATER.  
 THE RECOVERY DATA WAS OBTAINED DURING REVERSE CIRCULATION.  
 THE DOWNHOLE SAMPLER CONTAINED WATER.

-----  
 REMARKS AND TEST SUMMARY:

A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.  
 ALL THE PRESSURES REPORTED FROM THE DOWNHOLE RECORDERS ARE PSIA (i.e. PLUS 14.7)  
 THE FLOW AND SHUTIN TIMES REPORTED ARE TAKEN FROM THE DOWNHOLE ELECTRONIC MEMORY RECORDER (DMR # 1783).  
 PACKER SETTING DEPTHS WERE CALCULATED USING DRILLER'S TALLY.  
 SURFACE INDICATIONS OF TOOL OPERATION HAMPERED BY TUBING STRING ACCEPTING ROTARY TORQUE APPLIED AT SURFACE RATHER THAN TRANSFERRING IT TO THE TOOL, THUS GIVING THE INDICATION OF MULTIPLE FLOWS WHERE IN FACT THERE WAS ONLY ONE FLOW.  
 68 TURNS WERE PUT IN AT SURFACE, LESS THAN HALF REACHED THE TOOL.



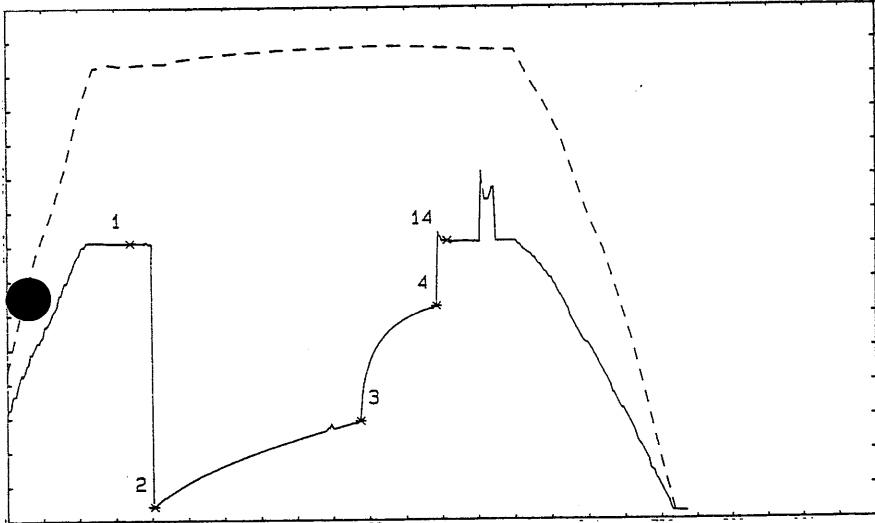
DST #: 1  
WALLABY CREEK # 2  
5042.8 ft - 5118.3 ft

PRESSURE RECORDER NUMBER: 1783

DEPTH : 4997.10 ft      LOCATION : OUTSIDE  
TYPE : DMR              CAPACITY : 5000.00 psia  
\*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 144.0 F

PRESSURE  
psia

- 1)Initial Hydrostatic: 2426.2
- 2)Start of 1st Flow : 121.2
- 3)End of 1st Flow : 865.0
- 4)End of 1st Shut-in : 1866.2
- 14)Final Hydrostatic : 2433.7



TEST TIMES (MIN)  
 1st FLOW : 228.00  
 SHUTIN: 84.00

PRESSURE RECORDER NUMBER: 1588

DEPTH : 4982.40 ft      LOCATION : INSIDE  
TYPE : PANEX              CAPACITY : 10000.00 psig  
\*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 144.0 F

PRESSURE  
psia

- 1)Initial Hydrostatic: 2416.0
- 2)Start of 1st Flow : 130.0
- 3)End of 1st Flow : 851.0
- 4)End of 1st Shut-in : 1859.0
- 14)Final Hydrostatic : 2424.0

DST #: 1  
WALLABY CREEK # 2  
5042.8 ft - 5118.3 ft

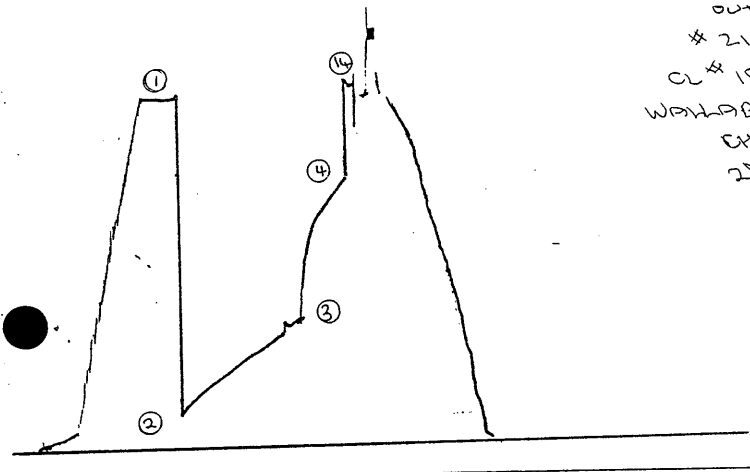
PRESSURE RECORDER NUMBER: 21149

DEPTH : 4997.10 ft      LOCATION : OUTSIDE  
TYPE : K-3              CAPACITY : 3025.00 psig

PRESSURE  
psia

OUT REC # 21149  
CL # 18422  
WALLABY CR # 2  
CHDSY # 1  
25-4-95

1)Initial Hydrostatic:	2430.7
2)Start of 1st Flow :	126.3
3)End of 1st Flow :	845.8
4)End of 1st Shut-in :	1847.1
14)Final Hydrostatic :	2418.6



TEST TIMES (MIN)  
1st FLOW : 228.00  
SHUTIN: 84.00

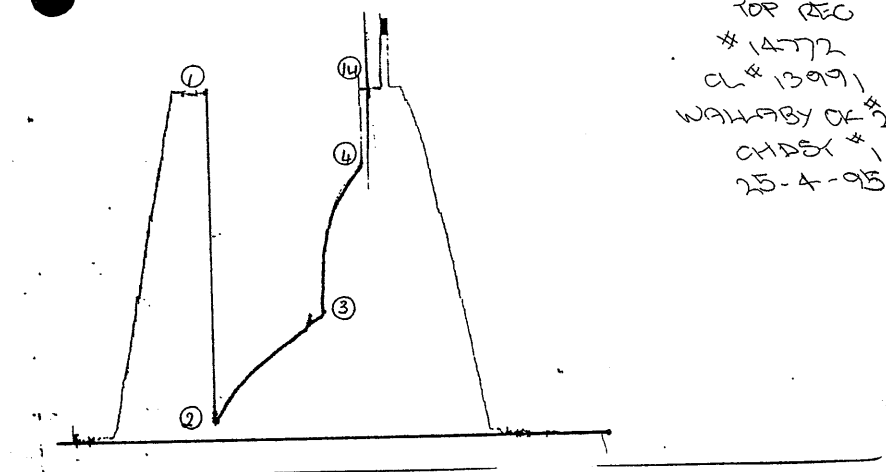
PRESSURE RECORDER NUMBER: 14172

DEPTH : 4971.50 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

TOP REC # 14172  
CL # 13991  
WALLABY CR # 2  
CHDSY # 1  
25-4-95

1)Initial Hydrostatic:	2410.7
2)Start of 1st Flow :	118.6
3)End of 1st Flow :	850.5
4)End of 1st Shut-in :	1855.1
14)Final Hydrostatic :	2420.6



GFE RESOURCES LTD  
DST #: 1  
WALLABY CREEK # 2  
5042.8 ft - 5118.3 ft

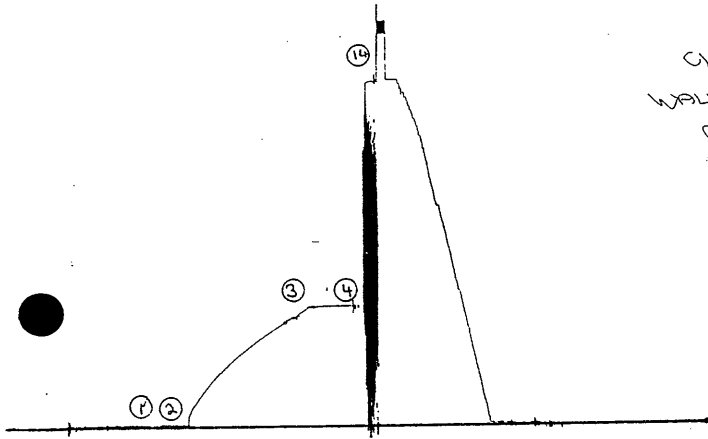
PRESSURE RECORDER NUMBER: 9987

DEPTH : 4943.60 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 19.5
- 2) Start of 1st Flow : 19.5
- 3) End of 1st Flow : 831.5
- 4) End of 1st Shut-in : 849.2
- 14) Final Hydrostatic : 2410.9

REC REC  
\* 9987  
CL # 13112  
WALLABY CK # 2  
CHDST # 1  
25-4-95



TEST TIMES (MIN)  
1st FLOW : 228.00  
SHUTIN: 84.00

GFE RESOURCES LTD

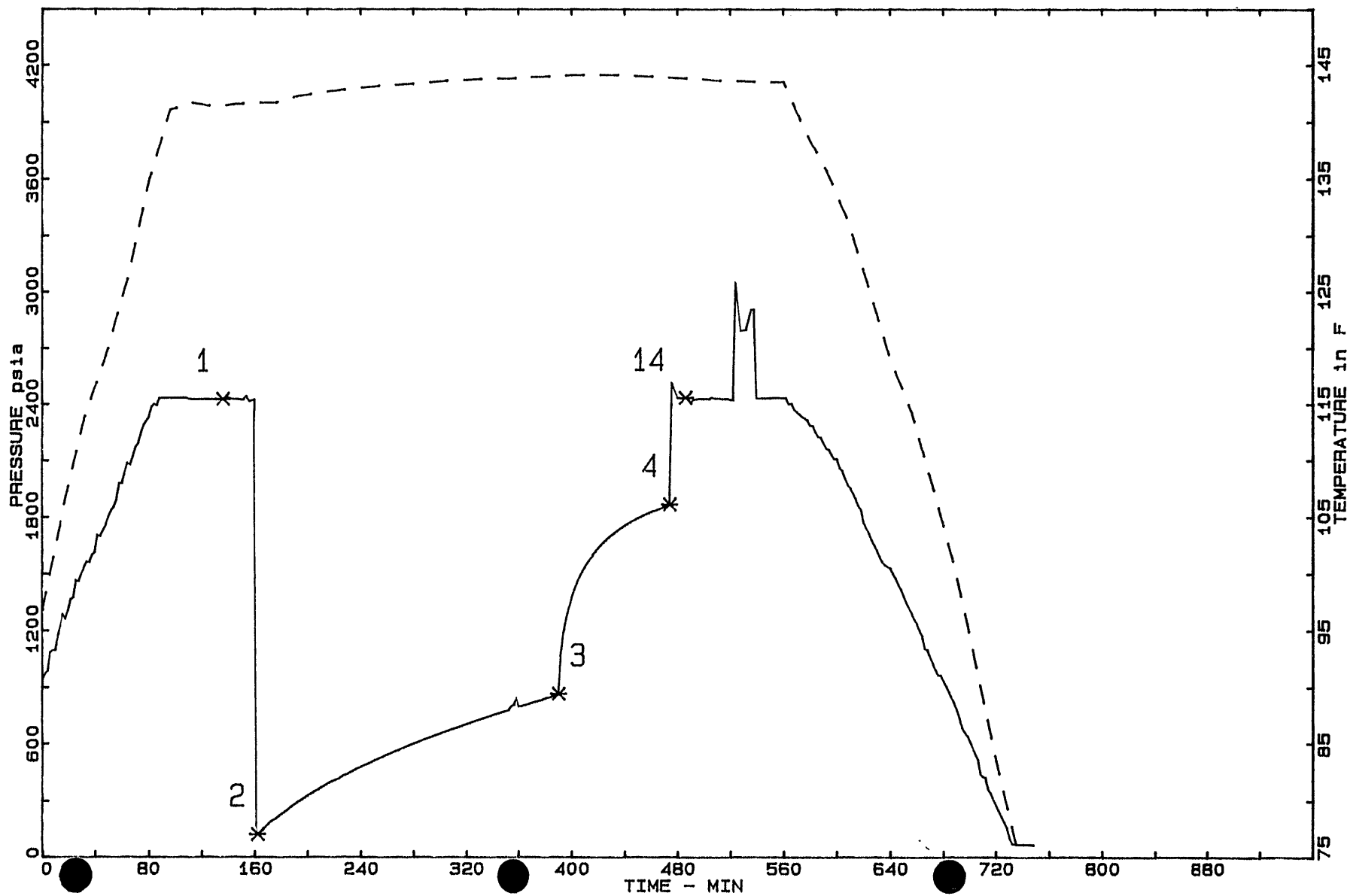
WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 1

LEGEND: \* 1 - 2426 psia

RECORDER: 1783

2 - 121  
3 - 865  
4 - 1866  
14 - 2433

PRESSURE : ————  
TEMPERATURE: - - - -



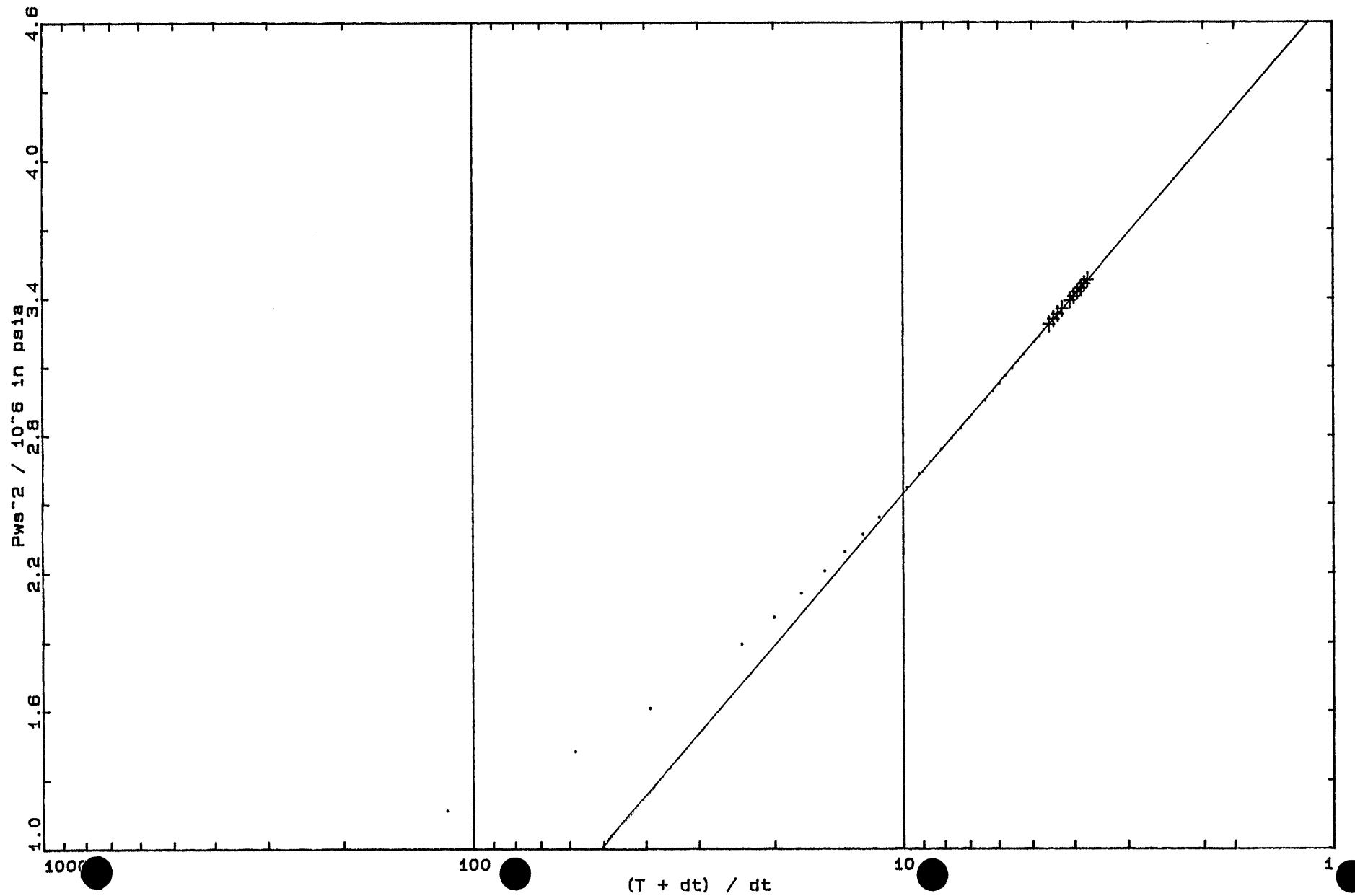
GFE RESOURCES LTD

SHUT-IN #1

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560

RECORDER: 1783

DST #: 1  
Slope = 2.18 psia ( $\cdot 2 / 10^6$ ) / cycle  
Extrapolated Pressure = 2173.75 psia



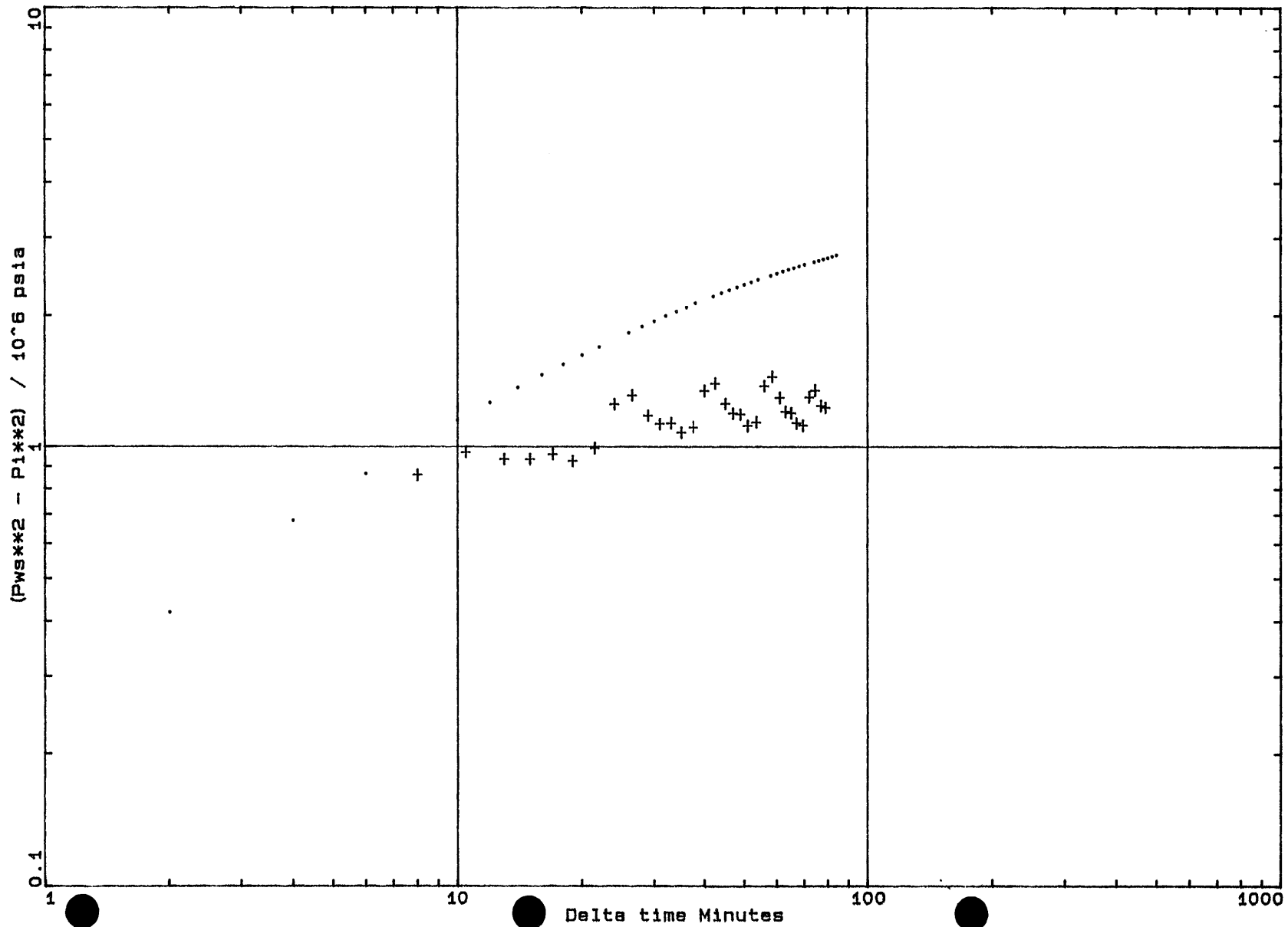
GFE RESOURCES LTD

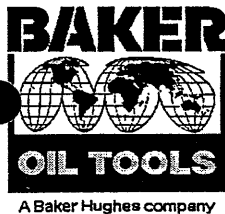
SHUT-IN #1 (Gas)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 1

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



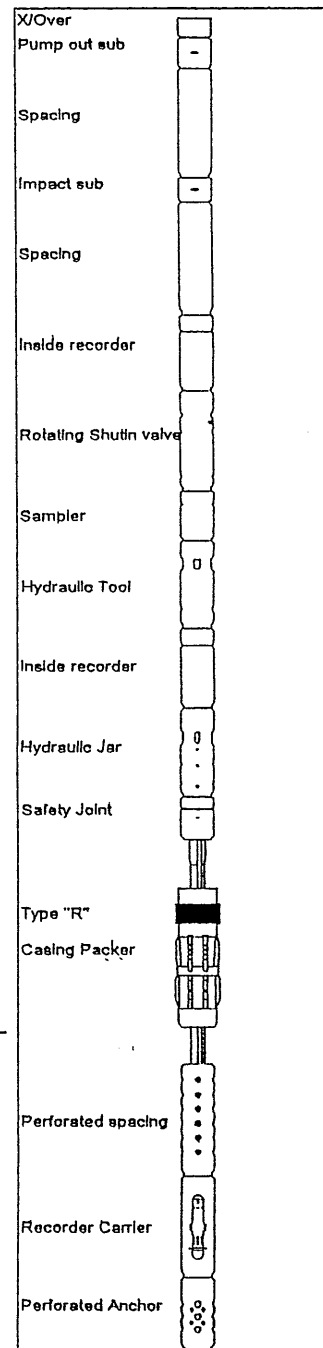


TEST TOOL & PIPE RECORD			
Well Name & No.	WALLABY CREEK # 2		
Date	4/25/95		
Ticket No.	1185		
Interval Tested	From:	1537	To: 1560
Total Depth.	0	Total Interval	23
Test No.	One		

DESCRIPTION	I.D. No.	I.D.	O.D.	Length	Depth
Stick Up					-5.47
Tubing 2 7/8"				1503.85	1498.38
Cross Over Sub				0.25	1498.63
Cross Over Sub				0.30	1498.93
Impact Reversing Sub				0.36	1499.29
Spacing				6.07	1505.36
Inside Recorder Carrier			4 7/8	1.37	1506.73
Hydraulic Jars			4 7/8	2.01	1508.74
Rotary Shut In Tool			5	2.59	1511.33
Positive Control Sampler			5	1.04	1512.37
Hydraulic Shut in Valve			4 7/8	1.49	1513.86
Inside Recorder Carrier			4 7/8	1.37	1515.23
Panex Recorder				3.35	1518.58
Safety Joint	931	2 7/16	4 3/4	0.69	1519.27
Packer Stick UP			5 5/8	0.73	1520.00
<b>Packer Seal Depth</b>					1520.00
Packer Stick Down				0.99	1520.99
Outside Recorder Carrier				2.06	1523.05

Pipe Tally	Length	Description	Depth
Tubing	1503.85		
Cross over Subs	0.55	D.B.S.	1499.29
Tools above Interval	21.07	Rec. Recorder	1506.73
<b>TOTAL STRING</b>	<b>1525.47</b>	<b>Inside Recorder</b>	<b>1515.23</b>
Packer Seal Depth	1520.00	Panex Recorder	1518.58
Top Single Above Table	5.47	Outside Recorder	1523.05

Service Engineer \_\_\_\_\_ Oil Co. Rep. \_\_\_\_\_



TEST DATA TEST No. ONE LUS. TEST No. ONE  
 FORMATION TESTED: ELMERHALLA T.D. 1718  
 INTERVAL TESTED: From 1537 to 1560  
 TOTAL INTERVAL TESTED: 23 m NET PAY

TEST TYPE:  
 INFLATE STRADDLE  DUAL CONV. STRADDLE BY-PASS   
 INFLATE BTM. HOLE  DUAL CONV. STRADDLE BLANK OFF   
 CASING TEST  DUAL CONV. BTM. HOLE

OTHER  
 CUSHION: YES  NO  TYPE AMOUNT  
 STARTED IN HOLE @ 10:00 HRS. OPENED TOOL 13:47 HRS.

TEST TIMES:  
 PRE-FLOW MIN. INITIAL SHUT-IN MIN.  
 SECOND FLOW MIN. 2nd SHUT-IN MIN.  
 FINAL FLOW 15:35 MIN. FINAL SHUT-IN 84 MIN.

FINAL FLOW BLOW DESCRIPTION: DUE TO PROBLEMS ASSOCIATED W/ DOWNHOLE TOOL OPERATION AND SUBSEQUENT MEASURES TAKEN AT SURFACE IS: OPENING AND CLOSING OF CHOKES AND BLEEDING DOWN OF STRING, VARIATIONS IN SURFACE BLOW ARE TO NUMEROUS TO MENTION.

GAS MEASUREMENTS MEASURED WITH:  
 CRITICAL FLOW PROVER   
 ORIFICE WELL TESTER   
 RISER SIZE: SIDE STATIC   
 PITOT TUBE   
 OTHER

ACTUAL FLOW TIME

TIME	SURFACE CHOKE	READING	
13-47	CLOSED	1 1/2 PSI	TOOL OPEN
13-59	1"	4 1/2 PSI	BLEED OFF STRING
14-52	CLOSED	1 1/2 PSI	CLOSE MANIFOLD
15-07	1"	1 1/2 PSI	BLEED OFF STRING
15-08	CLOSED	1 PSI	CLOSE MANIFOLD
15-16	1/4"	1/2 PSI	OPEN 1/4"
15-44	CLOSED	0 PSI	CLOSE MANIFOLD
15-53	CLOSED	0 PSI	GAS SAMPLE
16-19	1"	0 PSI	BLEED OFF STRING
17-35	1/4"	1/2 PSI	CLOSE TOOL
19-00		PSI	EQUALIZE

GENERAL INFORMATION  
 COMPANY: GPR RESOURCES LTD  
 ADDRESS: LEVEL SIX RIVERSIDE QUAY STH MELBOURNE 3205  
 WELL NAME: WALLABY CREEK #2  
 LOCATION: LINE 6165 XLINE 3560  
 K.B.: 53.7 m GROUND ELEV. 48 m  
 AREA: OTWAY BASIN PROVINCE VIC  
 COMPANY REP.: KEN SMITH  
 TESTER: IAN HYDE  
 UNIT # SKID BOX #2 PUMP No.:  
 CONTRACTOR: C.D.L. RIG No.: 11  
 TICKET No. 1185 DATE: Yr. 95 Mo. 4 Day 25

MUD & HOLE DATA  
 HOLE CONDITION @ TEST TIME:  
 EXCELLENT  GOOD  FAIR  POOR   
 WAS HOLE CONDITIONED PRIOR TO TEST: YES  NO   
 CALIPER LOG RUN PRIOR TO TEST: YES  NO   
 TYPE OF CALIPER LOG: SHORT ARM  LONG ARM   
 CALIPERED HOLE SIZE @ TEST DEPTH: MAX.  
 MUD TYPE: BRINE  
 WEIGHT: 9.35 VISCOSITY: WATER LOSS:  
 FILTER CAKE: LOG TEMPERATURE:  
 DRILL PIPE SIZE: O.D. 2 7/8 I.D. WEIGHT: 6.5\*  
 DRILL COLLARS: O.D. I.D. RUN:  
 MAIN HOLE OR CASING SIZE: 7"  
 RATHOLE OR LINER SIZE: No. OF  
 BOTTOM HOLE OR CHOKE SIZE: 1"  
 SURFACE CHOKE SIZE: 1/4" AND CLOSED  
 PACKER RUBBER SIZE: DIAM. IN LENGTH IN

REMARKS  
 - DEPTH CALC. W/ DRILL TALLY  
 - BTM. HOLE SAMPLER CONTAINED WATER  
 - MAX SURFACE PRESSURE  
 - SURFACE INDICATIONS OF TOOL OPERATION HAMPERS BY TUBING STRING

NAME OF CUSTOMER CONTACT  
 Phone No.  
 RECOVERY RECOVERY VERIFICATION SIGNATURE:  
 (Oil Co. Representative)  
 TOTAL FLUID RECOVERED: 12 BBL CONSISTING OF:  
12 BBL OF H<sub>2</sub>O  
 OF  
 OF  
 OF  
 TEST WAS REVERSED OUT: YES  NO  SALINITY

ACCEPTING ROTARY TORQUE APPLIED AT SURFACE RATHER THAN TRANSFERRING IT TO THE TOOL GIVING THE INDICATION OF MULTIPLE FLOWS WHERE IN FACT THERE WAS ONLY ONE IN TOTAL 68 TURNS WHERE PUT IN AT SURFACE, BUT LESS THAN HALF OF THESE REACHED THE TOOL FLOW & SHUT-IN TIMES TAKEN FROM PANEX  
 BTM. H. SAMPLER # SENT TO:  
 GAS BOMB # SENT TO:  
 No. OF FLUID SAMPLES TAKEN SENT TO:

TESTER:	CLOCK # <u>1588</u>	CLOCK # <u>13112</u>		CLOCK # <u>13091</u>		CLOCK # <u>15422</u>		CLOCK # <u>DNR</u>	
		No. <u>1588</u>	INSIDE <input checked="" type="checkbox"/>	No. <u>9957</u>	INSIDE <input checked="" type="checkbox"/>	No. <u>14712</u>	INSIDE <input checked="" type="checkbox"/>	No. <u>2149</u>	INSIDE <input checked="" type="checkbox"/>
FIELD READ	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>	OUTSIDE <input checked="" type="checkbox"/>
		CAP. <u>3000</u>	CAP. <u>3000</u>	CAP. <u>3000</u>	CAP. <u>3000</u>	CAP. <u>3025</u>	CAP. <u>3025</u>	CAP. <u>3025</u>	CAP. <u>3025</u>





A Baker Hughes company

Baker Oil Tools (Australia)

Baker Oil Tools (Australia)  
23 Pambula Street  
Regency Park  
South Australia 5010  
Phone: (08) 243 2966  
Fax: (08) 345 4778

FILE COPY

5325

GFE RESOURCES LTD  
LEVEL 6 RIVERSIDE QUAY  
SOUTH MELBOURNE VIC 3205

31/08/95

ATTENTION : D. GRANT

Dear sir,

Please find attached D.S.T. well reports for the following wells.  
Also enclosed is the original raw data package, plus diskette.

WALLABY CREEK # 2

D.S.T. NOS 1, 2, 3, 4, & 5

Yours faithfully,

*M Fairlie*

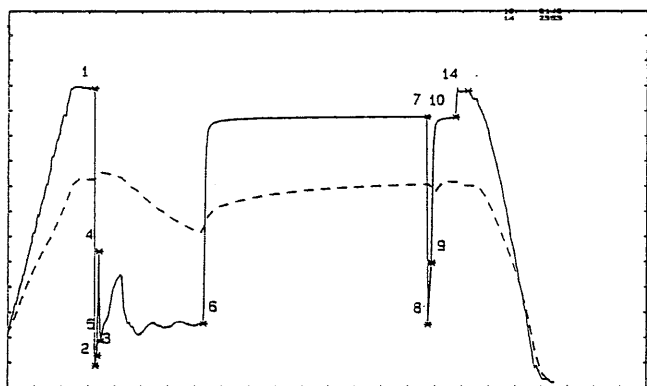
*A.* GARY W.J. DUNCAN.  
DISTRICT MANAGER.

DST #: 2  
 WALLABY CREEK # 2  
 4954.3 ft - 4973.9 ft

Location: INLINE 6765 XLINE 3560  
 Test Type: CASED HOLE  
 Formation: WAARRE 'A3'

Recorder Number: 1783  
 Recorder Depth: 4912 ft

Test Date: 26/04/95



PRESSURE

psia

1)Initial Hydrostatic:	2376.2
2)Start of 1st Flow :	175.0
3)End of 1st Flow :	255.0
4)End of 1st Shut-in :	1081.2
5)Start of 2nd Flow :	367.5
6)End of 2nd Flow :	507.5
7)End of 2nd Shut-in :	2151.2
8)Start of 3rd Flow :	496.2
9)End of 3rd Flow :	986.2
10)End of 3rd Shut-in :	2146.2
14)Final Hydrostatic :	2353.7

TEST TIMES (MIN)

1st FLOW :	4.00
SHUTIN:	4.00
2nd FLOW :	230.00
SHUTIN:	502.00
3rd FLOW :	8.00
SHUTIN:	52.00

BLOW DESCRIPTION:

PRE-FLOW: TOOL OPENED AT 16:44 HRS WITH A TRACE BLOW, BLOW INCREASING TO STRONG AT BOTTOM OF BUCKET. TOOL CLOSED AT 16:48 HRS.

SECOND FLOW: TOOL WAS RE-OPENED AT 16:52 HRS WITH A STRONG BLOW ON VALVE OPEN. BLOW REMAINED CONSTANT THROUGHOUT THE FLOW. THE FLOW WAS DIRECTED THROUGH A 0. INCH CHOKE IN THE FLOOR MANIFOLD TO THE FLARE LINE. GAS TO SURFACE AT 5 MINS WITH FLUID TO SURFACE AFTER ANOTHER 15 MINS. A 0.5 INCH CHOKE WAS OPENED AT 17:45 HRS (550 PSIG). TOOL WAS CLOSED AT 20:42 HRS (200 PSIG).

FINAL FLOW: THE TOOL WAS AGAIN OPENED AT 05:04 HRS AND FLOWED FOR 8 MINS THIS WAS TO AID IN THE CAPTURE OF FLUID SAMPLE IN THE BOTTOM HOLE SAMPLER.

LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 1.3 BBLS OF WATER WITH CONDENSATE ODOUR. THE DOWNHOLE SAMPLER WAS SENT FOR ANALYSIS.

REMARKS AND TEST SUMMARY:

A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.

ALL THE PRESSURES REPORTED FROM THE DOWNHOLE RECORDERS ARE PSIA (ie PLUS 14.7). THE FLOW AND SHUT IN TIMES REPORTED ARE TAKEN FROM THE DOWNHOLE ELECTRONIC MEMORY RECORDER (DMR # 1783).

THE PACKER SETTING DEPTHS WERE CALCULATED USING THE DRILLER'S TALLY.

GFE RESOURCES LTD  
DST #: 2  
WALLABY CREEK # 2  
4954.3 ft - 4973.9 ft

GAS MEASUREMENTS  
\*\*\*\*\*

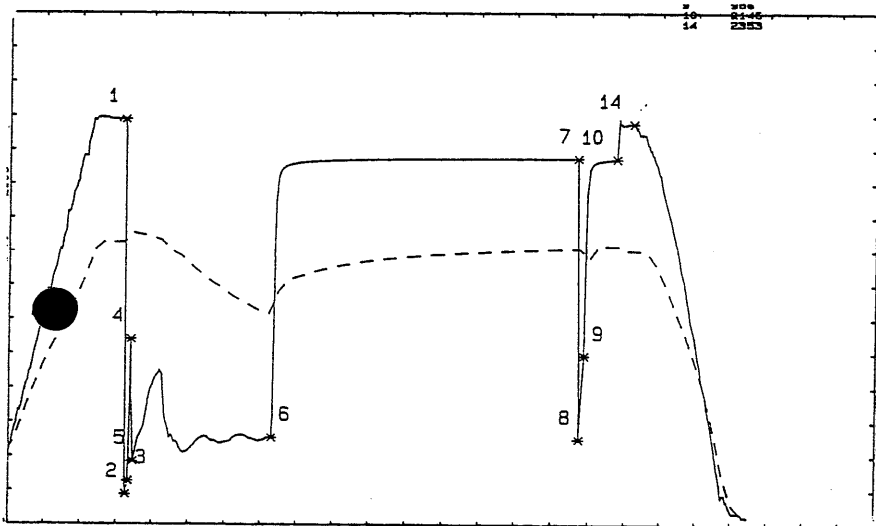
Device: FLOOR CHOKE MANIFOLD

FLOW #	TIME (min)	CHOKE (in.)	READING( psia)
1	0.00	0.250	0.00
1	4.00	0.250	2.00
2	0.00	0.250	2.00
2	5.00	0.250	31.00
2	20.00	0.250	5.00
2	50.00	0.500	550.00
2	70.00	0.500	185.00
2	110.00	0.500	157.00
2	150.00	0.500	170.00
2	190.00	0.500	200.00
2	230.00	0.500	200.00

DST #: 2  
 WALLABY CREEK # 2  
 4954.3 ft - 4973.9 ft

PRESSURE RECORDER NUMBER: 1783

DEPTH : 4911.80 ft      LOCATION : OUTSIDE  
 TYPE : DMR              CAPACITY : 5000.00 psia  
 \*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 144.0 F



	PRESSURE psia
1)Initial Hydrostatic:	2376.2
2)Start of 1st Flow :	175.0
3)End of 1st Flow :	255.0
4)End of 1st Shut-in :	1081.2
5)Start of 2nd Flow :	367.5
6)End of 2nd Flow :	507.5
7)End of 2nd Shut-in :	2151.2
8)Start of 3rd Flow :	496.2
9)End of 3rd Flow :	986.2
10)End of 3rd Shut-in :	2146.2
14)Final Hydrostatic :	2353.7

TEST TIMES (MIN)	
1st FLOW :	4.00
SHUTIN:	4.00
2nd FLOW :	230.00
SHUTIN:	502.00
3rd FLOW :	8.00
SHUTIN:	52.00

PRESSURE RECORDER NUMBER: 1588

DEPTH : 4897.10 ft      LOCATION : INSIDE  
 TYPE : PANEX            CAPACITY : 10000.00 psig  
 \*\*\* TEMPERATURE AT RECORDER DEPTH = 140.0 F

	PRESSURE psia
1)Initial Hydrostatic:	2378.0
2)Start of 1st Flow :	166.0
3)End of 1st Flow :	251.0
4)End of 1st Shut-in :	1422.0
5)Start of 2nd Flow :	418.0
6)End of 2nd Flow :	498.0
7)End of 2nd Shut-in :	2146.0
8)Start of 3rd Flow :	669.0
9)End of 3rd Flow :	1026.0
10)End of 3rd Shut-in :	2140.0
14)Final Hydrostatic :	2342.0

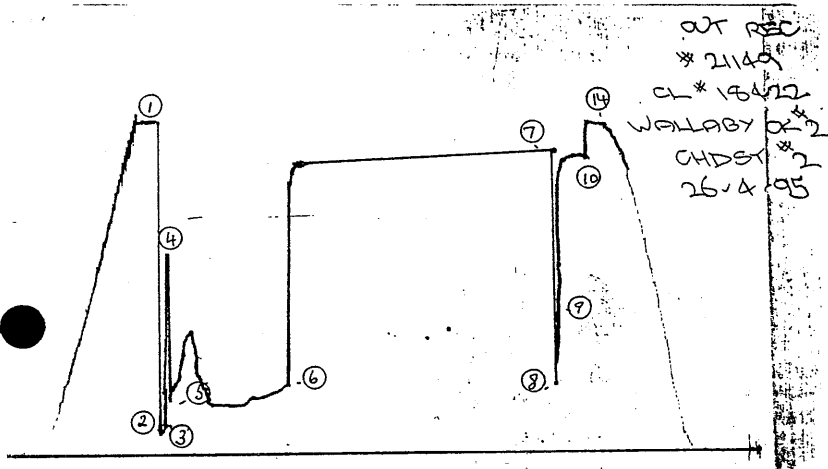
DST #: 2  
 WALLABY CREEK # 2  
 4954.3 ft - 4973.9 ft

PRESSURE RECORDER NUMBER: 21149

DEPTH : 4911.80 ft      LOCATION : OUTSIDE  
 TYPE : K-3              CAPACITY : 3025.00 psig

PRESSURE  
 psia

- 1) Initial Hydrostatic: 2379.2
- 2) Start of 1st Flow : 171.2
- 3) End of 1st Flow : 256.4
- 4) End of 1st Shut-in : 1440.3
- 5) Start of 2nd Flow : 368.4
- 6) End of 2nd Flow : 507.8
- 7) End of 2nd Shut-in : 2125.4
- 8) Start of 3rd Flow : 492.8
- 9) End of 3rd Flow : 1022.9
- 10) End of 3rd Shut-in : 2127.3
- 14) Final Hydrostatic : 2351.1



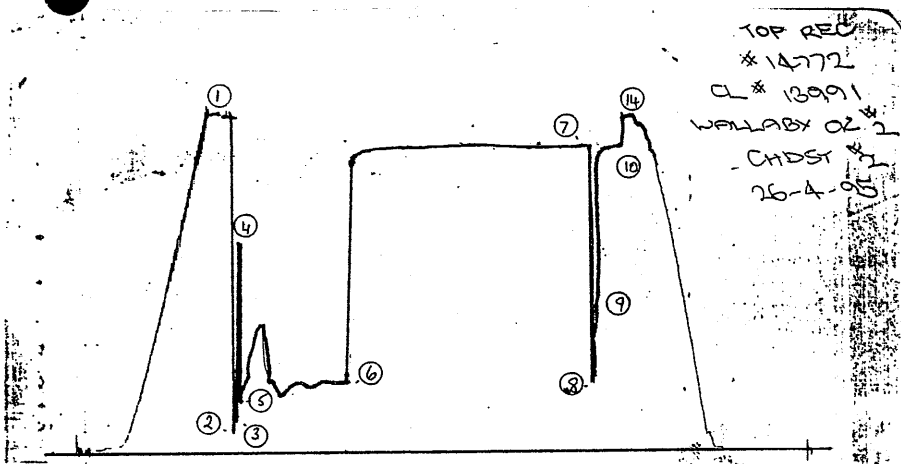
- TEST TIMES (MIN)
- 1st FLOW : 4.00
  - SHUTIN: 4.00
  - 2nd FLOW : 230.00
  - SHUTIN: 502.00
  - 3rd FLOW : 8.00
  - SHUTIN: 52.00

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4886.20 ft      LOCATION : INSIDE  
 TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
 psia

- 1) Initial Hydrostatic: 2366.5
- 2) Start of 1st Flow : 158.5
- 3) End of 1st Flow : 249.7
- 4) End of 1st Shut-in : 1443.8
- 5) Start of 2nd Flow : 359.8
- 6) End of 2nd Flow : 491.2
- 7) End of 2nd Shut-in : 2134.3
- 8) Start of 3rd Flow : 480.5
- 9) End of 3rd Flow : 1014.9
- 10) End of 3rd Shut-in : 2130.5
- 14) Final Hydrostatic : 2333.5



DST #: 2  
WALLABY CREEK # 2  
4954.3 ft - 4973.9 ft

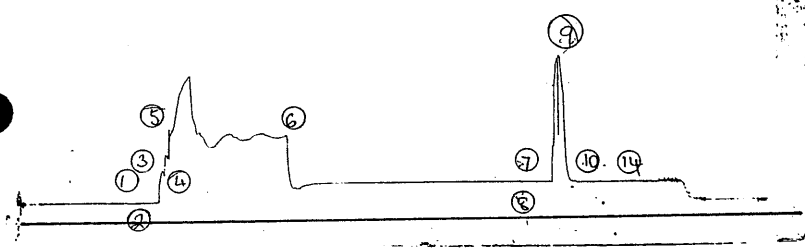
PRESSURE RECORDER NUMBER: 9987

DEPTH : 4851.70 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

REC REC  
\* 9987  
CL # 13112  
WALLABY CK # 2  
CHDST # 2  
26-4-95

- 1) Initial Hydrostatic: 29.2
- 2) Start of 1st Flow : 29.2
- 3) End of 1st Flow : 345.9
- 4) End of 1st Shut-in : 345.9
- 5) Start of 2nd Flow : 474.8
- 6) End of 2nd Flow : 470.2
- 7) End of 2nd Shut-in : 158.8
- 8) Start of 3rd Flow : 158.8
- 9) End of 3rd Flow : 1016.3
- 10) End of 3rd Shut-in : 153.5
- 14) Final Hydrostatic : 153.5



TEST TIMES (MIN)

1st FLOW :	4.00
SHUTIN:	4.00
2nd FLOW :	230.00
SHUTIN:	502.00
3rd FLOW :	8.00
SHUTIN:	52.00

**TEST DATA** TEST No. FIVE LUS. TEST No. FIVE  
 FORMATION TESTED: WARRRE T.D. 1531 (PLWC)  
 INTERVAL TESTED: From ..... to .....  
 TOTAL INTERVAL TESTED: ..... NET PAY: .....

TEST TYPE:  
 INFLATE STRADDLE  DUAL CONV. STRADDLE BY-PASS   
 INFLATE BTM. HOLE  DUAL CONV. STRADDLE BLANK OFF   
 CASING TEST  DUAL CONV. BTM. HOLE

OTHER .....  
 CUSHION: YES  NO  TYPE: H<sub>2</sub>O AMOUNT: 299.46m  
 STARTED IN HOLE @ 02-15 (P.O.H) HRS. OPENED TOOL 07-03 HRS.  
 TEST TIMES:  
 PRE-FLOW ..... MIN. INITIAL SHUT-IN ..... MIN.  
 SECOND FLOW ..... MIN. 2nd SHUT-IN ..... MIN.  
 FINAL FLOW 340 MIN. FINAL SHUT-IN 12A MIN.  
 PRE-FLOW BLOW DESCRIPTION: .....

**GENERAL INFORMATION**  
 COMPANY G.F.F. RESOURCES LTD  
 ADDRESS LEVEL SIX RIVERSIDE QUAY  
5TH MELBOURNE  
 WELL NAME WALLABY CK #2  
 LOCATION INLINE 6765 XLINE 3560  
 K.B. 53.7m GROUND ELEV. 48m  
 AREA OTWAY BASIN PROVINCE VIC.  
 COMPANY REP. KEN SMITH  
 TESTER: IAN HYDE  
 UNIT # SKD BOX #2 PUMP No.: 1  
 CONTRACTOR C.D.L. RIG No.: 11  
 TICKET No. 1189 DATE: Yr. .... Mo. .... Day .....

FINAL FLOW BLOW DESCRIPTION: NO BL AT 10 MAN. CL.  
MOD BL AT 07:05 OPEN 1/2" CH. ST. BL  
(B.O.B) 07:06 REMAINING THRU FLO

**MUD & HOLE DATA**  
 HOLE CONDITION @ TEST TIME:  
 EXCELLENT  GOOD  FAIR  POOR   
 WAS HOLE CONDITIONED PRIOR TO TEST: YES  NO   
 CALIPER LOG RUN PRIOR TO TEST: YES  NO   
 TYPE OF CALIPER LOG: ..... SHORT ARM  LONG ARM   
 CALIPERED HOLE SIZE @ TEST DEPTH ..... MAX. ....  
 MUD TYPE BRINE  
 WEIGHT 9.35 VISCOSITY ..... WATER LOSS .....  
 FILTER CAKE ..... LOG TEMPERATURE .....  
 DRILL PIPE SIZE: O.D. 2 3/8 I.D. .... WEIGHT 6.5 \*  
 DRILL COLLARS: O.D. .... I.D. .... RUN .....  
 MAIN HOLE OR CASING SIZE .....  
 RATHOLE OR LINER SIZE ..... No. OF .....  
 BOTTOM HOLE OR CHOKE SIZE .....  
 SURFACE CHOKE SIZE 1/4" & 1/2"  
 PACKER RUBBER SIZE: DIAM. IN. .... LENGTH IN. ....

**GAS MEASUREMENTS** MEASURED WITH:  
 CRITICAL FLOW PROVER   
 ORIFICE WELL TESTER   
 SIDE STATIC   
 PITOT TUBE   
 OTHER .....

ORIFICE SIZE: .....

TIME	SURFACE CHOKE	READING	
07-04	CLOSED	0 PSI	TOOL OPEN
07-06	1/4"	0 PSI	OPEN 1/4"
07-15	1/2"	19 PSI	W.T.S.
07-19	1/2"	350 PSI	GTS.
07-26	CLOSED	700 PSI	CLOSE MAN.
07-46	CLOSED	580 PSI	RELIGHT FLARE
07-57	1"	1550 PSI	OPEN 1"
08-01	1/4"	750 PSI	CL. 1" OP 1/4"
08-44	1/2"	1450 PSI	CL. 1/2" OP 1/2"
09-24	1/2"	675 PSI	GAS SAMPLE #1
10-29	1/2"	675 PSI	GAS SAMPLE #2
11-45	1/2"	124.5 PSI	CLOSE TOOL

**REMARKS**  
 - DEPTH CALC W/ DRILL TALLY  
 - BTM HOLE SAMPLER CONTAINED GAS ONLY  
 - FLOW & SHUT-IN TIMES TAKEN FROM PANEX GAUGE.

NAME OF CUSTOMER CONTACT .....  
 Phone No. ....  
**RECOVERY** RECOVERY VERIFICATION SIGNATURE: .....  
 (Oil Co. Representative)  
 TOTAL FLUID RECOVERED 2.3 BBLS CONSISTING OF:  
2.3 BBLS OF GAS CUT WATER  
 OF .....  
 OF .....  
 OF .....  
 TEST WAS REVERSED OUT: YES  NO  SALINITY .....

FROM PANEX GAUGE.  
 THE CHARTS SHOW THAT SOME PLUGGING HAS OCCURRED IN THE AREA OF THE SHUT-IN TOOL AND SAMPLER. INSPECTION OF TOOL AT SURFACE DID NOT REVEAL THE EXACT CAUSE.  
 BTM. H. SAMPLER # ..... SENT TO: .....  
 GAS BOMB # ..... SENT TO: .....  
 No. OF FLUID SAMPLES TAKEN ..... SENT TO: .....

TESTER: .....  
 FIELD READ: .....  
 DEFLECTION: .....

CLOCK #	INSIDE	OUTSIDE
<u>PANEX</u>	<u>1588</u>	<u>10,000</u>
DEPTH	<u>4903.72</u>	<u>2382.0</u>
2a		
2b		
3		
4a		
4b	<u>145°F</u>	
4c		
5	<u>2080.0</u>	
6	<u>2061.0</u>	
7	<u>2149.0</u>	
8	<u>2388.0</u>	

DEPTH 1494.58

CLOCK #	INSIDE	OUTSIDE	CAP.
<u>13112</u>	<u>9987</u>	<u>1477</u>	<u>3000</u>
DEPTH	<u>4858.24</u>	<u>462.6</u>	
1		<u>2375.2</u>	
2a			
2b			
3			
4a			
4b			
4c			
5	<u>462.6</u>	<u>2018.6</u>	
6	<u>1305.6</u>	<u>2019.3</u>	
7	<u>42.4</u>	<u>2116.5</u>	
8	<u>2429.5</u>	<u>2363.9</u>	

CLOCK #	INSIDE	OUTSIDE	CAP.
<u>18422</u>	<u>2114</u>	<u>773</u>	<u>3025</u>
DEPTH	<u>4918.38</u>	<u>2418.8</u>	
1		<u>2393.7</u>	
2a			
2b			
3			
4a			
4b		<u>143°F</u>	
4c			
5	<u>1785.3</u>	<u>1941.2</u>	
6	<u>2092.8</u>	<u>2068.7</u>	
7	<u>2184.8</u>	<u>2155.0</u>	
8	<u>2414.1</u>	<u>2401.2</u>	

- NUMBER KEY:**  
 1 - INITIAL HYD.  
 2a - PRE-FLOW  
 2b - .....  
 3 - INITIAL SHUT-IN  
 4a - 2nd INITIAL FLOW  
 4b - 2nd FINAL FLOW  
 4c - 2nd SHUT-IN  
 5 - 3rd INITIAL FLOW  
 6 - FINAL FLOW  
 7 - FINAL SHUT-IN  
 8 - FINAL HYD.

No. OF REPORTS REQUIRED: ..... TIME INCREMENTS: .....  
 MAIL TO: ..... COMPLETE ANALYSIS: .....

TEST DATA TEST No. TWO LUS. TEST No. TWO  
 FORMATION TESTED WARRRE 'A' T.D. 1715  
 INTERVAL TESTED: From 1510 to 1516  
 TOTAL INTERVAL TESTED 6 m. NET PAY

TEST TYPE:  
 INFLATE STRADDLE  DUAL CONV. STRADDLE BY-PASS   
 INFLATE BTM. HOLE  DUAL CONV. STRADDLE BLANK OFF   
 CASING TEST  DUAL CONV. BTM. HOLE   
 OTHER

CUSHION: YES  NO  TYPE AMOUNT  
 STARTED IN HOLE @ 12-20 HRS. OPENED TOOL 16-44 HRS.

TEST TIMES:  
 PRE-FLOW 4 MIN. INITIAL SHUT-IN 4 MIN.  
 SECOND FLOW 230 MIN. 2nd SHUT-IN 502 MIN.  
 FINAL FLOW 8 MIN. FINAL SHUT-IN 52 MIN.

PRE-FLOW BLOW DESCRIPTION: TRACE BLOW AT T/O  
INCREASING TO STRONG BLOW  
BTM. OF BUCKET.

FINAL FLOW BLOW DESCRIPTION: STRONG BLOW AT  
TOOL OPEN REMAINING CONSTANT  
THROUGHOUT FLOW.

GAS MEASUREMENTS MEASURED WITH:  
 CRITICAL FLOW PROVER   
 ORIFICE WELL TESTER   
 RISER SIZE: SIDE STATIC   
 PITOT TUBE   
 OTHER

TIME	SURFACE CHOKE	READING	
16-45	1/4	0 PSI	TOOL OPEN
16-51	1/4	2 PSI	TOOL CLOSE
16-55	1/4	2 PSI	TOOL OPEN
17-00	1/4	31 PSI	S.T.S.
17-15	1/4	3 PSI	F.T.S.
17-45	1/2	500 PSI	OP 1/2" CH.
18-05	1/2	185 PSI	
18-45	1/2	157 PSI	GAS SAMPLE
19-25	1/2	170 PSI	
20-03	1/2	200 PSI	
20-47	1/2	200 PSI	TOOL CLOSE
06-16			EQUILIBRE

NAME OF CUSTOMER CONTACT  
 Phone No.

RECOVERY RECOVERY VERIFICATION SIGNATURE:  
 (Oil Co. Representative)

TOTAL FLUID RECOVERED 1.3 BBL'S CONSISTING OF:  
1.3 BBL'S OF H<sub>2</sub>O W/ CONDENSATE ODOUR

OF  
 OF  
 OF  
 TEST WAS REVERSED OUT: YES  NO  SALINITY

GENERAL INFORMATION  
 COMPANY C.P.E. RESOURCES LTD  
 ADDRESS LEVEL SIX RIVERSIDE QUAY  
STH MELBOURNE 3205

WELL NAME WALLABY CREEK #2  
 LOCATION INLINE 6165 XLINE 3560  
 K.B. 53.7 m GROUND ELEV. 48 m  
 AREA OTWAY BASIN PROVINCE VIC.  
 COMPANY REP. KEN SMITH  
 TESTER: IAN HYDE

UNIT # SKID BOX #2 PUMP No.  
 CONTRACTOR C.D.I. RIG No. 11  
 TICKET No. 1166 DATE: Yr. 95 Mo. 4 Day 26

MUD & HOLE DATA  
 HOLE CONDITION @ TEST TIME:  
 EXCELLENT  GOOD  FAIR  POOR   
 WAS HOLE CONDITIONED PRIOR TO TEST: YES  NO   
 CALIPER LOG RUN PRIOR TO TEST: YES  NO   
 TYPE OF CALIPER LOG: SHORT ARM  LONG ARM   
 CALIPERED HOLE SIZE @ TEST DEPTH MAX.  
 MUD TYPE B.R.N.T.E.  
 WEIGHT 9.35 VISCOSITY WATER LOSS  
 FILTER CAKE LOG TEMPERATURE  
 DRILL PIPE SIZE: O.D. 2 3/4 I.D. WEIGHT 6.5 #  
 DRILL COLLARS: O.D. I.D. RUN  
 MAIN HOLE OR CASING SIZE  
 RATHOLE OR LINER SIZE No. OF  
 BOTTOM HOLE OR CHOKE SIZE  
 SURFACE CHOKE SIZE 1/4" + 1/2"  
 PACKER RUBBER SIZE: DIAM. IN LENGTH IN

REMARKS  
DEPTH CALC W/ DRILL TALLY  
BTM. HOLE SAMPLER SENT FOR  
ANALYSIS  
FLOW AND SHUT-IN TIMES TAKEN

FROM PANEX GAUGE  
FINAL FLOW RATE -

FINAL FLOW AND SHUT-IN WERE TO  
ADD IN THE CAPTURE OF FLUID SAMPLE  
IN BTM HOLE SAMPLER

BTM. H. SAMPLER # SENT TO:  
 GAS BOMB # SENT TO:  
 No. OF FLUID SAMPLES TAKEN SENT TO:

TESTER:	CLOCK # <u>PANEX</u>		CLOCK # <u>13112</u>		CLOCK # <u>13991</u>		CLOCK # <u>15A-22</u>		CLOCK # <u>Dm12</u>	
	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
FIELD READII	<u>1588</u>	<u>INSIDE</u> / <u>OUTSIDE</u>	<u>9967</u>	<u>INSIDE</u> / <u>OUTSIDE</u>	<u>14772</u>	<u>INSIDE</u> / <u>OUTSIDE</u>	<u>21149</u>	<u>INSIDE</u> / <u>OUTSIDE</u>		
DEFLECTION	CAP. <u>10.000</u>		CAP. <u>3000</u>		CAP. <u>3000</u>		CAP. <u>3075</u>		CAP.	
	DEPTH <u>4897.1</u>		DEPTH <u>4851.7</u>		DEPTH <u>4886.2</u>		DEPTH <u>4911.8</u>		DEPTH <u>4911.8</u>	
	<u>1 2378.0</u>		<u>1 29.2</u>		<u>1 2366.5</u>		<u>1 2379.2</u>		<u>1 2376.2</u>	
	<u>2a 166.0</u>		<u>2a 29.2</u>		<u>2a 158.5</u>		<u>2a 171.2</u>		<u>2a 175.0</u>	
	<u>2b 251.0</u>		<u>2b 345.9</u>		<u>2b 249.7</u>		<u>2b 256.4</u>		<u>2b 255.0</u>	
	<u>3 1422.0</u>		<u>3 345.9</u>		<u>3 1443.8</u>		<u>3 1440.3</u>		<u>3 1081.2</u>	
	<u>4a 418.0</u>		<u>4a 474.8</u>		<u>4a 359.8</u>		<u>4a 368.4</u>		<u>4a 367.5</u>	
	<u>140°F 4b 498.0</u>		<u>4b 470.2</u>		<u>4b 491.2</u>		<u>4b 507.8</u>		<u>144°F 4b 507.5</u>	
	<u>4c 2146.0</u>		<u>4c 158.8</u>		<u>4c 2134.3</u>		<u>4c 2125.4</u>		<u>4c 2151.2</u>	
	<u>5 669.0</u>		<u>5 158.8</u>		<u>5 480.5</u>		<u>5 492.8</u>		<u>5 496.2</u>	
	<u>6 1026.0</u>		<u>6 1016.3</u>		<u>6 1014.9</u>		<u>6 1022.9</u>		<u>6 986.2</u>	
TEMP	<u>7 2140.0</u>		<u>7 153.5</u>		<u>7 2130.5</u>		<u>7 2127.3</u>		<u>7 2146.2</u>	
<u>140°F</u>	<u>8 2342.0</u>		<u>8 153.5</u>		<u>8 2333.5</u>		<u>8 2351.1</u>		<u>8 2353.7</u>	

- NUMBER KEY:  
 1 - INITIAL HYD.  
 2a - PRE-FLOW  
 2b -  
 3 - INITIAL SHUT-IN  
 4a - 2nd INITIAL FLOW  
 4b - 2nd FINAL FLOW  
 4c - 2nd SHUT-IN  
 5 - 3rd INITIAL FLOW  
 6 - FINAL FLOW  
 7 - FINAL SHUT-IN  
 8 - FINAL HYD.

No. OF REPORTS REQUIRED: TIME INCREMENTS:

MAIL TO: COMPLETE ANALYSIS:



GFE RESOURCES LTD

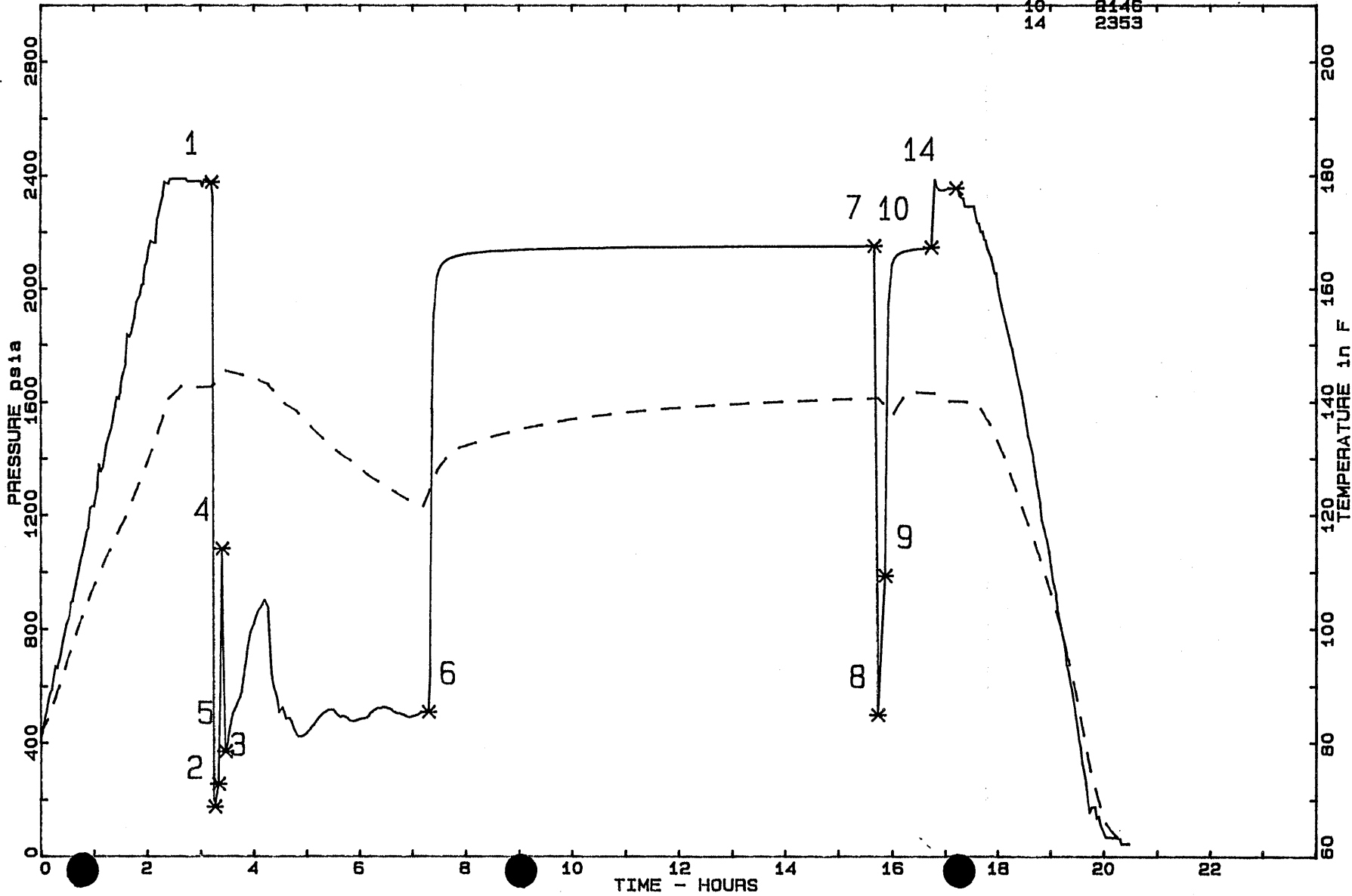
WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 2

LEGEND: \* 1 - 2376 psia

RECORDER: 1783

2 - 175  
3 - 255  
4 - 1081  
5 - 367  
6 - 507  
7 - 2151  
8 - 496  
9 - 986  
10 - 2146  
14 - 2353

PRESSURE : —————  
TEMPERATURE: - - - - -

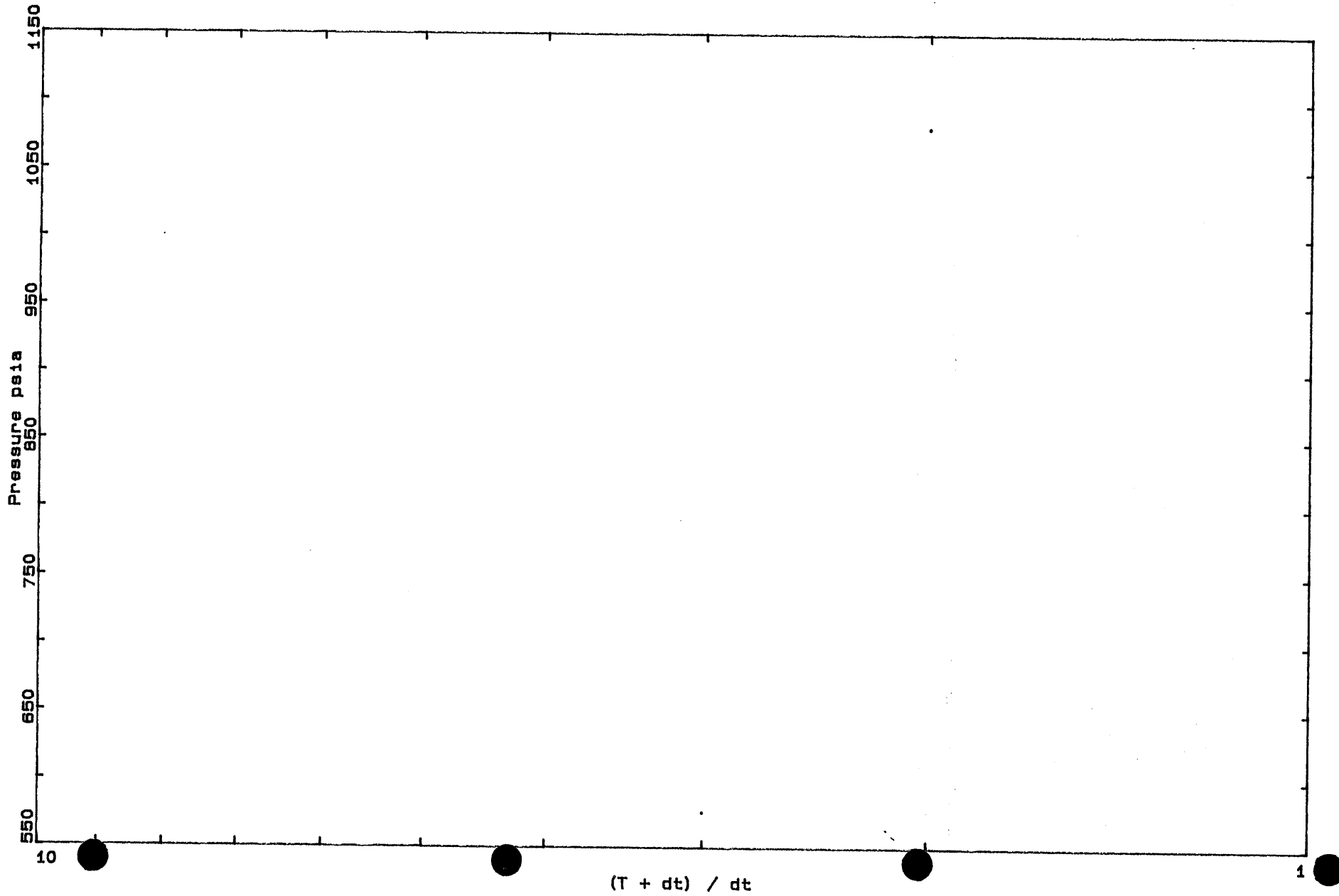


GFE RESOURCES LTD

SHUT-IN #1

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 2

RECORDER: 1789



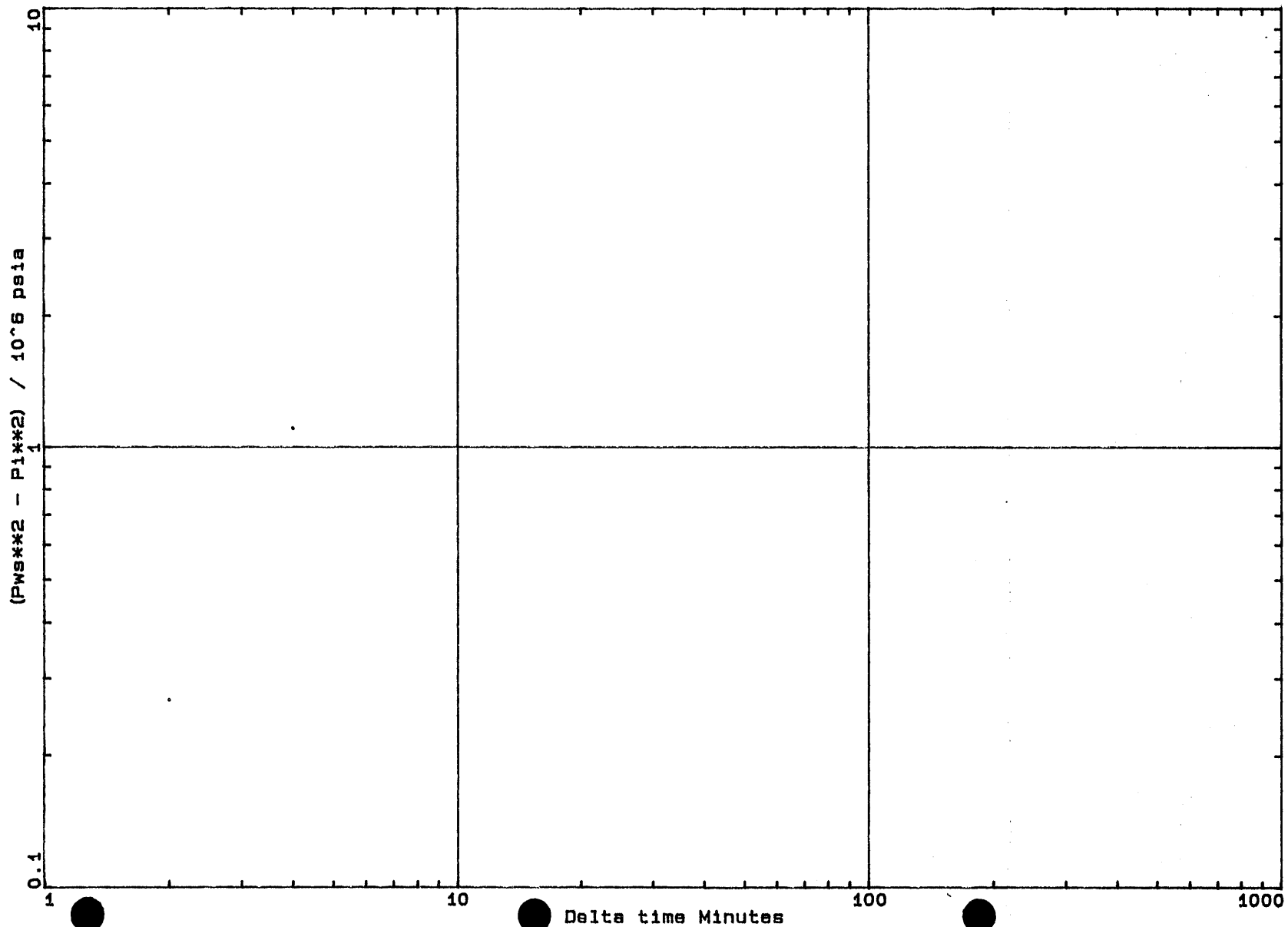
GFE RESOURCES LTD

SHUT-IN #1 (Gas)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 2

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



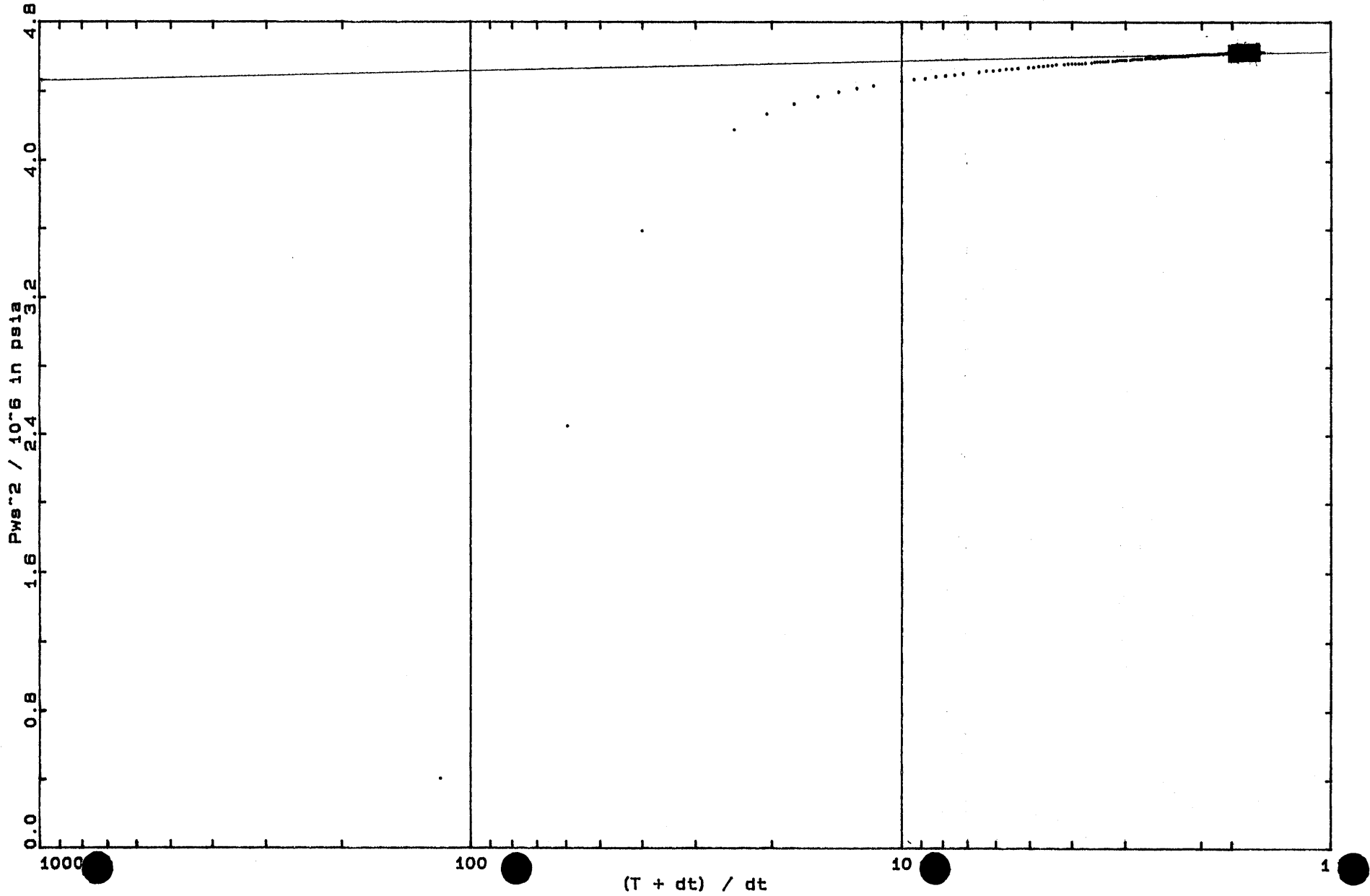
GFE RESOURCES LTD

SHUT-IN #2

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 X LINE 3560  
DST #: 2

RECORDER: 1783

Slope = 0.05 psia ( $\cdot^2 / 10^{-6}$ ) / cycle  
Extrapolated Pressure = 2153.73 psia



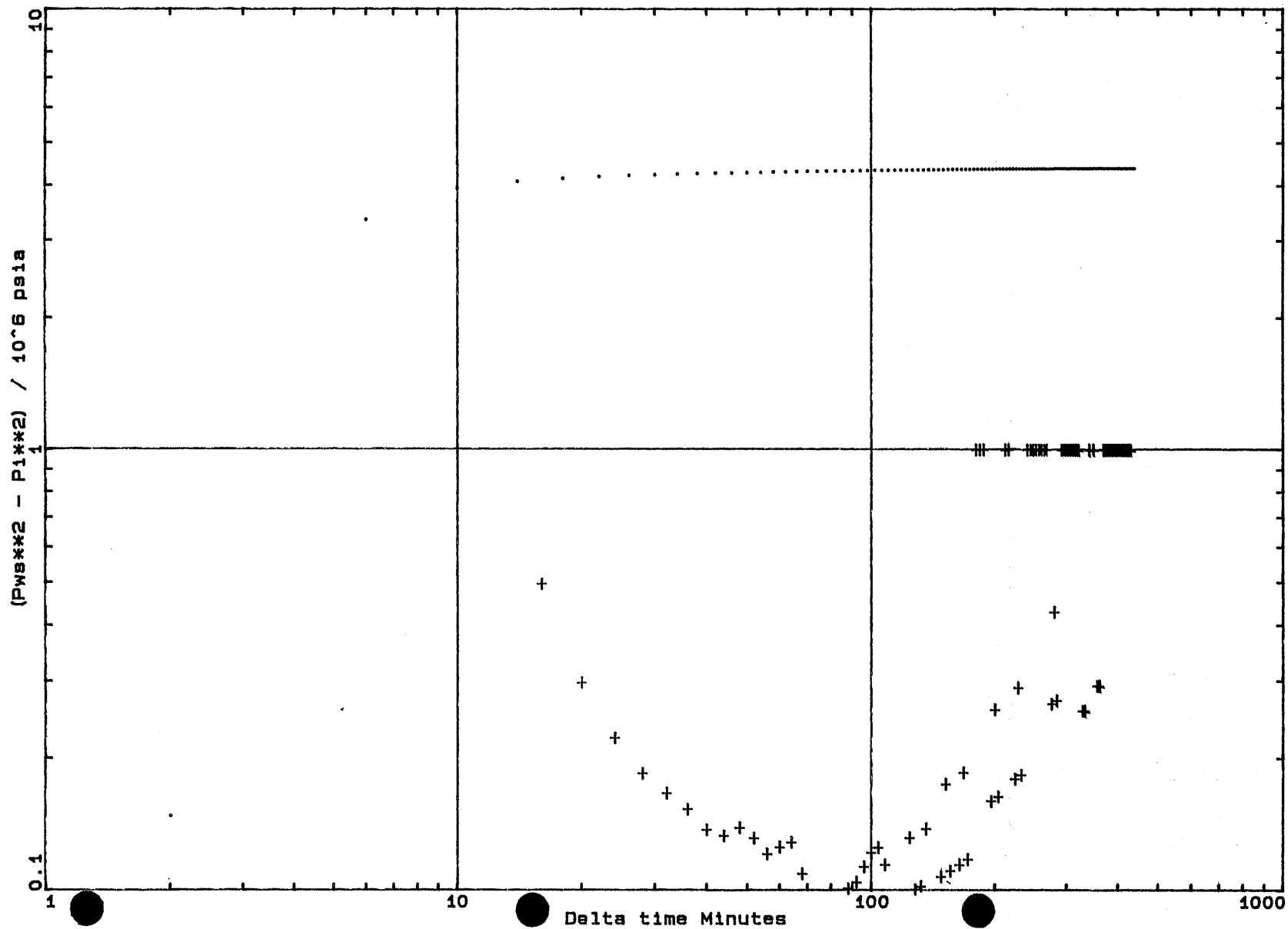
GFE RESOURCES LTD

SHUT-IN #2 (Gas)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 X LINE 3560  
DST #: 2

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



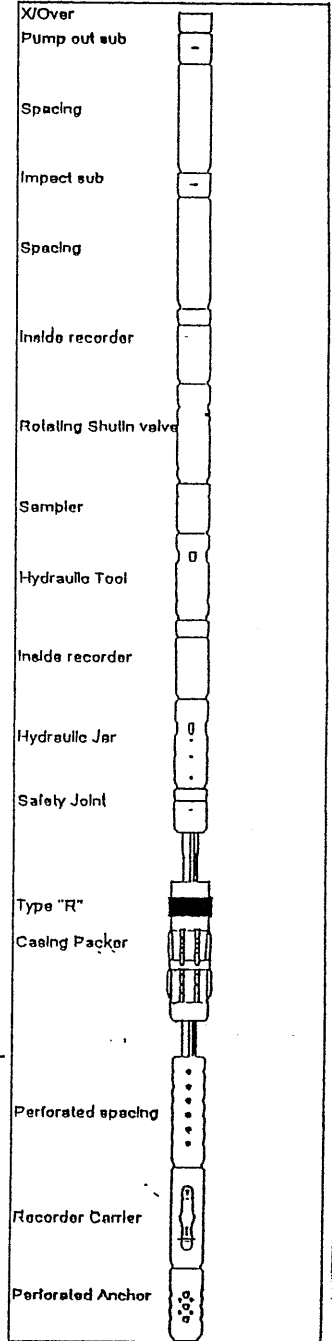


**TEST TOOL & PIPE RECORD**

Well Name & No.	WALLABY CREEK # 2		
Date	4/30/95		
Ticket No.	1189		
Interval Tested	From:	1496	To: 1531
Total Depth.	0	Total Interval	35
Test No.	Five		

DESCRIPTION	I.D. No.	I.D.	O.D.	Length	Depth
Stick Up					-2.83
Tubing 2 7/8"				1475.20	1472.37
Cross Over Sub				0.25	1472.62
Cross Over Sub				0.30	1472.92
Impact Reversing Sub				0.36	1473.28
Spacing				6.07	1479.35
Inside Recorder Carrier			4 7/8	1.37	1480.72
Hydraulic Jars			4 7/8	2.01	1482.73
Hydraulic Jars			4 7/8	2.01	1484.74
Rotary Shut In Tool			5	2.59	1487.33
Positive Control Sampler			5	1.04	1488.37
Hydraulic Shut in Valve			4 7/8	1.49	1489.86
Inside Recorder Carrier			4 7/8	1.37	1491.23
Panex Recorder				3.35	1494.58
Safety Joint	931	2 7/16	4 3/4	0.69	1495.27
Packer Stick UP			5 5/8	0.73	1496.00
<b>Packer Seal Depth</b>					1496.00
Packer Stick Down				0.99	1496.99
Outside Recorder Carrier				2.06	1499.05

Pipe Tally	Length	Description	Depth
Tubing	1475.20		
Cross over Subs	0.55	D.B.S.	1473.28
Tools above Interval	23.08	Rec. Recorder	1480.72
<b>TOTAL STRING</b>	<b>1498.83</b>	<b>Inside Recorder</b>	<b>1491.23</b>
Packer Seal Depth	1496.00	Panex Recorder	1494.58
Top Single Above Table	2.83	Outside Recorder	1499.05



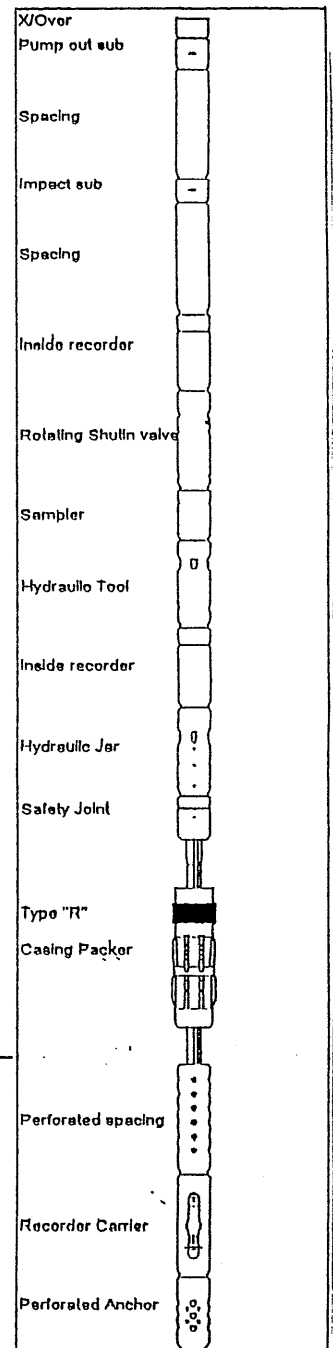
Service Engineer \_\_\_\_\_ Oil Co. Rep. \_\_\_\_\_



TEST TOOL & PIPE RECORD			
Well Name & No.	WALLABY CREEK # 2		
Date	4/26/95		
Ticket No.	1186		
Interval Tested	From:	1510	To: 1516
Total Depth.	0	Total Interval	6
Test No.	Two		

DESCRIPTION	I.D. No.	I.D.	O.D	Length	Depth
Stick Up					-4.84
Tubing 2 7/8"				1475.21	1470.37
Cross Over Sub				0.25	1470.62
Cross Over Sub				0.30	1470.92
Impact Reversing Sub				0.36	1471.28
Spacing				6.07	1477.35
Inside Recorder Carrier			4 7/8	1.37	1478.72
Hydraulic Jars			4 7/8	2.01	1480.73
Hydraulic Jars			4 7/8	2.01	1482.74
Rotary Shut In Tool			5	2.59	1485.33
Positive Control Sampler			5	1.04	1486.37
Hydraulic Shut in Valve			4 7/8	1.49	1487.86
Inside Recorder Carrier			4 7/8	1.37	1489.23
Panex Recorder				3.35	1492.58
Safety Joint	931	2 7/16	4 3/4	0.69	1493.27
Packer Stick UP			5 5/8	0.73	1494.00
<b>Packer Seal Depth</b>					1494.00
Packer Stick Down				0.99	1494.99
Outside Recorder Carrier				2.06	1497.05

Pipe Tally	Length	Description	Depth
Tubing	1475.21		
Cross over Subs	0.55	D.B.S.	1471.28
Tools above Interval	23.08	Rec. Recorder	1478.72
<b>TOTAL STRING</b>	<b>1498.84</b>	<b>Inside Recorder</b>	<b>1489.23</b>
Packer Seal Depth	1494.00	Panex Recorder	1492.58
Top Single Above Table	4.84	Outside Recorder	1497.05



Service Engineer \_\_\_\_\_

Oil Co. Rep. \_\_\_\_\_

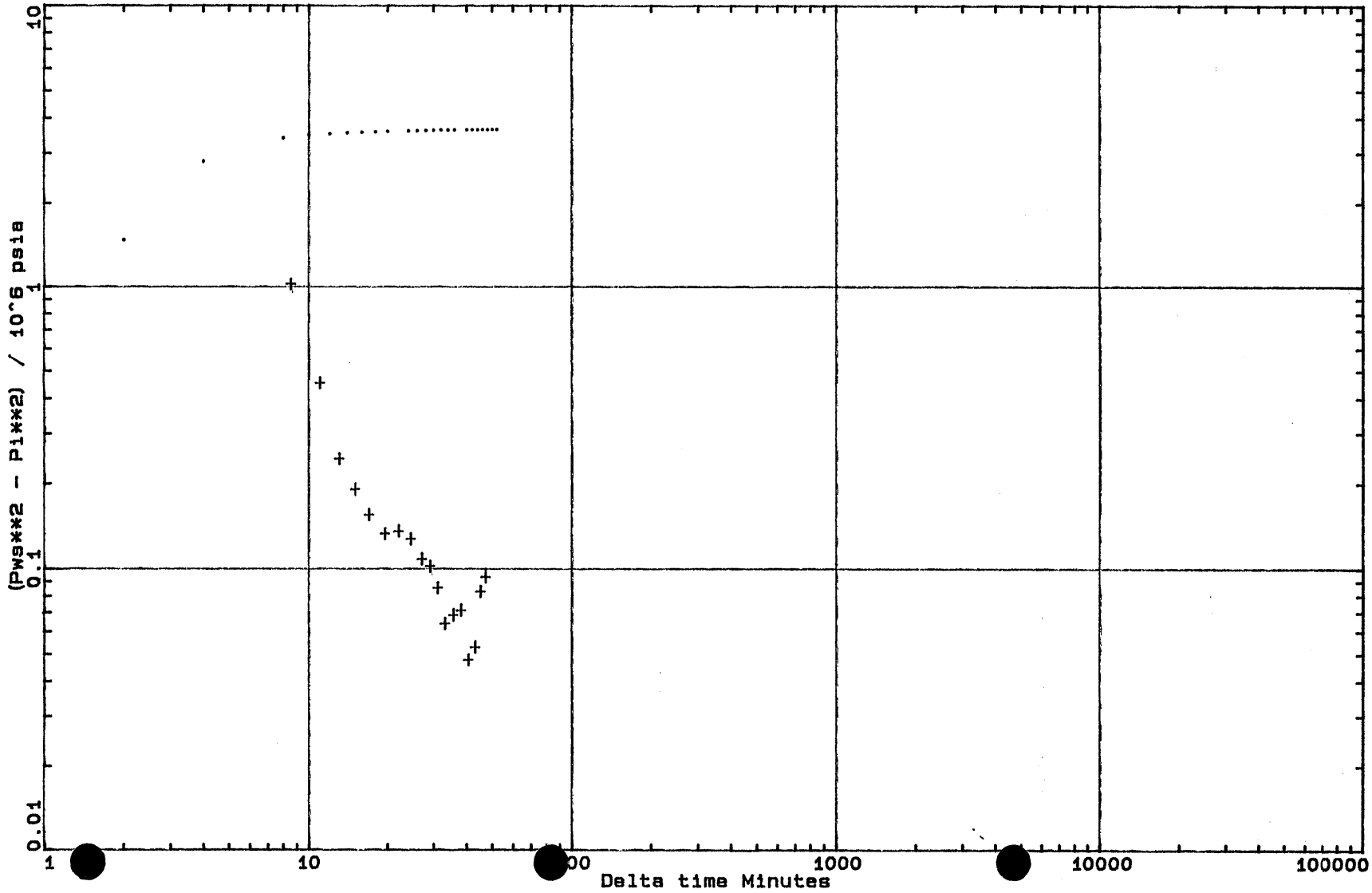
GFE RESOURCES LTD

SHUT-IN #3 (Gas)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 X LINE 3560  
DST #: 2

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



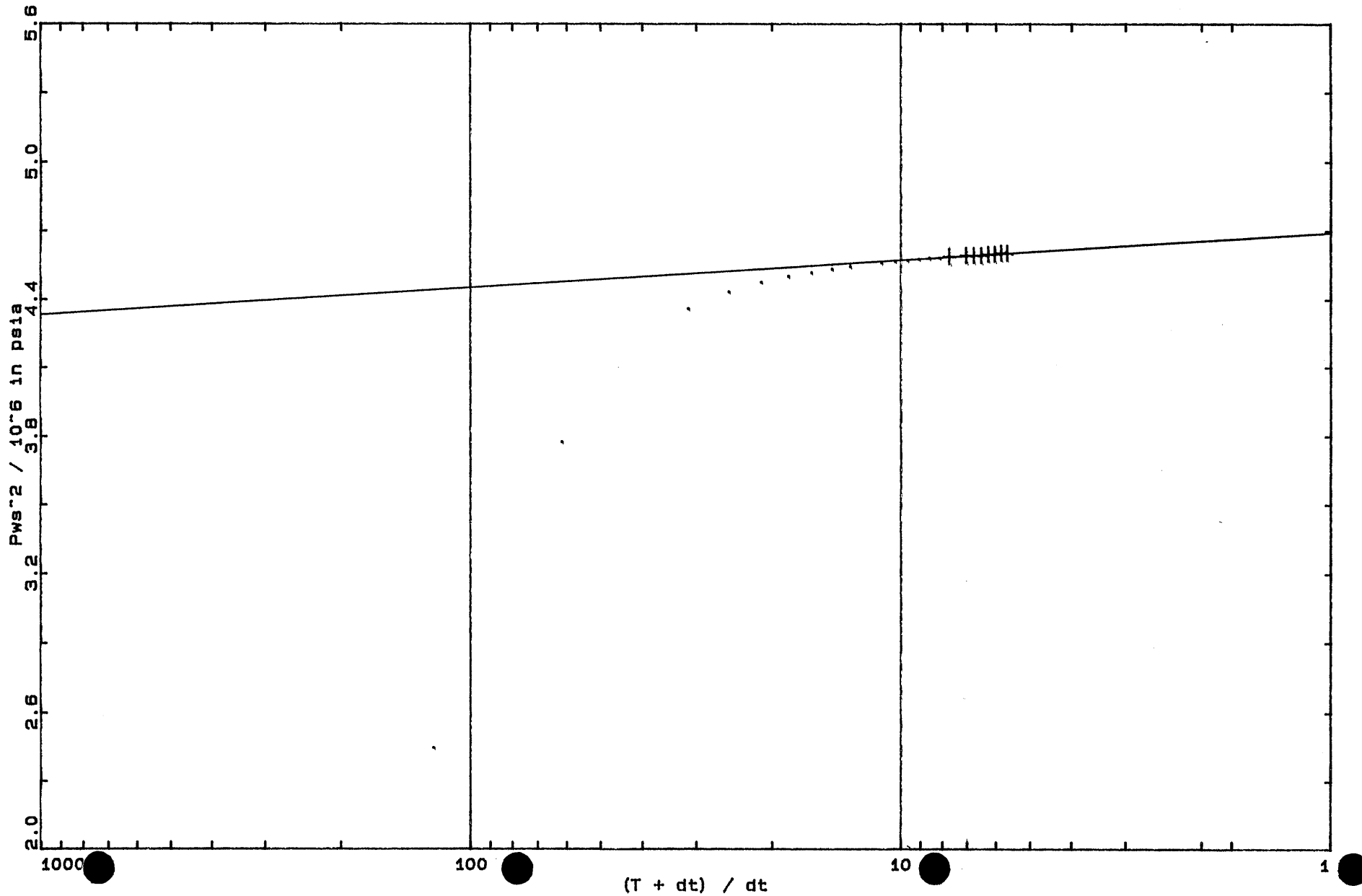


GFE RESOURCES LTD

SHUT-IN #3

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 X LINE 3560  
DST #: 2  
Slope = 0.12 psia ( $\cdot^2 / 10^{-6}$ ) / cycle  
Extrapolated Pressure = 2167.13 psia

RECORDER: 1783

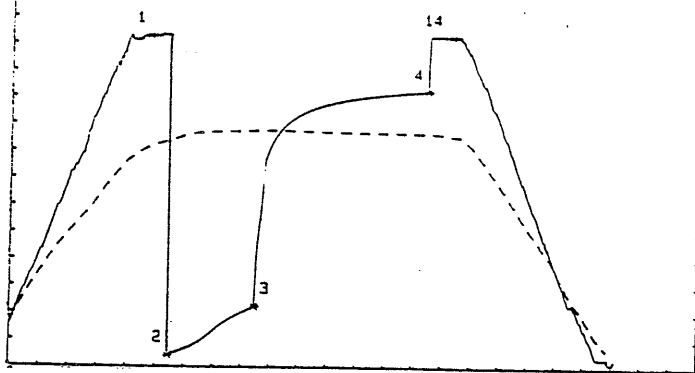


DST #: 3  
 WALLABY CREEK # 2  
 5016.6 ft - 5029.7 ft

Location: INLINE 6765 XLINE 3560  
 Test Type: CASED HOLE  
 Formation: EUMERALLA

Recorder Number: 1783  
 Recorder Depth: 5027 ft

Test Date: 28/04/95



PRESSURE  
 psia  
 1) Initial Hydrostatic: 2456.2  
 2) Start of 1st Flow : 83.7  
 3) End of 1st Flow : 448.7  
 4) End of 1st Shut-in : 2047.5  
 14) Final Hydrostatic : 2455.0

TEST TIMES (MIN)  
 1st FLOW : 120.00  
 SHUTIN: 240.00

-----  
 BLOW DESCRIPTION:

THE TOOL WAS OPENED AT 04:49 HRS WITH A TRACE BLOW INCREASING TO WEAK BLOW AT 04:50 HRS. STRONG BLOW AT BOTTOM OF BUCKET 04:53HRS WITH BLOW REMAINING THE SAME THROUGHOUT THE FLOW.

-----  
 LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 815 FT OF WATER.  
 NO BOTTOM HOLE SAMPLER WAS RUN.

-----  
 REMARKS AND TEST SUMMARY:

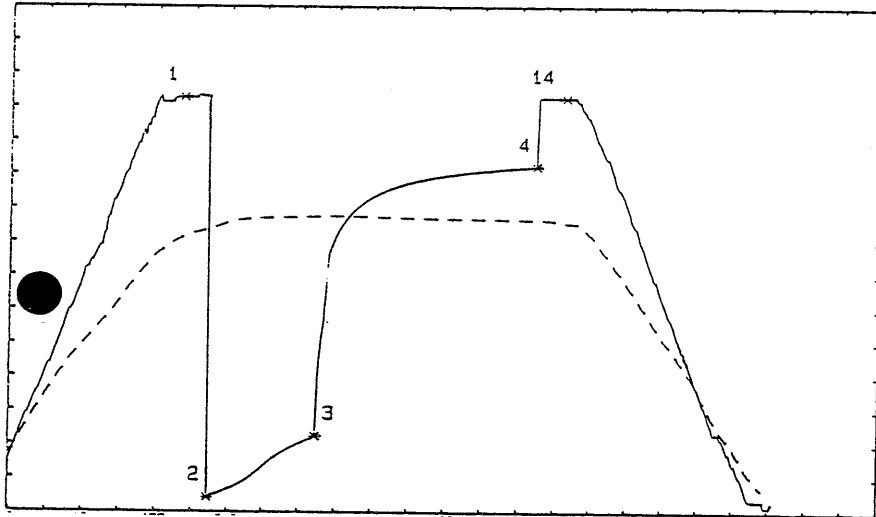
A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.  
 ALL THE PRESSURES REPORTED FROM THE DOWNHOLE RECORDERS ARE PSIA (ie PLUS 14.7).  
 THE FLOW AND SHUT IN TIMES REPORTED ARE TAKEN FROM THE DOWNHOLE ELECTRONIC MEMORY RECORDER (DMR # 1783).  
 DST # 3 WAS RUN TO TEST PACK OFF OF PERMANENT BRIDGE PLUG;  
 WATER FROM ZONE FLOWED PAST ULMOST UNIMPEDED.  
 THE PACKER SETTING DEPTHS WERE CALCULATED USING THE DRILLER'S TALLY.

PRESSURE RECORDER NUMBER: 1783

DEPTH : 5026.60 ft      LOCATION : OUTSIDE  
 TYPE : DMR              CAPACITY : 5000.00 psia  
 \*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 147.0 F

PRESSURE  
psia

- 1) Initial Hydrostatic: 2456.2
- 2) Start of 1st Flow : 83.7
- 3) End of 1st Flow : 448.7
- 4) End of 1st Shut-in : 2047.5
- 14) Final Hydrostatic : 2455.0



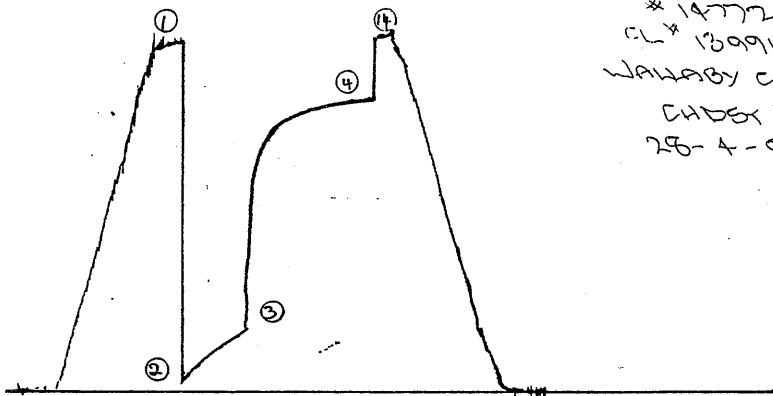
TEST TIMES (MIN)  
 1st FLOW : 120.00  
 SHUTIN: 240.00

PRESSURE RECORDER NUMBER: 14172

DEPTH : 5000.90 ft      LOCATION : INSIDE  
 TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 2440.1
- 2) Start of 1st Flow : 69.4
- 3) End of 1st Flow : 429.7
- 4) End of 1st Shut-in : 2021.3
- 14) Final Hydrostatic : 2432.7



TOP REC  
 \* 14772  
 CL# 13991  
 WALLABY CK # 2  
 CHDGT # 3  
 25-4-95

DST #: 3  
WALLABY CREEK # 2  
5016.6 ft - 5029.7 ft

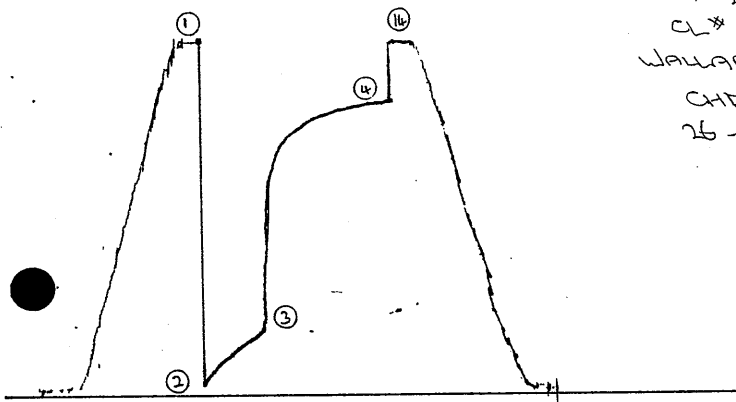
PRESSURE RECORDER NUMBER: 21149

DEPTH : 5026.60 ft      LOCATION : OUTSIDE  
TYPE : K-3              CAPACITY : 3025.00 psig

PRESSURE  
psia

OUT REC  
# 21149  
CL # 18422  
WALLABY CK # 2  
CHDST # 3  
26-4-95

- 1) Initial Hydrostatic: 2452.7
- 2) Start of 1st Flow : 84.0
- 3) End of 1st Flow : 436.9
- 4) End of 1st Shut-in : 2021.2
- 14) Final Hydrostatic : 2445.6



TEST TIMES (MIN)  
1st FLOW : 120.00  
SHUTIN: 240.00

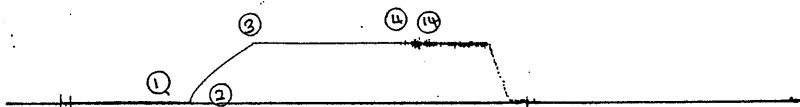
PRESSURE RECORDER NUMBER: 9987

DEPTH : 4969.90 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

REC REC  
# 9987  
CL # 13112  
WALLABY CK # 2  
CHDST # 3  
27-4-95

- 1) Initial Hydrostatic: 26.1
- 2) Start of 1st Flow : 26.1
- 3) End of 1st Flow : 434.1
- 4) End of 1st Shut-in : 434.1
- 14) Final Hydrostatic : 434.1

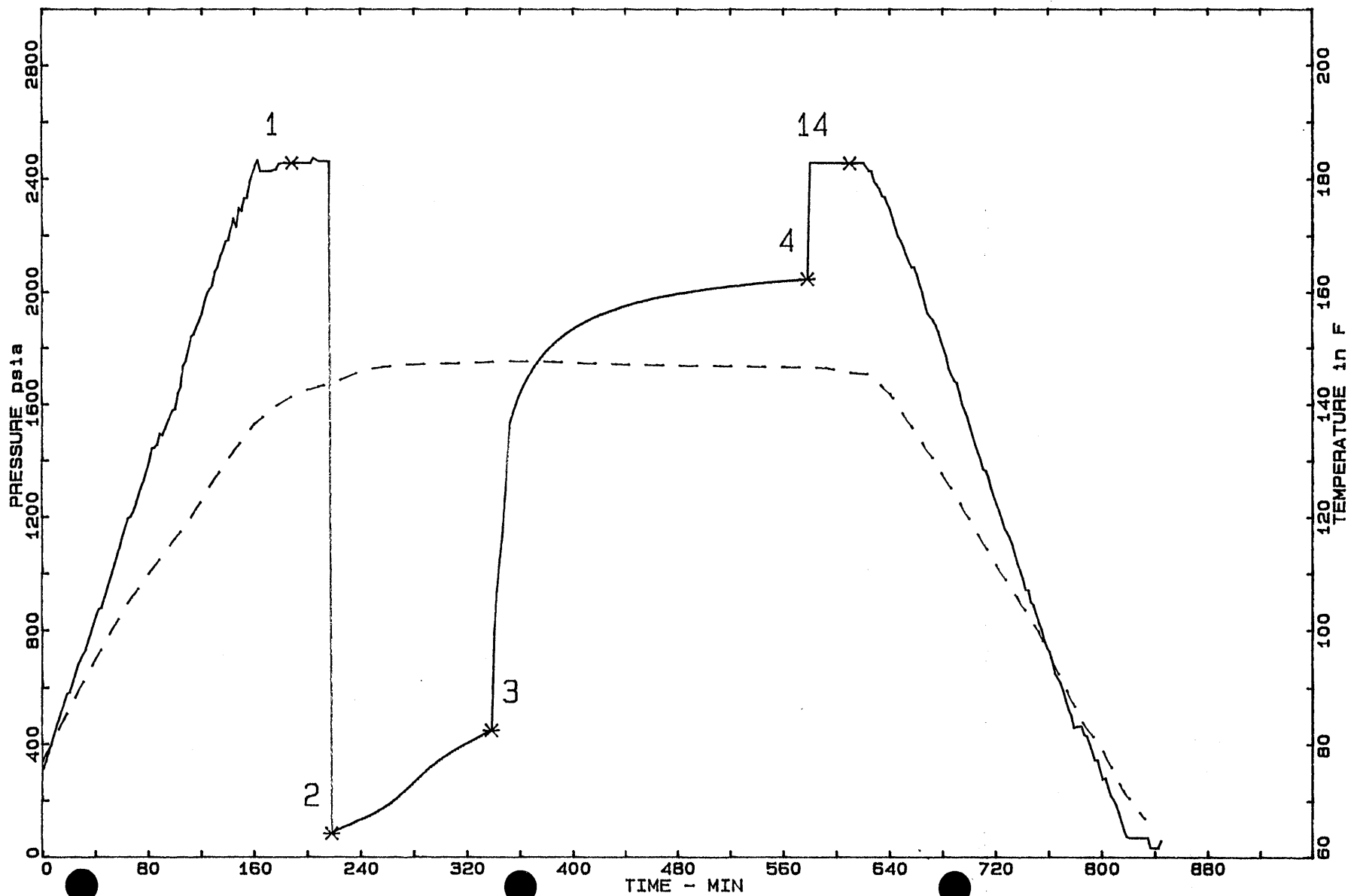


GFE RESOURCES LTD

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 3

LEGEND: \* 1 = 2456 psia  
2 = 83  
3 = 448  
4 = 2047  
14 = 2455

PRESSURE : —————  
TEMPERATURE: - - - - -

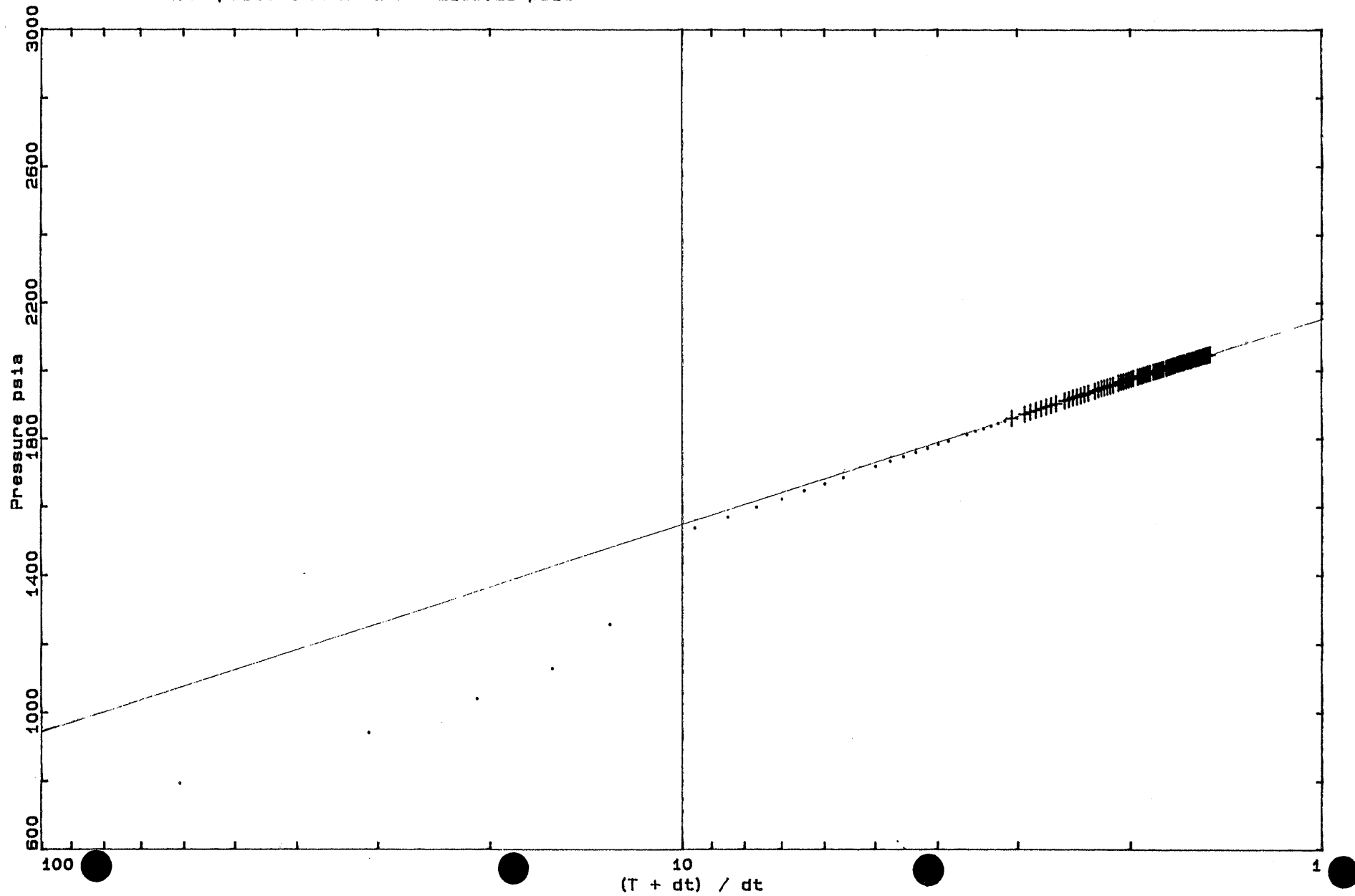


GFE RESOURCES LTD

SHUT-IN #1

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 3  
Slope = 606.40 psia / cycle  
Extrapolated Pressure = 2155.29 psia

RECORDER: 1783



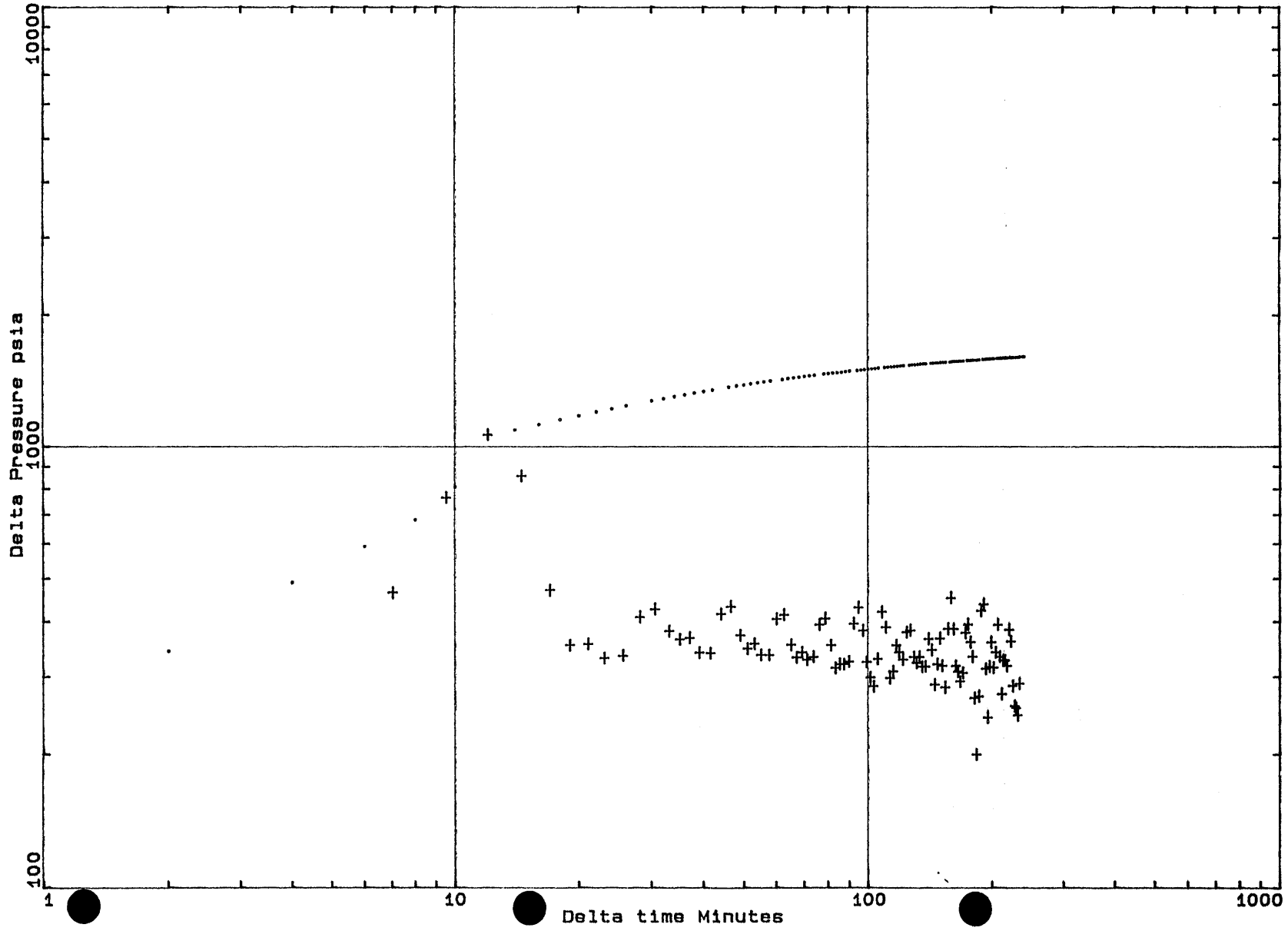
GFE RESOURCES LTD

SHUT-IN #1 (Liquid)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 3

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT

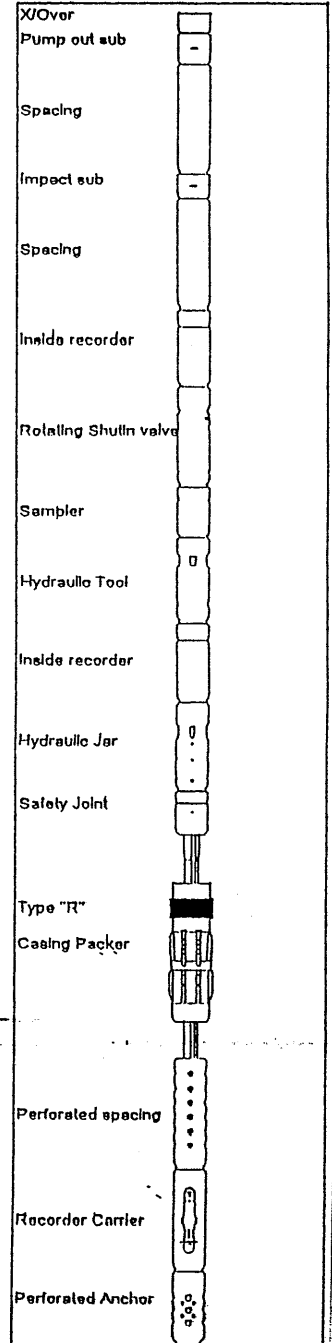




TEST TOOL & PIPE RECORD			
Well Name & No.	WALLABY CREEK # 2		
Date	4/28/95		
Ticket No.	1187		
Interval Tested	From:	1529	To: 1533
Total Depth.	0	Total Interval	4
Test No.	Three		

DESCRIPTION	I.D. No.	I.D.	O.D	Length	Depth
Stick Up					-6.54
Tubing 2 7/8"				1512.95	1506.41
Cross Over Sub				0.25	1506.66
Cross Over Sub				0.30	1506.96
Impact Reversing Sub				0.36	1507.32
Spacing				6.07	1513.39
Inside Recorder Carrier			4 7/8	1.37	1514.76
Hydraulic Jars			4 7/8	2.01	1516.77
Hydraulic Jars			4 7/8	2.01	1518.78
Rotary Shut In Tool			5	2.59	1521.37
Hydraulic Shut in Valve			4 7/8	1.49	1522.86
Inside Recorder Carrier			4 7/8	1.37	1524.23
Spacing				3.35	1527.58
Safety Joint	931	2 7/16	4 3/4	0.69	1528.27
Packer Stick UP			5 5/8	0.73	1529.00
<b>Packer Seal Depth</b>					1529.00
Packer Stick Down				0.99	1529.99
Outside Recorder Carrier				2.06	1532.05

Pipe Tally	Length	Description	Depth
Tubing	1512.95		
Cross over Subs	0.55	D.B.S.	1507.32
Tools above Interval	22.04	Rec. Recorder	1514.76
<b>TOTAL STRING</b>	<b>1535.54</b>	<b>Inside Recorder</b>	<b>1524.23</b>
Packer Seal Depth	1529.00	Outside Recorder	1532.05
Top Single Above Table	6.54		



Service Engineer \_\_\_\_\_ Oil Co. Rep. \_\_\_\_\_



**TEST DATA** TEST No. THREE LUS. TEST No. THREE  
 FORMATION TESTED EMERALLA T.D. 1533  
 INTERVAL TESTED: From 1529 to 1533  
 TOTAL INTERVAL TESTED 4m NET PAY

TEST TYPE:  
 INFLATE STRADDLE  DUAL CONV. STRADDLE BY-PASS   
 INFLATE BTM. HOLE  DUAL CONV. STRADDLE BLANK OFF   
 CASING TEST  DUAL CONV. BTM. HOLE

OTHER .....  
 CUSHION: YES  NO  TYPE ..... AMOUNT .....  
 STARTED IN HOLE @ 00:45 HRS. OPENED TOOL @ 04:49 HRS.

TEST TIMES:  
 PRE-FLOW ..... MIN. INITIAL SHUT-IN ..... MIN.  
 SECOND FLOW ..... MIN. 2nd SHUT-IN ..... MIN.  
 FINAL FLOW 120 MIN. FINAL SHUT-IN 240 MIN.  
 PRE-FLOW BLOW DESCRIPTION: .....

FINAL FLOW BLOW DESCRIPTION: T2 BL AT 10 INCREASE  
TO WK BL AT 04:50 ST BL (BOB)  
04:53 REMAINING THRU FLOW

**GAS MEASUREMENTS** MEASURED WITH:  
 CRITICAL FLOW PROVER   
 ORIFICE WELL TESTER   
 SIDE STATIC   
 PITOT TUBE   
 OTHER .....

TIME	SURFACE CHOKE	READING
<del>WATER</del>		

NAME OF CUSTOMER CONTACT .....

Phone No. ....

**RECOVERY** RECOVERY VERIFICATION SIGNATURE:  
 (Oil Co. Representative)

TOTAL FLUID RECOVERED 248 m CONSISTING OF:  
248 m OF H<sub>2</sub>O  
 OF .....  
 OF .....  
 OF .....

TEST WAS REVERSED OUT: YES  NO  SALINITY .....

TESTER: A. Joyce  
 FIELD READINGS, REC. NO.

DEFLECTION	PRESSURE
1	
2a	
2b	
3	
4a	
4b	
4c	
5	
6	
7	
8	

CLOCK #	CLOCK #	CLOCK #	CLOCK # <u>D.M.R.</u>
No. <u>9987</u>	No. <u>1472</u>	No. <u>21149</u>	No. <u>1783</u>
INSIDE <input checked="" type="checkbox"/>	INSIDE <input checked="" type="checkbox"/>	INSIDE <input checked="" type="checkbox"/>	INSIDE <input checked="" type="checkbox"/>
OUTSIDE <input type="checkbox"/>	OUTSIDE <input type="checkbox"/>	OUTSIDE <input type="checkbox"/>	OUTSIDE <input type="checkbox"/>
CAP. <u>3000</u>	CAP. <u>3000</u>	CAP. <u>3025</u>	CAP. <u>3000</u>
DEPTH <u>4969.92</u>	DEPTH <u>5000.99</u>	DEPTH <u>5026.66</u>	DEPTH <u>5026.66</u>
1 <u>26.1</u>	1 <u>2440.1</u>	1 <u>2452.7</u>	1 <u>2456.2</u>
2a	2a	2a	2a
2b	2b	2b	2b
3	3	3	3
4a	4a	4a	4a
4b	4b	4b	4b <u>147F</u>
4c	4c	4c	4c
5 <u>26.1</u>	5 <u>69.4</u>	5 <u>84.0</u>	5 <u>83.7</u>
6 <u>434.1</u>	6 <u>429.7</u>	6 <u>436.9</u>	6 <u>448.7</u>
7 <u>434.1</u>	7 <u>2021.3</u>	7 <u>2021.2</u>	7 <u>2047.5</u>
8 <u>434.1</u>	8 <u>2432.7</u>	8 <u>2445.6</u>	8 <u>2455.0</u>

NUMBER KEY:

- 1 - INITIAL HYD.
- 2a - PRE-FLOW
- 2b -
- 3 - INITIAL SHUT-IN
- 4a - 2nd INITIAL FLOW
- 4b - 2nd FINAL FLOW
- 4c - 2nd SHUT-IN
- 5 - 3rd INITIAL FLOW
- 6 - FINAL FLOW
- 7 - FINAL SHUT-IN
- 8 - FINAL HYD.

No. OF REPORTS REQUIRED: ..... TIME INCREMENTS: .....

MAIL TO: ..... COMPLETE ANALYSIS: .....

**GENERAL INFORMATION**

COMPANY G.P.E. RESOURCES LIMITED  
 ADDRESS LEVEL SIX RIVERSIDE QUAY  
STH. MELBOURNE

WELL NAME WALLABY CREEK #2  
 LOCATION IN-LINE 6765 X-LINE 3560  
 K.B. 53.7m GROUND ELEV. 4.6m  
 AREA OMLAX BASIN PROVINCE VIC.  
 COMPANY REP. KEN SMITH  
 TESTER: IAN HYDE

UNIT # SKID BOX #2 PUMP No. ....  
 CONTRACTOR CDL RIG No. 11  
 TICKET No. 1187 DATE: Yr. 95 Mo. 4 Day 28

**MUD & HOLE DATA**

HOLE CONDITION @ TEST TIME:  
 EXCELLENT  GOOD  FAIR  POOR   
 WAS HOLE CONDITIONED PRIOR TO TEST: YES  NO   
 CALIPER LOG RUN PRIOR TO TEST: YES  NO   
 TYPE OF CALIPER LOG: ..... SHORT ARM  LONG ARM   
 CALIPERED HOLE SIZE @ TEST DEPTH ..... MAX. ....  
 MUD TYPE BRINE  
 WEIGHT 9.35 VISCOSITY ..... WATER LOSS .....  
 FILTER CAKE ..... LOG TEMPERATURE .....  
 DRILL PIPE SIZE: O.D. 2 7/8 I.D. .... WEIGHT 6.5  
 DRILL COLLARS: O.D. .... I.D. .... RUN .....  
 MAIN HOLE OR CASING SIZE 7"  
 RATHOLE OR LINER SIZE ..... No. OF .....  
 BOTTOM HOLE OR CHOKE SIZE 1"  
 SURFACE CHOKE SIZE MANIFOLD CLOSED  
 PACKER RUBBER SIZE: DIAM. IN ..... LENGTH IN .....

**REMARKS**

- DEPTH CALC W/ DRILL TALLY
- NO BTM HOLE SAMPLER RUN
- FLOW AND SHUT-IN TIMES TAKEN

FROM D.M.R.

- D.S.T. WAS RUN TO TEST PACK OFF OF PERMANANT BRIDGE PLUG - WATER FROM ZONE FLOWED PAST ALMOST UNIMPEDED

BTM. H. SAMPLER # ..... SENT TO: .....

GAS BOMB # ..... SENT TO: .....

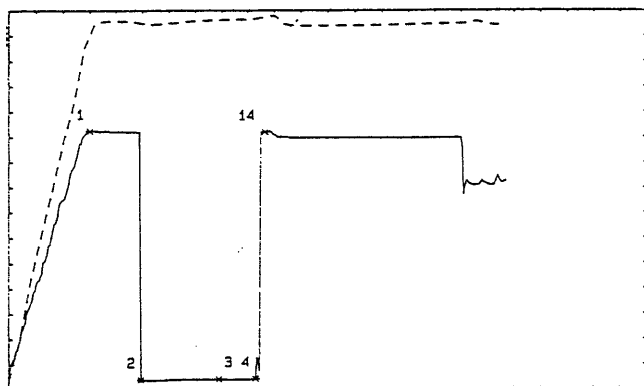
No. OF FLUID SAMPLES TAKEN ..... SENT TO: .....

DST #: 4  
 WALLABY CREEK # 2  
 4993.6 ft - 5023.2 ft

Location: INLINE 6765 XLINE 3560  
 Test Type: CASED HOLE  
 Formation: BRIDGE PLUG

Recorder Number: 1783  
 Recorder Depth: 5004 ft

Test Date: 29/04/95



## PRESSURE

psia

1) Initial Hydrostatic: 2447.5  
 2) Start of 1st Flow : 478.7  
 3) End of 1st Flow : 483.7  
 4) End of 1st Shut-in : 487.5  
 14) Final Hydrostatic : 2440.0

## TEST TIMES (MIN)

1st FLOW : 118.00  
 SHUTIN: 56.00

## BLOW DESCRIPTION:

THE TOOL WAS OPENED AT 22:58 HRS WITH MANIFOLD CLOSED NO BLOW.  
 TRACE BLOW AT 23:38 HRS INCREASING TO 3 INCH IN BUCKET AT 00:20. BLOW THEN  
 DECREASED TO TRACE BLOW AT 00:27 AND WAS DEAD AT 00:38. TOOL WAS SHUT IN  
 AT 00:56 HRS.

## LIQUID RECOVERY:

NO LIQUID RECOVERY.

## REMARKS AND TEST SUMMARY:

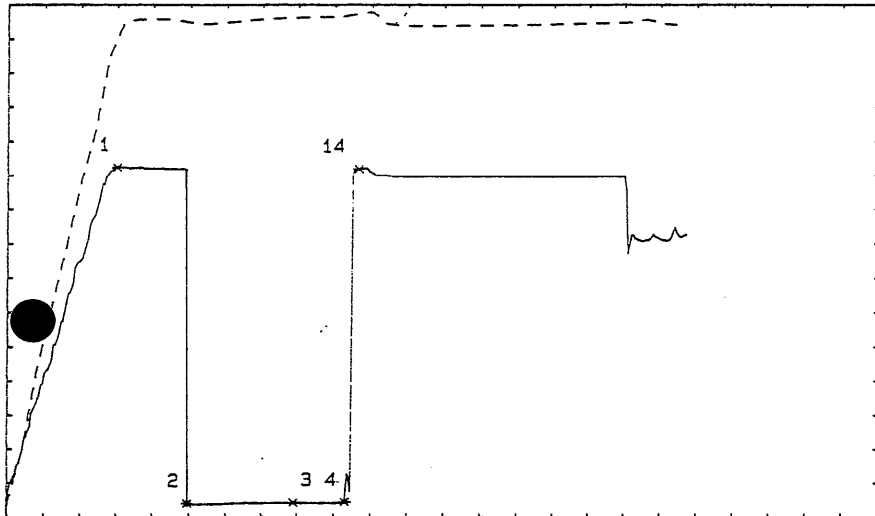
A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.  
 ALL THE PRESSURES REPORTED FROM THE DOWNHOLE RECORDERS ARE PSIA (ie PLUS 14.7).  
 THE FLOW AND SHUT IN TIMES REPORTED ARE TAKEN FROM THE DOWNHOLE ELECTRONIC  
 MEMORY RECORDER (DMR # 1783)  
 DST # 4 WAS CONDUCTED TO CHECK PACK OFF OF DELTA BRIDGE PLUG.  
 THE PACKER SETTING DEPTHS WERE CALCULATED USING THE DRILLER'S TALLY.

DST #: 4  
WALLABY CREEK # 2  
4993.6 ft - 5023.2 ft

PRESSURE RECORDER NUMBER: 1783

DEPTH : 5003.60 ft      LOCATION : OUTSIDE  
TYPE : DMR              CAPACITY : 5000.00 psia  
\*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 143.0 F

PRESSURE  
psia



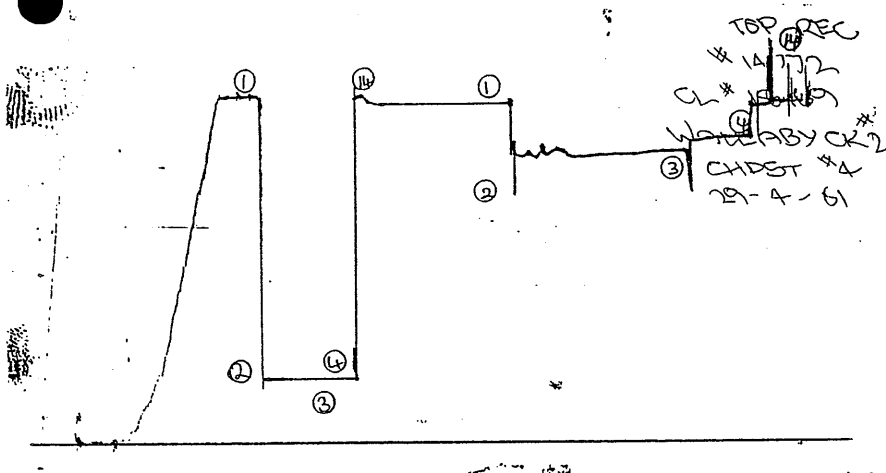
- 1) Initial Hydrostatic: 2447.5
- 2) Start of 1st Flow : 478.7
- 3) End of 1st Flow : 483.7
- 4) End of 1st Shut-in : 487.5
- 14) Final Hydrostatic : 2440.0

TEST TIMES (MIN)  
1st FLOW : 118.00  
SHUTIN: 56.00

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4978.00 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia



TOP REC  
# 14172  
CH # 1000  
WALLABY CR # 2  
CH DST # 4  
29-4-61

- 1) Initial Hydrostatic: 2410.5
- 2) Start of 1st Flow : 460.7
- 3) End of 1st Flow : 464.3
- 4) End of 1st Shut-in : 469.4
- 14) Final Hydrostatic : 2412.6

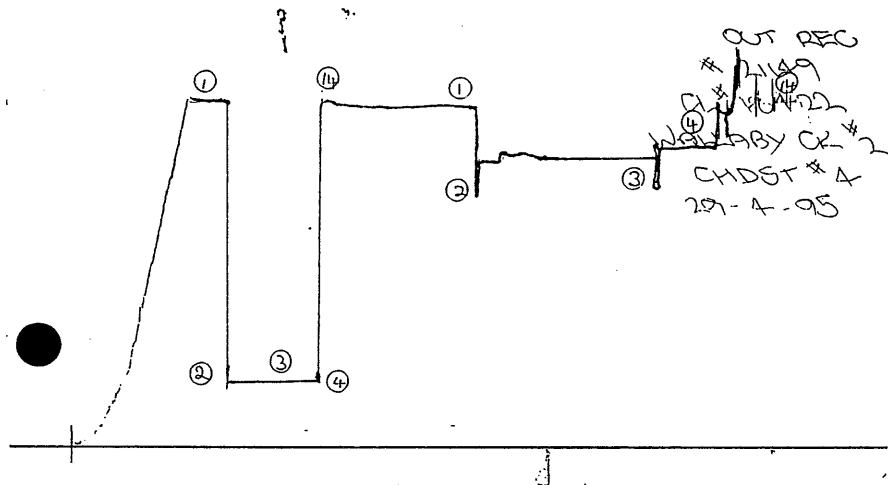
DST #: 4  
WALLABY CREEK # 2  
4993.6 ft - 5023.2 ft

PRESSURE RECORDER NUMBER: 21149

DEPTH : 5003.60 ft      LOCATION : OUTSIDE  
TYPE : K-3              CAPACITY : 3025.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 2461.1
- 2) Start of 1st Flow : 480.2
- 3) End of 1st Flow : 488.7
- 4) End of 1st Shut-in : 493.3
- 14) Final Hydrostatic : 2461.3



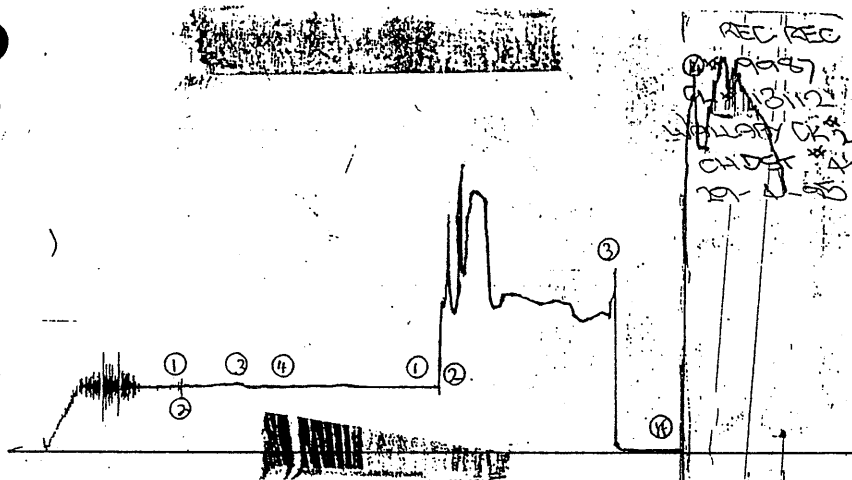
TEST TIMES (MIN)  
1st FLOW : 118.00  
SHUTIN: 56.00

PRESSURE RECORDER NUMBER: 9987

DEPTH : 4943.50 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 450.7
- 2) Start of 1st Flow : 450.7
- 3) End of 1st Flow : 462.6
- 4) End of 1st Shut-in : 462.6
- 14) Final Hydrostatic : 462.6



GFE RESOURCES LTD

DST #: 4  
WALLABY CREEK # 2  
4993.6 ft - 5023.2 ft

PRESSURE RECORDER NUMBER: 1588

-----  
DEPTH : 4989.00 ft      LOCATION : INSIDE  
TYPE : PANEX            CAPACITY : 10000.00 psig  
\*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 142.0 F

PRESSURE  
psia

1)Initial Hydrostatic:	2428.0
2)Start of 1st Flow :	465.0
3)End of 1st Flow :	466.0
4)End of 1st Shut-in :	469.0
14)Final Hydrostatic :	2428.0

TEST TIMES (MIN)  
1st FLOW : 118.00  
SHUTIN: 56.00

-----

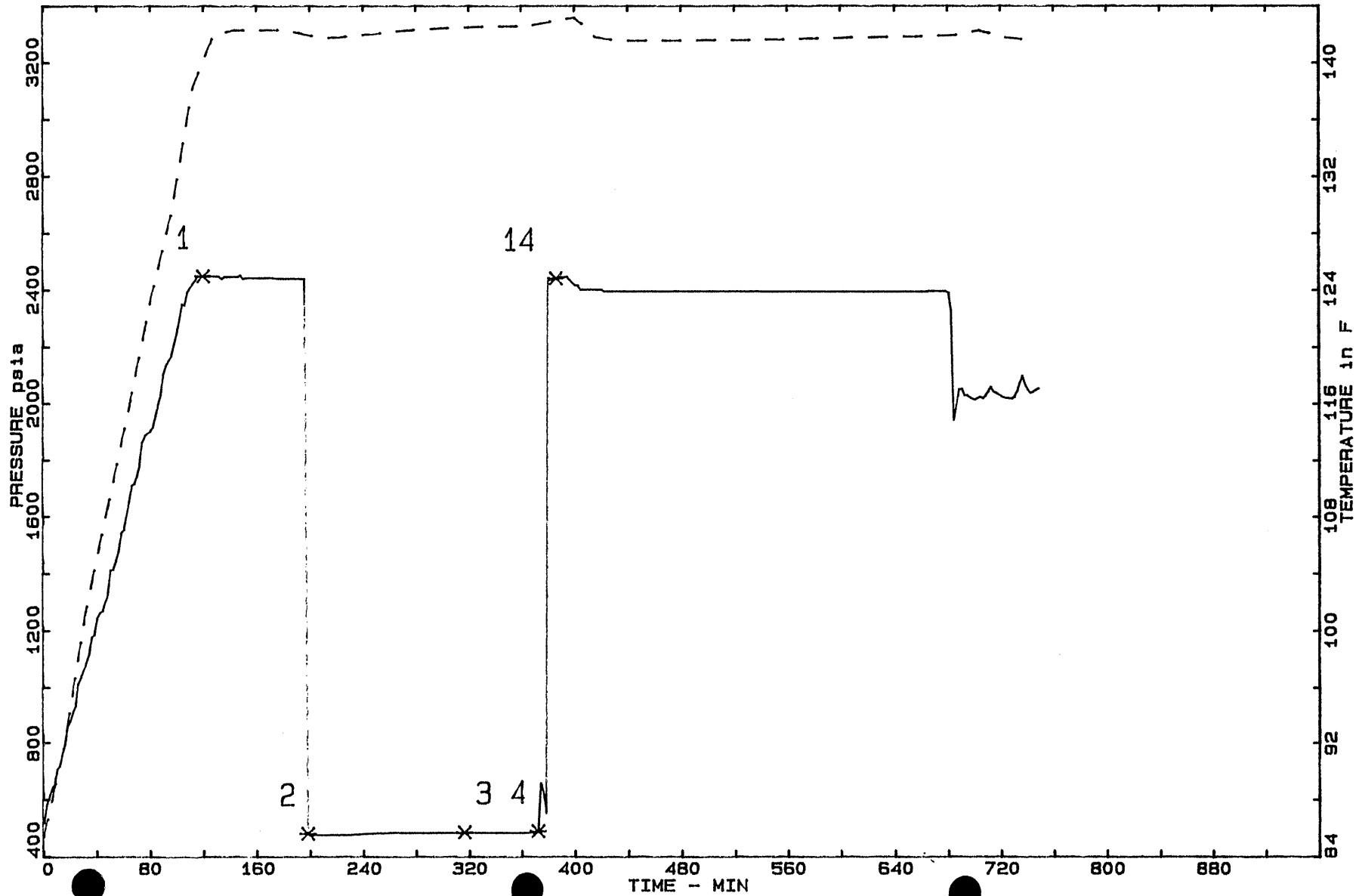
GFE RESOURCES LTD

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 4

RECORDER: 1783

LEGEND: *	1	=	2447	psia
	2		478	
	3		483	
	4		487	
	14		2440	

PRESSURE : —————  
TEMPERATURE: - - - - -

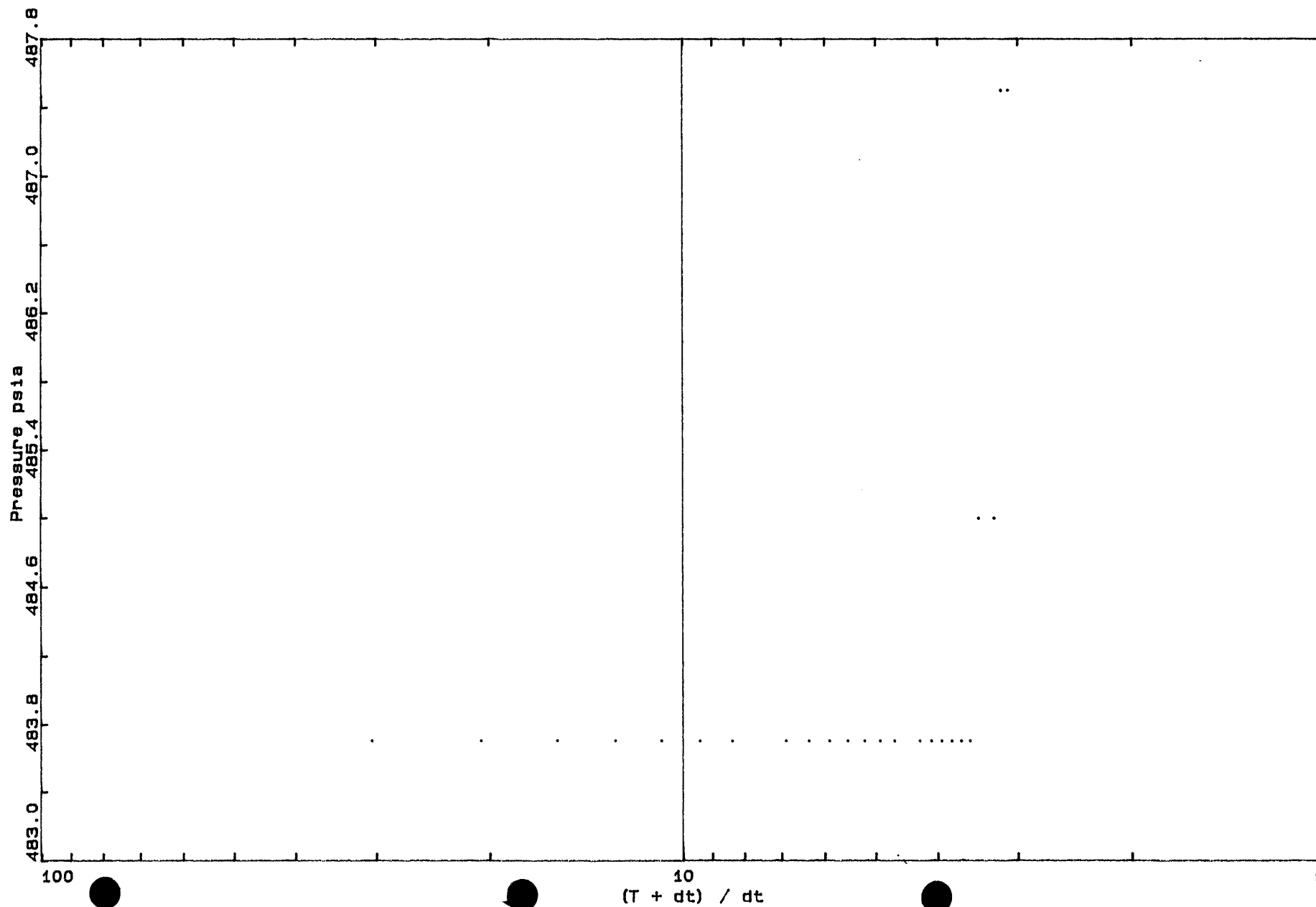


GFE RESOURCES LTD

SHUT-IN #1

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 4

RECORDER: 1783



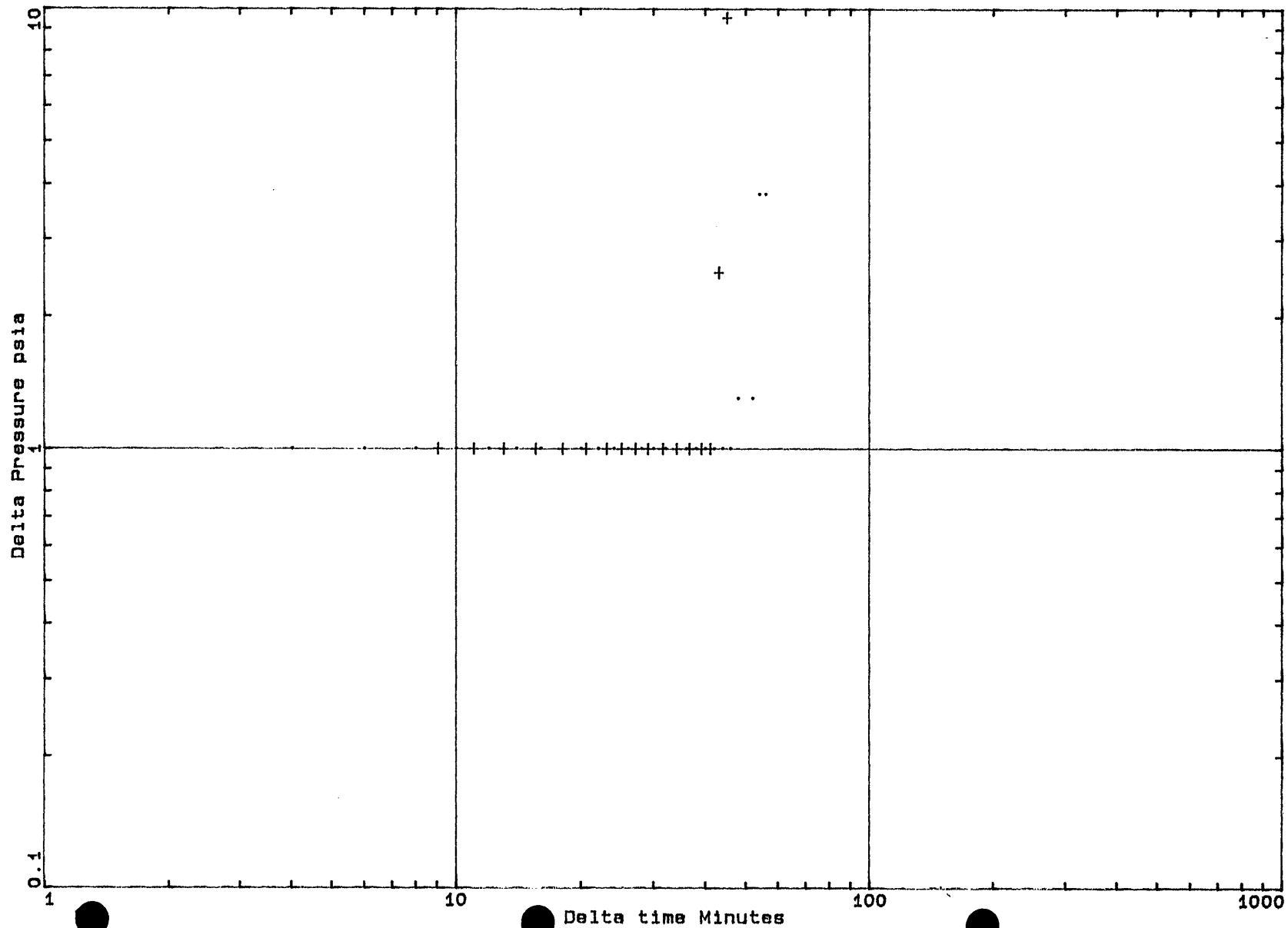
GFE RESOURCES LTD

SHUT-IN #1 (Liquid)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 4

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



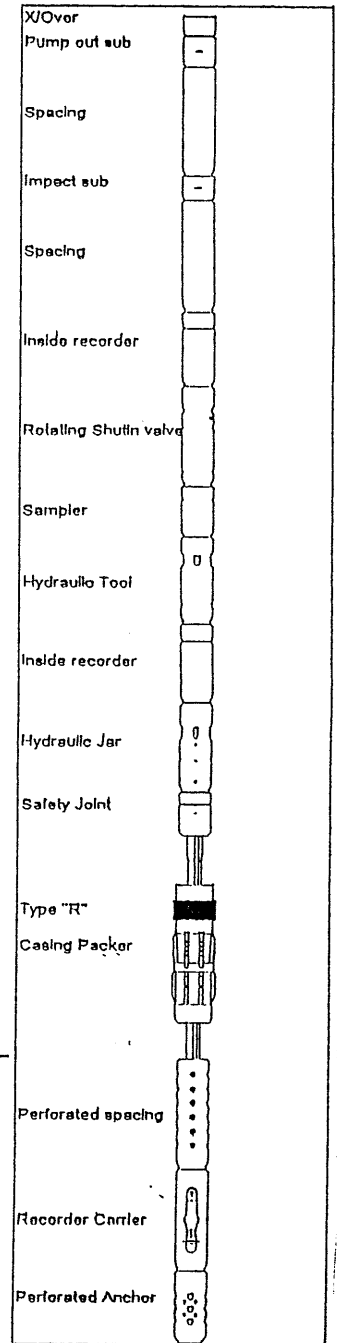




TEST TOOL & PIPE RECORD			
Well Name & No.	WALLABY CREEK # 2		
Date	4/29/95		
Ticket No.	1188		
Interval Tested	From:	1522	To: 1531
Total Depth.	0	Total Interval	9
Test No.	Four		

DESCRIPTION	I.D. No.	I.D.	O.D	Length	Depth
Stick Up					-5.00
Tubing 2 7/8"				1503.37	1498.37
Cross Over Sub				0.25	1498.62
Cross Over Sub				0.30	1498.92
Impact Reversing Sub				0.36	1499.28
Spacing				6.07	1505.35
Inside Recorder Carrier			4 7/8	1.37	1506.72
Hydraulic Jars			4 7/8	2.01	1508.73
Hydraulic Jars			4 7/8	2.01	1510.74
Rotary Shut In Tool			5	2.59	1513.33
Positive Control Sampler			5	1.04	1514.37
Hydraulic Shut in Valve			4 7/8	1.49	1515.86
Inside Recorder Carrier			4 7/8	1.37	1517.23
Panex Recorder				3.35	1520.58
Safety Joint	931	2 7/16	4 3/4	0.69	1521.27
Packer Stick UP			5 5/8	0.73	1522.00
<b>Packer Seal Depth</b>					1522.00
Packer Stick Down				0.99	1522.99
Outside Recorder Carrier				2.06	1525.05

Pipe Tally	Length	Description	Depth
Tubing	1503.37		
Cross over Subs	0.55	D.B.S.	1499.28
Tools above Interval	23.08	Rec. Recorder	1506.72
<b>TOTAL STRING</b>	<b>1527.00</b>	<b>Inside Recorder</b>	<b>1517.23</b>
Packer Seal Depth	1522.00	Panex Recorder	1520.58
Top Single Above Table	5.00	Outside Recorder	1525.05



Service Engineer \_\_\_\_\_

Oil Co. Rep. \_\_\_\_\_

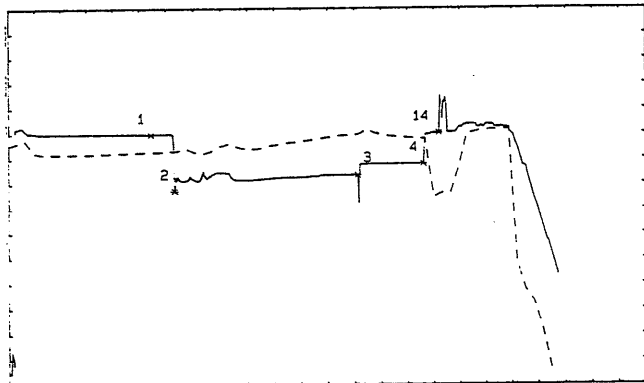


DST #: 5  
 WALLABY CREEK # 2  
 4908.3 ft - 5023.2 ft

Location: INLINE 6765 XLINE 3560  
 Test Type: CASED HOLE  
 Formation: WAARRE

Recorder Number: 1783  
 Recorder Depth: 4918 ft

Test Date: 30/04/95



PRESSURE  
 psia  
 1)Initial Hydrostatic: 2393.7  
 2)Start of 1st Flow : 1941.2  
 3)End of 1st Flow : 2068.7  
 4)End of 1st Shut-in : 2155.0  
 14)Final Hydrostatic : 2401.2

TEST TIMES (MIN)  
 1st FLOW : 340.00  
 SHUTIN: 124.00

-----  
**BLOW DESCRIPTION:**

NO BLOW AT TOOL OPENING (07:03 HRS) WITH MANIFOLD CLOSED. OPENED A 0.25 INCH CHOKE AT 07:06, BLOW INCREASED TO MODERATE. STRONG BLOW AT BOTTOM OF BUCKET FLUID TO SURFACE AT 07:15 HRS (19 PSIG) CHANGED TO 0.5 INCH CHOKE. GAS TO SURFACE AT 07:19 HRS (350 PSIG). THE BLOW REMAINED STRONG THROUGHOUT THE FLOW. THE TOOL WAS CLOSED AT 12:43 HRS.

-----  
**LIQUID RECOVERY:**

THE TOTAL LIQUID RECOVERY WAS 2.3 BBLs OF GAS CUT WATER.  
 THE DOWNHOLE SAMPLER CONTAINED GAS ONLY.  
 THE RECOVERY DATA WAS OBTAINED DURING REVERSE CIRCULATION.

-----  
**REMARKS AND TEST SUMMARY:**

A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.  
 ALL THE PRESSURES REPORTED FROM THE DOWNHOLE RECORDERS ARE PSIA (ie PLUS 14.7).  
 THE FLOW AND SHUT IN TIMES REPORTED ARE TAKEN FROM THE DOWNHOLE ELECTRONIC MEMORY RECORDER (DMR # 1783).  
 PACKER SETTING DEPTHS WERE CALCULATED USING DRILLER'S TALLY.  
 DST # 5 WAS A RESET. THE CHARTS SHOW THAT SOME PLUGGING HAS OCCURED IN THE AREA OF THE SHUT-IN TOOL AND SAMPLER. INSPECTION OF TOOL AT SURFACE DID NOT REVEAL THE EXACT CAUSE.

GFE RESOURCES LTD  
DST #: 5  
WALLABY CREEK # 2  
4908.3 ft - 5023.2 ft

GAS MEASUREMENTS  
\*\*\*\*\*

Device: FLOOR CHOKE MANIFOLD

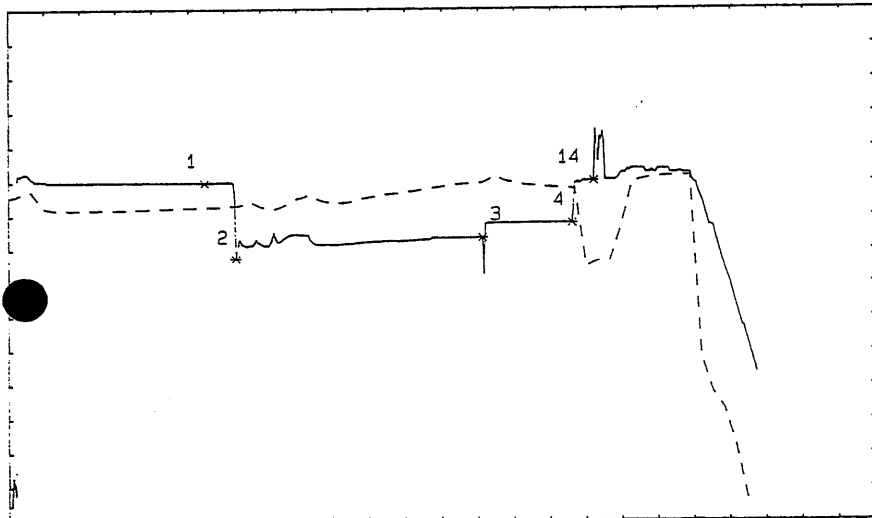
FLOW #	TIME (min)	CHOKE (in.)	READING( psia)
1	0.00	0.000	0.00
1	1.00	0.000	0.00
1	3.00	0.250	0.00
1	12.00	0.500	19.00
1	16.00	0.500	350.00
1	23.00	0.000	700.00
1	45.00	0.000	580.00
1	54.00	1.000	1550.00
1	58.00	0.250	750.00
1	101.00	0.500	1450.00
1	151.00	0.500	675.00
1	336.00	0.500	625.00
1	340.00	0.500	1245.00

PRESSURE RECORDER NUMBER: 1783

DEPTH : 4918.30 ft      LOCATION : OUTSIDE  
 TYPE : DMR              CAPACITY : 5000.00 psia  
 \*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 143.0 F

PRESSURE  
psia

- 1) Initial Hydrostatic: 2393.7
- 2) Start of 1st Flow : 1941.2
- 3) End of 1st Flow : 2068.7
- 4) End of 1st Shut-in : 2155.0
- 14) Final Hydrostatic : 2401.2



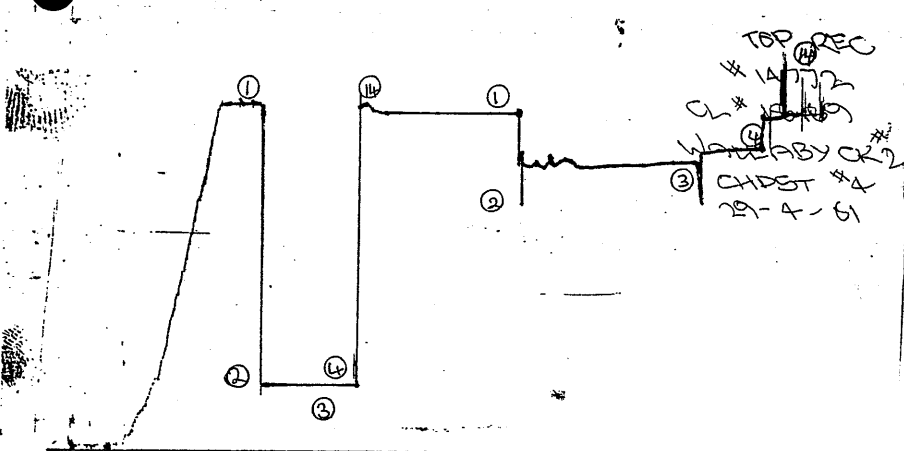
TEST TIMES (MIN)  
 1st FLOW : 340.00  
 SHUTIN: 124.00

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4892.70 ft      LOCATION : INSIDE  
 TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 2375.2
- 2) Start of 1st Flow : 2018.6
- 3) End of 1st Flow : 2019.3
- 4) End of 1st Shut-in : 2116.5
- 14) Final Hydrostatic : 2363.9



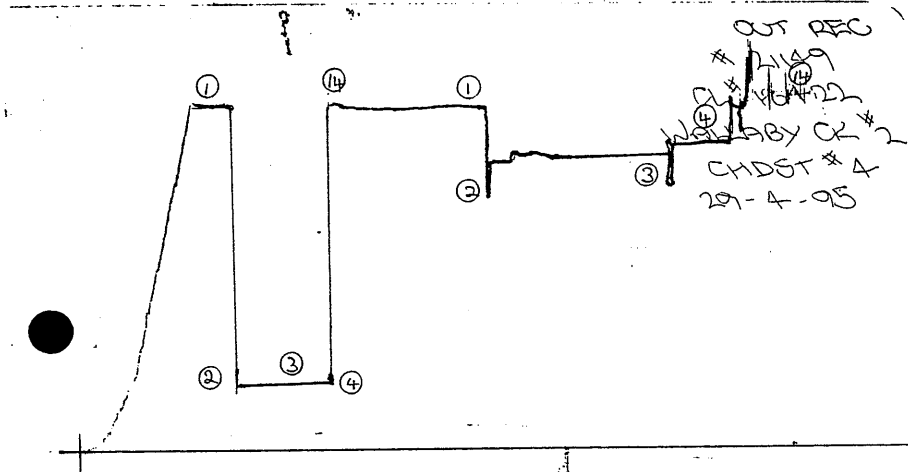
DST #: 5  
WALLABY CREEK # 2  
4908.3 ft - 5023.2 ft

PRESSURE RECORDER NUMBER: 21149

DEPTH : 4918.30 ft      LOCATION : OUTSIDE  
TYPE : K-3              CAPACITY : 3025.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 2418.8
- 2) Start of 1st Flow : 1785.3
- 3) End of 1st Flow : 2092.8
- 4) End of 1st Shut-in : 2184.8
- 14) Final Hydrostatic : 2414.1



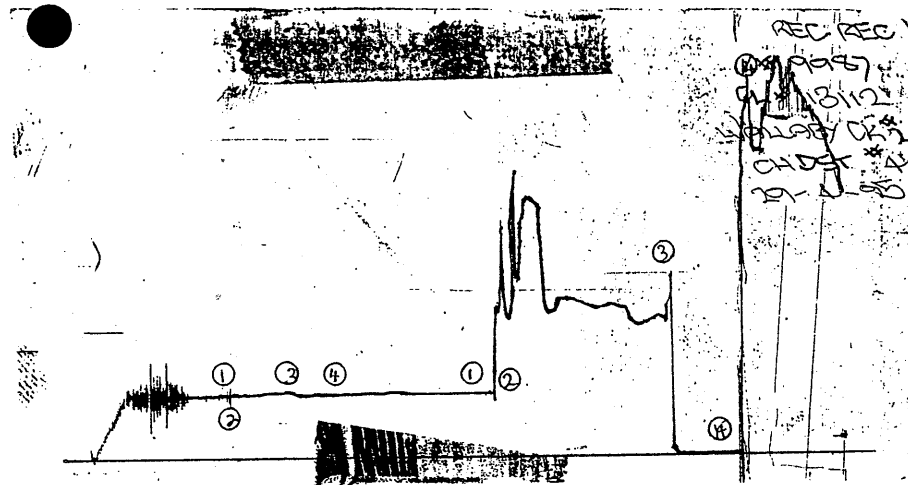
TEST TIMES (MIN)  
1st FLOW : 340.00  
SHUTIN: 124.00

PRESSURE RECORDER NUMBER: 9987

DEPTH : 4858.20 ft      LOCATION : INSIDE  
TYPE : K-3              CAPACITY : 3000.00 psig

PRESSURE  
psia

- 1) Initial Hydrostatic: 462.6
- 2) Start of 1st Flow : 462.6
- 3) End of 1st Flow : 1305.6
- 4) End of 1st Shut-in : 42.4
- 14) Final Hydrostatic : 2429.5



DST #: 5  
WALLABY CREEK # 2  
4908.3 ft - 5023.2 ft

PRESSURE RECORDER NUMBER: 1588

-----  
DEPTH : 4903.70 ft      LOCATION : INSIDE  
TYPE : PANEX            CAPACITY : 10000.00 psig  
\*\*\*\*\* TEMPERATURE AT RECORDER DEPTH = 145.0 F

PRESSURE  
psia

- 1)Initial Hydrostatic: 2382.0
- 2)Start of 1st Flow : 2080.0
- 3)End of 1st Flow : 2061.0
- 4)End of 1st Shut-in : 2149.0
- 14)Final Hydrostatic : 2388.0

TEST TIMES (MIN)  
1st FLOW : 340.00  
SHUTIN: 124.00

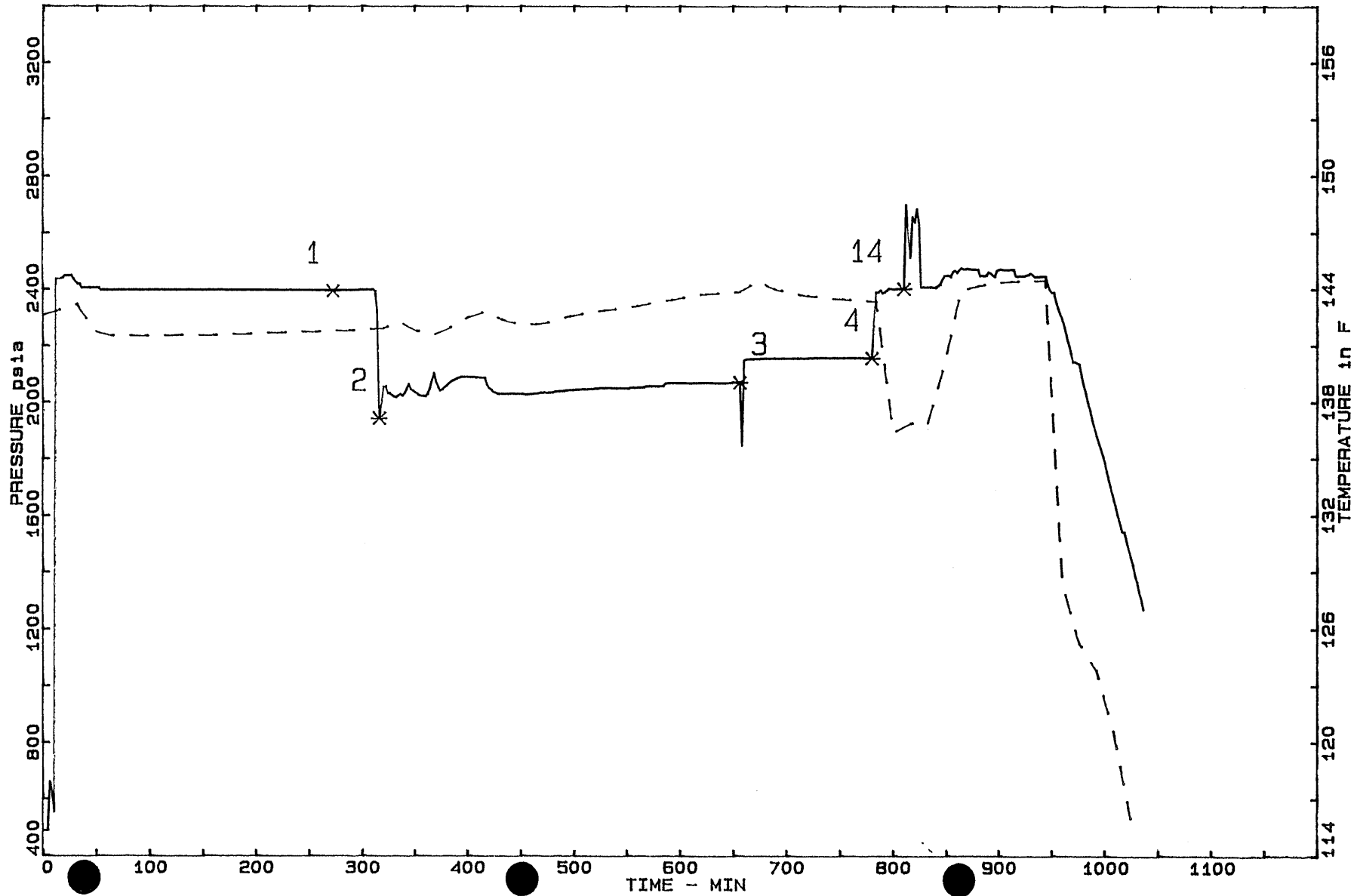
-----

GFE RESOURCES LTD

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 5

LEGEND: \* 1 = 2393 psia  
2 = 1941  
3 = 2068  
4 = 2155  
14 = 2401  
RECORDER: 1783

PRESSURE : ————  
TEMPERATURE: - - - -





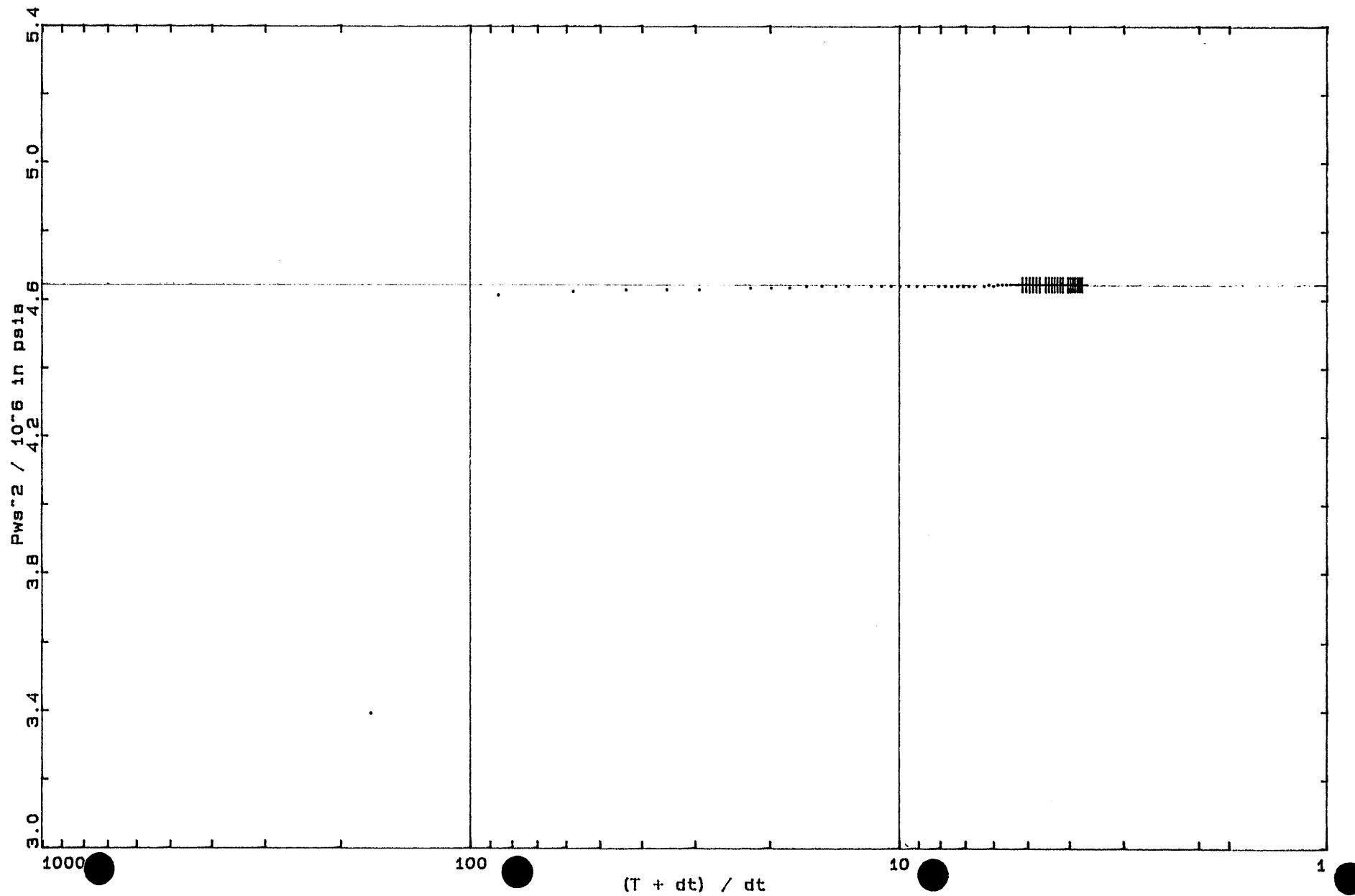
GFE RESOURCES LTD

SHUT-IN #1

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560

RECORDER: 1783

DST #: 5  
Slope = 0.00 psia ( $\times 10^6$ ) / cycle  
Extrapolated Pressure = 2155.00 psia



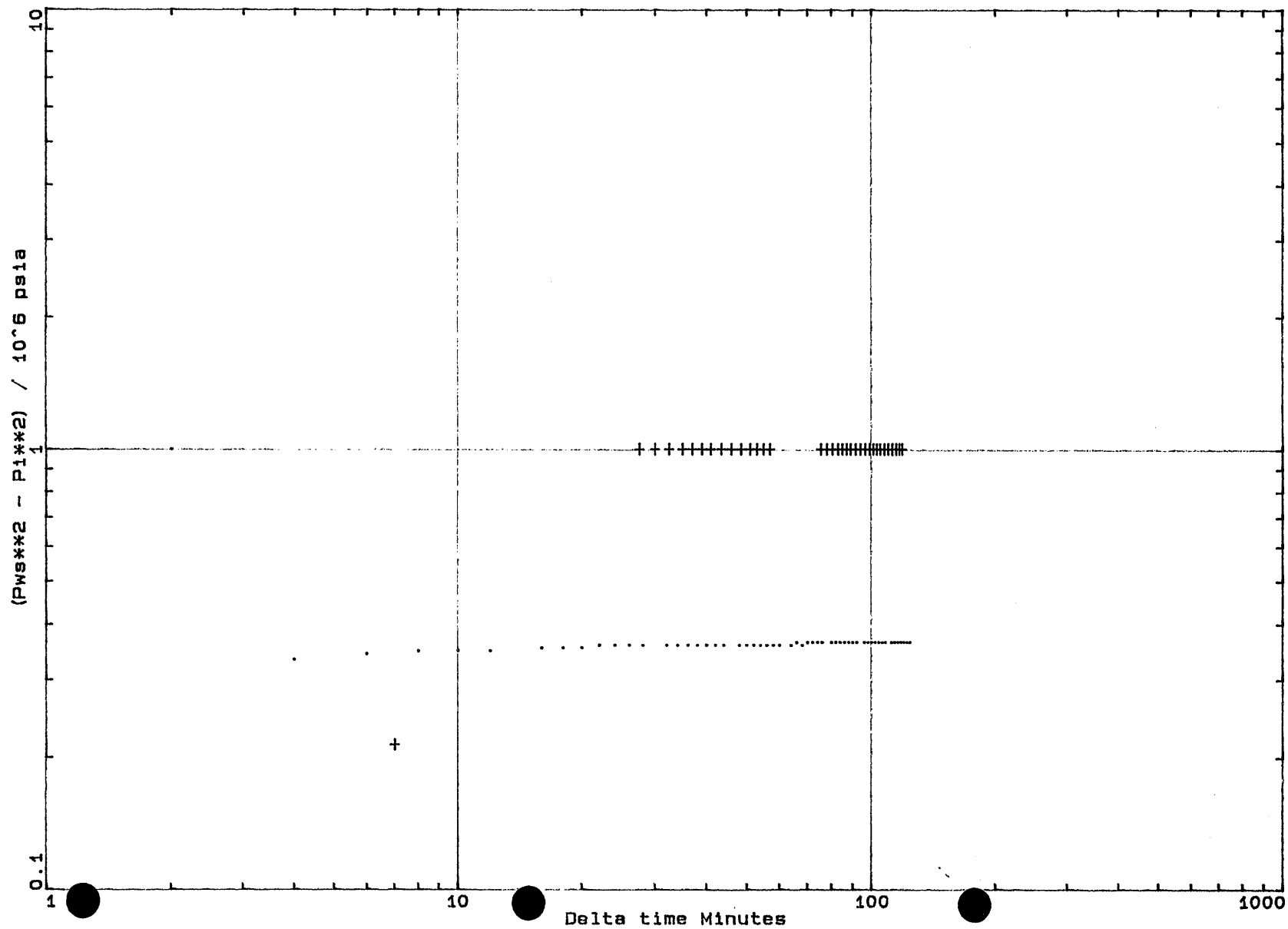
GFE RESOURCES LTD

SHUT-IN #1 (Gas)

WELL NAME: WALLABY CREEK # 2  
LOCATION: INLINE 6765 XLINE 3560  
DST #: 5

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



Appendix 8

# **APPENDIX 8**

**A: GAS ANALYSIS**  
**B: WATER ANALYSIS**



**GAS AND FUEL**  
**GAS TECHNOLOGY CENTRE - LABORATORY REPORT**

1136 Nepean Highway, Highett, Victoria 3190

Tel. 556 6222

Fax 555 7616

**Subject:** Analysis of Exploration Sample - Wallaby Creek #2 - DST #1  
 Sample #2 - 25/04/1995

**Requested by:** Kevin Lanigan, GFE Resources Ltd

**Report Reference:** 95/0611

<u>Component</u>	<u>Mole Percent Concentration</u>
Methane	86.4
Ethane	3.44
Propane	1.53
Iso-Butane	0.368
Normal-Butane	0.381
Neo-Pentane	0.007
Iso-Pentane	0.125
Normal-Pentane	0.089
Hexanes	0.109
Heptanes+	0.061
Carbon Dioxide	0.00
Carbon Monoxide	0.58
Oxygen+Argon	0.096
Nitrogen	6.72
Helium	0.067

**Calculated Characteristics for the dry gas at MSC**

Gross Heating Value	38.01 MJ/m <sup>3</sup>
Wobbe Index	47.63 MJ/m <sup>3</sup>
Relative Density	0.637

**Method References:** SSS-11-006, ISO 6974

**Analyst:** I. Strudwick

**Date:** 01/05/1995

**Approved Signatory:**



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## PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01  
ASTM D 1945-91 (modified)

Client: GFE RESOURCES

Report # LQ3881

Sample: WALLABY CREEK-2  
DST-2, Baker Sampling Tool  
Date: 26/04/95

GAS	MOL %
Nitrogen	4.65
Carbon Dioxide	2.53
Methane	87.41
Ethane	3.33
Propane	1.23
I-Butane	0.24
N-Butane	0.28
I-Pentane	0.09
N-Pentane	0.06
Hexanes	0.07
Heptanes	0.06
Octanes and higher h'c	0.05
Total	100.00

( 0.00 = less than 0.01% )

Calculated Gas Density  
( Air = 1 ) : 0.641

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1007 BTU/CU Ft	37.52 MJ/CU.M
Nett:	909 BTU/CU Ft	33.86 MJ/CU.M
Gross calorific value of water-saturated gas		36.86 MJ/CU.M
Average Molecular Weight =	18.569	

All results are calculated on the basis that only the measured constituents are present.  
This report relates specifically to the sample submitted for analysis.

Approved Signatory

Registration No: 2013

Date

16-May-95



GAS AND FUEL  
**GAS TECHNOLOGY CENTRE - LABORATORY REPORT**

1136 Nepean Highway, Highett, Victoria 3190  
 Tel. 556 6222 Fax 555 7616

**Subject:** Analysis of Exploration Sample - Wallaby Creek #2 - DST #2  
 Sample #1 - 26/04/1995

**Requested by:** Kevin Lanigan, GFE Resources Ltd

**Report Reference:** 95/0635

<u>Component</u>	<u>Mole Percent Concentration</u>
Methane	87.0
Ethane	3.11
Propane	1.20
Iso-Butane	0.247
Normal-Butane	0.282
Neo-Pentane	0.004
Iso-Pentane	0.098
Normal-Pentane	0.075
Hexanes	0.129
Heptanes+	0.132
Carbon Dioxide	2.82
Carbon Monoxide	0.00
Oxygen+Argon	0.038
Nitrogen	4.79
Helium	0.060

**Calculated Characteristics for the dry gas at MSC**

Gross Heating Value	37.49 MJ/m <sup>3</sup>
Wobbe Index	46.59 MJ/m <sup>3</sup>
Relative Density	0.647

**Method References:** SSS-11-006, ISO 6974

**Analyst:** I. Strudwick

**Date:** 02/05/1995

**Approved Signatory:**



**GAS AND FUEL**  
**GAS TECHNOLOGY CENTRE - LABORATORY REPORT**

1136 Nepean Highway, Highett, Victoria 3190

Tel. 556 6222

Fax 555 7616

**Subject:** Analysis of Exploration Sample - Wallaby Creek #2 - DST #2  
 Sample #2 - 26/04/1995

**Requested by:** Kevin Lanigan, GFE Resources Ltd

**Report Reference:** 95/0612

<u>Component</u>	<u>Mole Percent Concentration</u>
Methane	87.1
Ethane	3.15
Propane	1.22
Iso-Butane	0.250
Normal-Butane	0.287
Neo-Pentane	0.004
Iso-Pentane	0.097
Normal-Pentane	0.074
Hexanes	0.123
Heptanes+	0.099
Carbon Dioxide	2.83
Carbon Monoxide	0.00
Oxygen+Argon	0.037
Nitrogen	4.65
Helium	0.077

**Calculated Characteristics for the dry gas at MSC**

Gross Heating Value	37.48 MJ/m <sup>3</sup>
Wobbe Index	46.64 MJ/m <sup>3</sup>
Relative Density	0.646

**Method References:** SSS-11-006, ISO 6974

**Analyst:** I. Strudwick

**Date:** 01/05/1995

**Approved Signatory:**





**GAS AND FUEL**  
**GAS TECHNOLOGY CENTRE - LABORATORY REPORT**

1136 Nepean Highway, Highett, Victoria 3190

Tel. 556 6222

Fax 555 7616

**Subject:** Analysis of Exploration Sample - Wallaby Creek #2 - DST #3  
 Sample #1 - 29/04/1995

**Requested by:** Kevin Lanigan, GFE Resources Ltd

**Report Reference:** 95/0636

<u>Component</u>	<u>Mole Percent Concentration</u>
Methane	87.1
Ethane	3.09
Propane	1.18
Iso-Butane	0.237
Normal-Butane	0.270
Neo-Pentane	0.003
Iso-Pentane	0.090
Normal-Pentane	0.068
Hexanes	0.102
Heptanes+	0.074
Carbon Dioxide	2.91
Carbon Monoxide	0.00
Oxygen+Argon	0.031
Nitrogen	4.80
Helium	0.053

**Calculated Characteristics for the dry gas at MSC**

Gross Heating Value	37.26 MJ/m <sup>3</sup>
Wobbe Index	46.40 MJ/m <sup>3</sup>
Relative Density	0.645

**Method References:** SSS-11-006, ISO 6974

**Analyst:** I. Strudwick

**Date:** 02/05/1995

**Approved Signatory:**



## GAS AND FUEL

## GAS TECHNOLOGY CENTRE - LABORATORY REPORT

1136 Nepean Highway, Highett, Victoria 3190

Tel. 556 6222

Fax 555 7616

**Subject:** Analysis of Exploration Sample - Wallaby Creek #2 - DST #3  
Sample #2 - 29/04/1995

**Requested by:** Kevin Lanigan, GFE Resources Ltd

**Report Reference:** 95/0614

<u>Component</u>	<u>Mole Percent Concentration</u>
Methane	86.3
Ethane	3.10
Propane	1.18
Iso-Butane	0.239
Normal-Butane	0.274
Neo-Pentane	0.004
Iso-Pentane	0.091
Normal-Pentane	0.069
Hexanes	0.111
Heptanes+	0.090
Carbon Dioxide	2.87
Carbon Monoxide	0.00
Oxygen+Argon	0.226
Nitrogen	5.33
Helium	0.073

**Calculated Characteristics for the dry gas at MSC**

Gross Heating Value	37.04 MJ/m <sup>3</sup>
Wobbe Index	46.00 MJ/m <sup>3</sup>
Relative Density	0.649

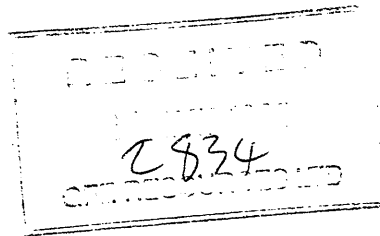
**Method References:** SSS-11-006, ISO 6974

**Analyst:** I. Strudwick

**Date:** 01/05/1995

**Approved Signatory:**

22 May 1995

GFE Resources Limited  
GPO Box 1841Q  
MELBOURNE VIC 3001

Attention: Kevin Lanigan

**REPORT LQ3881**

CLIENT REFERENCE: P/O 4110

WELL NAME/RE: Wallaby Creek-2 DST-2

MATERIAL: DST Tool Gas Sample

WORK REQUIRED: Compositional Analysis

Please direct technical enquiries regarding this work to the signatory below under whose supervision the work was carried out.



**Brian L. Watson**  
**Manager**  
**Petroleum Services**

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## 1. INTRODUCTION

A DST Tool was received from Wallaby Creek-2 DST-2 for sample recovery and compositional analysis of recovered hydrocarbons.

This report is a formal presentation of data transmitted by facsimile on 17 May 1995.

## 2. RESULTS

The opening pressure of the DST Tool was determined to be 3040 kPa at 22°C. Sixty litres of gas at 22°C was recovered and the composition of this sample is presented in Table 1.

## OPENING PRESSURE

WELL:	Wallaby Creek-2
SEPARATOR:	DST-2
DATE:	26/04/95
CYLINDER NO:	Baker Sampling Tool
OPENING PRESSURE:	3040 kPa at 22°C *
LIQUID CHECK:	NIL

\* Calculated Value

TABLE 1

PETROLEUM SERVICES GAS ANALYSIS

Method GL-01-01  
ASTM D 1945-81 (modified)

Client: GFE RESOURCES Report # LQ3881  
Sample: WALLABY CREEK-2  
DST-2, Baker Sampling Tool  
Date: 26/04/95

GAS	MOL %
Nitrogen	4.65
Carbon Dioxide	2.53
Methane	87.41
Ethane	3.33
Propane	1.23
I-Butane	0.24
N-Butane	0.28
I-Pentane	0.09
N-Pentane	0.06
Hexanes	0.07
Heptanes	0.06
Octanes and higher h'c	0.05
Total	100.00

( 0.00 = less than 0.01% )

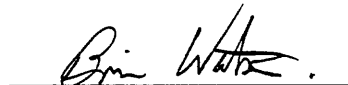
Calculated Gas Density  
( Air = 1 ) : 0.641

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1007 BTU/CU Ft	37.52 MJ/CU.M
Nett:	909 BTU/CU Ft	33.86 MJ/CU.M
Gross calorific value of water-saturated gas		36.86 MJ/CU.M
Average Molecular Weight =	18.569	

All results are calculated on the basis that only the measured constituents are present.  
This report relates specifically to the sample submitted for analysis.

Approved Signatory



Registration No: 2013

Date

16-May-95



Water Analysis Report Job No. 95L8340

Method WAT 2  
Page 1 OF 3

Sample ID. GFE WC No.2

Chemical Composition				Derived Data	
		mg/L	me/L		mg/L
<b>Cations</b>				<b>Total Dissolved Solids</b>	
Calcium	(Ca)	70	3.49	A. Based on E.C.	250240
Magnesium	(Mg)	190	15.64	B. Calculated (HCO3=CO3)	231054
Sodium	(Na)	1920	83.51		
Potassium	(K)	122500	3132.99		
<b>Anions</b>				<b>Total Hardness</b>	
Hydroxide	(OH)				956
Carbonate	(CO3)	160.2	5.34	Carbonate Hardness	594
Bi-Carbonate	(HCO3)	406.8	6.67	Non-Carbonate Hardness	363
Sulphate	(SO4)	91.0	1.89	Total Alkalinity	594
				(Each as CaCO3)	
Chloride	(Cl)	105530	2972.68	<b>Totals and Balance</b>	
Nitrate	(NO3)	389.0	6.27		
<b>Other Analyses :</b>				Cations (me/L) 3235.6 Diff= 242.78	
				Anions (me/L) 2992.9 Sum = 6228.5	
				ION BALANCE (Diff*100/Sum) = 3.90%	
				Sodium / Total Cation Ratio 2.6%	
Reaction - pH 9.4					
Conductivity (E.C) 391000					
(micro -S/cm at 25°C)					
Resistivity Ohm.M at 25°C 0.03					
				mg/L = Milligrams per litre	
				me/L = MilliEqivs.per litre	

Name: K.LANIGAN  
 Address: GAS-FUEL RESOURCES  
 LEVEL 6 RIVERSIDE QUAY  
 SOUTH MELBOURNE 3205

Date Collected 27/04/95  
 Date Received 28/04/95  
 Collected by CLIENT

Formation  
 Type MUD PTT SAMPLE  
 Point  
 Time  
 Interval  
 Geologist  
 Depth



Water Analysis Report Job No. 95L8340

Method WAT 2  
Page 2 OF 3

Sample ID. GFE WALLABY CREEEK No.2

Chemical Composition				Derived Data	
		mg/L	me/L		mg/L
<b>Cations</b>				<b>Total Dissolved Solids</b>	
Calcium	(Ca)	20	1.00	A. Based on E.C.	62912
Magnesium	(Mg)	45	3.70	B. Calculated (HCO3=CO3)	66119
Sodium	(Na)	4465	194.21		
Potassium	(K)	28780	736.06		
<b>Anions</b>				<b>Total Hardness</b>	
Hydroxide	(OH)			Carbonate Hardness	235
Carbonate	(CO3)	379.4	12.65	Non-Carbonate Hardness	235
Bi-Carbonate	(HCO3)	1478.9	24.24	Total Alkalinity	1830
Sulphate	(SO4)	675.0	14.05	(Each as CaCO3)	
Chloride	(Cl)	30900	870.42	<b>Totals and Balance</b>	
Nitrate	(NO3)	115.0	1.85		
Other Analyses :				Cations (me/L)	935.0
				Anions (me/L)	923.2
				Diff=	11.76
				Sum =	1858.2
				ION BALANCE (Diff*100/Sum) =	0.63%
				Sodium / Total Cation Ratio	20.8%
-----					
Reaction - pH		9.2			
Conductivity (E.C)		98300			
(micro -S/cm at 25°C)					
Resistivity Ohm.M at 25°C		0.10			
				mg/L = Milligrams per litre	
				me/L = MilliEqvs.per litre	

Name: K.LANIGAN  
Address: GAS-FUEL RESOURCES  
LEVEL 6 RIVERSIDE QUAY  
SOUTH MELBOURNE 3205

Date Collected 25/04/95  
Date Received 28/04/95  
Collected by CLIENT

Formation  
Type  
Point  
Time  
Interval  
Geologist  
Depth

SAMPLE 4  
DST SAMPLE CHAMBER

from DST# 1





Water Analysis Report Job No. 95L8340

Method WAT 2  
Page 3 OF 3

Sample ID. GFE WC No.2 CHDST 2

Chemical Composition				Derived Data	
		mg/L	me/L		mg/L
<b>Cations</b>				<b>Total Dissolved Solids</b>	
Calcium	(Ca)	25	1.25	A. Based on E.C.	64448
Magnesium	(Mg)	100	8.23	B. Calculated (HCO3=CO3)	69035
Sodium	(Na)	6465	281.21		
Potassium	(K)	27115	693.48		
<b>Anions</b>				<b>Total Hardness</b>	
Hydroxide	(OH)				474
Carbonate	(CO3)			Carbonate Hardness	474
Bi-Carbonate	(HCO3)	4339.3	71.14	Non-Carbonate Hardness	
Sulphate	(SO4)	545.0	11.35	Total Alkalinity	3569
				(Each as CaCO3)	
Chloride	(Cl)	32500	915.49	<b>Totals and Balance</b>	
Nitrate	(NO3)	115.0	1.85		
<b>Other Analyses :</b>				Cations (me/L) 984.2 Diff= 15.67	
Reaction - pH 7.8				Anions (me/L) 999.8 Sum = 1984.0	
Conductivity (E.C) 100700				ION BALANCE (Diff*100/Sum) = 0.79%	
(micro -S/cm at 25°C)				Sodium / Total Cation Ratio 28.6%	
Resistivity Ohm.M at 25°C 0.10					
				mg/L = Milligrams per litre	
				me/L = MilliEqivs.per litre	

Name: K.LANIGAN  
Address: GAS-FUEL RESOURCES  
LEVEL 6 RIVERSIDE QUAY  
SOUTH MELBOURNE 3205

Date Collected 27/04/95  
Date Received 28/04/95  
Collected by CLIENT

Formation Type  
Point Time Interval Geologist Depth

SAMPLE C  
BOTTOM OF FLUID REC  
from DST #2

*Appendix 9*

# **APPENDIX 9**

## **RFT-PRESSURE TEST REPORT SHEET**

**GFE RESOURCES LTD**  
**RFT - PRESSURE TEST REPORT SHEET**

WELL NAME: Wallaby Creek - 2	PERMIT: PPL1	OBSERVER: D. Grant	DATE: 20/4/95
------------------------------	--------------	--------------------	---------------

TEST NO	FILE NO	DEPTH (mKB)	SEAT		HYDROSTATIC PRESSURE		FORMATION PRESSURE (PSIA)		TIME TO STABILISATION	SAMPLE		FORMATION/REMARKS
			Y	N	INITIAL	FINAL	QUARTZ GAUGE	STRAIN GAUGE		Y	N	
1		1481.0			2489.4		2140.8	2145	108		✓	Good
2		1483.2			2493.1	2492.9					✓	Tight
3		1482.0			2491.1	2490.9	2141.2	2144	500		✓	Build down - good
4		1485.0			2495.9	2495.6	2152.1	2154	700		✓	Slow build-up - slightly supercharged?
5		1484.0			2493.9	2493.4					✓	Tight
6		1485.5			2496.0	2496.0	2161.8		670 (unstable)		✓	Supercharged - still building
7		1504.5			2528.2	2528.0	2151.7	2154	80		✓	Good
8		1507.0			2532.2	2532.1					✓	Tight
9		1507.7			2533.1	2533.1					✓	Tight
10		1508.7			2535.0	2534.8	2161.3	2163	700		✓	Slow build-up - slightly supercharged?
11		1516.5			2548.0	2548.1	2153.4	2155	108		✓	Stabilised @ 108 secs then pressure built suddenly. Build down - good. Back to same pressure (400 secs).
12		1519.0			2552.3	2552.4	2616?				✓	Blocked tool?
13		1518.9			2552.5						✓	Blocked tool
14		1519.0			2553.4	2553.3					✓	Tight
15		1520.5			2555.6	2554.6					✓	Tight
16		1526.0			2564.0						✓	Blocked tool
17		1526.0			2564.8						✓	Seal failure

**GFE RESOURCES LTD**  
**RFT - PRESSURE TEST REPORT SHEET**

WELL NAME: Wallaby Creek - 2	PERMIT: PPL1	OBSERVER: D. Grant	DATE: 20/4/95
------------------------------	--------------	--------------------	---------------

TEST NO	FILE NO	DEPTH (mKB)	SEAT		HYDROSTATIC PRESSURE		FORMATION PRESSURE (PSIA)		TIME TO STABILISATION	SAMPLE		FORMATION/REMARKS
			Y	N	INITIAL	FINAL	QUARTZ GAUGE	STRAIN GAUGE		Y	N	
18		1526.7			2566.4	2566.5					✓	Tight
19		1526.9			2566.4	2566.5					✓	Tight
20		1535.0			2578.9	2578.8					✓	Tight
21		1541.8			2589.8	2590.2					✓	Seal failure
22		1546.0			2597.3	2597.7					✓	Tight
23		1555.2			2612.3	2612.6	2228.3	2230.3	435		✓	Good
24		1634.5			2744.5	2745.1					✓	Seal failure
25		1634.5			2744.5	2744.9					✓	Seal failure
26		1635.0			2745.6	2745.9					✓	Tight
27		1635.3			2746.1	2746.3					✓	Seal failure / Tight
28		1639.0			2752.5	2752.6					✓	Seal failure
29		1638.9			2752.5	2752.5					✓	Seal failure
30		1638.7			2752.0	2752.1					✓	Seal failure
31		1639.5			2753.5	2753.5					✓	Seal failure
32		1639.3			2753.5	2753.3					✓	Seal failure
33		1661.5			2790.1	2790.2					✓	Tight
34		1678.0			2817.3	2817.8						Tight

**GFE RESOURCES LTD**  
**RFT - PRESSURE TEST REPORT SHEET**

WELL NAME: Wallaby Creek - 2	PERMIT: PPL1	OBSERVER: D. Grant	DATE: 20/4/95
------------------------------	--------------	--------------------	---------------

TEST NO	FILE NO	DEPTH (mKB)	SEAT		HYDROSTATIC PRESSURE		FORMATION PRESSURE (PSIA)		TIME TO STABILISATION	SAMPLE		FORMATION/REMARKS
			Y	N	INITIAL	FINAL	QUARTZ GAUGE	STRAIN GAUGE		Y	N	
35		1547.8			2599.4	2600.0	121.5		100			Tight
36		1543.7			2592.0	2592.3	119.4		100			Tight
37		1525.5			2561.8	2562.8						Seal failure
38		1525.5			2563.0	2562.7	64.1		100			Tight
39		1521.0			2554.6	2555.5	57.0		100			Tight
40		1520.0			2553.3	2553.2	58.5		100			Tight
41		1511.7			2538.4	2538.9	49.0		150			Tight

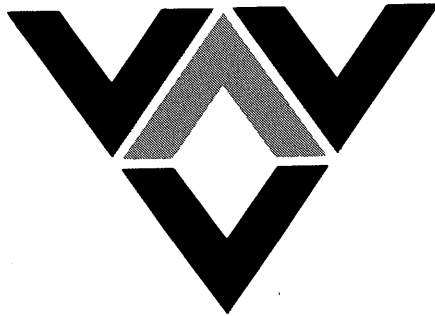
Appendix 10

**APPENDIX 10**

**VELOCITY SURVEY**



# Velocity Data



**VELOCITY SURVEY**

**WALLABY CREEK No. 2**

**VICTORIA**

**AUSTRALIA**

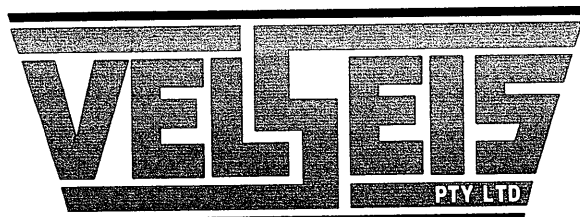
for

**GFE RESOURCES**

recorded by

**VELOCITY DATA PTY. LTD.**

processed by



**Integrated Seismic Technologies**

Brisbane, Australia  
19 July, 1995

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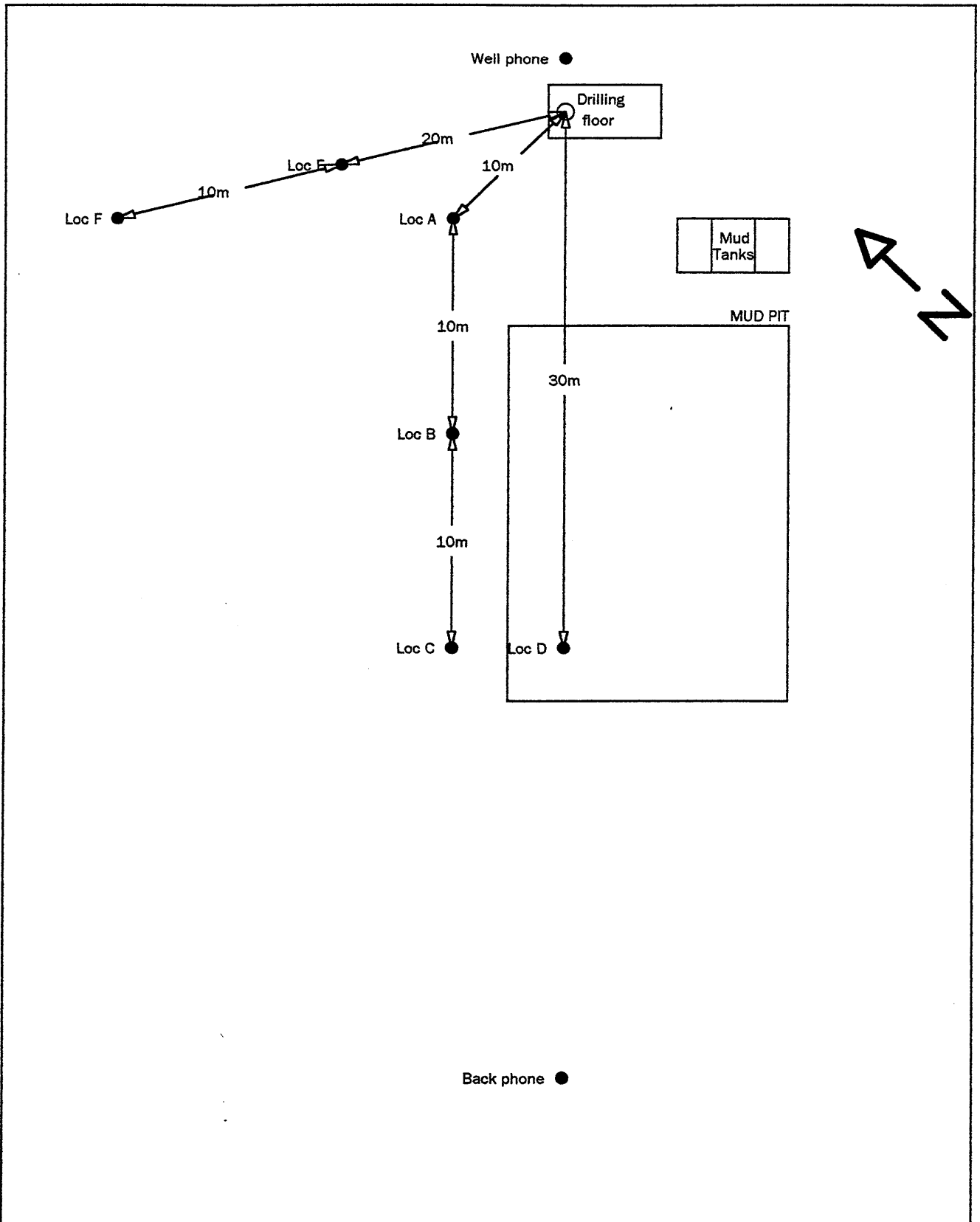
<b>SUMMARY</b>	...	...	...	1
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<b>RECORDING</b>	...	...	...	3
<b>PROCESSING</b>				
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## **FIGURES**

- Figure 1      Shot location sketch
- Figure 2      Time-depth and velocity curves
- Figure 3      Trace playouts

## **Enclosures**

1.      Calculation Sheets
2.      Trace Display and  
         First Arrival Plots



# WALLABY CREEK 2

SHOT POINT LOCATION SKETCH

G.F.E.

Figure 1

**SUMMARY**

Velocity Data Pty Ltd conducted a velocity survey for GFE Resources in the Wallaby Creek No. 2 well, Victoria, Australia. The date of the survey was the 20th April 1995.

Explosives were used as an energy source with shots being fired in the mud pit in the majority of instances.

**GENERAL INFORMATION**

Name of Well : Wallaby Creek No. 2  
Location : Victoria - PPL 1  
Coordinates : Latitude 38 34 09.03 S  
: Longitude 142 54 34.8E  
Date of Survey : 20th April 1995  
Weather : Fine  
Operational Base : Brisbane  
Operator : D. Blick  
Shooter : J. Brown  
Client Representative : Mr. D. Horner

## **EQUIPMENT**

### **Downhole Tool**

Veldata Camlock 100 (90 mm)

#### **Sensors:**

6 HSI 4.5 Hz 215 ohm, high temperature (300 degrees F) detectors connected in series parallel. Frequency response 8-300 Hz within 3 dB.

#### **Preamplifier:**

48 dB fixed gain.  
Frequency response 5-200 Hz within 3 dB.

#### **Reference Geophone**

Mark Products L1 4.5 Hz

### **Recording Instruments**

#### **System VDL 16**

Windows based high resolution seismic acquisition instruments

Computer :	386 Portable computer
Resolution :	A/D conversion 16 bits
Dynamic Range :	96dB
Total Gain :	136dB
Data channels :	8
Display :	A4 Bubble Jet Printer 300 D.P.I.

**RECORDING**

Energy Source : Explosive, Powergel  
Shot Location : Mud pit  
Charge Size : .2/3.0 sticks  
Average Shot Depth : .8 metres  
Mud Pit Shot Offset : 30.0 metres  
Recording Geometry : Figure 1

Acquisition of the survey was carried out using the VDLS 16 recording system.

Shots were recorded on 3<sup>1</sup>/<sub>2</sub>" floppy disc. The sample rate was 0.5 msec for the entire survey.

The scale of the graphic display varies with signal strength and is noted on each payout.

The times were picked from a sample by sample screen plot, a full set of these trace displays can be seen at the rear of the report.

**PROCESSING****Elevation Data**

Elevation of KB : 54.7m above sea level  
Elevation of Ground : 49.0m above sea level  
Elevation of Seismic Datum : 0.0m above sea level  
Depth Surveyed : 1738.0m below KB  
Depth of Casing : 298.0m below KB

## PROCESSING

### Recorded Data

Number of Shots Used : 32

Number of Levels  
Recorded : 21

Data Quality : Excellent

Noise Level : Low

### Corrections to Obtain Vertically Corrected Time

The 'corrected' times shown on the calculation sheet have been obtained by:

- (1) Subtraction of the instrument delay (2msec) from the recorded arrival times.
- (2) Geometric correction for non-verticality of ray paths resulting from shot offset.
- (3) Addition of an Uphole correction time which corrects for the depth of shot below ground level for shots external to the pit using an uphole time (1.5msec) determined from surface channel information.
- (4) Replacement velocity to correct for variation in elevation between the ground level of the shot and ground level of the well head.
- (5) re-addition of the instrument delay (2msec).

### Mud Pit Calibration

Due to a variation in shooting conditions between shots discharged within the pit to those external to the pit, it is necessary to tie the mud pit shots to the external shots. Thus a bulk shift of -1.1msec has been applied which has been calculated from the difference in corrected vertical time for pit and external shots at the 54.7m below KB level.

### Correction to Datum

The datum chosen was 0.0 metres ASL that is 54.7 metres below KB. This level was shot eight times during the survey, seven of which have been used to calculate an effective datum correction time of 30.3msec. Please note this time includes a 2msec instrument delay which must be subtracted to obtain the raw pick time.

### Calibration of Sonic Log - Method

A sonic log was not provided by GFE Resources. As a result all values appearing on the calculation sheet are un-calibrated.

**PROCESSING****Trace Playouts ( Figure 3 )**

Figure 3A is a plot of all raw data traces used.

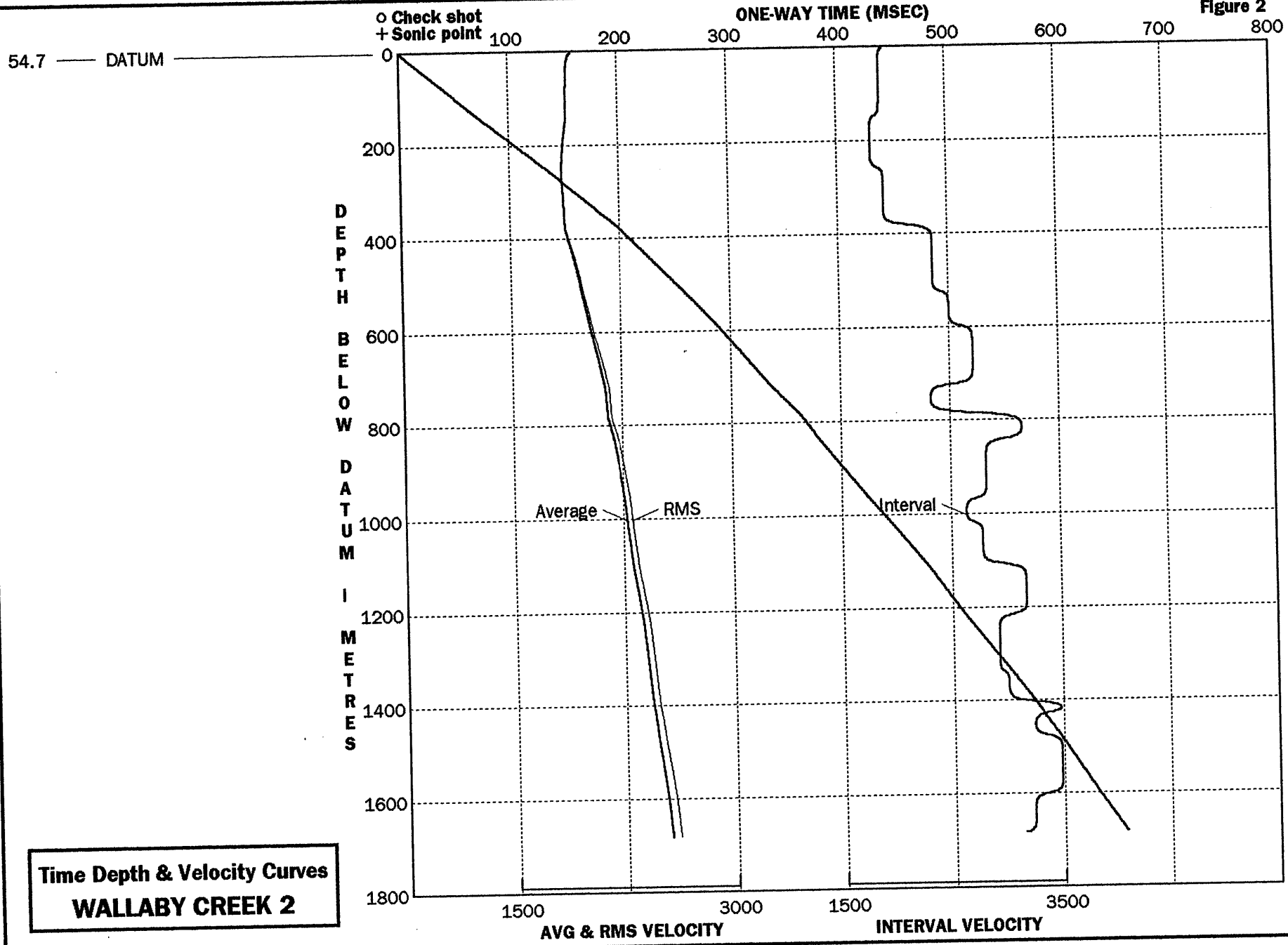
Figure 3B is a plot to scale in depth and time of selected traces.

Figure 3C is a plot of selected surface traces. .

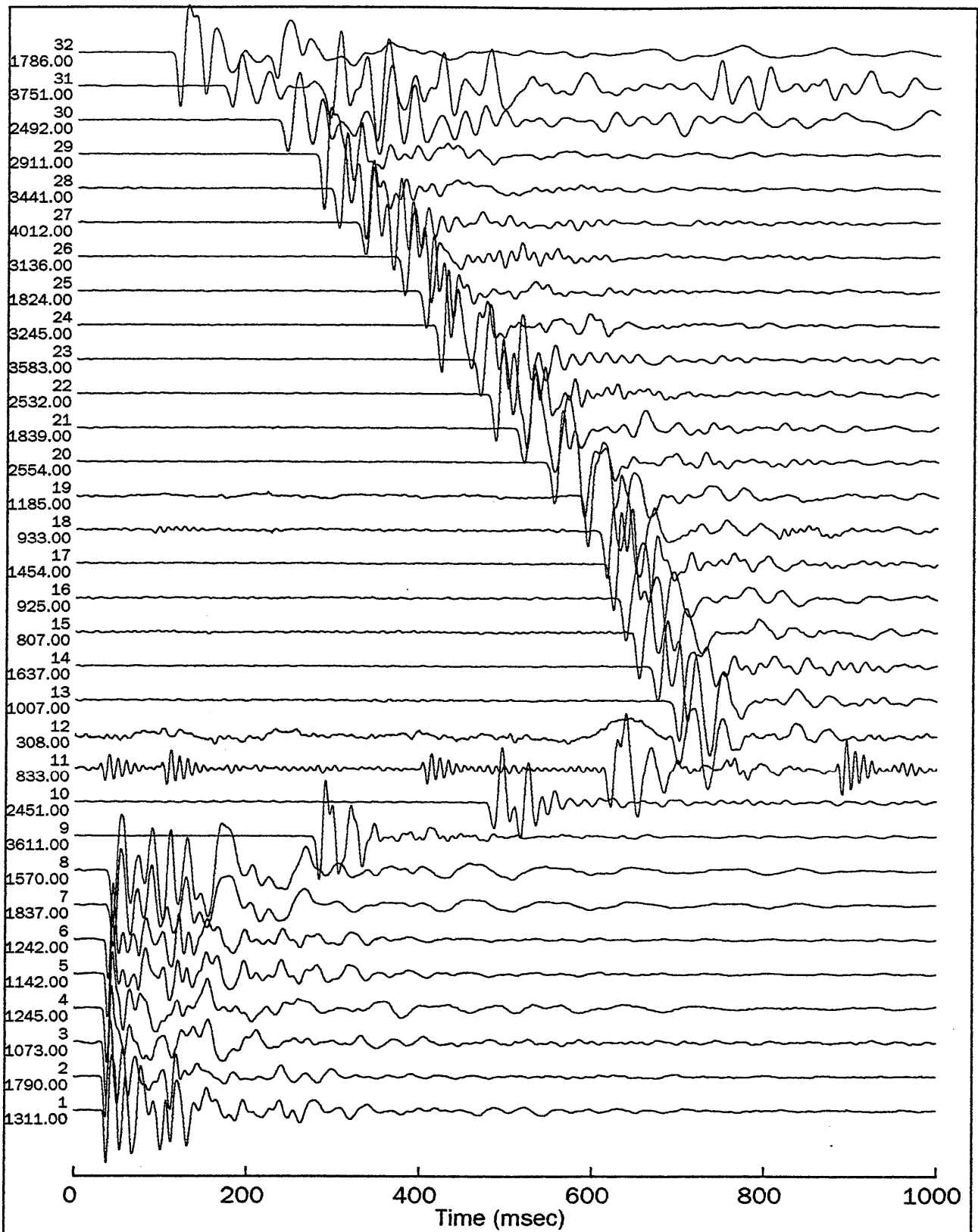
**Troy Peters**  
**Geophysicist.**



Figure 2



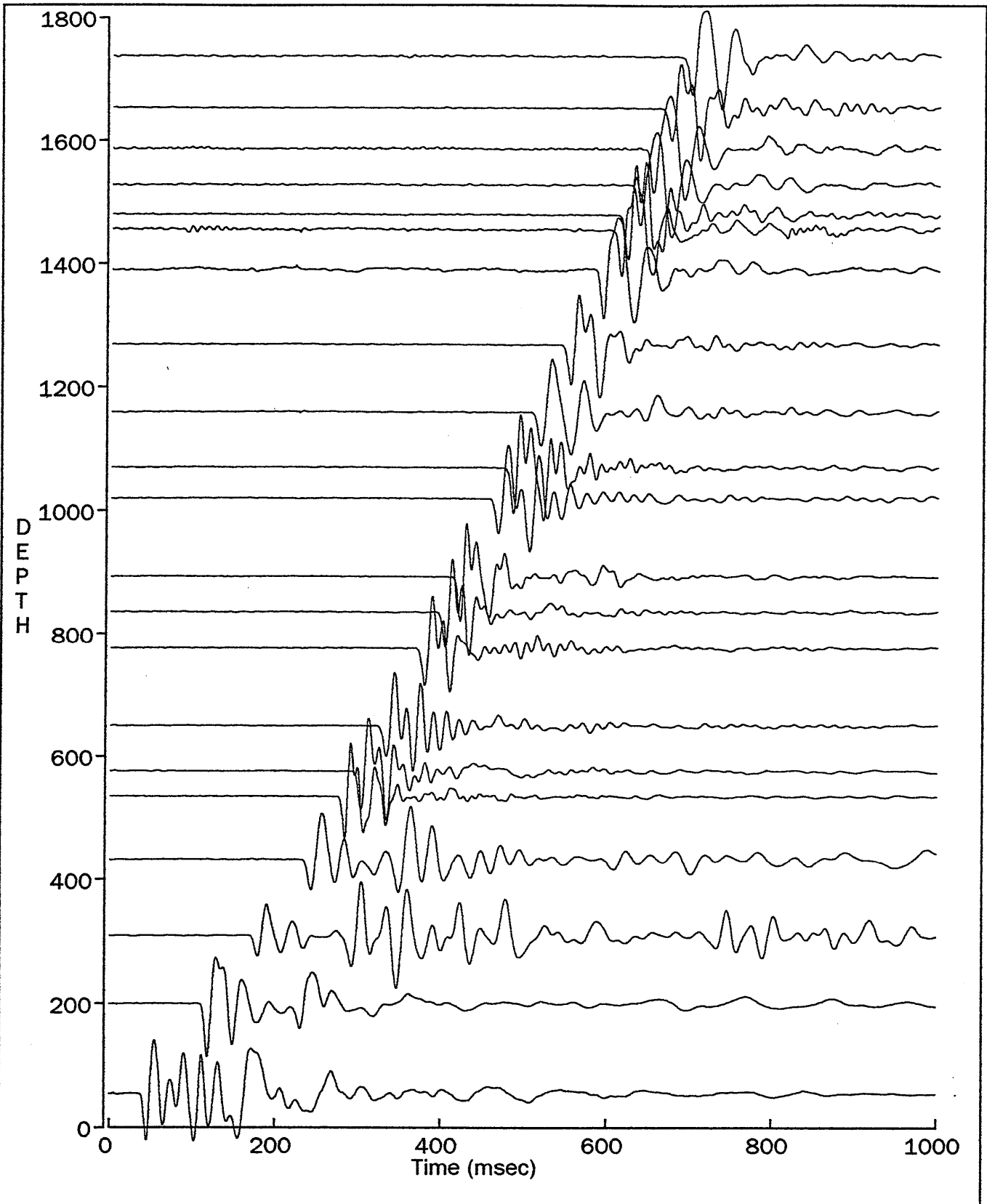
Time Depth & Velocity Curves  
WALLABY CREEK 2



## WALLABY CREEK 2

VELOCITY SURVEY TRACE DISPLAY

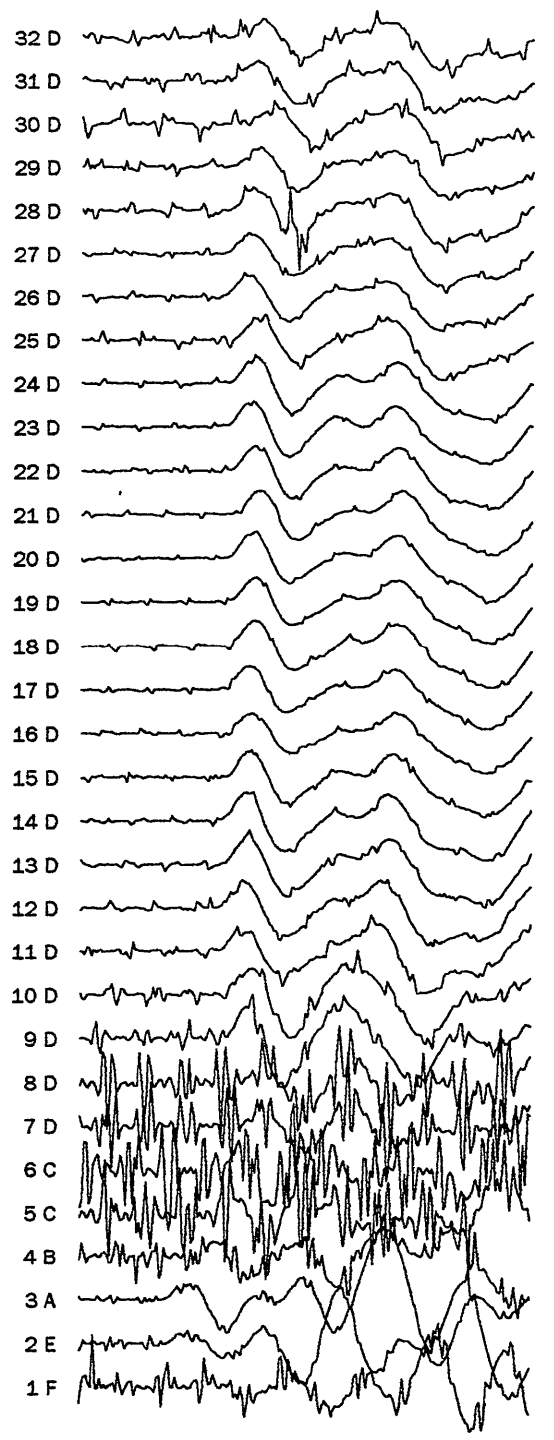
Figure 3A



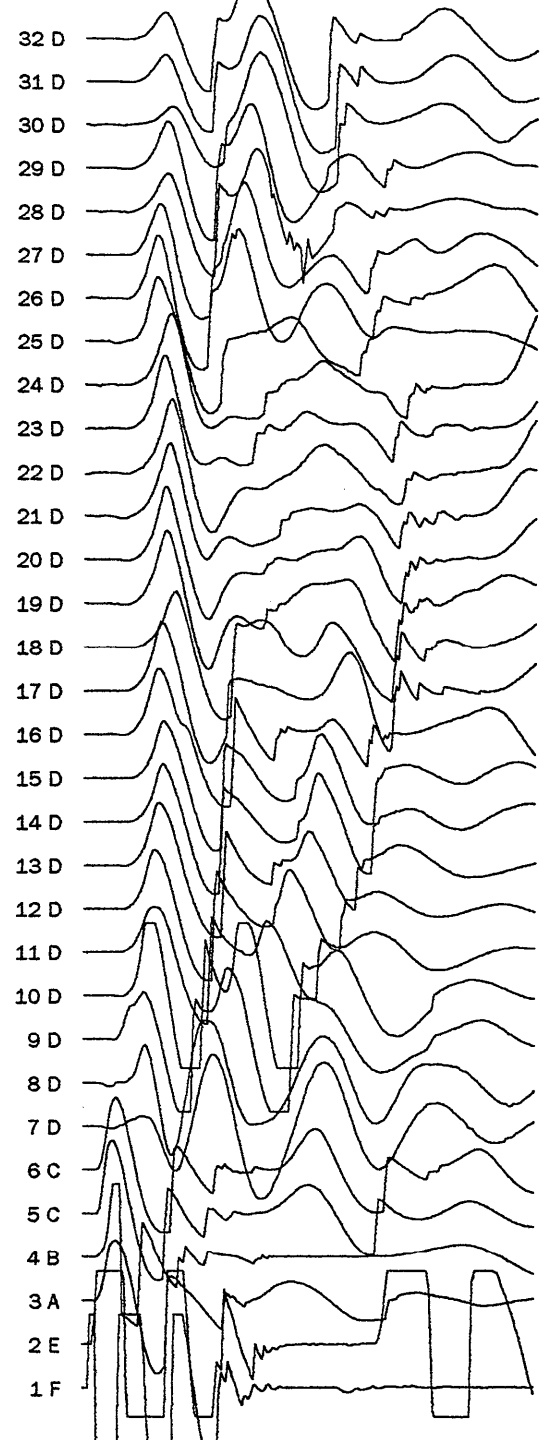
## WALLABY CREEK 2

VELOCITY SURVEY TRACE DISPLAY

Figure 3B



0 20 40 60 80 100  
Time (msec)  
Channel 1



0 20 40 60 80 100  
Time (msec)  
Channel 2

# WALLABY CREEK 2

VELOCITY SURVEY TRACE DISPLAY  
AUXILIARY CHANNELS

Figure 3C

**COMPANY : G.F.E.**

**WELL : WALLABY CREEK 2**

Latitude : 38 34 09.03S Longitude : 142 54 34.862E Survey date : 20-Apr-95  
 Elevations : Datum : 0 Ground : 49 Kelly : 54.7

Survey units : METRES  
 Times : MILLISECONDS

Shot data : Location	Elevation	Offset
A	49.3	10.0
B	49.3	20.0
C	49.0	30.0
E	49.3	20.0
F	49.4	30.0
D	48.5	30.0

Rig identification : CENTURY 11  
 Energy source : POWERGEL  
 Logger : B.P.B.  
 Elevation velocity  
 for shot statics : 1700  
 Instrument delay : 2.0 msec

**SHOT CALCULATIONS :**

Shot no.	Geophone depth		Shot Locn	Shot Depth	TIMES				Check shot interval		Velocities		
	Kelly	Datum			Record	Corr.	Avg.	Datum	distance	time	Average	RMS	Interval
DATUM													
1	54.7	0.0	F	0.7	32.5	29.2							
2	54.7	0.0	E	0.7	31.0	30.1							
3	54.7	0.0	A	0.7	31.5	32.2	n/u						
4	54.7	0.0	B	0.7	31.5	30.6							
5	54.7	0.0	C	0.7	34.0	30.7							
6	54.7	0.0	C	0.7	34.5	31.1							
7	54.7	0.0	D	0.5	36.0	30.0							
8	54.7	0.0	D	0.5	36.5	30.5	30.3	0.0					
									145.3	76.6			1896.9
32	200.0	145.3	D	1.0	109.0	106.9	106.9	76.6			1896.9	1896.9	
									110.0	60.5			1818.2
31	310.0	255.3	D	0.8	169.0	167.4	167.4	137.1			1862.1	1862.6	
									123.0	63.7			1930.9
30	433.0	378.3	D	0.7	232.5	231.1	231.1	200.8			1884.0	1884.5	
9	535.0	480.3	D	0.5	275.0	273.8			102.0	43.4			2350.2
29	535.0	480.3	D	0.8	276.5	275.3	274.5	244.2			1966.8	1975.3	

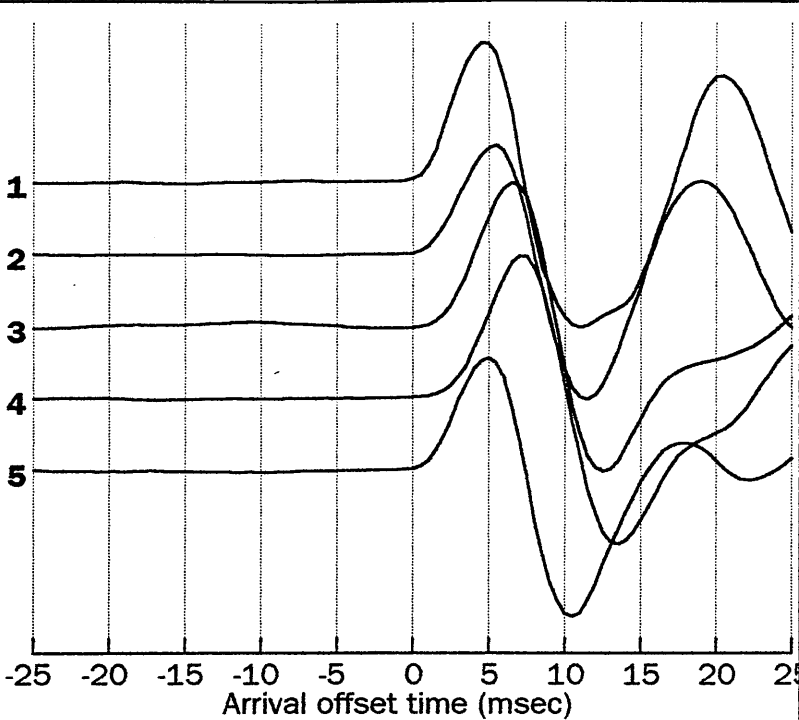
### SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth		Shot Loen	Shot Depth	TIMES				Check shot interval		Velocities		
	Kelly	Datum			Record	Corr.	Avg.	Datum	distance	time	Average	RMS	Interval
									41.0	17.3			2369.9
28	576.0	521.3	D	0.8	293.0	291.8	291.8	261.5			1993.5	2003.8	
									74.0	29.5			2508.5
27	650.0	595.3	D	0.8	322.5	321.3	321.3	291.0			2045.7	2060.6	
									126.0	46.6			2703.9
26	776.0	721.3	D	0.8	369.0	367.9	367.9	337.6			2136.6	2160.8	
									60.5	25.5			2372.5
25	836.5	781.8	D	0.6	394.5	393.4	393.4	363.1			2153.1	2176.4	
									57.5	18.6			3091.4
24	894.0	839.3	D	1.0	413.0	412.0	412.0	381.7			2198.8	2229.7	
									126.0	44.5			2831.5
23	1020.0	965.3	D	0.9	457.5	456.5	456.5	426.2			2264.9	2299.9	
10	1070.0	1015.3	D	0.5	476.5	475.5			50.0	18.8			2659.6
22	1070.0	1015.3	D	0.8	476.0	475.0	475.3	445.0			2281.6	2316.2	
									90.0	32.2			2795.0
21	1160.0	1105.3	D	0.6	508.5	507.5	507.5	477.2			2316.2	2351.6	
									109.0	34.5			3159.4
20	1269.0	1214.3	D	0.9	543.0	542.0	542.0	511.7			2373.1	2414.6	
									122.0	41.6			2932.7
19	1391.0	1336.3	D	0.8	584.5	583.6	583.6	553.3			2415.1	2457.3	
									65.0	21.5			3023.3
18	1456.0	1401.3	D	1.0	606.0	605.1	605.1	574.8			2437.9	2480.8	
11	1480.0	1425.3	D	0.8	613.0	612.1			24.0	7.0			3428.6
17	1480.0	1425.3	D	1.0	613.0	612.1	612.1	581.8			2449.8	2494.4	
									49.0	15.0			3266.7
16	1529.0	1474.3	D	1.0	628.0	627.1	627.1	596.8			2470.3	2516.7	
									59.0	17.0			3470.6
15	1588.0	1533.3	D	1.0	645.0	644.1	644.1	613.8			2498.0	2547.9	

**SHOT CALCULATIONS : (cont)**

Shot no.	Geophone depth		Shot Locn	Shot Depth	TIMES				Check shot interval		Velocities		
	Kelly	- Datum			Record	Corr.	Avg.	Datum	distance	time	Average	RMS	Interval
14	1654.0	1599.3	D	1.0	664.0	663.1	663.1	632.8	66.0	19.0	2527.3	2580.6	3473.7
12	1738.0	1683.3	D	0.9	690.0	689.1			84.0	26.0			3230.8
13	1738.0	1683.3	D	0.8	690.0	689.1	689.1	658.8			2555.1	2609.3	

# First arrivals plot : WALLABY CREEK 2



**Shot 1** Location : F  
 Charge depth 0.7 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 32.5 msec

**Shot 2** Location : E  
 Charge depth 0.7 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 31.0 msec

**Shot 3** Location : A  
 Charge depth 0.7 Size 0.1  
 Phone depth : 54.7  
 Arrival time : 31.5 msec

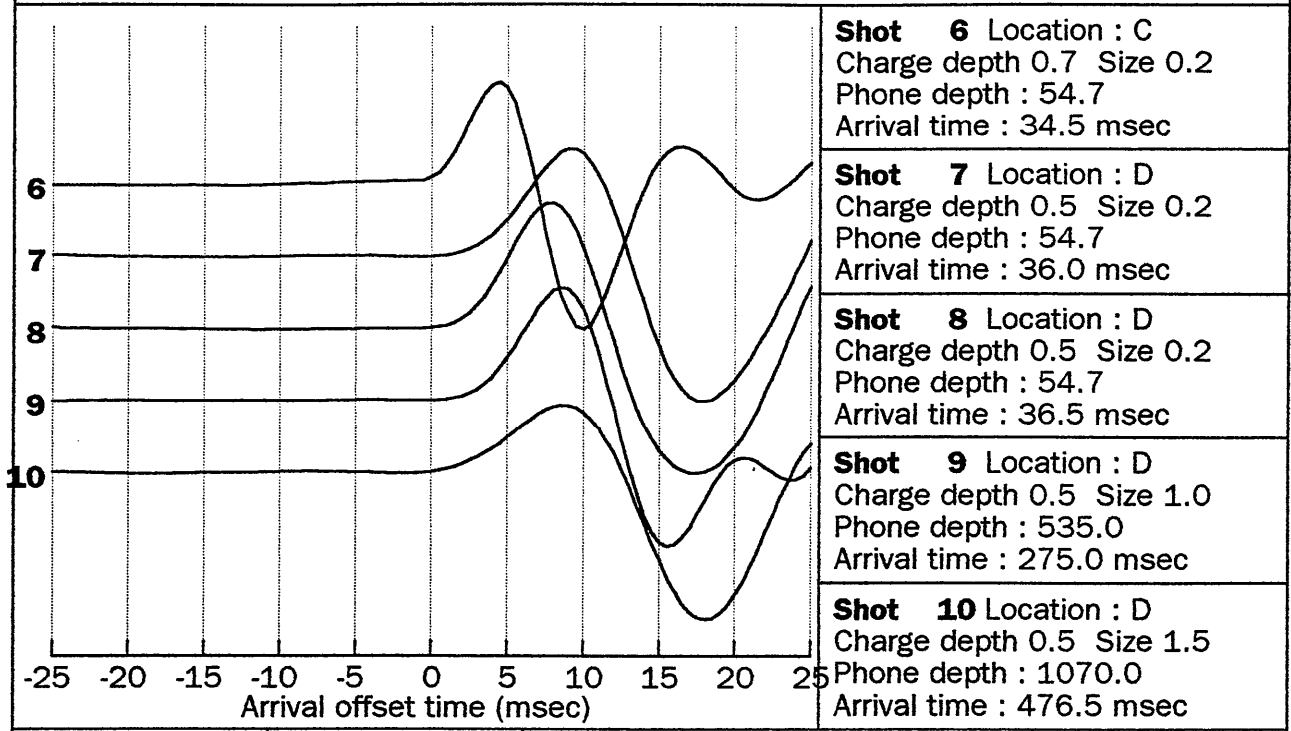
**Shot 4** Location : B  
 Charge depth 0.7 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 31.5 msec

**Shot 5** Location : C  
 Charge depth 0.7 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 34.0 msec

SHOT 1		SHOT 2		SHOT 3		SHOT 4		SHOT 5	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
22.0	-5.00	20.0	-9.00	20.0	-42.00	20.0	-7.00	23.0	6.00
22.5	-6.00	20.5	-5.00	20.5	-42.00	20.5	-7.00	23.5	6.00
23.0	-9.00	21.0	-3.00	21.0	-42.00	21.0	-7.00	24.0	9.00
23.5	-10.00	21.5	-1.00	21.5	-39.00	21.5	-6.00	24.5	7.00
24.0	-13.00	22.0	2.00	22.0	-39.00	22.0	-6.00	25.0	5.00
24.5	-16.00	22.5	3.00	22.5	-36.00	22.5	-8.00	25.5	3.00
25.0	-15.00	23.0	4.00	23.0	-32.00	23.0	-9.00	26.0	0.00
25.5	-17.00	23.5	3.00	23.5	-29.00	23.5	-8.00	26.5	-3.00
26.0	-18.00	24.0	2.00	24.0	-28.00	24.0	-8.00	27.0	-4.00
26.5	-17.00	24.5	0.00	24.5	-23.00	24.5	-9.00	27.5	-4.00
27.0	-13.00	25.0	-4.00	25.0	-19.00	25.0	-12.00	28.0	-6.00
27.5	-11.00	25.5	-4.00	25.5	-20.00	25.5	-13.00	28.5	-5.00
28.0	-10.00	26.0	-7.00	26.0	-15.00	26.0	-11.00	29.0	-6.00
28.5	-8.00	26.5	-9.00	26.5	-9.00	26.5	-14.00	29.5	-9.00
29.0	-9.00	27.0	-10.00	27.0	-6.00	27.0	-14.00	30.0	-9.00
29.5	-9.00	27.5	-10.00	27.5	-2.00	27.5	-11.00	30.5	-9.00
30.0	-8.00	28.0	-10.00	28.0	0.00	28.0	-12.00	31.0	-10.00
30.5	-7.00	28.5	-9.00	28.5	2.00	28.5	-12.00	31.5	-11.00
31.0	-9.00	29.0	-10.00	29.0	3.00	29.0	-12.00	32.0	-13.00
31.5	-10.00	29.5	-13.00	29.5	3.00	29.5	-13.00	32.5	-13.00
32.0	-10.00	30.0	-15.00	30.0	2.00	30.0	-16.00	33.0	-16.00
<b>32.5</b>	<b>-19.00</b>	30.5	-16.00	30.5	2.00	30.5	-18.00	33.5	-18.00
33.0	-35.00	<b>31.0</b>	<b>-25.00</b>	31.0	-1.00	31.0	-23.00	<b>34.0</b>	<b>-21.00</b>
33.5	-70.00	31.5	-52.00	<b>31.5</b>	<b>-8.00</b>	<b>31.5</b>	<b>-27.00</b>	34.5	-44.00
34.0	-161.00	32.0	-110.00	32.0	-19.00	32.0	-33.00	35.0	-84.00
34.5	-290.00	32.5	-221.00	32.5	-52.00	32.5	-49.00	35.5	-169.00
35.0	-502.00	33.0	-354.00	33.0	-98.00	33.0	-74.00	36.0	-273.00
35.5	-703.00	33.5	-517.00	33.5	-166.00	33.5	-119.00	36.5	-402.00
36.0	-894.00	34.0	-730.00	34.0	-277.00	34.0	-201.00	37.0	-568.00
36.5	-1080.00	34.5	-905.00	34.5	-392.00	34.5	-301.00	37.5	-694.00
37.0	-1191.00	35.0	-1097.00	35.0	-551.00	35.0	-451.00	38.0	-817.00
37.5	-1258.00	35.5	-1227.00	35.5	-686.00	35.5	-593.00	38.5	-883.00
38.0	-1250.00	36.0	-1316.00	36.0	-816.00	36.0	-741.00	39.0	-907.00
38.5	-1158.00	36.5	-1347.00	36.5	-946.00	36.5	-916.00	39.5	-860.00
39.0	-925.00	37.0	-1281.00	37.0	-1027.00	37.0	-1052.00	40.0	-745.00
39.5	-631.00	37.5	-1071.00	37.5	-1070.00	37.5	-1180.00	40.5	-511.00
40.0	-210.00	38.0	-794.00	38.0	-1048.00	38.0	-1236.00	41.0	-247.00
40.5	148.00	38.5	-445.00	38.5	-965.00	38.5	-1230.00	41.5	42.00
41.0	463.00	39.0	19.00	39.0	-780.00	39.0	-1127.00	42.0	388.00
41.5	762.00	39.5	405.00	39.5	-561.00	39.5	-968.00	42.5	637.00
42.0	947.00	40.0	834.00	40.0	-249.00	40.0	-704.00	43.0	875.00
42.5	1105.00	40.5	1149.00	40.5	26.00	40.5	-441.00	43.5	1016.00
43.0	1217.00	41.0	1411.00	41.0	300.00	41.0	-121.00	44.0	1115.00
43.5	1285.00	41.5	1645.00	41.5	591.00	41.5	201.00	44.5	1142.00
44.0	1311.00	42.0	1758.00	42.0	786.00	42.0	484.00	45.0	1111.00



# First arrivals plot : WALLABY CREEK 2



**Shot 6** Location : C  
 Charge depth 0.7 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 34.5 msec

**Shot 7** Location : D  
 Charge depth 0.5 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 36.0 msec

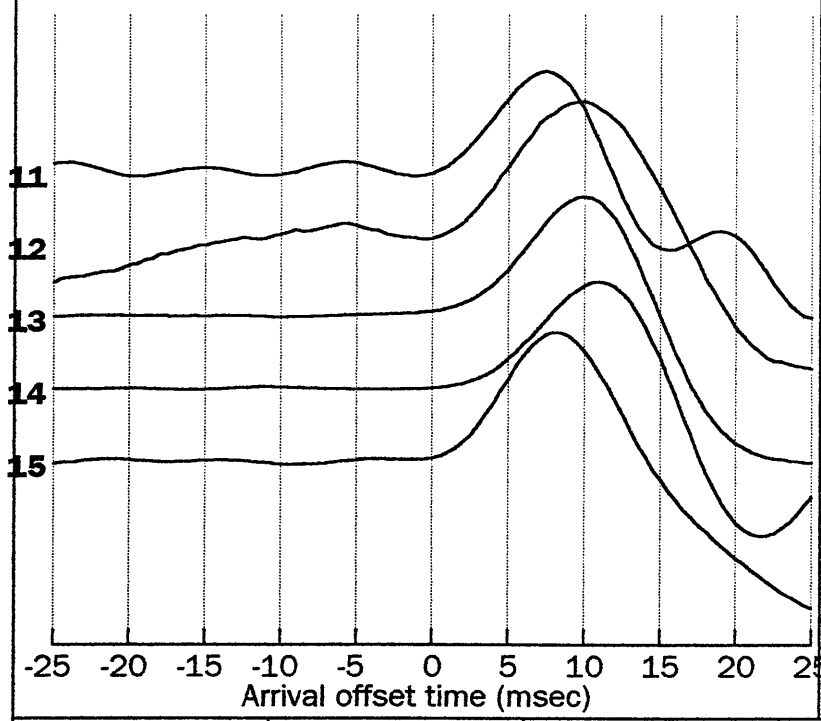
**Shot 8** Location : D  
 Charge depth 0.5 Size 0.2  
 Phone depth : 54.7  
 Arrival time : 36.5 msec

**Shot 9** Location : D  
 Charge depth 0.5 Size 1.0  
 Phone depth : 535.0  
 Arrival time : 275.0 msec

**Shot 10** Location : D  
 Charge depth 0.5 Size 1.5  
 Phone depth : 1070.0  
 Arrival time : 476.5 msec

SHOT 6		SHOT 7		SHOT 8		SHOT 9		SHOT 10	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
24.0	-3.00	25.0	-4.00	26.0	6.00	264.0	-21.00	466.0	-17.00
24.5	-4.00	25.5	-7.00	26.5	5.00	264.5	-20.00	466.5	-20.00
25.0	-7.00	26.0	-11.00	27.0	5.00	265.0	-15.00	467.0	-24.00
25.5	-10.00	26.5	-12.00	27.5	3.00	265.5	-15.00	467.5	-26.00
26.0	-11.00	27.0	-15.00	28.0	3.00	266.0	-15.00	468.0	-28.00
26.5	-16.00	27.5	-17.00	28.5	2.00	266.5	-19.00	468.5	-30.00
27.0	-18.00	28.0	-20.00	29.0	0.00	267.0	-20.00	469.0	-29.00
27.5	-14.00	28.5	-20.00	29.5	-5.00	267.5	-19.00	469.5	-29.00
28.0	-17.00	29.0	-19.00	30.0	-3.00	268.0	-23.00	470.0	-24.00
28.5	-21.00	29.5	-19.00	30.5	-3.00	268.5	-29.00	470.5	-26.00
29.0	-24.00	30.0	-18.00	31.0	-3.00	269.0	-31.00	471.0	-23.00
29.5	-25.00	30.5	-17.00	31.5	-3.00	269.5	-33.00	471.5	-21.00
30.0	-27.00	31.0	-15.00	32.0	-6.00	270.0	-35.00	472.0	-17.00
30.5	-29.00	31.5	-17.00	32.5	-7.00	270.5	-35.00	472.5	-16.00
31.0	-30.00	32.0	-23.00	33.0	-5.00	271.0	-36.00	473.0	-13.00
31.5	-32.00	32.5	-17.00	33.5	-5.00	271.5	-37.00	473.5	-8.00
32.0	-31.00	33.0	-13.00	34.0	-7.00	272.0	-35.00	474.0	-4.00
32.5	-37.00	33.5	-11.00	34.5	-7.00	272.5	-33.00	474.5	-1.00
33.0	-36.00	34.0	-7.00	35.0	-8.00	273.0	-31.00	475.0	-1.00
33.5	-38.00	34.5	-5.00	35.5	-8.00	273.5	-29.00	475.5	-1.00
34.0	-40.00	35.0	-5.00	36.0	-10.00	274.0	-26.00	476.0	-6.00
<b>34.5</b>	<b>-45.00</b>	35.5	-5.00	<b>36.5</b>	<b>-12.00</b>	274.5	-28.00	<b>476.5</b>	<b>-14.00</b>
35.0	-68.00	<b>36.0</b>	<b>-7.00</b>	37.0	-19.00	<b>275.0</b>	<b>-33.00</b>	477.0	-26.00
35.5	-107.00	36.5	-14.00	37.5	-29.00	275.5	-41.00	477.5	-50.00
36.0	-188.00	37.0	-26.00	38.0	-41.00	276.0	-57.00	478.0	-75.00
36.5	-289.00	37.5	-41.00	38.5	-69.00	276.5	-89.00	478.5	-113.00
37.0	-406.00	38.0	-66.00	39.0	-118.00	277.0	-131.00	479.0	-153.00
37.5	-558.00	38.5	-105.00	39.5	-173.00	277.5	-205.00	479.5	-211.00
38.0	-678.00	39.0	-148.00	40.0	-265.00	278.0	-299.00	480.0	-268.00
38.5	-797.00	39.5	-215.00	40.5	-360.00	278.5	-452.00	480.5	-346.00
39.0	-862.00	40.0	-286.00	41.0	-497.00	279.0	-616.00	481.0	-420.00
39.5	-887.00	40.5	-387.00	41.5	-628.00	279.5	-861.00	481.5	-503.00
40.0	-836.00	41.0	-486.00	42.0	-771.00	280.0	-1105.00	482.0	-611.00
40.5	-711.00	41.5	-600.00	42.5	-943.00	280.5	-1375.00	482.5	-705.00
41.0	-473.00	42.0	-746.00	43.0	-1081.00	281.0	-1723.00	483.0	-819.00
41.5	-211.00	42.5	-874.00	43.5	-1222.00	281.5	-2019.00	483.5	-909.00
42.0	76.00	43.0	-1025.00	44.0	-1312.00	282.0	-2350.00	484.0	-1008.00
42.5	421.00	43.5	-1142.00	44.5	-1365.00	282.5	-2581.00	484.5	-1077.00
43.0	683.00	44.0	-1245.00	45.0	-1373.00	283.0	-2779.00	485.0	-1134.00
43.5	945.00	44.5	-1336.00	45.5	-1330.00	283.5	-2843.00	485.5	-1160.00
44.0	1105.00	45.0	-1376.00	46.0	-1219.00	284.0	-2804.00	486.0	-1153.00
44.5	1218.00	45.5	-1371.00	46.5	-1083.00	284.5	-2605.00	486.5	-1113.00
45.0	1242.00	46.0	-1318.00	47.0	-869.00	285.0	-2305.00	487.0	-1026.00
45.5	1199.00	46.5	-1199.00	47.5	-650.00	285.5	-1792.00	487.5	-914.00
46.0	1075.00	47.0	-1042.00	48.0	-414.00	286.0	-1253.00	488.0	-769.00

# First arrivals plot : WALLABY CREEK 2



**Shot 11** Location : D  
 Charge depth 0.75 Size 2.0  
 Phone depth : 1480.0  
 Arrival time : 613.0 msec

**Shot 12** Location : D  
 Charge depth 0.9 Size 3.0  
 Phone depth : 1738.0  
 Arrival time : 690.0 msec

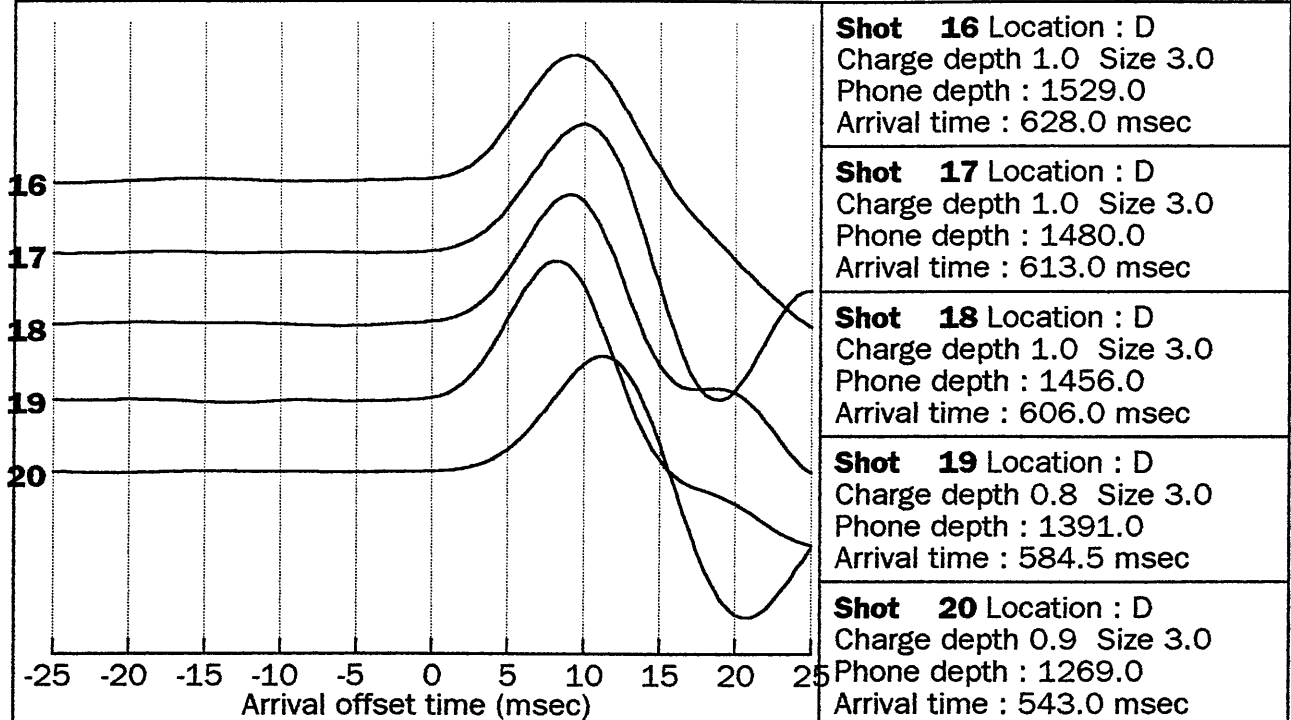
**Shot 13** Location : D  
 Charge depth 0.8 Size 4.0  
 Phone depth : 1738.0  
 Arrival time : 690.0 msec

**Shot 14** Location : D  
 Charge depth 1.0 Size 4.0  
 Phone depth : 1654.0  
 Arrival time : 664.0 msec

**Shot 15** Location : D  
 Charge depth 1.0 Size 3.5  
 Phone depth : 1588.0  
 Arrival time : 645.0 msec

SHOT 11		SHOT 12		SHOT 13		SHOT 14		SHOT 15	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
602.0	14.00	679.0	-8.00	679.0	-7.00	653.0	-28.00	634.0	0.00
602.5	14.00	679.5	-11.00	679.5	-5.00	653.5	-27.00	634.5	5.00
603.0	9.00	680.0	-13.00	680.0	-2.00	654.0	-25.00	635.0	9.00
603.5	0.00	680.5	-15.00	680.5	-3.00	654.5	-24.00	635.5	10.00
604.0	-6.00	681.0	-18.00	681.0	-4.00	655.0	-21.00	636.0	11.00
604.5	-21.00	681.5	-16.00	681.5	-5.00	655.5	-18.00	636.5	9.00
605.0	-31.00	682.0	-17.00	682.0	-6.00	656.0	-14.00	637.0	9.00
605.5	-44.00	682.5	-19.00	682.5	-7.00	656.5	-13.00	637.5	5.00
606.0	-53.00	683.0	-21.00	683.0	-9.00	657.0	-12.00	638.0	2.00
606.5	-62.00	683.5	-23.00	683.5	-11.00	657.5	-9.00	638.5	-3.00
607.0	-65.00	684.0	-25.00	684.0	-14.00	658.0	-8.00	639.0	-7.00
607.5	-63.00	684.5	-25.00	684.5	-14.00	658.5	-9.00	639.5	-10.00
608.0	-58.00	685.0	-23.00	685.0	-16.00	659.0	-6.00	640.0	-13.00
608.5	-48.00	685.5	-20.00	685.5	-17.00	659.5	-7.00	640.5	-17.00
609.0	-37.00	686.0	-18.00	686.0	-19.00	660.0	-4.00	641.0	-19.00
609.5	-24.00	686.5	-17.00	686.5	-21.00	660.5	-5.00	641.5	-19.00
610.0	-12.00	687.0	-13.00	687.0	-22.00	661.0	-6.00	642.0	-19.00
610.5	2.00	687.5	-11.00	687.5	-24.00	661.5	-7.00	642.5	-16.00
611.0	10.00	688.0	-10.00	688.0	-25.00	662.0	-8.00	643.0	-17.00
611.5	15.00	688.5	-9.00	688.5	-26.00	662.5	-11.00	643.5	-15.00
612.0	17.00	689.0	-8.00	689.0	-29.00	663.0	-11.00	644.0	-16.00
612.5	11.00	689.5	-7.00	689.5	-34.00	663.5	-16.00	644.5	-18.00
<b>613.0</b>	<b>-1.00</b>	<b>690.0</b>	<b>-8.00</b>	<b>690.0</b>	<b>-38.00</b>	<b>664.0</b>	<b>-19.00</b>	<b>645.0</b>	<b>-23.00</b>
613.5	-20.00	690.5	-11.00	690.5	-45.00	664.5	-24.00	645.5	-33.00
614.0	-42.00	691.0	-15.00	691.0	-56.00	665.0	-33.00	646.0	-52.00
614.5	-78.00	691.5	-20.00	691.5	-69.00	665.5	-46.00	646.5	-74.00
615.0	-114.00	692.0	-26.00	692.0	-87.00	666.0	-60.00	647.0	-106.00
615.5	-162.00	692.5	-35.00	692.5	-104.00	666.5	-83.00	647.5	-142.00
616.0	-207.00	693.0	-44.00	693.0	-132.00	667.0	-106.00	648.0	-191.00
616.5	-266.00	693.5	-56.00	693.5	-167.00	667.5	-141.00	648.5	-252.00
617.0	-317.00	694.0	-66.00	694.0	-201.00	668.0	-179.00	649.0	-307.00
617.5	-378.00	694.5	-81.00	694.5	-249.00	668.5	-231.00	649.5	-374.00
618.0	-427.00	695.0	-91.00	695.0	-293.00	669.0	-294.00	650.0	-432.00
618.5	-484.00	695.5	-104.00	695.5	-352.00	669.5	-352.00	650.5	-500.00
619.0	-524.00	696.0	-117.00	696.0	-404.00	670.0	-429.00	651.0	-554.00
619.5	-560.00	696.5	-128.00	696.5	-468.00	670.5	-496.00	651.5	-605.00
620.0	-581.00	697.0	-142.00	697.0	-522.00	671.0	-578.00	652.0	-640.00
620.5	-590.00	697.5	-149.00	697.5	-583.00	671.5	-653.00	652.5	-668.00
621.0	-577.00	698.0	-154.00	698.0	-631.00	672.0	-739.00	653.0	-680.00
621.5	-549.00	698.5	-161.00	698.5	-676.00	672.5	-809.00	653.5	-676.00
622.0	-507.00	699.0	-165.00	699.0	-706.00	673.0	-881.00	654.0	-658.00
622.5	-441.00	699.5	-167.00	699.5	-729.00	673.5	-933.00	654.5	-626.00
623.0	-369.00	700.0	-168.00	700.0	-735.00	674.0	-981.00	655.0	-579.00
623.5	-271.00	700.5	-165.00	700.5	-725.00	674.5	-1010.00	655.5	-530.00
624.0	-179.00	701.0	-159.00	701.0	-703.00	675.0	-1017.00	656.0	-463.00

# First arrivals plot : WALLABY CREEK 2



**Shot 16** Location : D  
 Charge depth 1.0 Size 3.0  
 Phone depth : 1529.0  
 Arrival time : 628.0 msec

**Shot 17** Location : D  
 Charge depth 1.0 Size 3.0  
 Phone depth : 1480.0  
 Arrival time : 613.0 msec

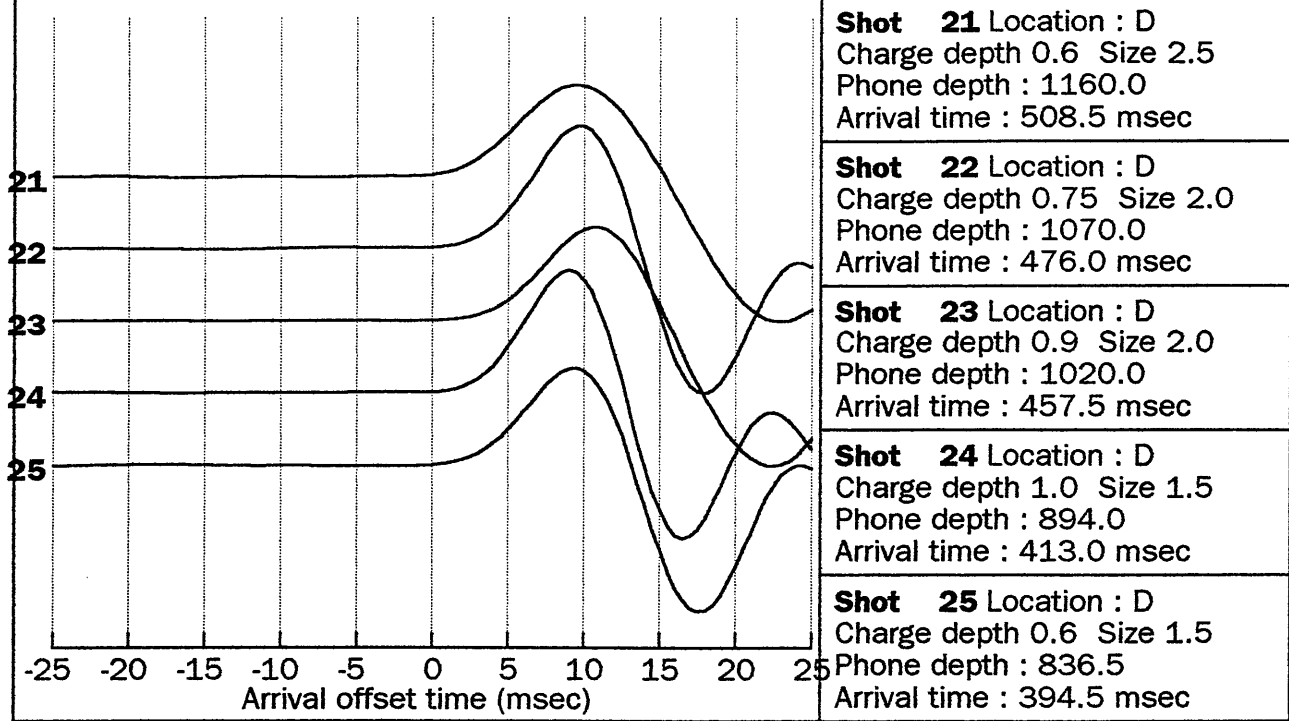
**Shot 18** Location : D  
 Charge depth 1.0 Size 3.0  
 Phone depth : 1456.0  
 Arrival time : 606.0 msec

**Shot 19** Location : D  
 Charge depth 0.8 Size 3.0  
 Phone depth : 1391.0  
 Arrival time : 584.5 msec

**Shot 20** Location : D  
 Charge depth 0.9 Size 3.0  
 Phone depth : 1269.0  
 Arrival time : 543.0 msec

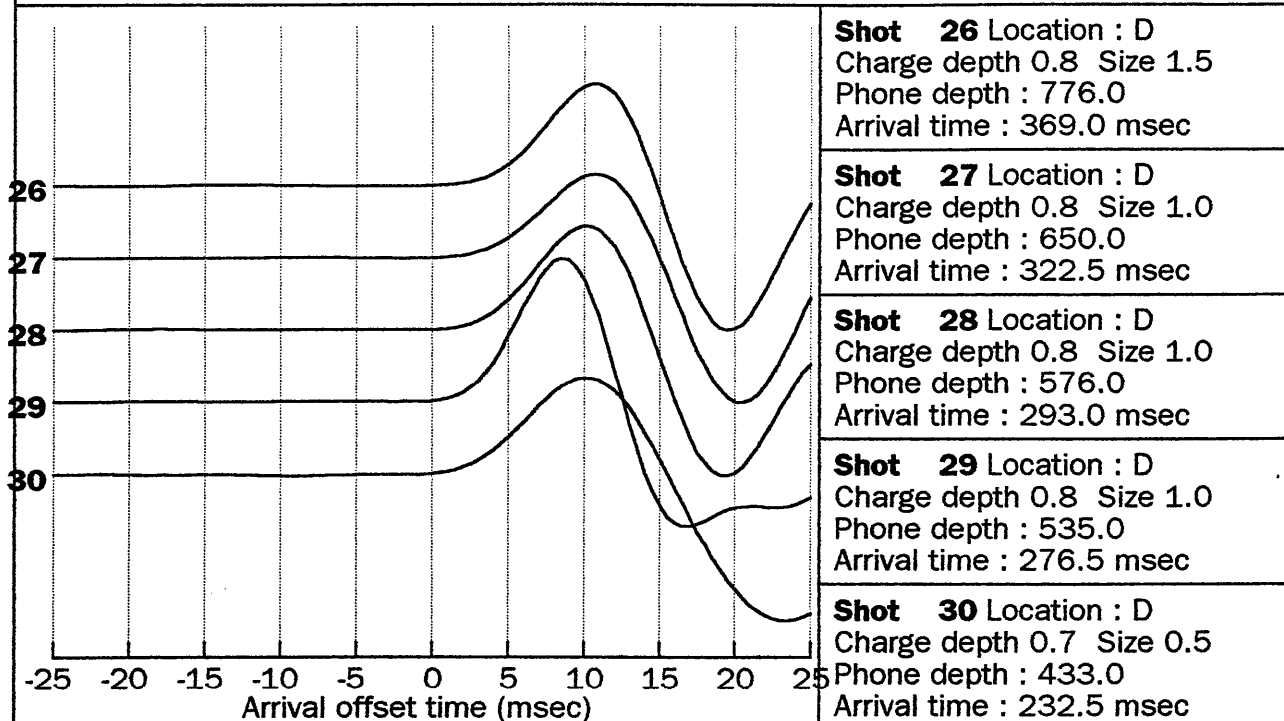
SHOT 16		SHOT 17		SHOT 18		SHOT 19		SHOT 20	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
617.0	-3.00	602.0	-13.00	595.0	-19.00	574.0	15.00	532.0	-9.00
617.5	-3.00	602.5	-13.00	595.5	-17.00	574.5	13.00	532.5	-8.00
618.0	-1.00	603.0	-13.00	596.0	-18.00	575.0	7.00	533.0	-6.00
618.5	-2.00	603.5	-16.00	596.5	-16.00	575.5	4.00	533.5	-7.00
619.0	-1.00	604.0	-17.00	597.0	-15.00	576.0	4.00	534.0	-7.00
619.5	0.00	604.5	-18.00	597.5	-12.00	576.5	5.00	534.5	-6.00
620.0	-1.00	605.0	-17.00	598.0	-11.00	577.0	5.00	535.0	-4.00
620.5	0.00	605.5	-18.00	598.5	-9.00	577.5	6.00	535.5	-3.00
621.0	1.00	606.0	-17.00	599.0	-9.00	578.0	8.00	536.0	-2.00
621.5	0.00	606.5	-16.00	599.5	-7.00	578.5	11.00	536.5	-1.00
622.0	0.00	607.0	-15.00	600.0	-6.00	579.0	11.00	537.0	0.00
622.5	-2.00	607.5	-14.00	600.5	-8.00	579.5	14.00	537.5	0.00
623.0	-4.00	608.0	-13.00	601.0	-7.00	580.0	13.00	538.0	-1.00
623.5	-5.00	608.5	-13.00	601.5	-9.00	580.5	12.00	538.5	-1.00
624.0	-8.00	609.0	-10.00	602.0	-11.00	581.0	13.00	539.0	-2.00
624.5	-7.00	609.5	-12.00	602.5	-14.00	581.5	12.00	539.5	-3.00
625.0	-7.00	610.0	-13.00	603.0	-17.00	582.0	8.00	540.0	-3.00
625.5	-7.00	610.5	-11.00	603.5	-21.00	582.5	3.00	540.5	-5.00
626.0	-11.00	611.0	-13.00	604.0	-23.00	583.0	2.00	541.0	-6.00
626.5	-11.00	611.5	-16.00	604.5	-25.00	583.5	0.00	541.5	-6.00
627.0	-12.00	612.0	-18.00	605.0	-27.00	584.0	-1.00	542.0	-9.00
627.5	-12.00	612.5	-24.00	605.5	-30.00	<b>584.5</b>	<b>-7.00</b>	542.5	-12.00
<b>628.0</b>	<b>-16.00</b>	<b>613.0</b>	<b>-30.00</b>	<b>606.0</b>	<b>-35.00</b>	585.0	-17.00	<b>543.0</b>	<b>-15.00</b>
628.5	-23.00	613.5	-39.00	606.5	-41.00	585.5	-30.00	543.5	-21.00
629.0	-33.00	614.0	-50.00	607.0	-50.00	586.0	-51.00	544.0	-29.00
629.5	-45.00	614.5	-72.00	607.5	-63.00	586.5	-87.00	544.5	-40.00
630.0	-65.00	615.0	-99.00	608.0	-82.00	587.0	-126.00	545.0	-60.00
630.5	-88.00	615.5	-130.00	608.5	-102.00	587.5	-187.00	545.5	-81.00
631.0	-121.00	616.0	-174.00	609.0	-136.00	588.0	-249.00	546.0	-115.00
631.5	-161.00	616.5	-220.00	609.5	-180.00	588.5	-337.00	546.5	-163.00
632.0	-208.00	617.0	-288.00	610.0	-224.00	589.0	-431.00	547.0	-216.00
632.5	-271.00	617.5	-352.00	610.5	-291.00	589.5	-531.00	547.5	-292.00
633.0	-323.00	618.0	-443.00	611.0	-352.00	590.0	-647.00	548.0	-369.00
633.5	-389.00	618.5	-540.00	611.5	-430.00	590.5	-745.00	548.5	-482.00
634.0	-448.00	619.0	-629.00	612.0	-498.00	591.0	-857.00	549.0	-590.00
634.5	-517.00	619.5	-739.00	612.5	-581.00	591.5	-939.00	549.5	-734.00
635.0	-570.00	620.0	-833.00	613.0	-661.00	592.0	-1021.00	550.0	-896.00
635.5	-628.00	620.5	-941.00	613.5	-720.00	592.5	-1077.00	550.5	-1040.00
636.0	-672.00	621.0	-1025.00	614.0	-777.00	593.0	-1098.00	551.0	-1220.00
636.5	-698.00	621.5	-1112.00	614.5	-809.00	593.5	-1093.00	551.5	-1368.00
637.0	-716.00	622.0	-1168.00	615.0	-824.00	594.0	-1063.00	552.0	-1538.00
637.5	-717.00	622.5	-1209.00	615.5	-815.00	594.5	-991.00	552.5	-1687.00
638.0	-703.00	623.0	-1224.00	616.0	-782.00	595.0	-904.00	553.0	-1793.00
638.5	-679.00	623.5	-1204.00	616.5	-719.00	595.5	-775.00	553.5	-1884.00
639.0	-632.00	624.0	-1147.00	617.0	-647.00	596.0	-620.00	554.0	-1924.00

# First arrivals plot : WALLABY CREEK 2



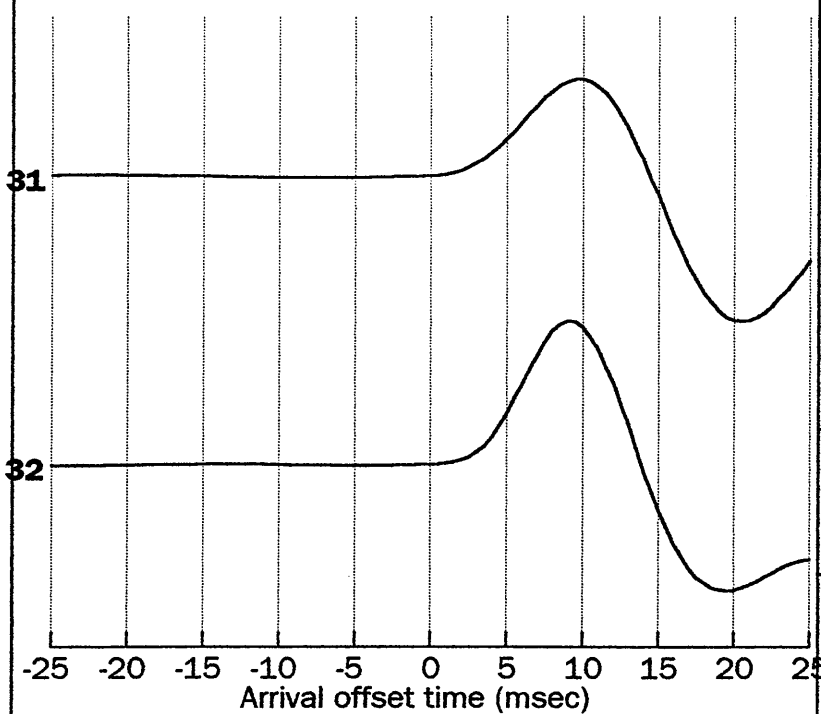
SHOT 21		SHOT 22		SHOT 23		SHOT 24		SHOT 25	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
498.0	-10.00	465.0	-13.00	446.0	-14.00	402.0	-18.00	384.0	-5.00
498.5	-9.00	465.5	-14.00	446.5	-14.00	402.5	-17.00	384.5	-5.00
499.0	-3.00	466.0	-18.00	447.0	-16.00	403.0	-16.00	385.0	-5.00
499.5	-3.00	466.5	-21.00	447.5	-16.00	403.5	-15.00	385.5	-6.00
500.0	-3.00	467.0	-25.00	448.0	-13.00	404.0	-14.00	386.0	-5.00
500.5	-2.00	467.5	-28.00	448.5	-14.00	404.5	-14.00	386.5	-4.00
501.0	-2.00	468.0	-27.00	449.0	-16.00	405.0	-14.00	387.0	-3.00
501.5	0.00	468.5	-30.00	449.5	-17.00	405.5	-15.00	387.5	-2.00
502.0	0.00	469.0	-31.00	450.0	-18.00	406.0	-16.00	388.0	-1.00
502.5	-1.00	469.5	-31.00	450.5	-18.00	406.5	-16.00	388.5	0.00
503.0	-1.00	470.0	-31.00	451.0	-16.00	407.0	-18.00	389.0	-2.00
503.5	-6.00	470.5	-31.00	451.5	-16.00	407.5	-21.00	389.5	2.00
504.0	-7.00	471.0	-30.00	452.0	-13.00	408.0	-23.00	390.0	1.00
504.5	-8.00	471.5	-27.00	452.5	-13.00	408.5	-25.00	390.5	3.00
505.0	-7.00	472.0	-27.00	453.0	-13.00	409.0	-25.00	391.0	-2.00
505.5	-7.00	472.5	-25.00	453.5	-12.00	409.5	-25.00	391.5	-1.00
506.0	-10.00	473.0	-23.00	454.0	-11.00	410.0	-26.00	392.0	0.00
506.5	-10.00	473.5	-23.00	454.5	-12.00	410.5	-25.00	392.5	2.00
507.0	-9.00	474.0	-24.00	455.0	-11.00	411.0	-22.00	393.0	0.00
507.5	-11.00	474.5	-23.00	455.5	-11.00	411.5	-20.00	393.5	-2.00
508.0	-12.00	475.0	-22.00	456.0	-12.00	412.0	-20.00	394.0	-3.00
<b>508.5</b>	<b>-18.00</b>	475.5	-27.00	456.5	-15.00	412.5	-20.00	<b>394.5</b>	<b>-7.00</b>
509.0	-28.00	<b>476.0</b>	<b>-33.00</b>	457.0	-20.00	<b>413.0</b>	<b>-26.00</b>	395.0	-15.00
509.5	-44.00	476.5	-42.00	<b>457.5</b>	<b>-26.00</b>	413.5	-41.00	395.5	-23.00
510.0	-64.00	477.0	-59.00	458.0	-39.00	414.0	-64.00	396.0	-38.00
510.5	-91.00	477.5	-78.00	458.5	-54.00	414.5	-93.00	396.5	-57.00
511.0	-131.00	478.0	-113.00	459.0	-77.00	415.0	-145.00	397.0	-81.00
511.5	-183.00	478.5	-165.00	459.5	-108.00	415.5	-225.00	397.5	-118.00
512.0	-235.00	479.0	-222.00	460.0	-159.00	416.0	-315.00	398.0	-155.00
512.5	-309.00	479.5	-306.00	460.5	-228.00	416.5	-457.00	398.5	-217.00
513.0	-379.00	480.0	-398.00	461.0	-300.00	417.0	-602.00	399.0	-291.00
513.5	-469.00	480.5	-532.00	461.5	-412.00	417.5	-813.00	399.5	-362.00
514.0	-550.00	481.0	-692.00	462.0	-524.00	418.0	-1060.00	400.0	-463.00
514.5	-651.00	481.5	-844.00	462.5	-679.00	418.5	-1291.00	400.5	-557.00
515.0	-754.00	482.0	-1044.00	463.0	-861.00	419.0	-1586.00	401.0	-678.00
515.5	-837.00	482.5	-1221.00	463.5	-1029.00	419.5	-1840.00	401.5	-781.00
516.0	-929.00	483.0	-1439.00	464.0	-1244.00	420.0	-2134.00	402.0	-901.00
516.5	-997.00	483.5	-1652.00	464.5	-1431.00	420.5	-2397.00	402.5	-1016.00
517.0	-1067.00	484.0	-1816.00	465.0	-1655.00	421.0	-2576.00	403.0	-1101.00
517.5	-1119.00	484.5	-1993.00	465.5	-1865.00	421.5	-2720.00	403.5	-1177.00
518.0	-1146.00	485.0	-2090.00	466.0	-2021.00	422.0	-2768.00	404.0	-1214.00
518.5	-1159.00	485.5	-2153.00	466.5	-2176.00	422.5	-2720.00	404.5	-1225.00
519.0	-1151.00	486.0	-2151.00	467.0	-2270.00	423.0	-2548.00	405.0	-1189.00
519.5	-1121.00	486.5	-2077.00	467.5	-2332.00	423.5	-2301.00	405.5	-1119.00
520.0	-1067.00	487.0	-1916.00	468.0	-2332.00	424.0	-1893.00	406.0	-987.00

# First arrivals plot : WALLABY CREEK 2



SHOT 26		SHOT 27		SHOT 28		SHOT 29		SHOT 30	
Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl	Time	Ampl
358.0	-19.00	312.0	-18.00	282.0	-12.00	266.0	-15.00	222.0	-2.00
358.5	-16.00	312.5	-21.00	282.5	-16.00	266.5	-17.00	222.5	1.00
359.0	-14.00	313.0	-23.00	283.0	-15.00	267.0	-17.00	223.0	4.00
359.5	-13.00	313.5	-26.00	283.5	-16.00	267.5	-17.00	223.5	6.00
360.0	-10.00	314.0	-25.00	284.0	-14.00	268.0	-19.00	224.0	6.00
360.5	-7.00	314.5	-27.00	284.5	-15.00	268.5	-19.00	224.5	5.00
361.0	-5.00	315.0	-27.00	285.0	-14.00	269.0	-17.00	225.0	3.00
361.5	-6.00	315.5	-27.00	285.5	-13.00	269.5	-17.00	225.5	1.00
362.0	-3.00	316.0	-23.00	286.0	-13.00	270.0	-17.00	226.0	-3.00
362.5	0.00	316.5	-23.00	286.5	-16.00	270.5	-17.00	226.5	-5.00
363.0	1.00	317.0	-18.00	287.0	-15.00	271.0	-18.00	227.0	-8.00
363.5	3.00	317.5	-17.00	287.5	-16.00	271.5	-17.00	227.5	-5.00
364.0	3.00	318.0	-14.00	288.0	-16.00	272.0	-18.00	228.0	-11.00
364.5	3.00	318.5	-9.00	288.5	-17.00	272.5	-17.00	228.5	-16.00
365.0	3.00	319.0	-7.00	289.0	-16.00	273.0	-19.00	229.0	-15.00
365.5	5.00	319.5	-5.00	289.5	-17.00	273.5	-18.00	229.5	-15.00
366.0	5.00	320.0	-4.00	290.0	-15.00	274.0	-18.00	230.0	-14.00
366.5	5.00	320.5	-4.00	290.5	-13.00	274.5	-16.00	230.5	-15.00
367.0	2.00	321.0	-2.00	291.0	-14.00	275.0	-18.00	231.0	-16.00
367.5	2.00	321.5	-3.00	291.5	-12.00	275.5	-20.00	231.5	-14.00
368.0	-2.00	322.0	-4.00	292.0	-11.00	276.0	-21.00	232.0	-17.00
368.5	-5.00	<b>322.5</b>	<b>-9.00</b>	292.5	-12.00	<b>276.5</b>	<b>-26.00</b>	<b>232.5</b>	<b>-21.00</b>
<b>369.0</b>	<b>-10.00</b>	323.0	-14.00	<b>293.0</b>	<b>-18.00</b>	277.0	-36.00	233.0	-30.00
369.5	-17.00	323.5	-26.00	293.5	-25.00	277.5	-53.00	233.5	-42.00
370.0	-27.00	324.0	-39.00	294.0	-44.00	278.0	-86.00	234.0	-63.00
370.5	-41.00	324.5	-59.00	294.5	-63.00	278.5	-137.00	234.5	-86.00
371.0	-65.00	325.0	-84.00	295.0	-104.00	279.0	-200.00	235.0	-124.00
371.5	-92.00	325.5	-127.00	295.5	-151.00	279.5	-305.00	235.5	-165.00
372.0	-136.00	326.0	-189.00	296.0	-228.00	280.0	-425.00	236.0	-221.00
372.5	-181.00	326.5	-252.00	296.5	-329.00	280.5	-607.00	236.5	-294.00
373.0	-260.00	327.0	-345.00	297.0	-432.00	281.0	-789.00	237.0	-367.00
373.5	-358.00	327.5	-442.00	297.5	-582.00	281.5	-1053.00	237.5	-466.00
374.0	-459.00	328.0	-576.00	298.0	-727.00	282.0	-1353.00	238.0	-558.00
374.5	-601.00	328.5	-738.00	298.5	-928.00	282.5	-1620.00	238.5	-673.00
375.0	-740.00	329.0	-887.00	299.0	-1109.00	283.0	-1946.00	239.0	-777.00
375.5	-925.00	329.5	-1083.00	299.5	-1341.00	283.5	-2210.00	239.5	-905.00
376.0	-1129.00	330.0	-1255.00	300.0	-1582.00	284.0	-2496.00	240.0	-1029.00
376.5	-1308.00	330.5	-1467.00	300.5	-1782.00	284.5	-2692.00	240.5	-1127.00
377.0	-1523.00	331.0	-1643.00	301.0	-2005.00	285.0	-2851.00	241.0	-1234.00
377.5	-1696.00	331.5	-1848.00	301.5	-2172.00	285.5	-2911.00	241.5	-1308.00
378.0	-1884.00	332.0	-2029.00	302.0	-2335.00	286.0	-2872.00	242.0	-1380.00
378.5	-2036.00	332.5	-2157.00	302.5	-2431.00	286.5	-2716.00	242.5	-1421.00
379.0	-2133.00	333.0	-2270.00	303.0	-2488.00	287.0	-2491.00	243.0	-1442.00
379.5	-2194.00	333.5	-2321.00	303.5	-2469.00	287.5	-2117.00	243.5	-1435.00
380.0	-2185.00	334.0	-2323.00	304.0	-2391.00	288.0	-1734.00	244.0	-1399.00

# First arrivals plot : WALLABY CREEK 2



**Shot 31** Location : D  
 Charge depth 0.8 Size 0.5  
 Phone depth : 310.0  
 Arrival time : 169.0 msec

**Shot 32** Location : D  
 Charge depth 1.0 Size 0.5  
 Phone depth : 200.0  
 Arrival time : 109.0 msec

SHOT 31		SHOT 32	
Time	Ampl	Time	Ampl
158.0	13.00	98.0	-15.00
158.5	14.00	98.5	-14.00
159.0	15.00	99.0	-13.00
159.5	15.00	99.5	-10.00
160.0	16.00	100.0	-8.00
160.5	17.00	100.5	-6.00
161.0	17.00	101.0	-8.00
161.5	16.00	101.5	-5.00
162.0	16.00	102.0	-5.00
162.5	17.00	102.5	-4.00
163.0	16.00	103.0	-1.00
163.5	15.00	103.5	-1.00
164.0	14.00	104.0	1.00
164.5	14.00	104.5	1.00
165.0	8.00	105.0	0.00
165.5	8.00	105.5	-1.00
166.0	6.00	106.0	-1.00
166.5	4.00	106.5	-3.00
167.0	4.00	107.0	-3.00
167.5	2.00	107.5	-8.00
168.0	0.00	108.0	-11.00
168.5	-5.00	108.5	-13.00
<b>169.0</b>	<b>-10.00</b>	<b>109.0</b>	<b>-14.00</b>
169.5	-17.00	109.5	-21.00
170.0	-32.00	110.0	-29.00
170.5	-57.00	110.5	-41.00
171.0	-86.00	111.0	-67.00
171.5	-134.00	111.5	-101.00
172.0	-198.00	112.0	-161.00
172.5	-261.00	112.5	-231.00
173.0	-352.00	113.0	-344.00
173.5	-442.00	113.5	-490.00
174.0	-560.00	114.0	-634.00
174.5	-669.00	114.5	-828.00
175.0	-805.00	115.0	-995.00
175.5	-942.00	115.5	-1196.00
176.0	-1053.00	116.0	-1361.00
176.5	-1179.00	116.5	-1532.00
177.0	-1271.00	117.0	-1669.00
177.5	-1361.00	117.5	-1744.00
178.0	-1414.00	118.0	-1786.00
178.5	-1449.00	118.5	-1776.00
179.0	-1448.00	119.0	-1707.00
179.5	-1416.00	119.5	-1582.00
180.0	-1338.00	120.0	-1438.00

*Appendix II*

# **APPENDIX 11**

## **PALYNOLOGY REPORT**



**Palynological Analysis of  
Wallaby Creek-2,  
Port Campbell Embayment,  
Otway Basin.**

by

**Alan D. Partridge**

**Biostrata Pty Ltd**  
A.C.N. 053 800 945

**Biostrata Report 1995/12**

**31 July 1995**

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## INTERPRETATIVE DATA

### Introduction

Fifteen sidewall cores and two core samples were analysed in Wallaby Creek-2 over a short 208 metres interval extending from 1392m at the top of the Belfast Mudstone to 1599.5m within the Eumeralla Formation. The palynological zones and ages identified and their correlations to formations or units identified in the well are summarised in Table 1 below. Additional interpretative data with zone identification and Confidence Ratings are recorded in Table 3, whilst basic data on sidewall core lithologies, sample quantity and quality, residue yields, preservation and diversity are recorded on Tables 4 and 5. All species which have been identified with binomial names are tabulated on a composite range chart for both spore-pollen and microplankton which presents the recorded assemblages in order of lowest appearances.

**Table-1: Palynological Summary Wallaby Creek-2.**

AGE	UNIT	SPORE-POLLEN ZONES	MICROPLANKTON ZONES (SUBZONES)
SANTONIAN	BELFAST MUDSTONE 1391-1479m	<i>T. apoxyexinus</i> 1392.0-1475.0m	<i>I. cretaceum</i> 1392.0-1475.0m
TURONIAN	WAARRE FORMATION UNIT C 1479-1486m	Indeterminate	Indeterminate
	WAARRE FORMATION UNITS A/B 1486-1528m	<i>P. mawsonii</i> 1495.0-1523.5m	<i>P. infusorioides</i> 1495.0-1510.0m ( <i>C. edwardsii</i> ) 1501.0-1510.0m
LATE ALBIAN	EUMERALLA FORMATION 1528-1745m (T.D.)	<i>P. pannosus</i> 1531.87-1589.5m	No zones present.

Between 4 to 12.4 grams (average 8 g) of the sidewall cores and an average of 16.5 grams of the core samples were processed by Laola Pty Ltd in Perth. Moderated<sup>x</sup> to high residue yields were extracted from most samples. Kerogen slides were prepared with filtered and unfiltered fractions<sub>x</sub> and, where sufficient residue was recovered, separate oxidised slides were prepared from fractions concentrated from the residues using 8 and 15 micron filters. Palynomorph concentrations on the palynological slides varied from low to high throughout the sequence without a

notable trend or pattern (Table 5). Palynomorph preservation was poor to fair and only very occasionally good.

Overall spore-pollen diversity was high averaging 27+ species per sample with the exception of the low yielding sample at 1519m, the barren sample at 1599.5m, and contaminated sample at 1481.5m (Table 5). Microplankton were common to abundant in all samples from the Belfast Mudstone, but were inconsistently abundant varying from very rare to common in the Waarre Formation and were very rare in the Eumeralla Formation. Microplankton species diversity was low to moderate averaging overall less than 10 species per sample.

### Geological Comments

1. The section analysed in Wallaby Creek-2 consists of three distinct ages separated by two significant unconformities. The oldest unit analysed in the well is of Late Albian age (*P. pannosus* Zone) and is assigned to the Eumeralla Formation. This is overlain unconformably by the lower part of the *P. mawsonii* Zone which is considered to be early to middle Turonian in age. As with other wells in the Port Campbell Embayment, Cenomanian age strata is missing at the unconformity. In Wallaby Creek-2 there is less than a 9-metre sampling gap in the palynological control across this unconformity. The youngest unit analysed in the well is a suite of Santonian age samples assigned to the *T. apoxyexinus* and *I. cretaceum* Zones from the shaly unit identified as the Belfast Mudstone. An unconformity picked at 1480m separates the Belfast Mudstone from the highest sand in the underlying Waarre Formation. Missing at the unconformity in terms of the microplankton zones are the uppermost part of the *P. infusorioides* Zone and all of the younger *C. striatoconus* and *O. porifera* Zones. Across this unconformity there is a sampling gap of only 20 metres, including the 6 metre sand between 1480-1486m. The only sample considered prospective from this sand (at 1481.5m) proved on processing to be contaminated by obvious Tertiary and Maastrichtian palynomorphs and could not be assigned with confidence to any zone.
2. In terms of the nomenclature proposed by Buffin (1989), missing in Wallaby Creek-2 relative to other wells analysed in the Port Campbell Embayment over the past year is the upper part of Unit C (ie. that part of the *P. mawsonii* Zone above the highest occurrence of *Hoegisporis trinalis* ms), all of Unit D and the basal part of the Belfast Mudstone containing the *C. striatoconus* and *O. porifera* microplankton Zones. In total the unconformity has a duration of as much as 5 million years. Considering that the missing section has been recorded in Langley-1 to the southeast

and Vaughan-1 and Dunbar-1 to the north west the unconformity in Wallaby Creek-2 is more likely to be erosional rather than non-depositional.

3. Marine microplankton were recorded from four of the five samples from in the Waarre Formation and all samples from the overlying Belfast Mudstone. Microplankton abundance data presented on the table below was obtained from counts made on the slides prepared using an 8 micron filter cloth. The microplankton abundances and diversity in the Waarre are more similar to the Vaughan-1 and Dunbar-1 wells rather than the Langley-1 well (Partridge 1994b, 1995a, b) and are best interpreted to reflect near-shore, but fluctuating marine conditions. The consistently higher abundances and diversity in the overlying Belfast Mudstone are interpreted to represent a more continuous open marine environment.

**Table-2: Selected Microplankton Abundances in Wallaby Creek-2.**

SAMPLE TYPE	DEPTH (Metres)	Microplankton Zone and (Subzone)	Microplankton Abundance as % Relative to total Spore-pollen and Microplankton Count	Most abundant microplankton species as % of total Microplankton Count
SWC 24	1392.0	<i>I. cretaceum</i>	11%	<i>Heterosphaeridium</i> spp. >40%.
SWC 23	1415.0	<i>I. cretaceum</i>	33%	<i>Heterosphaeridium</i> spp. >70%.
SWC 22	1437.5	<i>I. cretaceum</i>	25%	<i>Heterosphaeridium</i> spp. >70%.
SWC 20	1461.5	<i>I. cretaceum</i>	33%	<i>Heterosphaeridium</i> spp. >50%. <i>Amosopollis cruciformis</i> >25%.
SWC 19	1470.0	<i>I. cretaceum</i>	43%	<i>Amosopollis cruciformis</i> >35% <i>Heterosphaeridium</i> spp. >15%.
SWC 18	1475.0	<i>I. cretaceum</i>	25%	<i>Heterosphaeridium</i> spp. >40%. <i>Amosopollis cruciformis</i> >25%.
SWC 14	1495.0	<i>P. infusorioides</i>	7%	No species dominant in low count.
SWC 13	1501.0	( <i>C. edwardsii</i> )	<4%	No species dominant in low count.
SWC 10	1510.0	( <i>C. edwardsii</i> )	8%	No species dominant in low count.
SWC 7	1523.5	Indeterminate	<1%	Microplankton very rare.

4. The identification of the *C. edwardsii* Acme at 1501m and 1510m, based on multiple specimens of *Cribroperidinium edwardsii* in the somewhat restricted microplankton assemblages, suggests the shaly interval between 1486-1518m is best interpreted as belonging to Unit B of the Waarre. This makes both Units A and C very thin in Wallaby Creek-2.

## Biostratigraphy

The zone and age determinations are based on the Australia wide Mesozoic spore-pollen and microplankton zonation schemes described by Helby, Morgan & Partridge (1987). Author citations for most spore-pollen species can be sourced from Helby, Morgan & Partridge (1987), Dettmann (1963), Stover & Partridge (1973) or other references cited herein, whilst author citations for dinoflagellates can be found in the index of Lentin & Williams (1993). Species names followed by "ms" are unpublished manuscript names.

### ***Tricolporites apoxyexinus* spore-pollen Zone and**

### ***Isabelidinium cretaceum* microplankton Zone.**

**Interval: 1392.0-1475.0 metres.** (83+ metres)

**Age: Santonian.**

The seven shallowest samples analysed are assigned to the *T. apoxyexinus* Zone on the presence of good specimens of *Ornamentifera sentosa* at 1415m, 1437.5m and 1475m; *Latrobosporites amplus* at 1415m and 1437.5m; *Peninsulapollis gillii* at 1415m and *Forcipites* spp. at 1392m and 1437.5m. The eponymous species was not recorded and as index species for the zone are very rare only low confidence ratings have been assigned to most samples. Average diversity was 27+ species per sample with most samples characterised by abundances of the gymnosperm pollen *Podocarpidites* spp. (5% to 17%) and the *Araucariacites/Dilwynites* group (11% to 20%) and occasional high abundances of *Gleicheniidites* spp. (14% at 1437.5m and 19% at 1475m). There is also a marked increase in abundance of angiosperm pollen going up section from <1% at 1475m and 4% at 1470m to >27% in the two shallowest samples. The increase in angiosperm abundances is mostly small morphological nondescript triporate and tricolpate pollen. Peak abundance of *Proteacidites* spp. was 16% at 1415m and *Australopollis obscurus* was 5% at 1392m. A single specimen of *Nothofagidites senectus* was recorded at 1415m suggesting the younger zone of this name, but as this species is not recorded below the Skull Creek Mudstone in other wells it is best treated as contamination until consistent occurrences as old as this can be documented in other sections.

The samples are also assigned to the *I. cretaceum* Zone on the presence of a variety of *Isabelidinium* species. Most frequent is *Isabelidinium belfastense* occurring in all samples between 1415m to 1475m. The eponymous species *I. cretaceum* was only confidently identified at 1453m and 1470m while *I. thomasti* was recorded between 1415m to 1470m. Important accessory species include *Chatangiella victoriensis*, *Odontochitina cribropoda* and *O. porifera*. Most

assemblages are dominated by *Heterosphaeridium heteracanthum* although the deepest three samples also have significant abundances of the enigmatic algal cyst *Amosopollis cruciformis*. The shallowest sample also contains *Isabelidinium rotundatum* ms whose oldest occurrence defines a possible useful upper subdivision of the *I. cretaceum* Zone. On a strict zone definition the deepest sample at 1475m should also be assigned to the *O. porifera* Zone on the absence of *I. cretaceum* but was retained within the younger zone based on the frequent occurrence of *I. belfastense*.

### ***Phyllocladidites mawsonii* spore-pollen Zone**

(formerly the *Clavifera triplex* Zone).

**Interval: 1495.0-1523.5 metres** (28+ metres).

**Age: Turonian**

The four samples assigned to the *P. mawsonii* Zone are all assigned to the lower part of the zone based on the range of *Hoegisporis trinalis* ms. The fifth sample over this interval at 1519m probably also belongs to this zone but unfortunately the palynomorphs were so rare it was impossible to record a diagnostic assemblage.

The deepest sample at 1523.5m contains the eponymous species *Phyllocladidites mawsonii*, associated with the new species *Dilwynites pusillus* ms and *Rugulatisporites admirabilis* ms which are not currently known to range below this zone. Also present is *Appendicisporites distocarinatus* which can range older.

The three samples between 1495-1510m are all characterised by *Hoegisporis trinalis* ms and also contain *D. pusillus* ms, *R. admirabilis* ms and *A. distocarinatus*. The oldest occurrences of *Laevigatosporites musa* ms and *Foveogleicheniidites confossus* in the shallowest sample are potentially important FADs for future subdivision of this interval.

The assemblages are dominated by the spores *Cyathidites* spp. and *Gleicheniidites circinidites* and the gymnosperm pollen of the *Araucariacites/Dilwynites* species complex and *Podocarpidites* spp. Angiosperm pollen are rare in all samples.

The sample at 1481.5m upon preparation for processing was found to consist of a medium to dark brown claystone, carbonaceous in part, irregularly mixed with coarse grained quartz sandstone. It was mostly the claystone fraction that was submitted for processing although this could not be adequately separated or cleaned in the soft and crumbly sample. The assemblage recorded consisted of spores, pollen and microplankton also recorded in the overlying Belfast Mudstone mixed with palynomorph species indicative of Maastrichtian and Tertiary ages.

The former species are shown as caved on the range chart while a selection of the latter are listed below. The preferred interpretation is that the entire assemblage is caved and therefore not representative of the age of the sand between 1480-1406m.

**Maastrichtian Species:**

*Forcipites longus*  
*Manumiella* sp. cf. *M. druggii*  
*Proteacidites otwayensis* ms

**Tertiary Species:**

*Aglaoreidia qualumis*  
*Haloragacidites harrisii*  
*Nothofagidites emarcidus/heterus*  
*Operculodinium centrocarpum*  
*Podocarpidites exiguus*  
*Protoellipsodinium simplex* ms  
*Rudolphisporis rudolphi*

***Palaeohystrichophora infusorioides* microplankton Zone.**

**Interval: 1495.0-1510.0 metres** (15+ metres).

***Cribooperidinium edwardsii* Subzone.**

**Interval: 1501.0-1510.0 metres**

**Age: Turonian.**

The identification of the *P. infusorioides* Zone follows the recent analysis and arguments in Partridge (1994a, b, c; 1995a, b). The zone is identified by the similarity of the assemblages to those recovered in other wells in the Port Campbell Embayment. The assemblages recorded from Wallaby Creek-2 are not in themselves diagnostic as only long ranging species were recorded. The shallowest sample at 1495m has a moderate diversity but no particular species dominates. It does however contain the oldest occurrence of *Heterosphaeridium* represented by fragmented specimens. The sample at 1501m has both low diversity and low abundance of microplankton but does contain *Cribooperidinium edwardsii* and is therefore considered to lie at the top of the acme of this species. In the sample at 1510m *Palaeoperidinium cretaceum* is the most conspicuous species in the 15 $\mu$ m filtered slides with *Cyclonephelium compactum* and *C. edwardsii* the next most frequent. The last is considered to be sufficiently abundant to constitute the *C. edwardsii* Acme.



The sample at 1523.5m is also considered marine as it contains *Palaeoperidinium cretaceum* but the record of just this single species does not justify any zone assignment.

***Phimopollenites pannosus* spore-pollen Zone.**

**Interval: 1531.87 to 1589.5 metres** (68+ metres).

**Age: Late Albian.**

The sidewall core sample at 1589.5m and deepest sample from this zone contained an assemblage dominated by laevigate trilete spores referred to *Cyathidites* spp. with an abundance of 31% and bisaccate gymnosperm pollen referred to *Podocarpidites* with an abundance of 22%. The assemblage also contained common *Corollina torosa* with an abundance of 5% as is typical of this zone sampled in other recent wells. Of the rare microplankton recorded *Micrhystridium* sp. A, Marshall 1989 and *Sigmopollis carbonis* have previously been recorded from this zone but the single specimen of *Sentusidinium aptiensis* (Burger 1980) observed has not previously been reported from this zone and is best interpreted as either down-hole or laboratory contamination until it can be documented in other sections or samples in the Eumeralla Formation.

The two conventional core samples were both from carbonaceous laminae in massive feldspathic sandstone and (not surprising<sup>ly</sup>) were dominated by high yields of structured terrestrial kerogen (also referred to as woody or herbaceous kerogen) in which spore-pollen were very rare to moderately abundant. Both samples contained the typical bland assemblages characteristic of the Eumeralla Formation. The shallowest sample is no younger than the *P. pannosus* Zone on common occurrence of *C. torosa* while the deeper contained frequent specimens of the eponymous species. The rare microplankton recorded in the latter are more likely to be derived from mud pellets in sandstone rather than the carbonaceous laminae (see Table-4).

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Table-3: Interpretative Palynological Data for Wallaby Creek-2.

Sample Type	Depth (m)	Spore-pollen Zone	*CR	Microplankton Zones and (Subzones)	*CR	Comments and Key Species
SWC 24	1392.0	<i>T. apoxyexinus</i>	B4	<i>I. cretaceum</i>	B4	<i>Proteacidites</i> spp. >10% FAD of <i>Isabelidium rotundatum</i> ms.
SWC 23	1415.0	<i>T. apoxyexinus</i>	B1	<i>I. cretaceum</i>	B4	<i>Proteacidites</i> spp. 16%. Presence of <i>Nothofagidites senectus</i> interpreted as down-hole contamination.
SWC 22	1437.5	<i>T. apoxyexinus</i>	B2	<i>I. cretaceum</i>	B3	<i>Proteacidites</i> spp. 12% with <i>Ornamentifera sentosa</i> and <i>Isabelidium belfastense</i> .
SWC 21	1453.0	<i>T. apoxyexinus</i>	B4	<i>I. cretaceum</i>	B3	<i>Isabelidium cretaceum</i> sensu strictus with <i>I. belfastense</i> and <i>I. thomasii</i> present.
SWC 20	1461.5	<i>T. apoxyexinus</i>	B4	<i>I. cretaceum</i>	B4	<i>Proteacidites</i> spp. >7% with <i>I. belfastense</i> .
SWC 19	1470.0	<i>T. apoxyexinus</i>	B4	<i>I. cretaceum</i>	B3	FAD of <i>Isabelidium cretaceum</i> .
SWC 18	1475.0	<i>T. apoxyexinus</i>	B2	<i>I. cretaceum</i>	B4	FADs of <i>O. sentosa</i> and <i>I. belfastense</i> .
SWC 17	1481.5	Indeterminate		Indeterminate		Sample contaminated by Tertiary and Maastrichtian palynomorphs suggesting carbonaceous claystone fraction in broken SWC is all downhole contamination.
SWC 14	1495.0	<i>P. mawsonii</i>	B1	<i>P. infusorioides</i>	B2	LADs of <i>Hoegisporis trinalis</i> ms, <i>Appendicisporites distocarinatus</i> and dinoflagellate <i>Kiokansium polypes</i> .
SWC 13	1501.0	<i>P. mawsonii</i>	B1	<i>P. infusorioides</i> ( <i>C. edwardsii</i> )	B3	LAD of <i>Cribrasperidinium edwardsii</i> .
SWC 10	1510.0	<i>P. mawsonii</i>	B1	<i>P. infusorioides</i> ( <i>C. edwardsii</i> )	B2	FADs of <i>H. trinalis</i> and <i>C. edwardsii</i>
SWC 8	1519.0	Indeterminate				Palynomorphs very rare
SWC 7	1523.5	<i>P. mawsonii</i>	B3			FADs of <i>Phyllocladidites mawsonii</i> , <i>Appendicisporites distocarinatus</i> and <i>Rugulatisporites admirabilis</i> ms. Microplankton very rare.
CORE-2	1531.87-1531.94	<i>P. pannosus</i> or older	A4			Common <i>Corollina torosa</i> .
CORE-2	1545.11-1545.17	<i>P. pannosus</i>	A1			Frequent <i>Pimipollenites pannosus</i> . Rare microplankton considered to be from mud pellets.
SWC 3	1589.5	<i>P. pannosus</i>	B1			FAD in well of <i>Pimipollenites pannosus</i> with <i>Corollina torosa</i> 5%.
SWC 2	1599.5	Barren				Greenish grey claystone was barren of palynomorphs.

\*CR = Confidence Ratings  
LAD = Last Appearance Datum  
FAD = First Appearance Datum

## Confidence Ratings

The Confidence Ratings assigned to the zone identifications on Table-3 are quality codes used in the STRATDAT relational database being developed by the Australian Geological Survey Organisation (AGSO) as a National Database for interpretive biostratigraphic data. Their purpose is to provide a simple relative comparison of the quality of the zone assignments. The alpha and numeric components of the codes have been assigned the following meanings:

**Alpha codes:** Linked to sample type

- A** Core
- B** Sidewall core
- C** Coal cuttings
- D** Ditch cuttings
- E** Junk basket
- F** Miscellaneous/unknown
- G** Outcrop

**Numeric codes:** Linked to fossil assemblage

- 1 Excellent confidence:** High diversity assemblage recorded with key zone species.
- 2 Good confidence:** Moderately diverse assemblage recorded with key zone species.
- 3 Fair confidence:** Low diversity assemblage recorded with key zone species.
- 4 Poor confidence:** Moderate to high diversity assemblage recorded without key zone species.
- 5 Very low confidence:** Low diversity assemblage recorded without key zone species.

## BASIC DATA

Table-4: Basic Sample Data - Wallaby Creek-2.

Sample Type	Depth (m)	Rec (cm)	Lithology	Sample Wt (g)	Residue Yield
SWC 24	1392.0	3.5	Dark brown-black siltstone with 2mm laminae of white siltstone. Well cleaned.	10.8	High
SWC 23	1415.0	3.0	Dark brown- black claystone - soft, mud penetrated. Poorly cleaned	8.0	Low
SWC 22	1437.5	3.0	Dark brown-black pyritic claystone. Firm - well cleaned.	10.9	High
SWC 21	1453.0	3.8	Dark brown claystone slightly calcareous with trace of glauconite. Soft - moderately well cleaned.	10.3	High
SWC 20	1461.5	4.1	Dark brown claystone, slightly calcareous with trace micromica. Well cleaned.	8.9	High
SWC 19	1470.0	2.5	Dark brown claystone. Firm - well cleaned.	9.5	High
SWC 18	1475.0	3.5	Medium dark brown claystone, faintly mottled. Well cleaned.	12.4	High
SWC 17	1481.5	2.8	Medium-dark brown claystone intermixed with coarse sandstone. Poorly cleaned.	5.8	Moderate
SWC 14	1495.0	3.5	Interlaminated dark brown claystone and light brown-tan sandstone. Laminae irregular 1-5mm. Well cleaned	9.0	High
SWC 13	1501.0	1.8	Tan fine-medium sandstone with dark brown claystone laminae up to 3mm. Well cleaned.	4.1	Moderate
SWC 10	1510.0	1.4	Dark grey-brown fissile claystone. Moderately well cleaned.	4.3	High
SWC 8	1519.0	<2.0	Light brown fine grained sandstone with carbonaceous claystone to coal. Sample broken - poorly cleaned.	4.7	Moderate
SWC 7	1523.5	<2.0	Light brown fine grained sandstone interlaminated with dark brown claystone. Laminae <2mm. Poorly cleaned	6.4	Moderate
CORE-2	1531.87- 1531.94		Medium grey, fine-medium grey feldspathic sandstone with thin lamination of carbonaceous fragments up to 3mm diameter	16.6	High
CORE-2	1545.11- 1545.17		Medium grey coarse grained feldspathic sandstone with a bedding surface containing carbonaceous fragments up to 20mm long overlain by pebble size mud pellets.	16.3	High
SWC 3	1589.5	3.5	Light-medium grey siltstone with faint lamination. Well cleaned.	12.0	High
SWC 2	1599.5	<1.7	Green grey claystone. Well cleaned.	4.0	Very low

**Table-5: Basic Palynomorph Data for Wallaby Creek-2.**

Sample Type	Depth (m)	Palynomorph Concentration	Palynomorph Preservation	No. S-P spp*	Microplankton Abundance	No. MP Species*
SWC 24	1392.0	Moderate	Poor-fair	35+	Common	19+
SWC 23	1415.0	Low	Fair-good	34+	Abundant	15+
SWC 22	1437.5	Moderate	Poor-good	27+	Abundant	12+
SWC 21	1453.0	High	Poor-good	21+	Abundant	11+
SWC 20	1461.5	Low	Poor-fair	20+	Abundant	6+
SWC 19	1470.0	Moderate	Poor-good	21+	Abundant	9+
SWC 18	1475.0	Moderate	Poor-good	33+	Abundant	12+
SWC 17	1481.5	Low	Poor-good	12+	Frequent	5+
SWC 14	1495.0	Moderate	Poor-fair	35+	Common	14+
SWC 13	1501.0	Low	Poor-fair	30+	Frequent	5+
SWC 10	1510.0	High	Poor-good	29+	Common	15+
SWC 8	1519.0	Very low	Poor	8+	NR	
SWC 7	1523.5	Very low	Poor-good	25+	Very rare	1+
CORE-2	1531.87- 1531.94	Low	Fair	18+	NR	
CORE-2	1545.11- 1545.17	Moderate	Fair	23+	Very rare	2
SWC 3	1589.5	High	Poor-fair	36+	Very rare	3+
SWC 2	1599.5	Barren				

**\*Diversity:** Very low = 1-5 species  
 Low = 6-10 species  
 Moderate = 11-25 species  
 High = 26-74 species  
 Very high = 75+ species  
 NR = Not recorded in sample

PE900748

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    SUBTYPE = DIAGRAM  
DESCRIPTION = Palynomorph Range Chart, Relative  
                Abundance by Lowest Appearance,  
                (enclosure from WCR) for Wallaby  
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    CONTRACTOR = Baker Hughes Inteq  
    CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

Enclosures . . . . .

ENCLOSURES



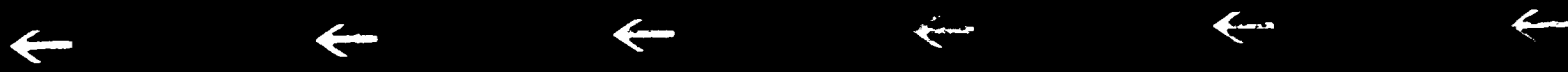
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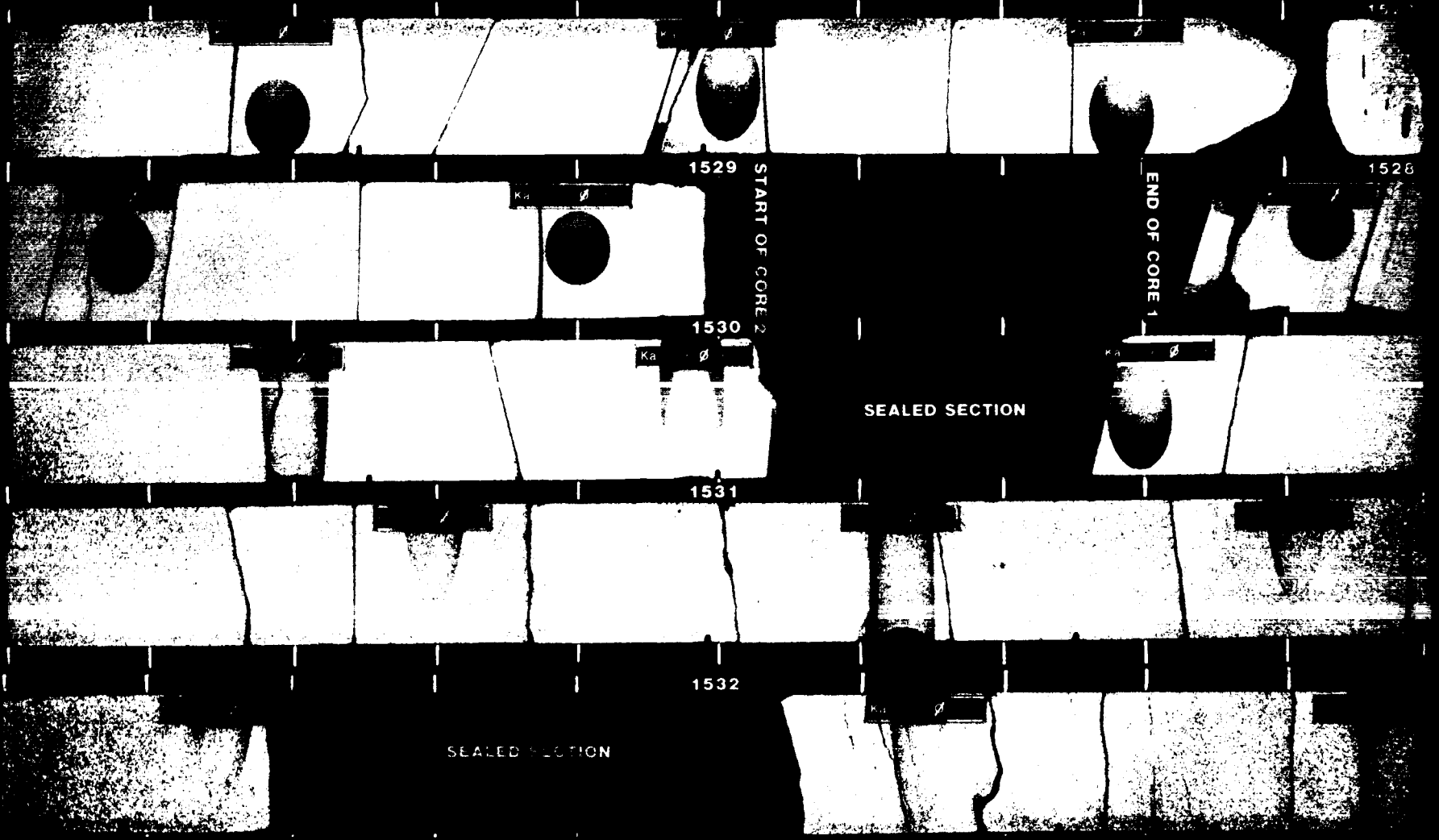
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for Wallaby Creek-2
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- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

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GFE. WALLABY CREEK 2. 1527 1547 4. 1

CORE. 1 AND 2



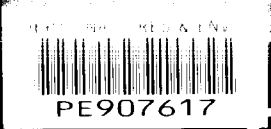
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- DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 & 2,  
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for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

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GFE. WALLABY CREEK # 2. 1527 TO 1547.4 M



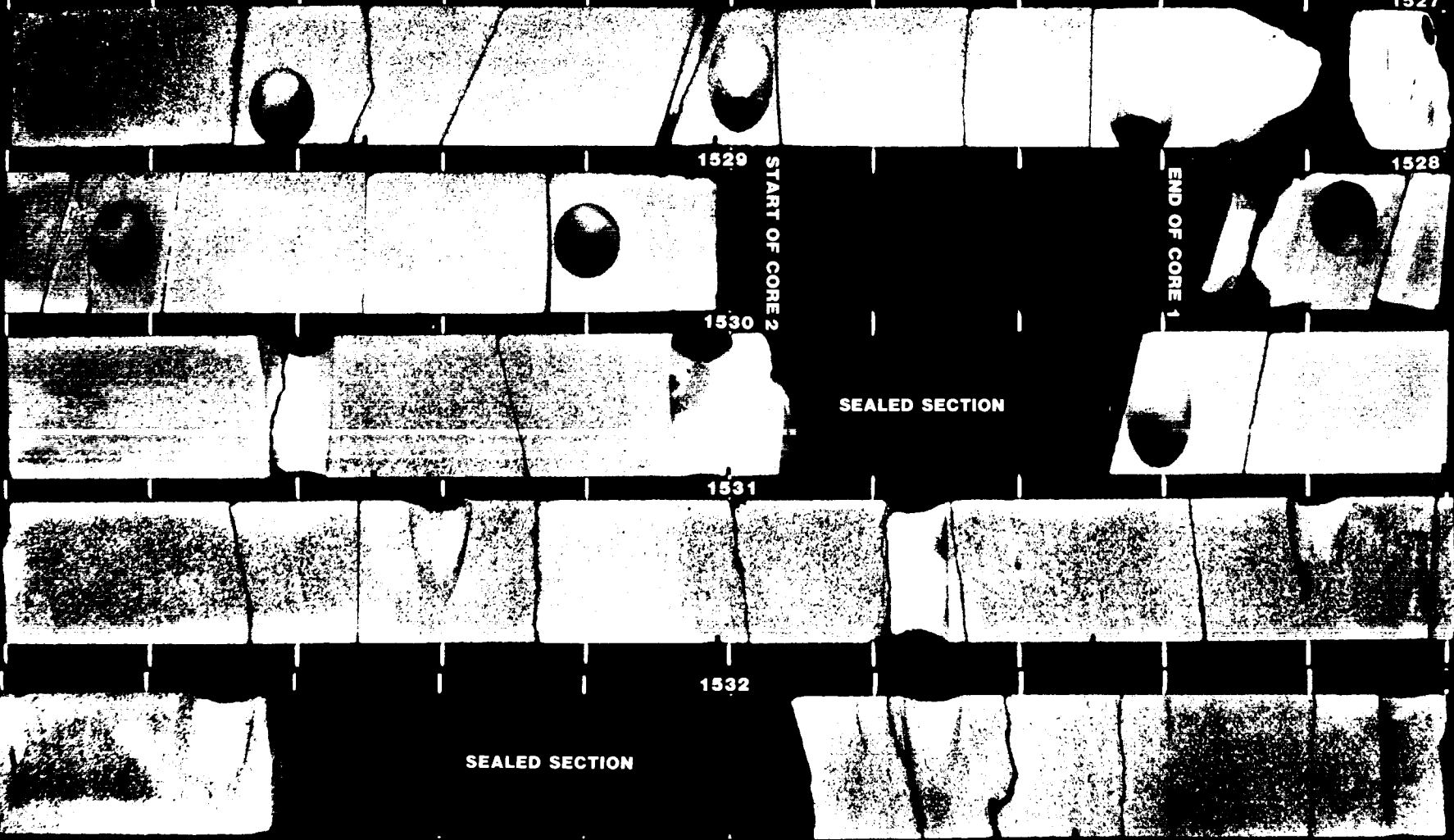
EXP

1

LAB USE ONLY



CORE. 1 AND 2



1527

1528

1529

1530

1531

1532

START OF CORE 2

END OF CORE 1

SEALED SECTION

SEALED SECTION

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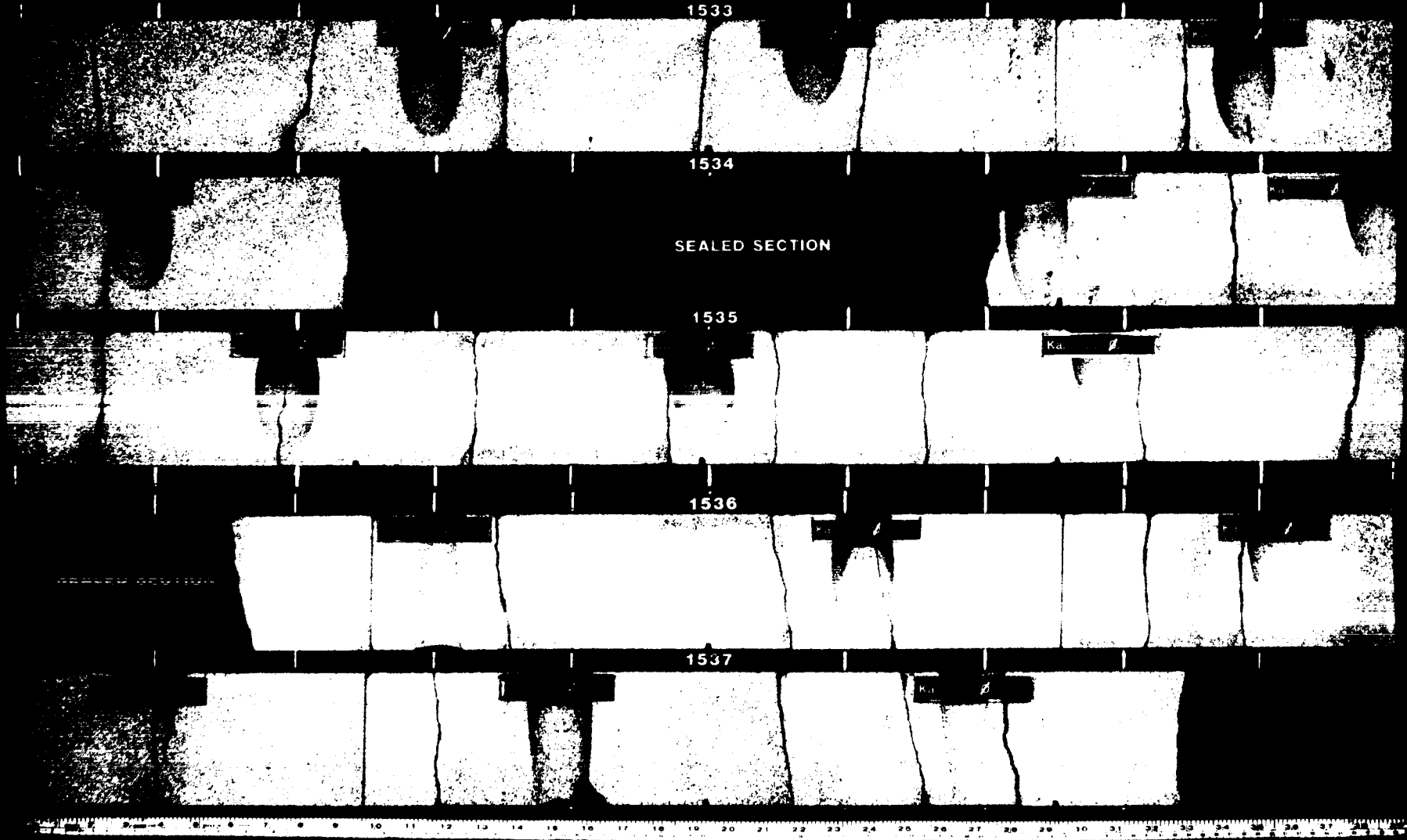
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for Wallaby Creek-2
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- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

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← ← ← ← ←  
GFE. WALLABY CREEK 2. 1527 1547.4 2

CORE. 1 AND 2



PE907619

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  - NAME = Core Photograph
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = CORE\_PHOTOS
- DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 &  
2, Wet Core, EXP 2, (enclosure 1 from  
WCR) for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE907619

← ← ← ← ← ← ← ← ← ←

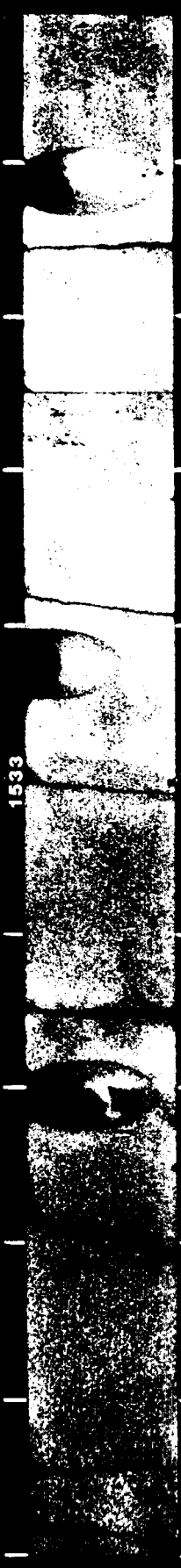
# GFE. WALLABY CREEK 2. 1527 TO 1547. 4<sup>M</sup> 2

LAB USE ONLY

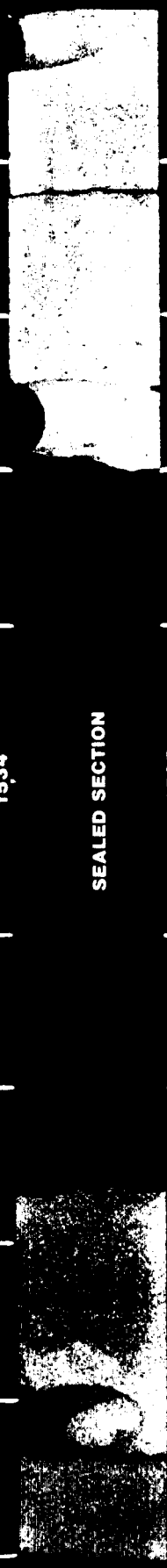


5 YR 1 10 YR 4 5 YR 3/4 10 YR 3 5 YR 4 1

## CORE. 1 AND 2

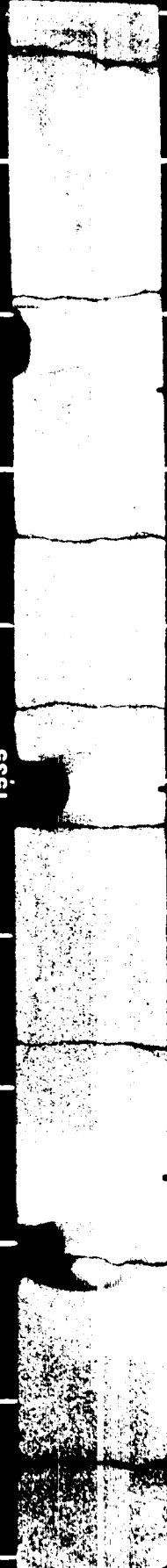


1533



1534

SEALED SECTION



1535

SEALED SECTION



1536



1537



PE907620

This is an enclosure indicator page.  
The enclosure PE907620 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907620 has the following characteristics:

ITEM\_BARCODE = PE907620  
CONTAINER\_BARCODE = PE900875  
    NAME = Core Photograph  
    BASIN = OTWAY  
    PERMIT = PPL/1  
    TYPE = WELL  
    SUBTYPE = CORE\_PHOTOS  
DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 & 2,  
              Dry Core, EXP 3, (enclosure 1 from WCR)  
              for Wallaby Creek-2  
REMARKS =  
DATE\_CREATED =  
DATE\_RECEIVED =  
    W\_NO = W1125  
    WELL\_NAME = Wallaby Creek-2  
CONTRACTOR =  
CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)



PE907620



GFE. WALLABY CREEK 2. 1527 1547 4<sub>M</sub>



3



CORE. 1 AND 2

1538



1539



SEALED SECTION

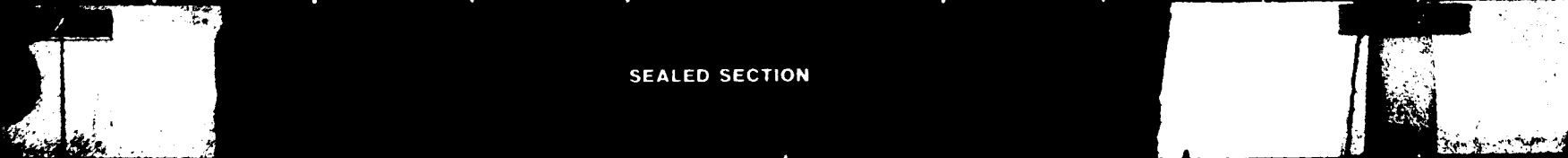
1540



1541



1542



SEALED SECTION



PE907621

This is an enclosure indicator page.  
The enclosure PE907621 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907621 has the following characteristics:

- ITEM\_BARCODE = PE907621
- CONTAINER\_BARCODE = PE900875
  - NAME = Core Photograph
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = CORE\_PHOTOS
- DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 & 2,  
Wet Core, EXP 3, (enclosure 1 from WCR)  
for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

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PE907621

# GFE. WALLABY CREEK # 2. 1527 TO 1547.4 M

EXP 3

LAB USE ONLY



## CORE. 1 AND 2

1538

1539

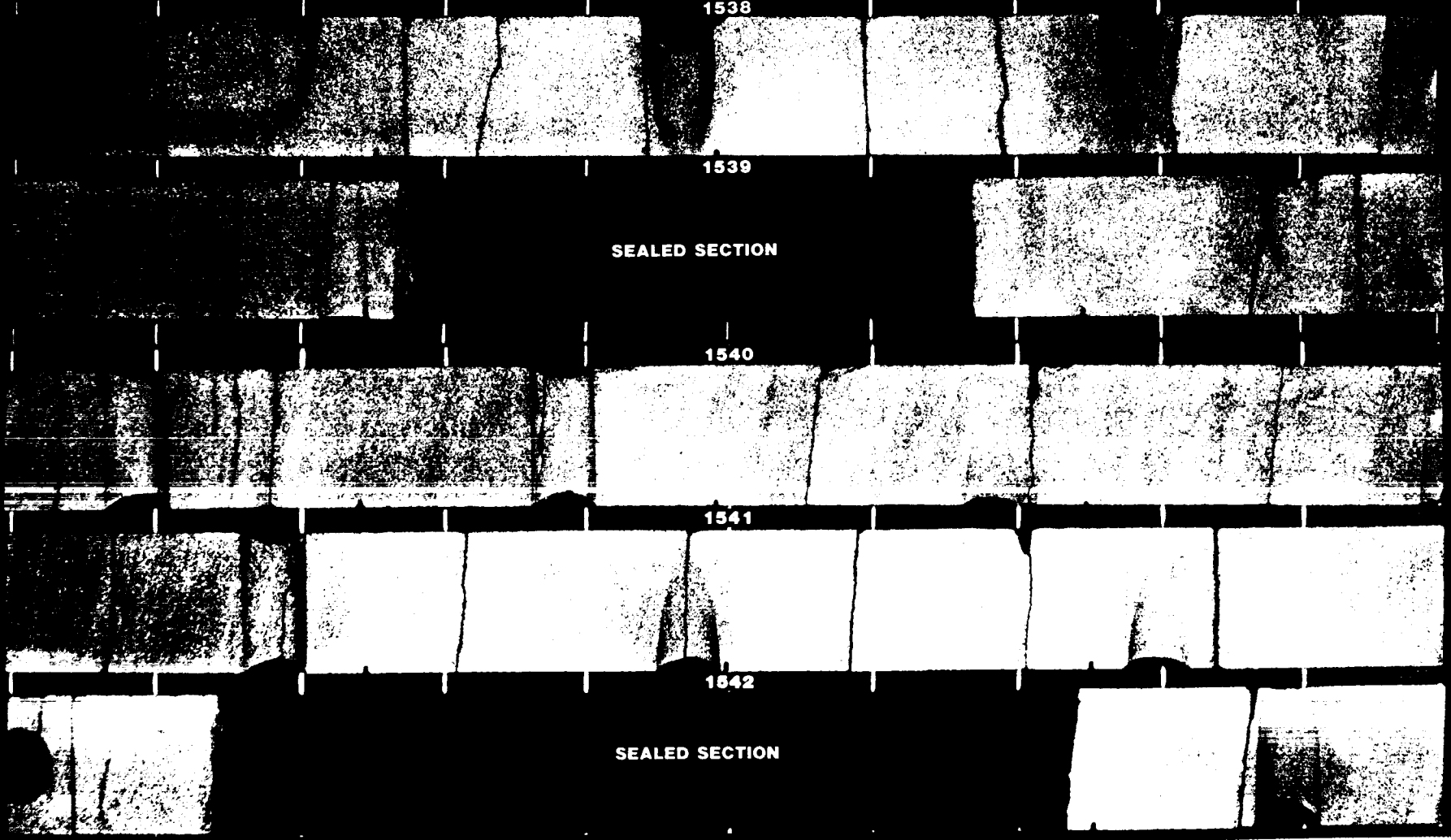
SEALED SECTION

1540

1541

1542

SEALED SECTION



PE907622

This is an enclosure indicator page.  
The enclosure PE907622 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907622 has the following characteristics:

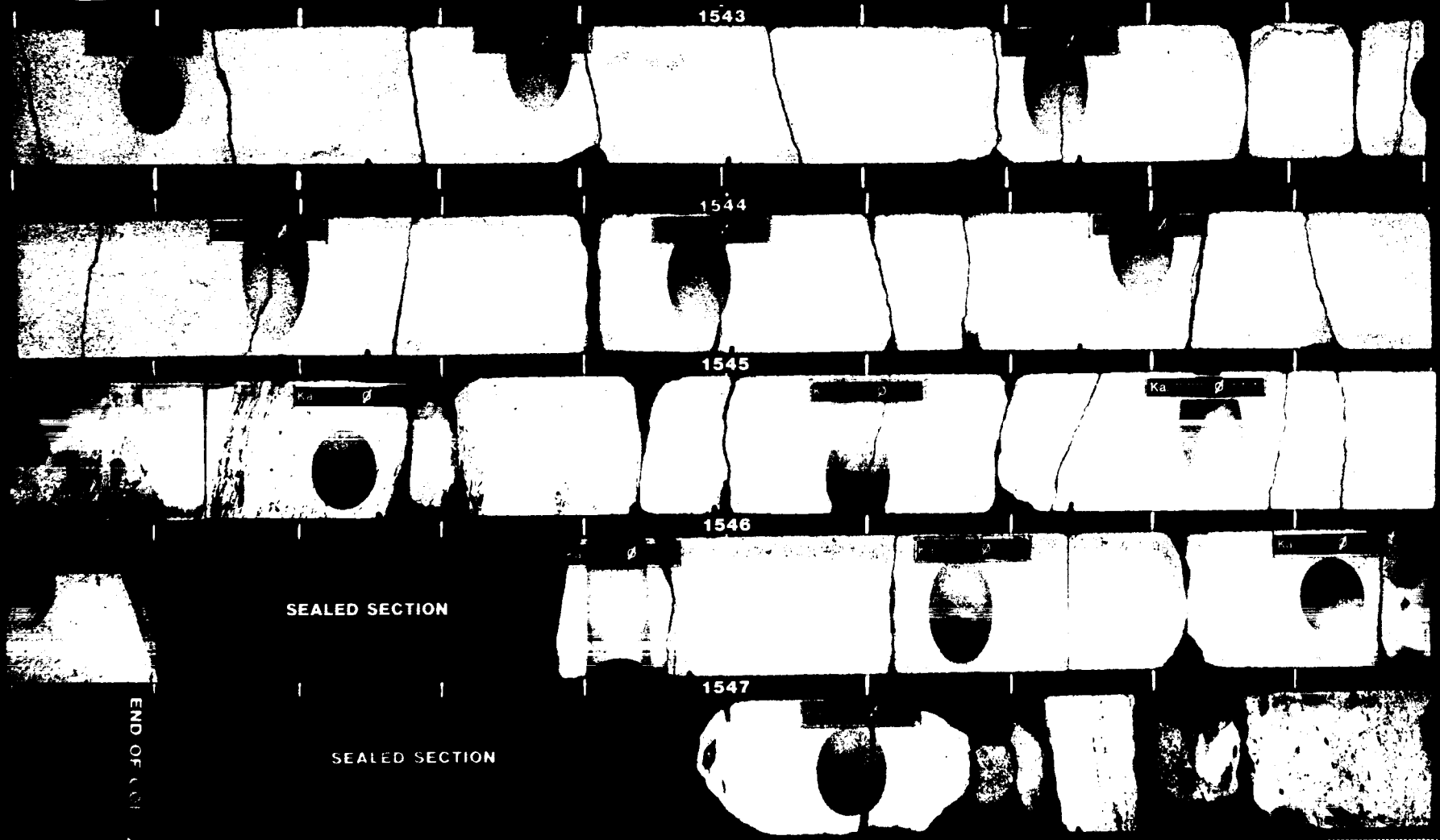
- ITEM\_BARCODE = PE907622
- CONTAINER\_BARCODE = PE900875
  - NAME = Core Photograph
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = CORE\_PHOTOS
- DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 & 2,  
Dry Core, EXP 4, (enclosure 1 from WCR)  
for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

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GFE. WALLABY CREEK 2. 1527 1547.4<sub>M</sub> 4

CORE. 1 AND 2



1543

1544

1545

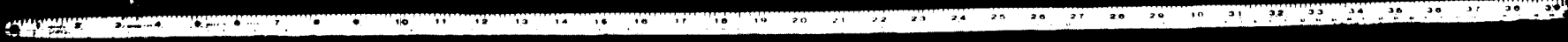
1546

1547

SEALED SECTION

SEALED SECTION

END OF CORE



PE907623

This is an enclosure indicator page.  
The enclosure PE907623 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE907623 has the following characteristics:

- ITEM\_BARCODE = PE907623
- CONTAINER\_BARCODE = PE900875
  - NAME = Core Photograph
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
- SUBTYPE = CORE\_PHOTOS
- DESCRIPTION = Core Photo, 1527m-1547.4m, Core 1 & 2,  
Wet Core, EXP 4, (enclosure 1 from WCR)  
for Wallaby Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR =
- CLIENT\_OP\_CO = GFE Resources Ltd

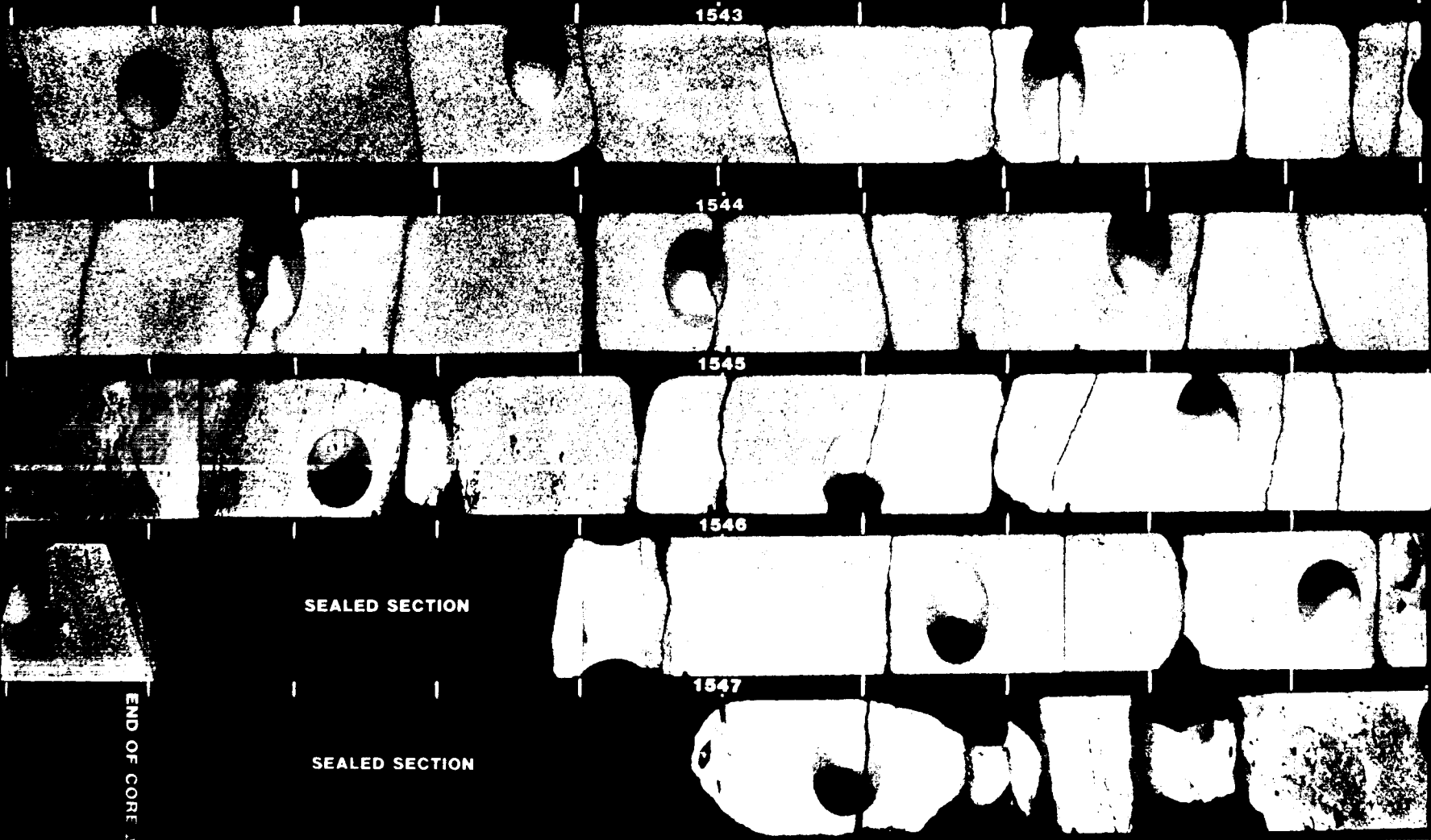
(Inserted by DNRE - Vic Govt Mines Dept)



GFE. WALLABY CREEK 2. 1527 TO 1547.4 M



CORE. 1 AND 2



SEALED SECTION

SEALED SECTION

END OF CORE





PE605036

This is an enclosure indicator page.  
The enclosure PE605036 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE605036 has the following characteristics:

ITEM\_BARCODE = PE605036  
CONTAINER\_BARCODE = PE900875  
    NAME = Mud Log  
    BASIN = OTWAY  
    PERMIT = PPL/1  
    TYPE = WELL  
    SUBTYPE = MUD\_LOG  
DESCRIPTION = XLBase Formation Evaluation Log/Mud  
              Log, Baker Hughes Inteq, (enclosure 3  
              from WCR) for Wallaby Creek-2  
REMARKS =  
DATE\_CREATED = 15/04/95  
DATE\_RECEIVED =  
    W\_NO = W1125  
    WELL\_NAME = Wallaby Creek-2  
    CONTRACTOR = Baker Hughes Inteq  
    CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE600675

This is an enclosure indicator page.  
The enclosure PE600675 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE600675 has the following characteristics:

- ITEM\_BARCODE = PE600675
- CONTAINER\_BARCODE = PE900875
- NAME = Composite Well Log
- BASIN = OTWAY
- PERMIT = PPL/1
- TYPE = WELL
- SUBTYPE = COMPOSITE\_LOG
- DESCRIPTION = Composite Well Log (enclosure 2 from  
WCR) **for** Wallaby Creek-2
- REMARKS =
- DATE\_CREATED = 4/05/95
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR = GFE Resources Ltd
- CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE600676

This is an enclosure indicator page.  
The enclosure PE600676 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE600676 has the following characteristics:

- ITEM\_BARCODE = PE600676
- CONTAINER\_BARCODE = PE900875
  - NAME = XLBase Gas Ratio Analysis Log
  - BASIN = OTWAY
  - PERMIT = PPL/1
  - TYPE = WELL
  - SUBTYPE = WELL\_LOG
- DESCRIPTION = XLBase Gas Ratio Analysis Log  
(enclosure 4 from WCR) for Wallaby  
Creek-2
- REMARKS =
- DATE\_CREATED =
- DATE\_RECEIVED =
- W\_NO = W1125
- WELL\_NAME = Wallaby Creek-2
- CONTRACTOR = Baker Hughs Inteq
- CLIENT\_OP\_CO = GFE Resources Ltd

(Inserted by DNRE - Vic Govt Mines Dept)

PE600677

This is an enclosure indicator page.  
The enclosure PE600677 is enclosed within the  
container PE900875 at this location in this  
document.

The enclosure PE600677 has the following characteristics:

ITEM\_BARCODE = PE600677  
CONTAINER\_BARCODE = PE900875  
    NAME = Complex Lithology Model  
    BASIN = OTWAY  
    PERMIT = PPL/1  
    TYPE = WELL  
    SUBTYPE = WELL\_LOG  
    DESCRIPTION = Complex Lithology Model, CPI,  
                  (enclosure 5 from WCR) for Wallaby  
                  Creek-2  
    REMARKS =  
    DATE\_CREATED = 25/01/96  
    DATE\_RECEIVED =  
    W\_NO = W1125  
    WELL\_NAME = Wallaby Creek-2  
    CONTRACTOR = GFE Resources Ltd  
    CLIENT\_OP\_CO =

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