WCR (VOL. 1)
DIGBY - 1
W1130

GFE Resources Ltd

WELL COMPLETION REPORT

DIGBY-1

DIGBY JOINT VENTURE

OTWAY BASIN, VICTORIA

compiled by

Kevin Lanigan

November, 1995

VOLUME 1

TEXT & APPENDICES 1 - 8

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GFE RESOURCES LTD

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SUMMARY

WELL DATA SUMMARY

DIGBY-1

Permit: DIGBY JV Otway Basin, Victoria
Lat./Long.: 37° 50' 46.183"S / 141° 30' 11.257"E
AMG: 544265.6mE 5811119.6mN
Seismic: Line OMN93-14 cmp 739.5
Elevation: Ground Level: 138.0m AHD
Kelly Bushing (well datum): 143.77m AHD
Total Depth: Driller 2088.0mKB
Logger 2088.0mKB
Rig: Century Rig 11

Pre-drill Status: Exploration Well
Post-drill Status: Plugged and Abandoned
Participants:

Crusader Ltd	32.8125%
GFE Resources Ltd (Operator)	28.125%
Santos Ltd	25.0%
Australian Hydrocarbons Ltd	7.8125%
Beach Petroleum N.L.	6.25%

Spud Date: 0100hrs, 10 May, 1995
TD Reached: 2330hrs, 31 May, 1995
Rig Released: 0300hrs, 4 June, 1995

Engineering

Hole Size	Casing	Plugs
12¼" to 342mKB 8½" to 2088mKB	16" Conductor to ≈5mGL (pre-spud) $9^5/_8$" 43.5lb/ft Buttress N80 to 337.12mKB	1. 1950-1890m (not tested) 2. 1490-1430m (tagged at 1428m) 3. 283-380m (tagged at 333m) 4. 300-333m (pressured to 500psi) 5. Surface (≈30 sacks)

Stratigraphy

Group	Formation/Unit	Depth (mKB)	Depth (mSS)	Thickness (m)	Two-Way Time (milliseconds)	High/Low to Prognosis Depth	High/Low to Prognosis Time
Otway		5.77	+138.0	1893.23			
	Eumeralla Formation	5.77	+138.0	1096.73			
Crayfish Sub-Group		1102.5	-958.73	796.5			
	Laira Formation	1102.5	-958.73	360.5	705	not prognosed	
	Pretty Hill Formation	1463.0	-1319.23	436.0	922	56.0m Low	38ms High
	Casterton Formation	1899.0	-1755.23	189.0+	1160	not prognosed	
	(Volcanics)	(2052.0)	(-1908.23)	(36.0+)	1250		
	TD	2088.0	-1944.23				

Key Hydrocarbon Indications

Eumeralla Formation: 445-470m (fault?) trace to 10% patchy to solid golden orange fluorescence; no gas.
950-1100m gas spikes up to 34 units associated with coal bands.
Pretty Hill Formation: 1463-1468m 70% pinpoint to patchy very pale yellow white to milky white fluorescence; no significant increase in gas.
1468-1750m occasional intervals with minor (mostly trace-5%) light yellow fluorescence; no significant gas.
Casterton Formation: 1922-1951m 70-100% pinpoint to solid yellow gold fluorescence; minor gas increase, mostly to 3-5 units, with peaks up to 36.7 units.
1951-2052m no fluorescence; gas readings ranged 4-14 units.

Logging

DLS-MRS-CSS-GR-SP-Cal: 2088.0 - 337.0m (GR to surface)
PDS-CNS-GR-Cal: 2088.0 - 337.0m
Velocity Survey (Checkshots): 2085.0 - 143.0m (20 levels)
SCG (Sidewall cores): 2076.2 - 449.2m (shot 48, recovered 44)

Coring

No cores were cut

Formation Tests

DST-1: 1460-1467.9m, Conventional bottom-hole test, 5min. PF, 60min. ISI, 180min. MF, 180min. FSI. Very weak blow (<1psig).
Recovered 54bbls of formation water and slightly oil-cut mud.

DST-2: 1920-1951m, Conventional bottom-hole test, 7min. PF, 45min. ISI, 60min. MF, 30min. FSI. No blow.
Recovered 1.28bbls of slightly oil-cut mud.

Log Analysis

Interval	Thickness (m)	Net Sand (m)	Net Pay (m)	Av. Eff. ∅ (%)	S_w (%)	V_{cl} (%)
1461.3-1503.0m	41.7	28.8	0.0	13.8	84.8	27.0
1503.1-1595.0m	91.9	20.9	0.0	9.8	87.9	27.3
1595.1-1700.0m	104.9	94.2	0.1	14.2	48.4	35.6
1700.1-1899.9m	199.8	176.4	0.0	15.7	92.2	16.9
1923.2-1954.0m	30.8	15.3	1.3	20.1	35.9	28.3

(AJ:F64)

INTRODUCTION

1. INTRODUCTION

The Digby prospect is located in western Victoria, approximately 60 kilometres north of Portland and about five kilometres southwest of the Digby township (Figure 1). Because it straddles the boundary between Petroleum Exploration Permits 134 and 126, the participants in both permits agreed to proportionally combine their interests in the area of the prospect by forming a new joint venture (henceforth referred to as the Digby Joint Venture or Digby JV), specifically to share evaluate the prospect.

The Digby Joint Venture comprises:

Company	*Interest (%)*
Crusader Limited NL	32.8125
GFE Resources Ltd (Operator)	28.125
Santos Ltd	25.0
Australian Hydrocarbons Ltd	7.8125
Beach Petroleum NL	6.25

Geologically, the Digby prospect is located at the junction of the Ardonachie Trough and an eastern extension of the Tantanoola Trough, with the nearest subsurface control being Mocamboro-11, a Geological Survey of Victoria stratigraphic well drilled in 1990, situated about ten kilometres to the north on the flank of the Ardonachie Trough.

The Digby structure was first identified from the Crawford River Seismic Survey, conducted by Beach Petroleum in 1988, and further delineated by GFE Resources Ltd's 1994 Annya Seismic Survey, which provided an uneven grid with an approximate two-kilometre dip line spacing (Figure 2).

As mapped on the top Pretty Hill Formation horizon prior to drilling, the Digby structure is a large east-west trending fault-dependent closure, bounded to the north by a down-to-the-north half-graben-forming fault. This fault also bounds a basement high block which divides the Ardonachie Trough into two separate half grabens. The bounding fault is interpreted to have had several periods of movement throughout the Cretaceous and Tertiary, including a compressional pulse in the mid-Tertiary (and possibly another in the mid-Cretaceous) which resulted in the rollover on the Digby structure.

Pre-drill mapping of the Digby prospect suggested an areal closure at the Top Pretty Hill Formation level of 2.24 square kilometres with a vertical relief of up to 155 metres and estimated potential reserves of 53 MMBBL OIP (13 recoverable) or 48 BCF GIP (31 recoverable).

PE905731

This is an enclosure indicator page.
The enclosure PE905731 is enclosed within the container PE900874 at this location in this document.

The enclosure PE905731 has the following characteristics:

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CONTAINER_BARCODE = PE900874
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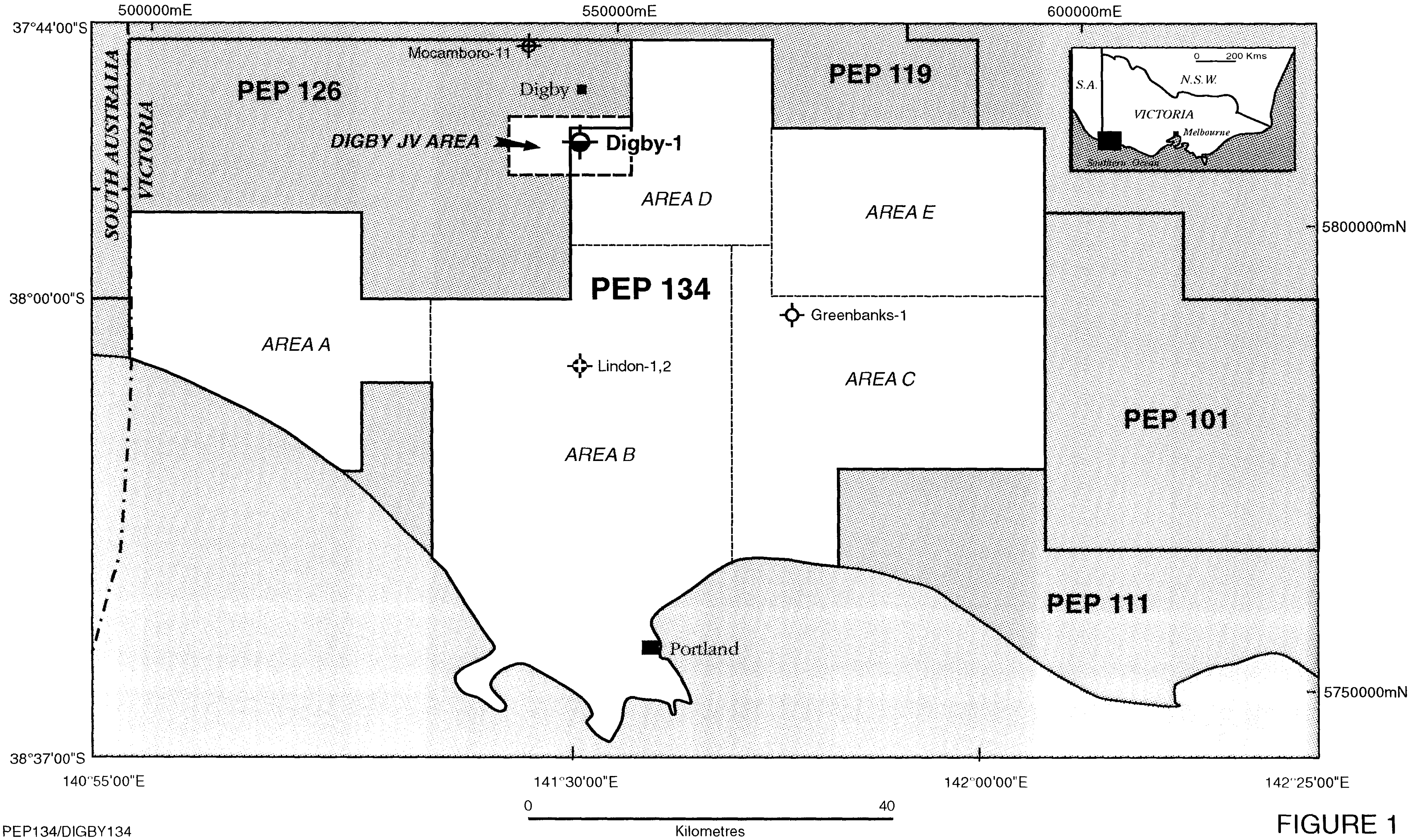
BASIN = OTWAY BASIN
PERMIT = PEP/134
TYPE = WELL
SUBTYPE = MAP
DESCRIPTION = Digby JV Location Map (from Introduction of WCR vol. 1) for Digby-1
REMARKS =
DATE_CREATED = 30/11/95
DATE_RECEIVED = 17/11/95
W_NO = W1130
WELL_NAME = DIGBY-1
CONTRACTOR =
CLIENT_OP_CO = GFE RESOURCES LTD

(Inserted by DNRE - Vic Govt Mines Dept)

DIGBY JV LOCATION MAP



PEP134/DIGBY134

FIGURE 1

PE905732

This is an enclosure indicator page.
The enclosure PE905732 is enclosed within the container PE900874 at this location in this document.

The enclosure PE905732 has the following characteristics:

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PERMIT = PEP/134
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DESCRIPTION = Annya Seismic Lines and Digby-1 Location Map (from Introduction of WCR vol. 1) for Digby-1
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DATE_CREATED = 30/11/95
DATE_RECEIVED = 17/11/95
W_NO = W1130
WELL_NAME = DIGBY-1
CONTRACTOR =
CLIENT_OP_CO = GFE RESOURCES LTD

(Inserted by DNRE - Vic Govt Mines Dept)

ANNYA SEISMIC LINES AND DIGBY-1 LOCATION

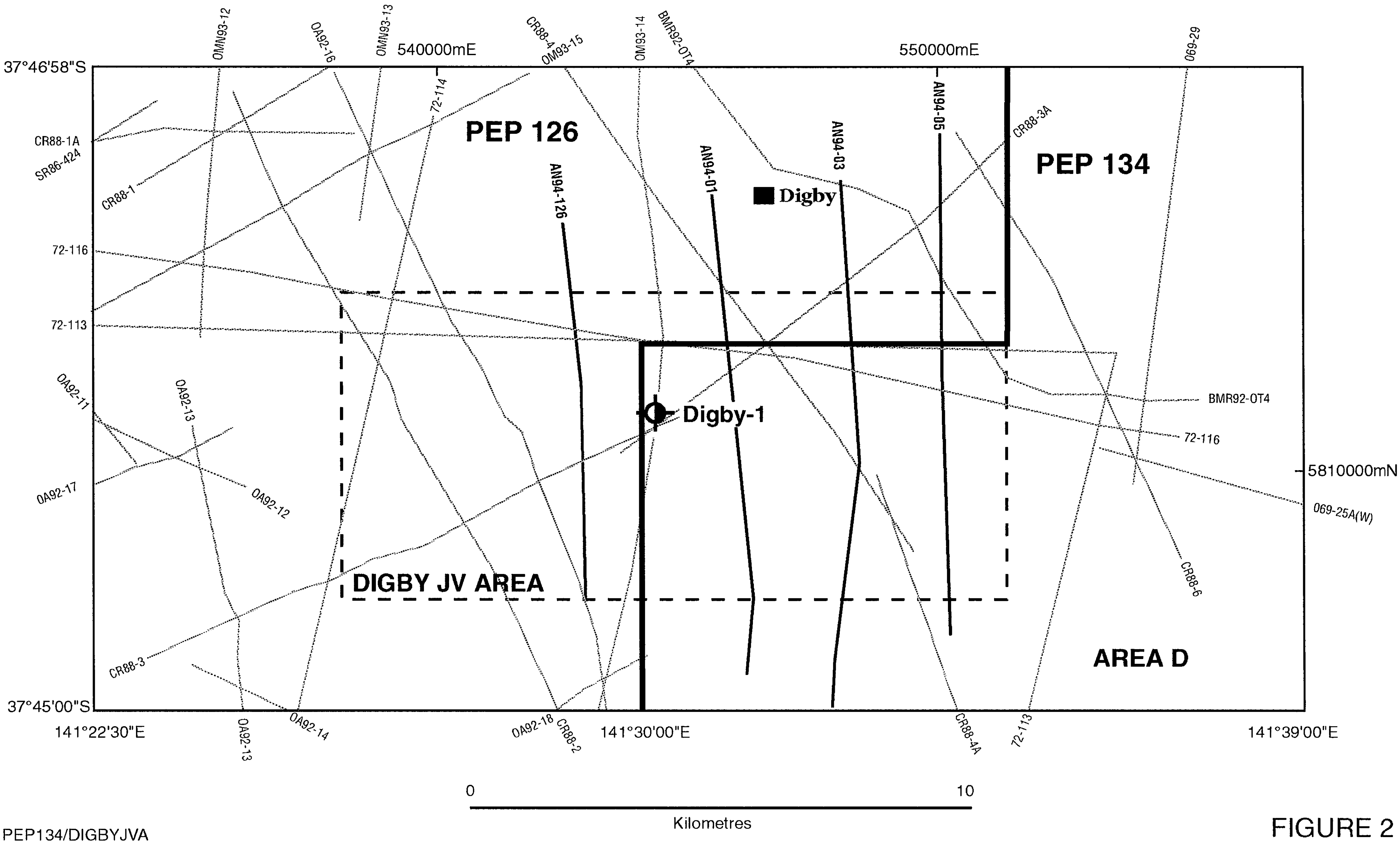

FIGURE 2

Prior to drilling, a major perceived risk associated with the Digby prospect was that the seismic horizon picked as top of reservoir (Top Pretty Hill Formation) was incorrect. Both Digby-1 and the nearest well providing stratigraphic control (Mocamboro-11) are located on high blocks; in the ten kilometres separating them the correlation had to traverse two major faults and a graben, making a confident seismic pick problematic. Based on the section observed in Mocamboro-11, the primary target (Pretty Hill Formation) sandstones in Digby-1 were expected to be of good to excellent reservoir quality, notwithstanding the uncertainty of predicting their location within the structure.

Another major risk was that of hydrocarbon charge into the Digby structure. Although potentially suitable source rocks had previously been identified in the Portland and Penola Troughs, nothing was known of their distribution in the Ardonachie and Tantanoola Troughs and significant hydrocarbon migration into/through the Digby region was unproven prior to the drilling of Digby-1.

With regard to seal, the Pretty Hill Formation was interpreted to be stratigraphically directly below the dominantly claystone Eumeralla Formation, although the presence of crestal faults that both extend to surface and have been activated relatively recently always put doubt on the efficacy of any potentially sealing interval.

WELL HISTORY

2. WELL HISTORY

2.1 LOCATION (see Figures 1 and 2)

Surface Location:	Latitude:	37° 50' 46.183"S
	Longitude:	141° 30' 11.257"E
	AMG:	544265.6mE 5811119.6mN
Seismic:	Line:	OMN93-14 cmp 739.5
Property Title:	County:	Normanby
	Parish:	Digby
	Allotment:	56
Property Owner:	W & J Simkin	

2.2 GENERAL DATA

Well Name: Digby-1

Permit: DIGBY JV Otway Basin, Victoria

Operator: GFE Resources Ltd
Level 6, 6 Riverside Quay
South Melbourne Victoria 3205

Participants:

Crusader Limited	32.8125%
GFE Resources Ltd	28.125%
Santos Limited	25.0%
Australian Hydrocarbons Ltd	7.8125%
Beach Petroleum N.L.	6.25%

Elevation: Ground Level (GL): 138.0m AHD*
Kelly Bushing (KB): 143.77m AHD* *(datum)*

(All depths are Drilled Depths relative to KB unless otherwise stated).

Total Depth: Driller: 2088.0mKB
Logger: 2088.0mKB

*AHD = Australian Height Datum

Drilling Commenced:	0100 hours, 10 May, 1995
Total Depth Reached:	2330 hours, 31 May, 1995
Rig Released:	0300 hours, 4 June, 1995
Well Status:	Plugged and Abandoned

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 16" Conductor pipe was cemented at ≈5 metres (GL) prior to rig up.

Surface Casing

Size:	$9^5/_8$"
Weight & Grade:	43.5 lb/ft Buttress N80 (28 Joints)
Centralisers:	335m, 312m, 300m and 289m
Float Collar:	324.76m
Shoe:	337.12m
Hole Depth:	342m
Cement:	615 sacks Class "A" neat cement
Method:	Single plug displacement (top plug only)
Equipment:	Dowell/Schlumberger

Cement plugs

Plug No.1	Interval:	1950-1890m
	Cement:	71 sacks class "A" cement
	Method:	Balanced
	Tested:	No

Plug No.2	Interval:	1490-1430m
	Cement:	78 sacks class "A" cement
	Method:	Balanced
	Tested:	Tagged at 1428m
Plug No.3	Interval:	283-380m
	Cement:	180 sacks class "A" cement
	Method:	Balanced
	Tested:	Tagged at 333m
Plug No.4	Interval:	300-333m
	Cement:	40 sacks class "A" cement
	Method:	Balanced
	Tested:	Pressure tested to 500psi
Surface Plug	Emplaced by hand	

2.3.4 Drilling Fluid

The drilling fluid program used was that designed and recommended by M-I Drilling Fluids Co. after consultation with GFE representatives. The well was spudded with a 4% KCl and 1.8-2.0 lb/bbl PHPA inhibited mud system. After running the surface casing, the shoe track was drilled out with water and the hole displaced to mud before conducting the FIT (EMW = 22.3 lb/gal).

The $8^1/_2$" hole section was commenced with the KCl/PHPA mud from the $12^1/_4$" section. The KCl content typically maintained between 5.5% and 6.5% and the PHPA between 1.0 to 2.0 lb/bbl. The mud weight was maintained between 9.1 and 9.3 lb/gal to 1200 metres thereafter being increased to 9.5 lb/gal. After DST-1 the mud weight was reduced to between 9.0 and 9.2 lb/gal for the rest of the hole. Apart from total loss of circulation occurring at 1759 metres, which was subsequently cured by additions of Mica/Kwikseal, no significant hole problems were encountered. 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

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

TABLE 1

BIT RECORD

Well: Digby-1 **GFE Rep.:** Ken Smith **Rig:** Century Rig 11

Permit: DIGBY JV **Spud:** 0100hrs 10/5/95 **Reached T.D.:** 2330 hrs 31/5/95

No.	Size (inch)	Make	Type	Jets	Serial	Depth Out (m)	Metres Drilled	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	B	G	
1RR	12¼	Varel	L-114	2x20 1x18	26776	342	331	15½	21.3	15½	5-20	90-120	½	700	450	8.9	48	20/16	1	1	2	1/16	Casing T.D.
2	8½	HTC	ATJM-05	3x11	W16BK	1039	697	57½	12.1	73	17-20	90-100	2	1350	325	9.2	42		1	1	5	In	BHA change
	2 inserts broken in heel or gauge row of lead cone																						
3	8½	Varel	ETD-417m	3x11	101792	1247	208	25½	8.1	98½	15-25	65-100	3½	1600	325	9.5	50	20/19	1	1		In	
3RR	8½	Varel	ETD-417M	3x11	101792	1468	221 (429)	56 (81.5)	3.9	124½	15-17	110-125	3½	1600	325	9.5	50	21/20					DST-1
	* Bearings graded 5 on total hours run - not apparent condition																		1	1	5*	In	
4	8½	Varel	ETD-417M	3x11	102317	1489	21	15	1.4	139.5	23-50	90-100	3¾	1575	325	9.3+	47	16/20	3	cone locked & skidded			Torque & ROP
	Knock-out plug from drop-bar sub of Baker test-tool wedged between apices of 3 cones - bit ruined.																						
5RR	8½	Varel	ETD-417M	3x11	98053	1752	(461) 263	(57) 36½	7.2	176	16-20	90-100	5¼	1600	325	9.4	45	20/16	1	1	5*	1/8	Torque
	3 inserts missing from gauge row of second cone - no cone shell erosion - cracks in cone shell around holes of missing inserts. One retained insert twisted 20° in it's hole. Seven connected cracks.																						
6	8½	HTC	ATJ-05	3x11	BO4XS	1951	199	26	7.6	165½	18-20	100	5	1350	300	9.1	42	20/15	1	1	4	I	DST-2
6RR	8½	HTC	ATJ-05	3x11	BO4XS	2088	137 (336)	47 (73)	2.9 (4.6)	212½	25-27	55	5½	1390	30	9.1+	40	15/14	2	3	5	I	T.D.
	1 broken insert in gauge row of lead cone, 2 broken inserts in gauge row of second cone and 4 broken inserts in middle of inner gauge row of third cone. Seals effective.																						

2.3.6 Water Supply

Drilling water was trucked from the existing Digby Township Bore approximately two kilometres from the rig and stored in a pit dug at the wellsite.

2.3.7 Drilling History

The following summary of operations and the drilling progress chart (Figure 3) for Digby-1 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 16" conductor pipe was cemented at five metres (GL) prior to rig up. Digby-1 was spudded at 0100 hours on May 10, 1995 with a $12^1/_4$" bit and proceeded without problems to the $9^5/_8$" casing point (342 metres) by the end of that day. Minor tight hole problems were encountered on the clean out trip, following which the $9^5/_8$" casing was run to of 337.12 metres and cemented. After nippling up and testing the BOP's, three metres of new formation were drilled with an $8^1/_2$" bit and a Formation Integrity Test was run (Equivalent Mud Weight = 22.3 ppg).

The $8^1/_2$" hole was then continued (with regular surveys and wiper trips) to 1039 metres, where the bit was pulled for a bottom hole assembly (BHA) change due to excessive hole deviation problems. Drilling proceeded with the new $8^1/_2$" BHA until, with the hole at a depth of 1080 metres, the drive shaft for the main rig gear box sheared. This was removed and sent to Adelaide for duplication and, once the replacement was installed, a wiper trip was run and drilling resumed. At 1247 metres the BHA was changed again to attempt to redress the continuing deviation problems and drilling continued (with regular surveys and wiper trips) down to 1467.9 metres, five metres into the primary target sandstone, where it was decided to run a Drill Stem Test (DST).

DST-1 was conducted over the interval 1460 to 1467.9 metres and recovered 54bbls of formation water and slightly oil-cut rathole mud. After reverse circulating the contents of the drill string the test tool was pulled and drilling in $8^1/_2$" hole resumed. Due to exceedingly slow rate of penetration drilling was halted again at 1489 metres, where the bit was pulled for inspection and shown to have been seized by the pin from the DST drop-bar sub (which had fallen into the hole).

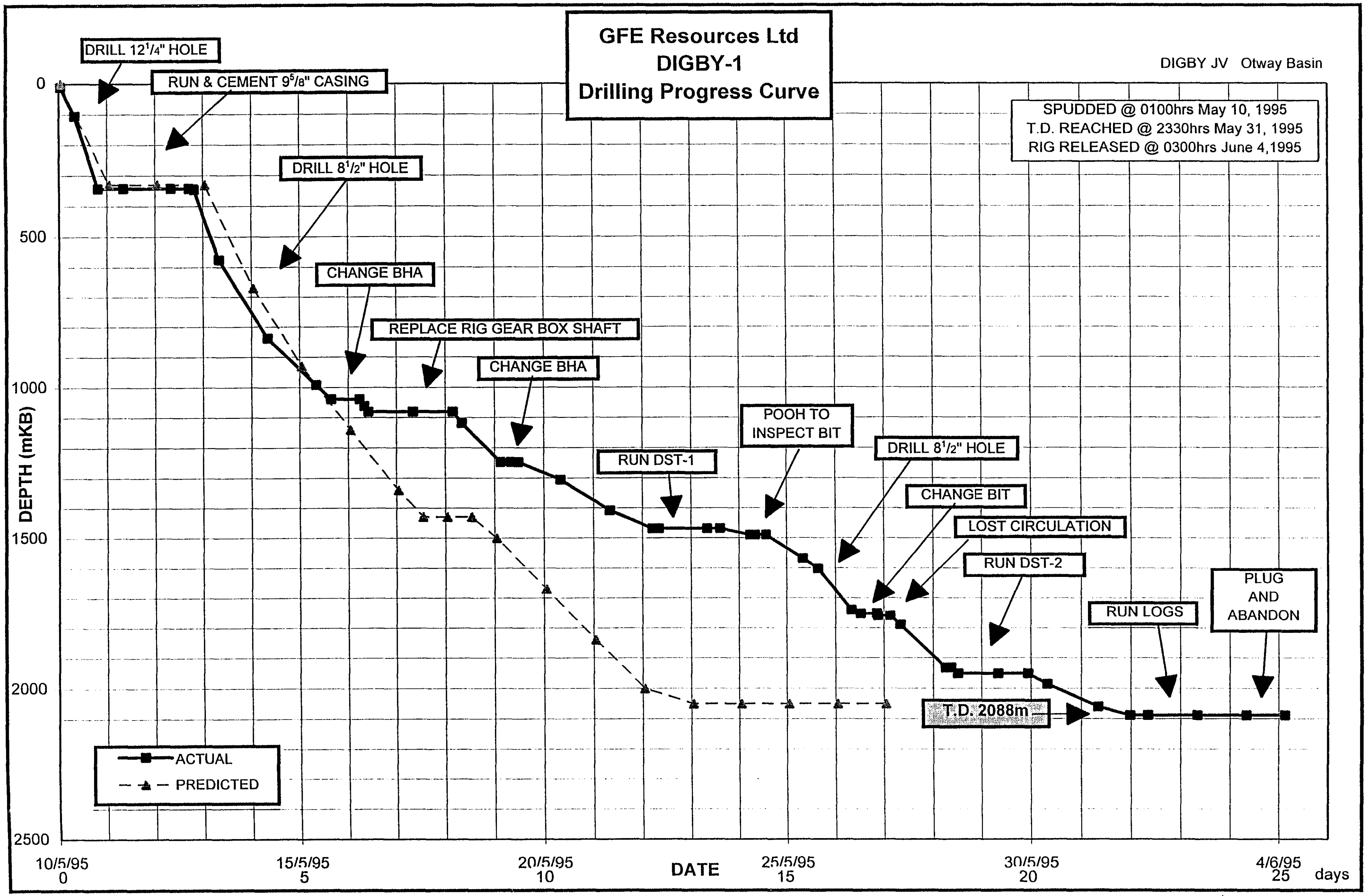
GFE Resources Ltd
DIGBY-1
Drilling Progress Curve
DIGBY JV Otway Basin
SPUDDED @ 0100hrs May 10, 1995
T.D. REACHED @ 2330hrs May 31, 1995
RIG RELEASED @ 0300hrs June 4,1995
DRILL 12¼" HOLE
RUN & CEMENT 9⅝" CASING
DRILL 8½" HOLE
CHANGE BHA
REPLACE RIG GEAR BOX SHAFT
CHANGE BHA
RUN DST-1
POOH TO INSPECT BIT
DRILL 8½" HOLE
CHANGE BIT
LOST CIRCULATION
RUN DST-2
RUN LOGS
PLUG AND ABANDON
T.D. 2088m
ACTUAL
PREDICTED
DEPTH (mKB)
0
500
1000
1500
2000
2500
DATE
10/5/95 0
15/5/95 5
20/5/95 10
25/5/95 15
30/5/95 20
4/6/95 25
days

FIGURE 3

After replacing the bit drilling continued in $8^1/_2$" hole, pausing only for surveys and wiper trips down to 1752 metres, where another bit change was required. Shortly after the resumption of drilling following this bit change, with the hole at a depth of 1759 metres, a total loss of circulation occurred, which was remedied by pumping 55bbls of lost circulation material (LCM) into the annulus and decreasing the mud weight. Once returns were re-established and the annulus was stabilised, drilling resumed and was continued without interruption down to 1932 metres, where encouraging shows began to be observed. These were monitored as drilling continued and by 1951 metres a sufficient column of shows had been intersected to warrant testing.

DST-2 was conducted over the interval 1920-1951 metres and recovered only 1.28bbls of slightly oil-cut mud. After the test, drilling in $8^1/_2$" hole continued to a Total Depth of 2088 metres which was reached at 2330 hours on May 31. The hole was then conditioned, wireline logs, sidewall cores and a check shot survey were run and four cement plugs were emplaced, the last of which (across the casing shoe) was tagged and pressure tested to 500psi. The drill pipe was then layed out, the BOPs nippled down, and the surface plug was emplaced by hand. The rig was released at 0300 hours on June 4, 1995.

2.4 FORMATION SAMPLING AND TESTING

2.4.1 Cuttings

Cuttings samples were collected at ten-metre intervals from spud to 350 metres and then at five-metre intervals from 350 metres to 2088 metres (TD) and subdivided into sets as follows;

1 set of unwashed and air-dried samples in calico bags at ten-metre intervals spud - 2088 metres
3 sets of washed and dried samples in plastic bags spud - 2088 metres
4 sets of washed and dried samples in Samplex trays spud - 2088 metres

A set of washed and dried samples was subsequently made available to the Victorian Department of Energy and Minerals (Petroleum Division) sample store and one set of Samplex trays was supplied to each of the joint venture participants. 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 Core

No conventional cores were cut in Digby-1.

2.4.2.2 Sidewall Cores

A total of 48 sidewall cores were attempted, of which 44 were recovered; two had no recovery and two were misfires.

All recovered sidewall core samples were checked for lithology and hydrocarbon shows, descriptions of which are contained in Appendix 5. A summary of analyses subsequently undertaken on the sidewall cores is given in Section 2.4.4.

2.4.3 Testing

2.4.3.1 Drill Stem Testing

Two Drill Stem Tests (DSTs) were conducted in Digby-1.

DST-1 1460.0-1467.9mKB

After drilling through a predominantly shaly interval (the Laira Formation) with Total Gas readings ranging trace-0.5 units, a peak of 1.0 unit was recorded at 1463 metres associated with 70% pale yellow-white oil fluorescence. This coincided with a lithology change at 1462 metres to a very fine to coarse sandstone and a rate of penetration (ROP) increase from 3-5 metres/hour to 12-32 metres/hour. These observations suggested the top of the primary objective had been intersected and, due to the presence of the oil fluorescence and inferred porosity the decision to conduct a test was made.

DST-1 was a conventional dual-packer, bottom-hole test conducted on 22 May 1995 over the interval 1460.0-1467.9 metres (driller's depth) to evaluate the top of the Pretty Hill Formation sandstone.

The tool was opened at 1747 hours for a five-minute Pre-Flow with the floor manifold closed. During the Pre-Flow the manifold pressure rose to a maximum pressure of 0.5psig by the end of the flow period. The tool was then shut-in for a period of 60 minutes. During the first couple of minutes the closed-in surface pressure rose to 1.5psig and then remained static, until the floor manifold was opened and the string pressure allowed to blow down. Following the Initial Shut-In the tool was opened for the Main Flow at 1851 hours with the chamber closed-in at surface. On opening the surface pressure built to 1.0psig in the first minute and reached 3.25psig after six minutes, at which time the floor manifold was opened through a $^1/_4$" choke. Eight minutes into the Main Flow the surface pressure reached a maximum of 3.5psig, shortly after which the manifold was opened fully for a few minutes, then restricted back to a $^1/_2$" choke. During this time the flowing pressure dropped to 1.0psig and then continued to gradually weaken for the remainder of the Main Flow, decreasing to a very weak blow by the end of the 180-minute flow period.

Following a three-hour Final Shut-In (commencing at 2151 hours) the test was ended and the contents of the drill string were reverse-circulated out. Fifty four barrels of formation water and slightly oil-cut rathole mud were recovered. An estimate of the rate of influx during the Pre-Flow and early in the Main Flow suggests that the test zone was initially producing this water at around 2500-3000 barrels per day.

Data and observations recorded during DST-1, including charts from the mechanical and electronic gauges, are included in Appendix 6A. Of the eleven liquid samples taken, only one (from the DST tool sample chamber) was analysed for standard water properties, the results of which are presented in Table 2. (Also, a sample of the recovered mud was analysed for hydrocarbons - see Geochemistry section). No sample of make-up water or mud from the active pit was analysed for similar properties to compare with this test chamber sample, but from indirect indications the mud is thought to have more than double the salinity of the DST sample. Therefore, the DST sample is assumed to be largely representative of the formation water.

TABLE 2

ANALYSIS OF DST-1 WATER SAMPLE

Sample	From within sample chamber of DST tool
Chemical Composition	(mg/L)
Cations:	
Calcium (Ca)	2800.0
Magnesium (Mg)	64.0
Sodium (Na)	9500.0
Potassium (K)	440.0
Anions:	
Hydroxide (OH)	
Carbonate (CO_3)	
Bi-Carbonate (HCO_3)	88.5
Sulphate (SO_4)	32.0
Chloride (Cl)	20966
Nitrate (NO_3)	<0.1
Reaction - pH	6.5
Conductivity (E.C.) (micro -S/cm at 25°)	45900
Resistivity (ohm.m at 25°C)	0.22
Derived Data:	(mg/L)
Total Dissolved Solids	
A. Based on E.C.	29376
B. Calculated (HCO_3=CO_3)	33846
Total Hardness	7255
Carbonate Hardness	71
Non-Carbonated Hardness	7184
Total Alkalinity (Each as $CaCO_3$)	71
Totals and Balance:	
Cations (me/L)	569.5
Anions (me/L)	592.7
	Difference= 23.24 Sum=1162.2
Ion Balance (Diff*100/Sum)	2.00%
Sodium/Total Cation Ratio	72.6%

Note:mg/L = Milligrams per litre
me/L = MilliEqivs. per litre
n/a = not analysed

full Amdel report in Appendix 6A

DST-2 1920.0-1951.0mKB

After drilling through a shale interval (the top of the Casterton Formation) with Total Gas readings ranging 0.5 - 5.0 units, peaks of 7.0 - 37.0 units were recorded from sandstone interbeds within an interbedded shale/sandstone sequence (Casterton Formation). Also associated with the sandstone was 70-100% moderately bright pinpoint to solid yellow gold oil fluorescence. The sandstones, although having abundant white argillaceous matrix, were dominantly medium to very coarse grained and associated with a rate of penetration (ROP) increase from 3-5 metres/hour in the shales to 7-27 metres/hour in the sandstones. These observations suggested probable oil saturation and although the visual porosity appeared poor due to the abundance of clay matrix, this conflicted with the coarse nature of the sandstones. To positively identify reservoir fluid type and permeability, the decision to conduct a DST was made.

DST-2 was a conventional dual-packer, bottom-hole test conducted on 29 May 1995 over the interval 1920.0-1951.0 metres (driller's depth) to evaluate an interbedded sandstone/shale sequence within the Casterton Formation. The tool was opened at 0822 hours for a five-minute Pre-Flow with the floor manifold closed. During the Pre-Flow no surface pressure rise was observed. The tool was then closed for a 45 minute Initial Shut-In period, at the beginning of which the floor manifold was opened to the bubble hose, but no bubbles were observed. The tool was re-opened at 0914 hours for the Main Flow period but, after 35 minutes with no bubbles detected at surface, the test tool was closed, the packers unseated (50,000lbs overpull being necessary to pull free), and reset for a second Main Flow period, with the tool opening at 0954 hours. The second final flow period was of 60 minutes duration, during which time no bubbles were observed at surface. The tool was then shut-in for 30 minutes before being pulled free and the string tripped to surface dry. Recovery consisted of 1.28bbls (55.3 metres) of slightly oil-cut mud.

Data and observations recorded during DST-2, including charts from the mechanical and electronic gauges, are included in Appendix 6B. Of the six mud samples taken, one was analysed for hydrocarbon content, the results of which are presented in the Geochemistry section.

2.4.3.2 Wireline Formation Testing

No Repeat Formation Sample (RFS) pressure readings were undertaken in Digby-1.

2.4.4 Sample Analyses

Analysis of selected cuttings and sidewall core samples from Digby-1 comprised palynology, organic geochemistry, source quality/maturation and petrography. Table 3 outlines the analyses performed on each sample, details of which can be found in the appropriate Section/Appendix.

Palynology	see Section 3.1	and Appendix 10
Petrography	see Section 3.2	and Appendix 8
Geochemistry	see Section 3.4	and Appendix 9
Source quality/maturity	see Section 3.4	and Appendices 9 & 10

2.5 LOGGING AND SURVEYS

2.5.1 Mud Logging

A standard skid-mounted unit (supplied by Baker Hughes-Inteq) 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 nine metres until the well was plugged and abandoned.

The ROP and gas data is included on the 1:1000 scale Composite Log (Enclosure 1). The Formation Evaluation Log (i.e., "Mud Log") at 1:500 scale is provided in Enclosure 2a, and a Gas Ratio Analysis Log at 1:1000 scale is provided in Enclosure 2b. In addition to these plots a tabulated listing of the gas data is also provided in Appendix 7.

TABLE 3

SIDEWALL CORES AND CUTTINGS ANALYSES

Sample	Depth (mKB)	SWC Recovery (cm)	Palynology	Geochemistry	TOC	Rock-Eval	Vitrinite Reflectance	Petrography
Cuttings	130						✓	
Cuttings	260						✓	
Cuttings	440						✓	
SWC#48	449.2	4.1	✓					
Cuttings	450			✓				
Cuttings	480						✓	
Cuttings	635						✓	
SWC#47	735.6	2.8	✓					
SWC#46	849.0	2.0						
Cuttings	850						✓	
SWC#45	983.8	1.5						
SWC#44	1025.5	1.3						
Cuttings	1050						✓	
SWC#43	1096.8	2.6	✓		✓		✓	
SWC#42	1220.8	2.2	✓					
SWC#41	1318.1	2.0	✓					
SWC#40	1338.2	2.2						✓
SWC#39	1364.4	4.1	✓		✓		✓	
SWC#38	1414.6	3.2			✓			
SWC#37	1445.2	2.7	✓		✓	✓	✓	
SWC#36	1457.5	2.5	✓					
SWC#35	1464.4	2.6						✓
SWC#34	1465.7	2.4						✓
Cuttings	1468			✓				
DST-1 mud	1468			✓				
SWC#33	1468.2	3.3						✓
SWC#32	1473.7	2.1		✓				
SWC#31	1496.2	2.0						✓
SWC#30	1506.2	2.6	✓					
SWC#29	1536.4	2.2	✓		✓	✓	✓	
SWC#28	1564.0	2.4						
SWC#27	1591.0	1.9	✓		✓		✓	
SWC#26	1608.2	2.5						✓
SWC#25	1739.7	no recovery						
Cuttings	1740			✓				
SWC#24	1837.2	2.8	✓					
SWC#23	1872.7	2.1						✓
SWC#22	1903.2	2.8	✓	✓	✓	✓		
SWC#21	1914.2	2.6	✓		✓	✓		
Cuttings	1920				✓	✓		
SWC#20	1920.2	misfire						
SWC#19	1923.9	1.5						✓
SWC#18	1926.4	1.5			✓	✓	✓	
Cuttings	1930			✓				
SWC#17	1931.3	2.4						✓
SWC#16	1936.4	2.7	✓		✓	✓		
SWC#15	1938.7	2.2						✓
SWC#14	1940.8	2.8		✓				
SWC#13	1944.2	2.7		✓	✓	✓	✓	
SWC#12	1945.9	2.8						✓
SWC#11	1946.3	2.0						✓
SWC#10	1948.1	2.0	✓					
SWC#9	1949.3	1.8						✓
DST-2 mud	1951			✓				
SWC#8	1954.7	misfire						
Cuttings	1955				✓	✓		
SWC#7	1779.2	no recovery						
Cuttings	1985				✓	✓		
SWC#6	2002.0	2.6	✓		✓	✓		
SWC#5	2017.2	2.3	✓					
Cuttings	2020				✓	✓		
SWC#4	2028.2	2.5	✓		✓		✓	
Cuttings	2040				✓	✓		
SWC#3	2048.2	2.5	✓		✓	✓	✓	
SWC#2	2069.2	2.6						✓
SWC#1	2076.2	2.6						✓

2.5.2 Wireline Logging

Wireline logging was performed by BPB Wireline Services using a skid-mounted unit. Only one logging suite was carried out (at Total Depth) and comprised the following:-

Log	*Interval (mKB)*	*Enclosure Number*
Dual Laterolog - Micro-Laterolog - Compensated Sonic - Gamma Ray - Spontaneous Potential - Caliper (DLS-MRS-CSS-GR-SP-Cal)	2088.0 - 337.0 (GR T.D. - Surface)	3
Photo Electric Compensated Density - Thermal Neutron - Gamma Ray - Caliper (PDS-CNS-GR-Cal)	2088.0 - 337.0	4
Velocity Survey (Velocity Data)	2085.0 - 143.0	
Sidewall Core Gun (SCG)	2076.2 - 449.2	

Due to tool problems the wireline logging program was not run in the originally intended sequence. After successfully running the Resistivity-Sonic tool the Density-Neutron tool failed (and could not be completely fixed in good time) so the back-up Density-Neutron tool was run. This was found to be reading incorrectly, so the velocity survey was run instead. While Velocity Data ran their survey the original Density-Neutron tool was repaired and then successfully run prior to the sidewall cores.

2.5.3 Bottom Hole Temperature

In order to obtain an estimate of true formation temperature, a Horner-type method using temperatures and times from the wireline logs run after reaching Total Depth (T.D.) was adopted, with the following input data;

Time when drilling stopped (reached T.D.)	2330hrs on 31/5
Time when circulation ended	0400hrs* on 1/6

$\Rightarrow$ **$\therefore$ Circulation Time (t_c) = 4.5 hours**

**Note:* *this is incorrectly recorded on the wireling log headers as 0430hrs*

Maximum temperatures recorded during the two successful wireline logging runs were as follows:

Log	Depth (mKB)	Temperature [T] (°C)	Time since end of circulation [Δt] (hours)	log $\frac{tc+\Delta t}{\Delta t}$
DLS-MRS-CSS	2088.0	86	8.0+	0.1938
PDS-CNS	2088.0	95	29.5+	0.0617

+*Not listed on the log headers. When requested later, BPB reported times at which the logging tools were on bottom (ie. assumed maximum temperature) as being;*
DLS-CSS 1200hrs on 1/6 PDS-CNS 0930hrs on 2/6

Running a linear regression on the temperature versus $\log(t_c+\Delta t)/\Delta t$ data to find the intercept (or, equivalently, by plotting these on linear axes and extrapolating a straight line back to the Temperature axis) yields an estimated stabilized bottom hole temperature of 99.2°C. Assuming a mean surface temperature of 18°C, this stabilized bottom hole temperature at 2088mKB indicates a temperature gradient of about 3.9°C per 100 metres.

2.5.4 Deviation Surveys

Totco surveys were carried out frequently throughout the drilling of Digby-1 to monitor deviation. Using this deviation data maximum horizontal and vertical distances from the initial location were obtained by summing the components of horizontal distance [*interval length* × sine(*deviation angle*)] and vertical distance [*interval length* × cosine(*deviation angle*)] for each interval (Table 4). The results of this are;

- at the depth of the primary target (1463 metres) the hole location was within a 39-metre radius of the surface location and the true vertical depth was less than one metre short of the measured (drilled) depth.
- the bottom hole location was within a 94-metre radius of the surface location and the true vertical total depth was about ten metres short of the measured (drilled) total depth.

2.5.5 Velocity Survey

As part of the logging program a velocity survey was carried out by Velocity Data on June 2. The Velseis processing report of this survey and a copy of the synthetic seismogram produced from it are contained in Appendix 11. The resulting time-depth and velocity-depth curves and the synthetic seismogram merged into the OMN93-14 seismic line are provided in Enclosure 5.

TABLE 4
Hole Deviation

Depth (m)	Interval (m)	Deviation Angle (°)	Horizontal Distance (m)	Cumulative Horizontal (m)	Vertical Distance (m)	Cumulative Vertical (m)
11	11	0	0.00	0.00	11.00	11.00
40	29	0.75	0.38	0.38	29.00	40.00
76	36	0	0.00	0.38	36.00	76.00
130	54	0.25	0.24	0.62	54.00	130.00
192	62	0.75	0.81	1.43	61.99	191.99
247	55	0.5	0.48	1.91	55.00	246.99
333	86	0.5	0.75	2.66	86.00	332.99
441	108	1.5	2.83	5.48	107.96	440.95
470	29	0.75	0.38	5.86	29.00	469.95
575	105	0.5	0.92	6.78	105.00	574.94
681	106	0.5	0.93	7.71	106.00	680.94
768	87	1.5	2.28	9.98	86.97	767.91
796	28	1.75	0.86	10.84	27.99	795.90
834	38	1	0.66	11.50	37.99	833.89
863	29	1	0.51	12.01	29.00	862.89
892	29	1.5	0.76	12.77	28.99	891.88
920	28	1.25	0.61	13.38	27.99	919.87
950	30	1.5	0.79	14.16	29.99	949.86
978	28	1.5	0.73	14.90	27.99	977.85
1007	29	1.25	0.63	15.53	28.99	1006.84
1036	29	1.75	0.89	16.41	28.99	1035.83
1085	49	2.25	1.92	18.34	48.96	1084.79
1143	58	2.5	2.53	20.87	57.94	1142.74
1175	32	2.5	1.40	22.26	31.97	1174.71
1201	26	2.5	1.13	23.40	25.98	1200.68
1229	28	3	1.47	24.86	27.96	1228.64
1236	7	3.5	0.43	25.29	6.99	1235.63
1256	20	3.25	1.13	26.42	19.97	1255.60
1265	9	3	0.47	26.89	8.99	1264.58
1285	20	3	1.05	27.94	19.97	1284.56
1304	19	3	0.99	28.94	18.97	1303.53
1313	9	3	0.47	29.41	8.99	1312.52
1333	20	3	1.05	30.45	19.97	1332.49
1352	19	3	0.99	31.45	18.97	1351.47
1381	29	2.75	1.39	32.84	28.97	1380.43
1409	28	4	1.95	34.79	27.93	1408.36
1419	10	3.5	0.61	35.40	9.98	1418.35
1428	9	4	0.63	36.03	8.98	1427.32
1438	10	3.5	0.61	36.64	9.98	1437.30
1447	9	4	0.63	37.27	8.98	1446.28
1457	10	4	0.70	37.97	9.98	1456.26
1487	30	3.75	1.96	39.93	29.94	1486.19
1515	28	4	1.95	41.88	27.93	1514.13
1544	29	4	2.02	43.90	28.93	1543.06
1573	29	5	2.53	46.43	28.89	1571.94
1602	29	4.5	2.28	48.71	28.91	1600.86
1630	28	4.75	2.32	51.03	27.90	1628.76
1659	29	5	2.53	53.55	28.89	1657.65
1688	29	5	2.53	56.08	28.89	1686.54
1717	29	5.25	2.65	58.73	28.88	1715.42
1745	28	5.25	2.56	61.30	27.88	1743.30
1774	29	6	3.03	64.33	28.84	1772.14
1803	29	6	3.03	67.36	28.84	1800.98
1832	29	5.75	2.91	70.27	28.85	1829.84
1861	29	5.75	2.91	73.17	28.85	1858.69
1890	29	6	3.03	76.20	28.84	1887.53
1918	28	5.75	2.81	79.01	27.86	1915.39
1947	29	5	2.53	81.53	28.89	1944.28
1976	29	5	2.53	84.06	28.89	1973.17
2004	28	5	2.44	86.50	27.89	2001.06
2033	29	5.5	2.78	89.28	28.87	2029.93
2081	48	5.5	4.60	**93.88**	47.78	**2077.71**

GEOLOGY

3. GEOLOGY

3.1 STRATIGRAPHY

The section penetrated in Digby-1 is interpreted to have formation tops as shown in Table 5 based on consideration of rate of penetration, cuttings descriptions, palynological analyses and wireline logs. Unless stated otherwise, all depths mentioned are referenced on the well datum, the kelly bushing (KB).

TABLE 5

DIGBY-1 FORMATION TOPS AND THICKNESSES

Stratigraphic Unit	Depth		Thickness
	(mKB)	(mSS)	(m)
Otway Group	5.77(Surface)	+138.0	1893.23
Eumeralla Formation	5.77	+138.0	1096.73
Crayfish Sub-Group	1102.5	-958.73	796.5
Laira Formation	1102.5	-958.73	360.5
Pretty Hill Formation	1463.0	-1319.23	436.0
Casterton Formation	1899.0	-1755.23	189.0
(volcanics)	(2052.0)	(-1908.23)	(36.0)
Total Depth (Driller)	2088.0	-1944.23	
Total Depth (Logger)	2088.0	-1944.23	

Correlation with a selection of wells in the region was undertaken, particularly Mocamboro-11, Casterton-1, McEachern-1 and Greenbanks-1, for which a well correlation diagram is provided in Enclosure 6. It should be noted that some formation tops in some of these wells have been re-interpreted to different horizons than indicated in the original well completion reports (some of these changes are supported by the palynostratigraphic review provided in Appendix 10B).

During the drilling of Digby-1 the (unprognosed) Laira Formation was not distinguished from the overlying Eumeralla Formation due to the close lithological resemblance between them (see descriptions in Section 3.2). Some suggestion of a stratigraphic boundary was first indicated in the wireline logs (most notably gamma ray and resistivity), but was not confirmed until the palynological work on the sidewall cores identified an unconformity between 1096.8 and 1220.8 metres (Appendix 10). This coincides with a slight change in seismic character at this level, which had previously been regarded as an intra-Eumeralla event of unknown significance.

The Casterton Formation had also not been prognosed in Digby-1 (top of basement had been interpreted at about the same level that the top of the intra-Casterton volcanics was intersected), but was identified from cuttings during drilling (Appendix 4). The marked lithological difference was further demonstrated in the wireline log character above and below 1899 metres, and (despite the inability to assign the thick sandstone section at 1600-1900 metres to a biostratigraphic zone) the palynological work (Appendix 10) clearly identified the section below 1903.2 metres as being correlative with Casterton Formation sections elsewhere.

The volcanics intersected below 2052.0 metres are regarded, in stratigraphic terms, as being intra-Casterton, since there are numerous previous examples of such strata occurring within this formation (eg. Casterton-1, Hawkesdale-1).

A comparison of the predicted and actual stratigraphy penetrated in Digby-1 is shown in Figure 4. (Note: the predicted subsurface depths shown in this figure are 12 metres less than those given in the Drilling Application due to a relocation of the hole from a hillside to a flatter area, approximately 37 metres to the south, to minimize site works).

3.2 LITHOLOGY

The following summary of the lithological units observed in Digby-1 was compiled from the descriptions by the wellsite geologist (Appendix 4), as well as the Mud Log (Enclosure 2a), and sidewall core descriptions (Appendix 5). Further detail for selected sidewall cores (thirteen sandstones and the two volcanics samples) can be found in Appendix 8.

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DIGBY-1

FORMATION TOP DEPTHS AND TIMES

Predicted (mSS)	Predicted Two-Way Time (milliseconds)	Predicted (mKB)	Formation	Actual (mSS)	Actual Two-Way Time (milliseconds)	Actual (mKB)	
+138		6	EUMERALLA FORMATION	+138.0		5.77	
-943	*715*	1087	(INTRA EUMERALLA MARKER) / LAIRA FORMATION	-958.73	*705*	1102.5	15.5m LOW *(10ms HIGH)*
-1263	*960*	1407	PRETTY HILL FORMATION	-1319.23	*922*	1463.0	56.0m LOW *(38ms HIGH)*
			CASTERTON FORMATION	-1755.23	*1160*	1899.0	
-1861	*1254*	2005	BASEMENT / (Volcanics)	(-1908.23)	*1250*	(2052.0)	47.0m LOW *(4ms HIGH)*

TOTAL DEPTH 2034.0mKB (Predicted)

TOTAL DEPTH 2088.0mKB (Actual)

DIGFTOPS

FIGURE 4

3.2.1 Otway Group (Surface - 1899.0 metres)

3.2.1.1 Eumeralla Formation (Surface - 1102.5 metres)

Claystone: off white, light to medium grey to medium green grey to medium brown grey, rarely dark brown and very carbonaceous, moderately to very silty, slightly calcareous in part, trace to common black carbonaceous flecks and detritus, common to abundant very fine quartz and partially altered feldspar grains in part, rare very fine red lithics where arenaceous, trace micromica, trace brown, clear and green mica flakes in parts, occasionally slightly calcareous, occasionally common crystalline calcite as fracture infilling, rare pyrite, firm, non to slightly subfissile, grading in part to and with minor interlaminated and finely interbedded

Sandstone: medium grey to medium olive grey, off white to light brown grey, very fine to medium, dominantly fine to medium, in general becoming finer with depth, subangular to subrounded, poor to occasionally moderately sorted, weak silica cement, weak to strong calcareous cement, abundant off white to medium grey argillaceous and silt matrix (often matrix supported), abundant grey brown, off white, green and red lithics, trace brown mica flakes in part, trace pyrite, common black carbonaceous detritus, friable to occasionally moderately hard, very poor visual porosity, with minor detrital and occasionally interlaminated

Coal: black to dark brown, earthy texture, platy fracture, slightly to dominantly very argillaceous, hard and brittle.

3.2.2 Otway Group - Crayfish Sub-Group (1102.5 - 1899.0 metres)

3.2.2.1 Laira Formation (1102.5 - 1463.0 metres)

Claystone: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous in part, trace fine brown mica flakes, trace to common micromica, firm to moderately hard, subfissile, with minor

Sandstone: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace fine to coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity.

3.2.2.2 Pretty Hill Formation (1463.0 - 1899.0 metres)

(1463 - 1598 metres)

Claystone: (**kaolinite**) white, structureless sticky clay, occasionally very calcareous, occasionally abundant dispersed very fine to fine quartz sand grains, in general decreasing with depth and interbedded with
Claystone: medium to dark grey, occasionally medium green grey, trace medium brown grey, dominantly medium grey, slightly to very silty, trace black coaly detritus, trace carbonaceous flecks, trace very fine partially altered feldspar grains in part, common micromica, moderately hard, subfissile, laminated and interbedded with
Sandstone: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate to occasionally very strong silica cement, trace weak to occasionally moderate calcareous cement, common to abundant white argillaceous matrix grading to kaolinite, trace to common red garnet, trace green lithics, trace brown and green mica flakes, trace black coaly detritus, friable to hard, very poor to fair visual porosity.

(1598 - 1899 metres)

Sandstone: off white to light grey, very fine to very coarse, dominantly fine to medium (in general becoming slightly coarser with depth), angular to subangular, poorly sorted, weak to moderate silica cement, trace weak calcareous cement, rare strong dolomite cement, trace to abundant white argillaceous matrix, trace red, grey, brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable to moderately hard, poor to dominantly fair visual porosity, grading to and interbedded with
Claystone: (**kaolinite**), white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains,

sticky and structureless, in general decreasing with depth and being replaced with minor interbedded
Claystone: medium grey to medium brown, medium green grey, occasionally dark grey and moderately carbonaceous, moderately to very silty, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.

3.2.3 Casterton Formation (1899.0 - 2088.0 metres T.D.)

(1899 - 1922 metres)

Claystone: very dark grey to dark brown, slightly to moderately silty, moderately to very carbonaceous, common micromica, moderately hard, subfissile.

(1922 - 1951 metres)

Sandstone: light brown to light brown grey, fine to very coarse, dominantly medium to very coarse, angular to subangular, poor to moderate sorting, weak to moderate silica cement, trace weak calcareous cement, moderately strong brown cement having dull to moderately bright yellow orange mineral fluorescence, trace to common white to light brown argillaceous matrix, trace black coal detritus, friable to moderately hard, poor visual porosity, interbedded with
Claystone: very dark grey to grey black, very dark brown grey, moderately to very carbonaceous and grading to coal in part, slightly to moderately silty, common micromica, moderately hard, subfissile. Grading to and interbedded with minor
Coal: black, earthy texture, platy fracture, non to very argillaceous and grading to carbonaceous claystone, common micromica where argillaceous, hard and brittle.

(1951 - 2022 metres)

Claystone: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, non-calcareous, trace angular coarse clear quartz - possibly fracture infill, common micromica, moderately hard, subfissile.

(2022 - 2045 metres)

<u>**Shale**</u>**:** medium brown grey, very silty grading to siltstone in part, common micromica, non-calcareous, angular fracture, occasional slickensided surfaces often lined with ankerite/calcite, trace vein quartz and calcite, soft to moderately hard, subfissile, grading with depth to

<u>**Shale**</u>**:** medium brown grey, occasionally dark brown grey, very silty, trace black carbonaceous detritus, common very fine off white lithics in part, trace to common very fine brown regrown crystals in part, slightly dolomitic, trace micromica, hard, angular fracture - possible contact metamorphic (?).

(2045 - 2052 metres)

<u>**Sandstone**</u>**:** off white, very fine to very coarse, dominantly fine, angular, poor to moderately sorted, very strong silica cement, no visual matrix, trace green brown and black lithics, very hard, no visual porosity.

(2052 - 2088 metres T.D.)

<u>**Volcanics**</u>**:** (basalt?) medium to dark green, finely crystalline, off white, light green and black minerals embedded in a dark green ground mass (possibly feldspar, olivine and pyroxene), very calcareous, common calcite infilling fractures, trace slickensides, often weathered at top to red brown to white clay in general decreasing with depth, hard.

3.3 HYDROCARBON INDICATIONS

3.3.1 Mud Gas Readings

The mud gas detection equipment was operational from spud until the cement plug at the $9^5/_8$" casing shoe was set during the abandonment of the well. The levels of gas detected during drilling are plotted on the Composite Log (Enclosure 1) the Mud Log (Enclosure 2a) and the Gas Ratio Analysis Log

(Enclosure 2b), as well as being tabulated in Appendix 7 and summarised in the following:

- Down to 604 metres no gas was detected.

- Over the interval 604 - 958.5 metres in the Eumeralla Formation mud gas readings were only;

Total Gas	:	0.1 - 2.2 units
C_1	:	1 - 434 ppm

- From 958.5 metres down to 1463 metres (the base of the Laira Formation) gas levels remained between 0.1 and 3 units in the claystone with peaks of 5 units from sandstone and 34 units from coal laminae,

Total Gas	:	0.2 - 5.0 units
C_1	:	21 - 985 ppm
C_2	:	0 - 22 ppm

with small spikes from coal laminae as follows;

Depth	:	959m	983.5m	1026m
Total Gas	:	7 units	26 units	34 units
C_1	:	1300 ppm	4884 ppm	4695 ppm
C_2	:	29 ppm	103 ppm	713 ppm
C_3	:	14 ppm	37 ppm	252 ppm
C_4	:	0 ppm	0 ppm	1 ppm

- Over the interval 1463 - 1598 metres (corresponding to the upper portion of the Pretty Hill Formation) gas readings ranged;

Total Gas	:	0.1 - 2 units
C_1	:	8 - 343 ppm
C_2	:	1 - 26 ppm
C_3	:	0 - 23 ppm
C_4	:	0 ppm

- Between 1598 and 1899 metres (corresponding to the base of the Pretty Hill Formation) mud gas readings remained below 0.6 units, with no spikes;

Total Gas	:	0.1 - 0.6 units
C_1	:	1 - 129 ppm
C_2	:	0 - 1 ppm

- In the interval 1899 - 1922 metres (corresponding to a carbonaceous claystone sequence at the top of the Casterton Formation) gas readings rose to a maximum of 5.3 units with no spikes,

Total Gas	:	1.0 - 5.3 units
C_1	:	37 - 159 ppm
C_2	:	1 - 61 ppm
C_3	:	1 - 120 ppm
C_4	:	1 - 88 ppm
C_5	:	1 - 17 ppm

- Within the interval 1922 - 1951 metres (corresponding to the claystone/sandstone sequence within the Casterton Formation which recovered traces of oil from DST-2) gas readings mostly ranged;

Total Gas	:	2.8 - 13.6 units
C_1	:	62 - 503 ppm
C_2	:	25 - 197 ppm
C_3	:	67 - 321 ppm
C_4	:	52 - 214 ppm
C_5	:	6 - 30 ppm

with a peak at 1943.5 metres of;

Total Gas	:	36.7 units
C_1	:	2734 ppm
C_2	:	290 ppm
C_3	:	651 ppm
C_4	:	477 ppm
C_5	:	33 ppm

- Within the interval 1951 - 2022 metres (corresponding to a claystone sequence within the Casterton Formation) gas readings ranged;

Total Gas	:	6.0 - 14.0 units
C_1	:	147 - 393 ppm
C_2	:	60 - 164 ppm
C_3	:	159 - 332 ppm
C_4	:	90 - 227 ppm
C_5	:	10 - 27 ppm

- Within the interval 2022 - 2052 metres (a shale/sandstone sequence immediately above the volcanics) gas readings ranged;

Total Gas	:	4.0 - 12.0 units
C_1	:	188 - 303 ppm
C_2	:	61 - 125 ppm
C_3	:	92 - 282 ppm
C_4	:	55 - 211 ppm
C_5	:	1 - 18 ppm

- Within the interval 2052 - 2088 metres (the Casterton Formation volcanics) gas readings decreased rapidly and ranged;

Total Gas	:	0.1 - 0.4 units
C_1	:	9 - 60 ppm
C_2	:	0 - 5 ppm
C_3	:	0 - 7 ppm
C_4	:	0 - 1 ppm

3.3.2 Fluorescence

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

3.3.2.1 Cuttings

Oil fluorescence was observed in several intervals throughout Digby-1 within the Eumeralla Formation, the Pretty Hill Formation and the Casterton Formation as described below.

445 - 470 metres (Eumeralla Formation)

Fluorescence: The claystone and occasionally sandstone have trace to 10% moderately bright to bright patchy to solid golden orange fluorescence giving a bright, light yellow white, slow streaming cut fluorescence, with no natural cut colour and a moderate to thick ring residue.

832 - 838 metres (Eumeralla Formation)

Fluorescence: the sandstone has trace patchy bright orange-gold fluorescence giving a moderately bright slow streaming to crush light yellow white cut fluorescence, with no natural cut colour and a moderate ring residue.

1463 - 1468 metres (Pretty Hill Formation)

Fluorescence: the sandstone has 70% dull to bright, pinpoint to patchy, very pale yellow white to milky white fluorescence, giving dull very pale yellow white to milky white crush cut, with no natural cut colour, no natural oil stain, a thin ring residue, and no free oil in drilling mud, but trace pinpoint bright milky white fluorescence from a cuttings/water mix.

This fluorescence corresponds to the interval tested in DST-1, which recovered 54 bbls of slightly oil-cut rathole mud and formation water.

1468 - 1502 metres (Pretty Hill Formation)

Fluorescence: The sandstone has trace to 50% dull to moderately bright, pinpoint to patchy light yellow fluorescence giving a dull pale yellow white crush cut and trace residue.

1530 - 1545 metres (Pretty Hill Formation)

Fluorescence: The sandstone has 10-70% patchy, dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut and a thin yellow ring residue from very tight sandstone laminae.

1553 - 1630 metres (Pretty Hill Formation)

Fluorescence: the sandstone has trace to 5% dull to moderately bright, pinpoint to occasionally solid light yellow fluorescence giving dull pale yellow white crush cut, and trace residue. In general this fluorescence decreased with depth and primarily came from tight aggregates only.

1720 - 1750 metres (Pretty Hill Formation)

Fluorescence: the sandstone has trace to 5% bright pinpoint to patchy pale yellow white fluorescence giving dull milky white to pale yellow crush cut, with trace to thin ring residue.

1922 - 1951 metres (Casterton Formation)

The claystones at the top of the Casterton Formation (1899 - 1922 metres) have no fluorescence, but give very weak pale yellow white crush cut.

Fluorescence: The sandstone has 70 - 100% moderately bright, pinpoint to solid, yellow gold fluorescence giving a dull to moderately bright light yellow crush cut, a light straw natural cut colour, a thin yellow ring residue, no free oil in drilling mud, and trace weak brown oil stain in some aggregates.

This fluorescence corresponds to the interval tested in DST-2, which recovered 1.3bbls of slightly oil-cut mud.

2022 - 2045 metres (Casterton Formation)

Fluorescence: The fracture infill material often has bright yellow fluorescence with weak instant dull pale yellow white cut and trace residue.

2045 - 2050 metres (Casterton Formation)

Fluorescence: The sandstone has trace pinpoint moderately bright medium yellow fluorescence giving very weak dull light yellow crush cut and trace residue.

3.3.2.2 Sidewall Cores

Fluorescence was observed in ten sidewall cores, four from the Pretty Hill Formation and six from the Casterton Formation, and is described as follows.

SWC#11 (1946.3 metres) The sandstone has trace patchy bright yellow fluorescence giving bright slow to moderately fast streaming pale yellow cut fluorescence and thick ring residue.

SWC#12 (1945.9 metres) The sandstone has 70% dull orange mineral fluorescence and trace pinpoint bright yellow fluorescence giving weak light yellow crush cut and trace residue.

SWC#14 (1940.8 metres) The sandstone has 70% dull to bright patchy to solid yellow fluorescence giving dull to bright slow streaming to crush pale yellow cut and trace to thick ring residue.

SWC#17 (1931.3 metres) The sandstone has 5-10% bright patchy yellow white fluorescence giving moderately bright white crush cut and thin to moderate ring residue.

SWC#18 (1926.4 metres) The sandstone has trace dull pinpoint medium yellow fluorescence giving weak dull to moderately bright pale yellow crush cut and thin ring residue.

SWC#19 (1923.9 metres) The sandstone has no oil fluorescence, but gives trace dull white crush cut and trace residue.

SWC#32 (1473.7 metres) The sandstone has 100% dull to bright patchy light yellow fluorescence giving dull to moderately bright milky white crush cut and thin ring residue.

SWC#33 (1468.2 metres) The sandstone has trace patchy moderately bright light yellow fluorescence giving dull milky white crush cut and trace residue.

SWC#34 (1465.7 metres) The sandstone has trace dull patchy yellow fluorescence giving weak dull milky white crush cut and trace residue.

SWC#35 (1464.4 metres) The sandstone has trace bright pinpoint yellow fluorescence giving trace dull milky white crush cut and trace residue.

Two of these samples (SWCs 14 and 32) were amongst those submitted for geochemical analysis via extraction, liquid chromatographic separation, gas chromatography of the saturates fraction and GC-MS, and one (SWC 18) was amongst those analysed by Rock-Eval and Vitrinite Reflectance. Results of this work are provided in Appendix 9 and discussed in the Geochemistry section (3.4).

3.4 GEOCHEMISTRY

As a result of intersecting significant shows and organic-rich mudstones in Digby-1 an extensive suite of geochemical analyses were performed on a range of cuttings and sidewall core samples.

The main aims of the analysis program were to evaluate;

- the characteristics of the hydrocarbons encountered
- the source affinity of these hydrocarbons
- the maturity at which these hydrocarbons were generated
- the source potential of the mudstones, and
- the maturity profile, uplift and timing at Digby-1.

All results are provided in Appendix 9, which is partitioned into parts A through F for ease of reference.

3.4.1 Hydrocarbon Geochemistry

During the drilling of Digby-1 oil shows were observed in cuttings and in mud recovered from the two drill stem tests. Selected samples of these were solvent extracted and separated via liquid chromatography so that a gas chromatogram of the saturates fraction (GC_{sats}) could be obtained. The results of this work are provided in Appendix 9A, which also contains a thermal extraction gas chromatogram (Gc_{therm}) for one of these samples to provide a comparison of the output of the two techniques.

Similarly, four sidewall cores also underwent solvent extraction and liquid chromatographic separation, so that a gas chromatogram of their saturates fractions (GC_{sats}) could be obtained. Two of these sidewall cores (1473.7 and 1940.8 metres) were sandstones which exhibited the best shows, thus representing migrated hydrocarbons, and the the other two were a dark claystone (1903.2 metres) and a coal (1944.2 metres), representing potential source rocks. Results from these samples are contained in Appendix 9B.

The fluorescing cuttings sample from 450 metres is believed to be from a fault zone, and its chromatogram displays a complex signature which is interpreted to represent at least two separate hydrocarbons. Because the hydrocarbon content of this sample was low a large amount of material was required for extraction and it is likely that some of the resulting signature was contributed by immature organic matter from the Eumeralla claystones. This material probably accounts for the large peaks and the baseline hump centered around C_{30}, and appears to overprint a more mature hydrocarbon with a unimodal distribution centered around C_{19}. The low abundance of hydrocarbons between C_{12} and C_{15} may be indicative of some degradation, however caution must be taken when interpreting this region due to possible depletion from the solvent extraction process. The pristane/phytane ratio of 2.99 indicates deposition in a sub-oxic environment, however other ratios based on heavier compounds (eg. carbon preference index - CPI) are considered unreliable due to the inferred "contamination" by the immature organic matter.

Shows at the top of the Pretty Hill Formation were sampled in cuttings (1468 metres), drilling mud (DST-1), and a sidewall core (1473.7 metres) and, despite comprising up to 70% dull to bright yellow gold fluorescence, they had virtually no associated gas. The DST-1 mud sample is considered unreliable due to its low hydrocarbon concentration (7.7ppm), but the other two samples display relatively consistent chromatograms with alkanes up to approximately C_{33}. Like the cuttings sample at 450 metres both have a unimodal distribution with a maximum at approximately C_{19}, with only a slight hint of an odd-over-even preference (CPI=1.1). The pristane/phytane ratios (3.44 and 3.06) are also similar to that of the 450-metre sample while, again, there is an apparent depletion of the C_{12} to $C_{15/16}$ components. This depletion would be also consistent with the very low gas readings associated with this interval.

The next noteworthy shows encountered in Digby-1 are exemplified by cuttings from 1740 metres, within the Pretty Hill Formation, with no apparent associated seal. Like the shows around 450 metres, these are thought to be associated with a fault zone, which is interpreted on seismic data and supported by the total loss of circulation which occurred at the base of this zone of shows (1757 metres). The GC_{sats} trace of this sample displays a similar signature to the shows higher up, however with a few minor differences indicating it is probably of at least a slightly different origin or migration route. The chromatogram illustrates a bimodal distribution with peaks at C_{13} and C_{18}, the CPI of 1.2 indicates a slightly more pronounced odd-over-even preference, and the pristane/phytane ratio of 4.03 is somewhat higher (indicative of a more oxic environment) than the top Pretty Hill Formation samples.

From within the Casterton Formation section three samples were extracted for migrated hydrocarbons, one cuttings (1930 metres), one DST-2 mud sample, and one sidewall core (1940.8 metres). Two other sidewall cores, a mudstone (1903.2 metres) and a coal (1944.2 metres), were extracted for source rock information. A duplicate of the cuttings sample was also thermally extracted and this chromatogram is considerably different to the others. In particular, the lighter components (up to C_{12}) can be seen (as opposed to being lost by the extraction process), however the heavier components may be underestimated by the technique.

The three "migrated hydrocarbons" samples are all quite different to each other, which may be due to the different types of samples from which they were extracted (ie. varying degrees of contamination). The cuttings and sidewall core samples both show bimodal distributions, with peaks around C_{13} and C_{17} for the cuttings sample and C_{19} and C_{23} for the sidewall core sample, while the mud sample shows a unimodal distribution with a peak around C_{16}. Both the cuttings and the sidewall core samples show only a slight odd-over-even preference (CPI=1.13-1.14), while the pristane/phytane ratio is significantly greater (4.73-5.48) than the oil samples higher up.

The mudstone and coal samples share a broad similarity, with n-alkane distributions centred around $C_{13\text{-}14}$ and smaller peaks around C_{19} and C_{17}, respectively, some of which could account for the bimodality observed in the "migrated" samples.

3.4.2 Source and Maturity

In order to ascertain the organic richness and maturity of potential source rocks encountered in Digby-1 during the drilling of the well, samples of cuttings were periodically sent for analysis by Rock-Eval pyrolysis (R-E) and by Vitrinite Reflectance (V_R). At the end of the well a selection of sidewall cores were sent for Total Organic Carbon (TOC) determination and from these some were chosen for R-E and/or V_R analyses to supplement the cuttings sample data. All results from this work are provided in Appendix 9C. In addition, four sidewall cores (spanning the range of TOC results) were analysed via Pyrolysis GC to ascertain the remaining generative potential, and results of this work comprise Appendix 9D. Also with regard to source quality and maturity, the nature of the organic material and spore colour changes were documented as part the work conducted on sidewall cores submitted for palynological analysis, a full report of which is contained in Appendix 10A.

Apart from some intervals within the Casterton Formation, the section penetrated at Digby-1 was generally organically lean (and this paucity of organic-rich material throughout the Eumeralla-Laira-Pretty Hill section limited the number of samples which could be taken for R-E). The rich coaly intervals within the Eumeralla Formation often intersected further to the south were essentially absent from Digby-1. The richest sample above the Casterton Formation was in the Laira Formation (1445.2m), but only reported a TOC of 1.08% with a modest S2 value (1.51) and a low Hydrogen Index (140).

TOC values within the Casterton Formation range 0.42-35.9% (average 5.5%), with the highest value corresponding to a coal. These values demonstrate the shales of the Casterton Formation in Digby-1 to be a moderate to rich source, which is also supported by the organic facies data in Appendix 10A, which suggests it may have originally been as rich or richer than the equivalent strata in Sawpit-1.

Indications of the maturity of the Dibgy-1 section as provided by the R-E, V_R and palynology work are variably erratic, but all conclusively point to the section being more mature than anticipated (when compared to other wells in the region), especially below the Eumeralla Formation. This is due, at least in part, to the maturity gradient (ie. increase with depth) being significantly higher than in comparable wells (eg. Sawpit-1 in Appendix 10A), which may result from a higher level of igneous activity in the vicinity of Digby-1. The comparitively higher maturity for a given depth also indicates that there has been greater uplift of the Digby-1 section relative to other wells in the region, including Mocamboro-11 in which the equivalent stratigraphic section is currently at a higher elevation.

The Pyrolysis GC and organic facies data indicate that much of the potential hydrocarbon source material sampled in Digby-1 (almost all in the Casterton Formation) is now mostly gas/condensate prone. Some samples appear to have originally had good to excellent oil-generating potential but, while moderate potential remains in a few samples, this is now largely spent due to the high maturity. Overall, the section penetrated in Digby-1 is estimated to range from 'early mature for oil generation' down to 'mature for wet gas and condensate.'

3.4.3 Oil-Source Pairing

Due to indications that oil samples from the Pretty Hill (1473.7 metres) and Casterton (1940.8 metres) Formations were significantly different from each other, and showed varying degrees of similarity with the Casterton shale (1903.2 metres) and coal (1944.2 metres) source types, GC-MS work was undertaken on these samples to further investigate their possible interrelationship. Results of this work comprise Appendix 9E. In addition to this, a Eumeralla Formation source sample from the region (cuttings containing both shale and coal from 2895 metres in Lindon-1) was also analysed via GC-MS to see how it compared with the two Digby-1 oil samples. The Lindon-1 GC-MS results and comments on how they compare to the Digby-1 data are provided in Appendix 9F. (Also included in this appendix is a summary of petroleum geochemistry methods and the fundamental results they produce).

The results suggest that the oil from 1473.7 metres correlates well with the organic-rich shale from 1903.2 metres, and that the oil from 1940.8 metres appears to be genetically related to the coal from 1944.2 metres. In contrast to this, despite similarities between the Lindon-1 sample and the oil sample from 1940.8 metres in Digby-1, the Lindon-1 sample is not regarded as a likely source for either of the two Digby-1 oil samples.

3.5 PALYNOLOGY

Twenty sidewall cores from Digby-1 were submitted to APG Consultants for palynological investigation to assess their age, biostratigraphy, depositional environment, organic facies and hydrocarbon source potential. The results of this work comprise Appendix 10A.

In most cases the biostratigraphy confirmed the lithologically-based stratigraphic picks made during the drilling, with the important exception that it identified the presence of the Laira Formation, which is not lithologically distinguishable from the unconformably overlying Eumeralla Formation.

Depositional environments interpreted from the palynological data range from "fluvial-lagoonal; coastal plain" for the Eumeralla, Laira and upper Pretty Hill Formations, "braided stream, swamp" for the lower Pretty Hill Formation, and "lacustrine, fluvial-lagoonal, swamp; coastal plain" for the Casterton Formation.

As a result of the palynological identifications and the synthesis of biostratigraphic and lithostratigraphic data in Digby-1 a review of key wells in the region for which data was available was undertaken in order to provide a consistent interpretation across this part of the basin. This report (Appendix 10B) suggests some significant revisions to the previous stratigraphic interpretation of some of these wells.

3.6 SEISMIC INTERPRETATION

Digby-1 is located at CMP 739.5 on seismic line OMN93-14, as shown in Figure 5 with the pre-drill interpretation. Prior to drilling, two horizons across the Digby prospect were mapped, the top Pretty Hill Formation sandstone primary target (Enclosure 7a) and a reflector thought to represent Palaeozoic basement (Enclosure 7b). At the top Pretty Hill horizon the Digby structure was interpreted as a large east-west trending fault-dependent closure, bounded to the north by a major down-to-the-north half-graben-forming fault.

This area is structurally complex and some aspects of it are not adequately explained by our understanding of the regional tectonic elements. However, it is currently thought that the major down-to-the-north fault forms the southern boundary of the eastern extension of the Tantanoola Trough and that the small half-graben to the south of

PE905733

This is an enclosure indicator page.
The enclosure PE905733 is enclosed within the container PE900874 at this location in this document.

The enclosure PE905733 has the following characteristics:

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BASIN =	OTWAY BASIN
PERMIT =	PEP/134
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SUBTYPE =	SECTION
DESCRIPTION =	Seismic Interpretation (from Geology of WCR vol. 1) for Digby-1
REMARKS =	
DATE_CREATED =	30/11/95
DATE_RECEIVED =	17/11/95
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PRE-DRILL SEISMIC INTERPRETATION

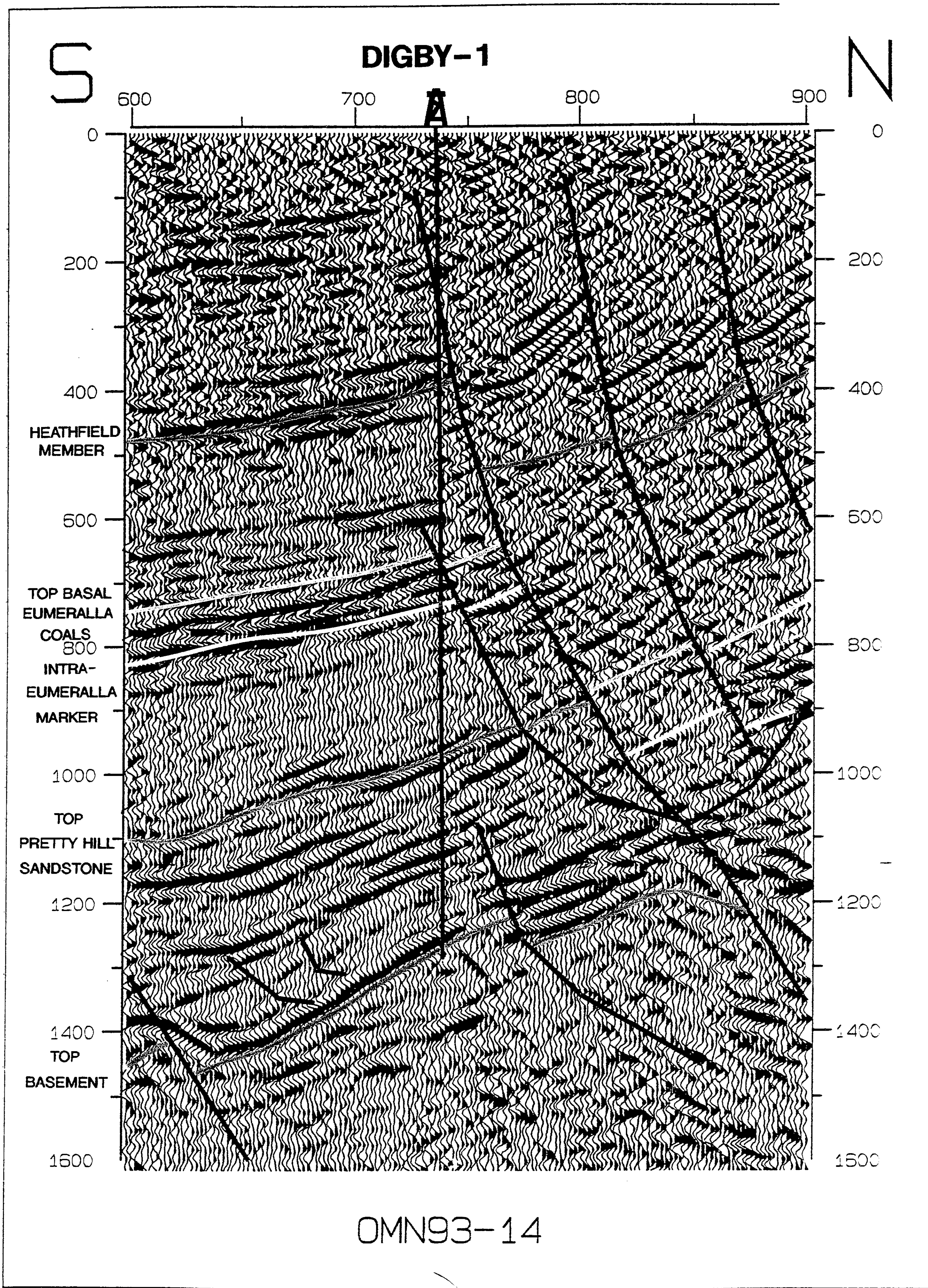

FIGURE 5

PE905734

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(Inserted by DNRE - Vic Govt Mines Dept)

POST-DRILL SEISMIC INTERPRETATION

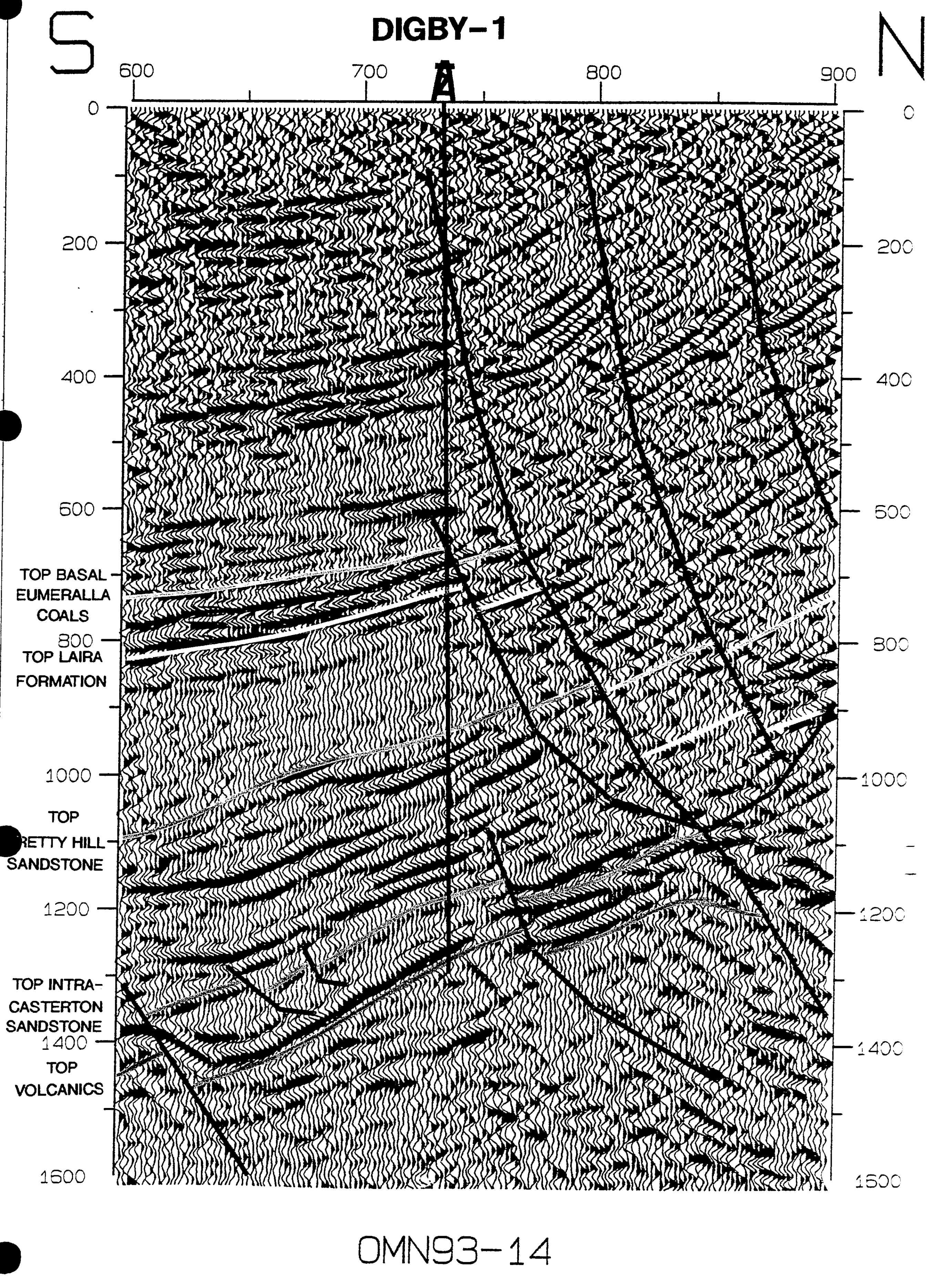


FIGURE 6

Digby-1 is the subdued western extension of the Ardonachie Trough, which appears to terminate in this vicinity. The drilling of Digby-1 did not alter this structural model, but did necessitate revision of the stratigraphic interpretation, as shown in Figure 6.

After drilling, an interpretation of the top intra-Casterton sandstone horizon (ie. top of the sand tested in DST-2) was undertaken. As a result of this, the pre-drill fault correlations were altered slightly and a revised time map of the top Pretty Hill Formation displaying both these changes and horizon's post-drill time pick was produced. These post-drill time maps and their depth map counterparts are provided in Enclosures 7c-7f.

The formation tops encountered in Digby-1 were all slightly shallower in time and deeper in depth than prognosed (Figure 4). This suggests that the seismic interpretation carried across from the nearest control point (Mocamboro-11) was substantially correct, but that the velocities used in the depth conversion were marginally slower than expected.

3.7 LOG ANALYSIS

Log analysis was undertaken on the Digby-1 wireline logs using Crocker Data Processing's PETROLOG software. The Pretty Hill - Casterton section was divided into seven zones, and those containing significant proportions of sand were analysed for their hydrocarbon reservoir potential. Subdivision of the thick Pretty Hill Formation sandstone (1595-1900 metres) into two zones was done partly to avoid analysing one large zone, but also to take into account a slight lithological change suggested by the gamma ray around 1700 metres.

For each zone basic input parameters are given in Table 6 and a summary of the results is provided in Table 7. A detailed listing of all input parameters, environmental corrections, preinterpretation results and complex lithology results can be found in Appendix 12 and a 1:500 scale analysis log is provided as Enclosure 8.

The overall quality of the logs in the zones analysed is regarded as good to very good, however it should be noted that there was a relatively large time period (approximately 21½ hours) between the acquisition of the resistivity-sonic and the density-neutron data, due to malfunctions in both the primary and back-up density-neutron tools.

The estimated formation water salinity (and, therefore, R_w) used in the upper Pretty Hill Formation sand (Zone 2) was based on the salinity of the DST-1 sample which, being

TABLE 6

DIGBY-1

BASIC INPUT PARAMETERS FOR LOG ANALYSIS

ZONE #	2	3	4	5	7
FORMATION	Pretty Hill	Pretty Hill	Pretty Hill	Pretty Hill	Casterton
From (m)	1461.3	1503.1	1595.1	1700.1	1923.2
To (m)	1503.0	1595.0	1700.0	1899.9	1954.0
Interval (m)	41.7	91.9	104.9	199.8	30.8
Average Zone Temperature (°C)	75.2	77.4	80.6	85.6	90.1
Rw at Av. Zone Temp. (ohm.m)	0.106	0.141	0.189	0.180	0.173
Rw at 23.9 °C (ohm.m)	0.226	0.306	0.425	0.425	0.425
Salinity (Kppm)	28.0	20.0	14.0	14.0	14.0
Mud Filtrate Salinity (Kppm)	75.1	75.1	75.1	75.1	75.1
Assumed Matrix Density (g/cc)	2.67	2.67	2.67	2.67	2.67
GRclean (API units)	40	40	40	40	40
GRclay (API units)	175	175	175	175	170
Rclay (ohm.m)	3.2	3.2	4.5	6.5	12.0
Saturation Equation	Indonesian	Indonesian	Indonesian	Indonesian	Indonesian
Tortuosity (a)	0.8	0.8	0.8	0.8	0.8
Cementation Exponent (m)	2.0	2.0	2.0	2.0	2.0
Saturation Exponent (n)	2.0	2.0	2.0	2.0	2.0

TABLE 7

DIGBY-1

LOG ANALYSIS RESULTS SUMMARY

ZONE #	2	3	4	5	7
FORMATION	Pretty Hill	Pretty Hill	Pretty Hill	Pretty Hill	Casterton
From (m)	1461.3	1503.1	1595.1	1700.1	1923.2
To (m)	1503.0	1595.0	1700.0	1899.9	1954.0
Interval (m)	41.7	91.9	104.9	199.8	30.8
Net Sand† (m)	28.8	20.9	94.2	176.4	15.3
Net/Gross (%)	69.1	22.7	89.8	88.3	49.7
Sand Average $\varnothing_{eff.}$† (%)	13.8	9.8	17.2	15.7	12.1
Sand Average S_w† (%)	84.8	87.9	84.9	92.2	78.1
Sand Average V_{clay}† (%)	27.0	27.3	21.8	16.9	26.9
For net pay:					
Average $\varnothing_{eff.}$ Cut off	0.05	0.05	0.05	0.05	0.05
S_w Cut off	0.50	0.50	0.50	0.50	0.50
V_{clay} Cut off	0.40	0.40	0.40	0.40	0.40
Net Pay (m)	0.0	0.0	0.1	0.0	1.3
Pay Average $\varnothing_{eff}$ (%)	n/a	n/a	14.2	n/a	20.1
Pay Average S_w (%)	n/a	n/a	48.4	n/a	35.9
Pay Average V_{clay} (%)	n/a	n/a	35.6	n/a	28.3

†Obtained using cut offs of S_w = 100%; $\varnothing_{eff.}$ = 5%; V_{clay} = 40%

the last water produced in the 50+ barrel flow, is assumed to be reasonably representative of the true formation water. The salinity used in the lower Pretty Hill (Zones 4 and 5) and the intra-Casterton (Zone 7) sands was only half this, and the salinity used in Zone 3 was intermediate between the two. All of these salinities are higher than would be anticipated, especially when considering the much fresher formation waters which have been interpreted elsewhere for these strata. However, they yield results which appear to provide a reasonable (if not slightly conservative) fit to the hydrocarbon shows observed in the well. Without altering other input parameters, lowering the formation water salinities in these zones would result in even lower hydrocarbon saturations than those produced in this analysis.

As shown in Table 7, the upper Pretty Hill Formation sand (Zone 2), over the top part of which DST-1 was conducted, was estimated to comprise about 70% net sand with an average V_{clay} of 27%, average porosity around 14%, and average water saturation around 85%, yielding no net pay. The two zones representing the lower Pretty Hill sand (Zones 4 and 5) were estimated to comprise about 90% net sand with average V_{clay} ranging 17-22%, average porosity 16-17%, and average water saturation 85-92%, and insignificant net pay. The intra-Casterton sand (Zone 7), most of which was spanned by DST-2, was estimated to comprise 50% net sand with an average V_{clay} of 27%, average porosity of 12%, and average water saturation around 78%. Within this, the analysis estimated 1.3 metres of net pay with an average porosity of 20% and average water saturation of 36%, however no significant flow of hydrocarbon or water was produced during the test.

CONCLUSIONS

4. CONCLUSIONS

4.1 OBJECTIVES VERSUS PERFORMANCE

The main objective in drilling Digby-1 was to evaluate the hydrocarbon potential of the structure mapped at the top Pretty Hill Formation sandstone level and the section beneath it down to the interpreted top of basement (fractured metamorphic?). The top Pretty Hill Formation sandstone was evaluated by DST-1 and the seismic event that had been inferred to be the top of basement was actually the top of the intra-Casterton Formation volcanics, which showed no evidence of fracturing or hydrocarbons. Thus, Digby-1 can be said to have largely satisfied its intended purpose.

Assessment of performance in terms of time (and thus cost) is less favourable. As shown in Figure 3, Digby-1 took eight days longer than the prognosed 17 days to drill, due to a variety of causes, including;

- the rig gear shaft broke, requiring a duplicate to be machined (two days lost)
- the pin from the drop bar sub used in DST-1 fell into the hole and its absence was not noticed until (after several hours of very slow drilling) the bit was pulled and found to have the pin lodged between its cones (one day lost)
- below 1200 metres hole deviation began to increase above three degrees, so the rate of penetration was eased back to help minimise this (two to three days extra)
- an extra drill stem test (DST-2) was conducted to evaluate shows in the unanticipated intra-Casterton sandstone unit (one and a half days extra)
- the total depth was extended beyond the prognosed 2046 metres to 2088 metres (one day extra).

Despite problems with the neutron-density tools, the logging and plugging-and-abandonment of Digby-1 took about a day less than prognosed.

Another parameter which pertains to performance during drilling of the well is hole deviation. As outlined in Section 2.5.4, the horizontal component of hole deviation was kept within a 39-metre radius of the proposed location at the top Pretty Hill Formation sandstone level (1463 metres), which equates to a maximum overall deviation of about one and a half degrees. This increased markedly to being within a 94-metre radius of the proposed location at total depth, which equates to a maximum overall deviation of about two and a half degrees.

Assessment of the Digby-1 results with regard to the prognosis of geological and geophysical parameters is quite favourable, given that sparse well control, seismic data quality and structural complexity of the area imposed significant limitations on accuracy. Formation tops were all high to prognosis in time (by up to 38 milliseconds) and low to prognosis in depth (by up to 56 metres), but the magnitude of these differences was not unexpected due to the paucity of pre-drill data available to constrain the predictions. The time-depth relationship observed in Digby-1 indicates that the actual velocity profile differs significantly from the pre-drill velocity model used. However, since this model was based on the nearest well (Mocamboro-11), the variation at the Digby-1 location could not have been readily anticipated.

With regard to stratigraphy, the biggest discrepancies between the predicted and actual sections in Digby-1 involve the failure to prognose the Laira Formation, the Casterton Formation and the intra-Casterton Formation volcanics.

In the case of the Laira Formation this is entirely justified by both the close lithological similarity to the Eumeralla Formation and (more importantly) the fact that that it was not recognized in Mocamboro-11. Seismically the Laira Formation was indirectly prognosed in Digby-1, in that the predicted "Intra-Eumeralla Marker" closely coincides with the Laira Formation top.

Failure to prognose the Casterton Formation (including the volcanics) in Digby-1 is at least partly attributable to the heavy (over?) reliance on the correlation from Mocamboro-11, where this part of the section is not present. The pre-drill interpretation of the strong reflector at 1254 milliseconds in Digby-1 being basement was not unreasonable when considering the correlation from Mocamboro-11, especially given that the seismic data quality beneath this reflector is poor in the Digby area. (With hindsight, consideration of the lower section of the Casterton-1 well would have provided a useful analogue for the lower section of Digby-1 but, as well as being much older and further away from the Digby area than Mocamboro-11, it is also more difficult to correlate from the available seismic).

An objective which remains unsatisfied by the drilling of Digby-1 is a definitive assessment of hydrocarbon prospectivity of the entire Digby structure. As no commercial accumulations were intersected in the well, the structure down-dip of Digby-1 (and, therefore, the prospect as currently mapped) has been effectively demonstrated to be unprospective. However, the up-dip Casterton Formation section to the north displays a series of strong amplitude reflectors which could (among other things) be indicating hydrocarbon prospectivity. Assessment of this possibility will only be definitively addressed by drilling this up-dip section, but the economic justification for doing so is questionable.

4.2 CONTRIBUTION TO GEOLOGICAL KNOWLEDGE AND HYDROCARBON PROSPECTIVITY

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

- identified the presence of the Laira Formation in this area and, in doing so, has necessitated a revision to the interpreted section in the Mocamboro-11 stratigraphic well (and probably also to other wells in the region).
- confirmed the presence of good to excellent reservoir potential in the top Pretty Hill Formation sandstones (ie. a relatively conservative log analysis estimated average effective porosity to be around 14% and the water influx in DST-1 indicated flow rates of around 2500-3000 bbls/day).
- identified the presence of the Casterton Formation in the Ardonachie Trough.
- identified apparently tight (but oil-bearing) potential reservoir sandstones within the Casterton Formation.
- identified good to excellent source rocks in the Casterton Formation.
- demonstrated a higher thermal maturity than other wells in the region (with peak oil generation around 1400-1500 metres and the Casterton Formation source rocks being in the wet gas/condensate zone).
- confirmed the migration of hydrocarbons (apparently at least mostly sourced from Casterton Formation strata) through this area, as evidenced by the mostly sparse but numerous shows throughout the well.
- demonstrated the potential for unpredictable velocity variations in the region by revealing a substantially different velocity profile to Mocamboro-11.

- provided temperature data which allows an estimate of true bottom hole temperature (99.2 °C at 2088 metres) and geothermal gradient (3.9 °C per 100m, assuming 18 °C at surface).

- provided a useful addition to the small number of formation water samples from the Pretty Hill Formation. Relatively pristine samples of formation water from prospective reservoir units in this region of the Otway Basin are few in number, so the sample from DST-1 has allowed a rare opportunity to obtain a compositional analysis and R_w (= 0.22 ohm.m at 25°C) for use in log analysis.

APPENDIX 1

GFE RESOURCES LTD

APPENDIX 1

RIG SPECIFICATIONS

DIGBY-1

INVENTORY - RIG #11

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

DESILTER	Pioneer Economaster Model T12-E4. 12 x 4" cones with Warman 6" x 4" Centrifugal pump, driven by a 50 H.P. Electric Motor.
MUD MIXING PUMP	Warman 6" x 4" Centrifugal pump driven by a 50 H.P. Electric Motor.
MUD AGITATORS	4 only Brandt Mud Agitator Model MA 7.5.
B.O.P'S & ACCUMULATOR	10" x 3000 P.S.I. Shaffer Double Gate B.O.P. with $2^3/_8$", $2^7/_8$", $3^1/_2$", $4^1/_2$", $5^1/_2$", 7" and Blind. 10" x 3000 P.S.I. Hydril GK Annular B.O.P. Koomey B.O.P. Control Unit. Accumulator Unit Model 100-11S.
CHOKE MANIFOLD	Cameron 5000 psi.
SPOOL	10" x 3000 x 10" x 3000 Flanged Drilling Spool with 3" x 3000 flanged choke and kill outlets.
INSTRUMENTATION	Martin-Decker 6 pen Rcord-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.)
AUTOMATIC DRILLER	Satellite Automatic Driller Model SA100-50-1500.
WIRELINE STRIPPER	Guiberson Oil Saver Type H-4.
SURVEY UNIT	Totco 8 Deg Recorder.
MUD LAB	Baroid Rig Laboratory Model 821.
KELLY	$5^1/_4$" HEX Kelly. $2^{13}/_{16}$" I.D. x 40' long with $6^5/_8$" API Reg. L.H. Box up 4" I.F. Pin down.
UPPER KELLY VALVE	Upper Kelly Cock. 10000 test $6^5/_8$" API Reg. L.H. Connections.
LOWER KELLY VALVE	Hydril Kelly Guard. $4^1/_4$" - 10000 P.S.I. 4" I.F. Pin and Box.
KELLY DRIVE BUSHING	Varco Type 4 KRS Kelly Drive Bushing.
DRILL PIPE	7000' Drill Pipe $4^1/_2$" O.D. 16.60 lb. Grade E Range 2 with 4" I.F. x 18 degree taper tool joints.
DRILL COLLARS	20 each Drill Collars $6^1/_4$" O.D. slick $2^{13}/_{16}$" I.D. x 30' long with $4^1/_2$" XH pin and box connections.

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

GFE RESOURCES LTD

APPENDIX 2

DRILLING FLUID RECAP

DIGBY-1

M-I Drilling Fluids L.L.C.

FDC4

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

GFE RESOURCES LTD
DIGBY 1
OTWAY BASIN
PEP 105 & PEP 126

M-I Drilling Fluids L.L.C.

F D C 4
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Operator :	GFE RESOURCES LTD	Spud Date :	05/09/95
Well Name :	DIGBY 1	TD Date :	06/03/95
Field/Area :	OTWAY BASIN	Loc Code :	VICTORIA
Description :	EXPLORATION	Dist Engr :	B.JACK
Location :	PEP 105 & PEP 126	Sales Engr :	P.MARSHALL
Warehouse :	ADELAIDE	Sales Engr :	
Contractor :	CENTURY	Well Number :	W0003

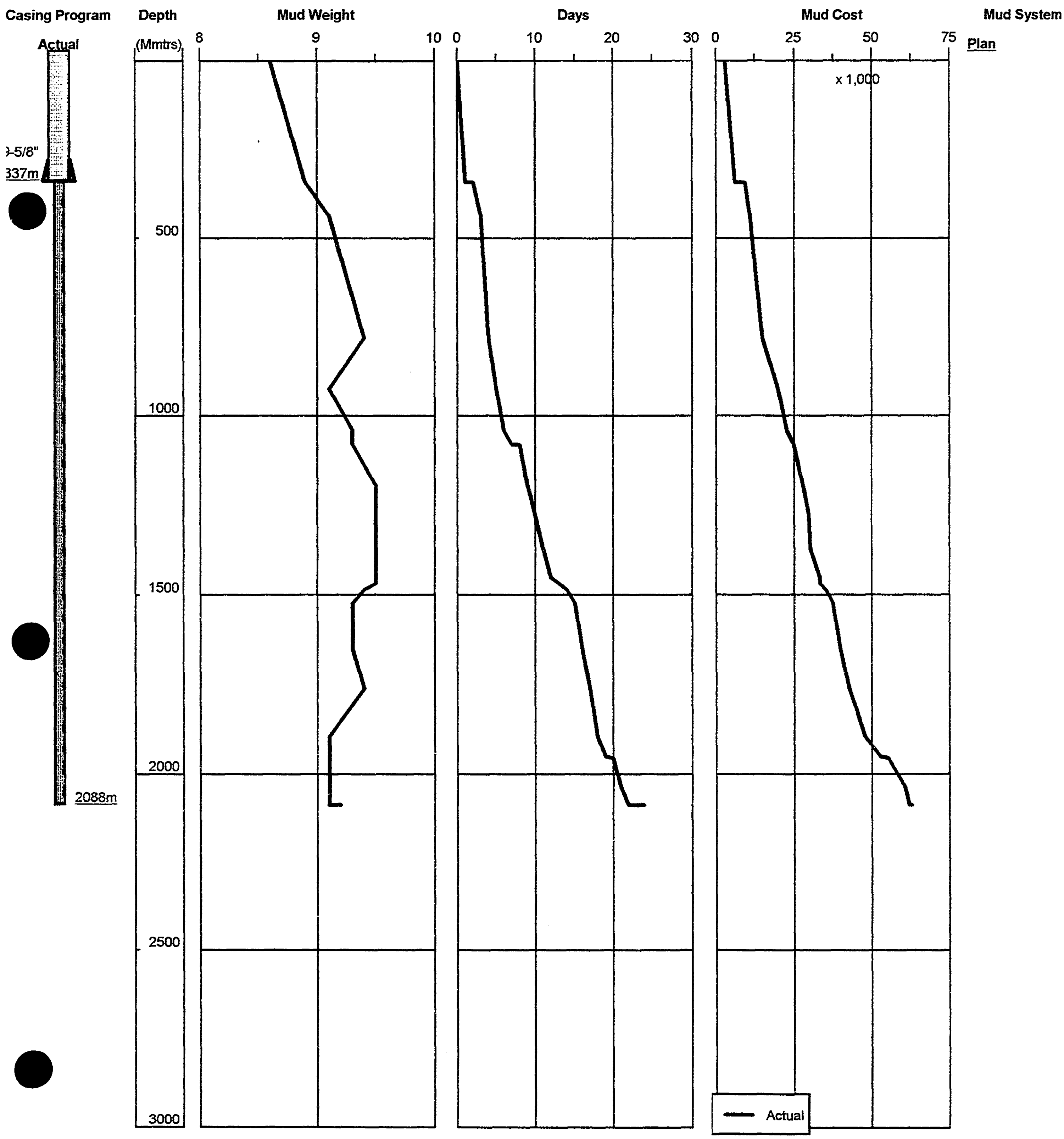
Comments : ALL REPORTS TO 24:00 HRS AS PER THE IADC REPORT

Type	Size in	Depth m	TVD m	Hole in	MaxMW lb/gal	Mud 1	Mud 2	Drilling Problem	Days	Cost
Casing	9.625	337	337	12.250	9.0	PHPA/KCL/MUD		NO PROBLEMS	2	7358
OpenH			2088	8.500	9.6	PHPA/KCL/MUD		PROB W/ STAIGHT HOLE	22	56515

Total Depth: 2088 m TVD : 2088 m Water Depth: m Drilling Days: 26 Total Mud Cost: 63873

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

	2/06/95 - 24 Days	GFE Resources
	TD =2,088 Mmtrs TVD =2,088 Mmtrs	Digby 1
	Spud=9/05/95 MW = 9.2	Otway Basin, South West Victoria
	Mud Cost = $ 63,019	Drilled with Century Rig 11

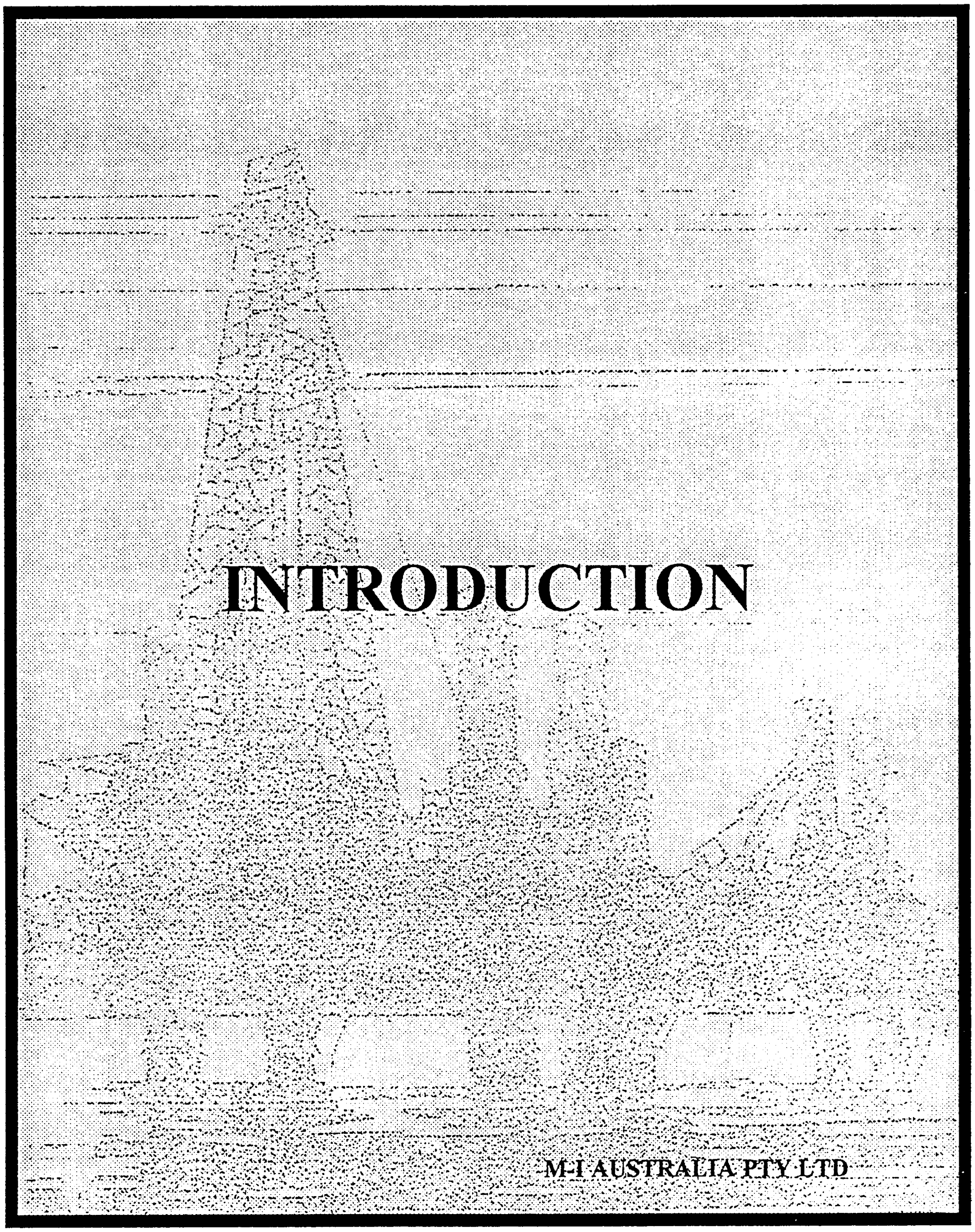


GFE RESOURCES

WELL : DIGBY 1

M-I AUSTRALIA PTY LTD

INTRODUCTION



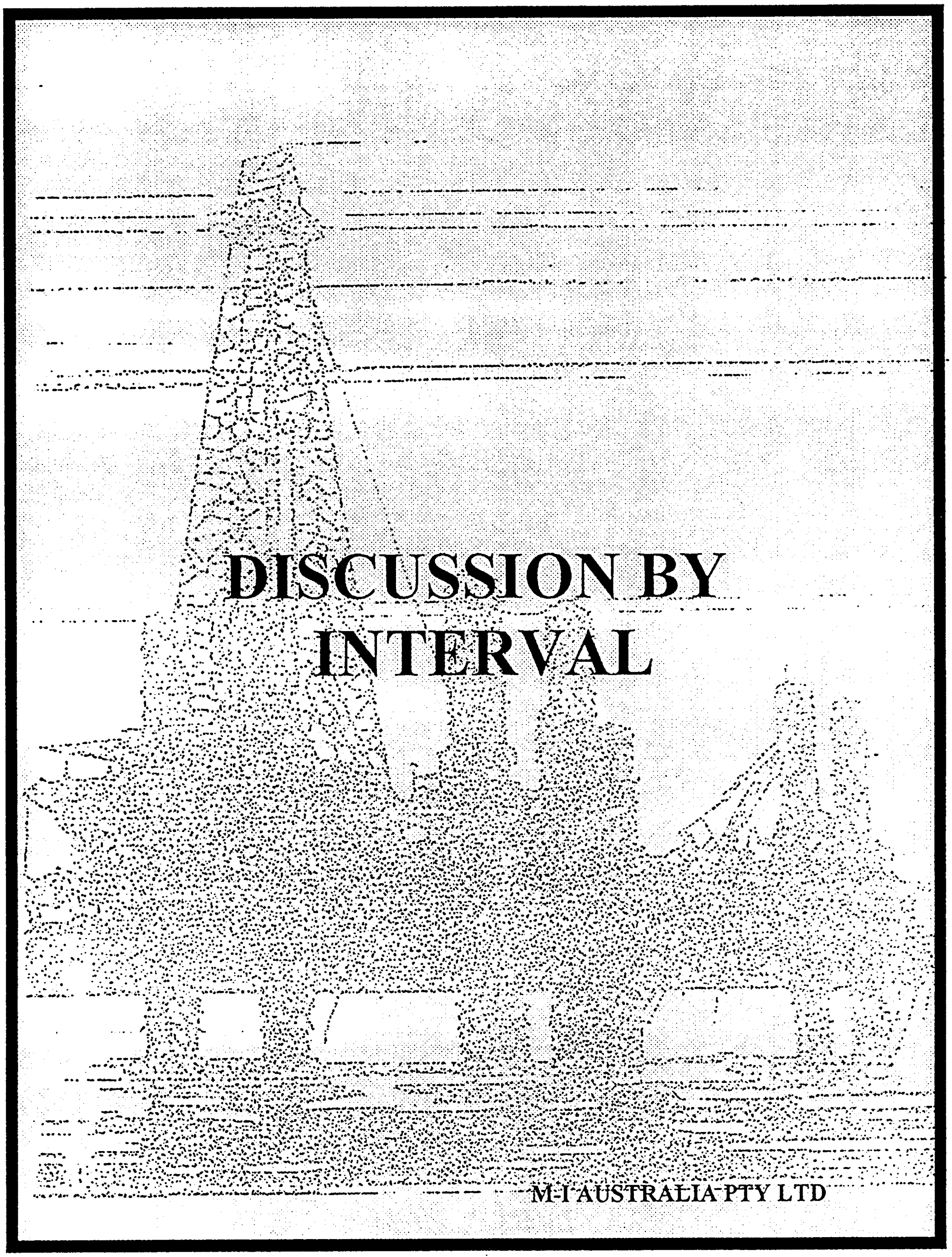
INTRODUCTION:

GFE Resources Limited's exploration well, Digby 1, was spudded by Century 11 at 0100 hours on 10 May 1995. The well is located in the Otway basin, south-west Victoria in permit, formally designated Digby JV, an excision straddling two adjoining permits, PEP 105 and PEP 126, controlled by two of the joint venture partners. The objective, the Pretty Hill formation, has no recognized source but is considered structurally and lithologically receptive to hydrocarbon migration.

The well was drilled to a total depth of 2088 meters in 334 drilling hours over 23 days. The hole proved trouble free despite the exposure of over 1100 meters of the reactive Eumerella formation. Constant delays, due primarily to controlled drilling (3 - 5 m/hr) in an attempt to correct stubborn and constantly increasing hole deviation (max recorded 6°), together with junk in the hole, rig failure and loss of returns, contributed to a completion time overrun of approximately 7 days. Two DST's were successfully conducted but neither indicated the presence of significant hydrocarbons. Logging was completed over 36 hours, without incident and P & A procedures were concluded on 4 June 1995.

Geological formation tops as supplied were:

Formation	Lithology	Depth (meters)
Eumeralla	Claystone	6
Pretty Hill	Sandstone/minor interbedded claystone	1463
Basement		1899
Total Depth		2088


DISCUSSION BY
INTERVAL
M-I AUSTRALIA PTY LTD

M-I Australia Pty. Ltd.

Interval	0 - 342 Meters	12.1/4" Hole	9.5/8" Casing set at 337 Meters

MUD TYPE : **KCl/PHPA**

HOLE PROBLEMS : **NONE**

MUD PROPERTIES :

Mud Weight	:	8.7 - 9.0 ppg
Funnel Viscosity	:	36 - 48 sec/qt
Plastic Viscosity	:	16 - 21 cp
Yield Point	:	14 - 19 lb/100 sq ft
Gels	:	2 - 5 / 4 - 10 lb/100 sq ft
Filtrate	:	5.6 - 15 cc
KCl	:	3.5 - 4.0 % weight
PHPA	:	1.8 - 2.0 ppb

OPERATIONS:

Digby 1 was spudded with a 12.1/4" bit and was drilled to section total depth at 342 meters in 15.1/2 hours drilling time A wiper trip at total depth encountered a minor obstruction at 327 meters and 6 meters of fill. The hole was circulated clean and casing was run and cemented without incident. Cement was displaced to the annulus with drillwater.

MUD:

The decision to spud with an inhibited system proved sound. No hole problems were experienced and cuttings, while friable, were well encapsulated and dry on compression. There was no evidence of balling, a frequent problem in top hole and drilling progressed to total depth uninterrupted.

The initial mud up consisted of 4% KCl/1.8 ppb PHPA, approximately 6 ppb PHG and PAC R/ CMC LV providing adequate hole cleaning and water loss less than 8.0 cc. Maintenance of inhibition and circulating volume was by way of concentrated premix. 3 x 50 mesh screens and constant use of the desander and desilter enabled mud weight to be maintained below 9 ppg. The higher than anticipated consumption of PHPA and KCl for the section was due to the high reactivity of the surface claystone and greater than expected mud on cuttings losses. Inhibition by sections end had been increased to 2 ppb PHPA and 5% KCl. 260 bbl of mud remained after cementing for use in the 8.1/2" section.

M-I Australia Pty. Ltd.

Interval	342 - 2088 Meters	8.1/2" Hole	No Casing Set

MUD TYPE : **KCl/PHPA**

HOLE PROBLEMS : **HOLE DEVIATION/LOSS OF CIRCULATION**

MUD PROPERTIES :

Mud Weight	:	9.0 - 9.5 ppg
Funnel Viscosity	:	38 - 50 sec/qt
Plastic Viscosity	:	12 - 23 cp
Yield Point	:	11 - 24 lb/100 sq ft
Gels	:	3 - 7 - 8 - 19 lb/100 sq ft
Filtrate	:	4.0 - 6.0 cc
MBT	:	10 - 20 lb/bbl equivalent
KCl	:	4.5 - 8.0 % wt
PHPA	:	0.7 - 2.7 ppb

OPERATIONS:

To avoid the likelihood of cement contamination, the collar, shoe track and rathole were drilled out with water and the hole displaced to mud prior to conducting a FIT at 345 meters - mud weight equivalent = 22.3 ppg.

Drilling progressed through the Eumeralla claystone at rates between 15 - 20 m/hr with regular surveys. A 2° deviation at 781 meters and a subsequent reading of 3° and 4° at 1465 meters required controlled drilling (3 - 5 m/hr) and a stiffened assembly to allay the possibility of drifting off target. Further delays were incurred when a sheared drive shaft halted drilling for 36 hours. A drilling break at 1468 meters (Pretty Hill sandstone - 68 meters below prognosed depth) demanded DST #1 to be conducted over the interval 1460 meters - 1468 meters. After an initial 4 psi build up and gas to surface, the tool was shut in after 3 hours open to the formation but yielded only 18000 ppm Chloride formation water. Highly reactive kaolinitic clay was intersected soon after the test interval (1468 - 1531 meters) and was thought, by balling the bit and stabilisers to have reduced ROP to less than 1 m/hr. A trip out revealed junk from the DST tool lodged in the crown of the bit. A series of drilling breaks and minor shows in poorly cemented and sorted sandstone were deemed unsuitable to test. The hole continued to deviate and by 1905 meters had climbed to 6°. At 1759 meters total losses drained the active system before the floor was alerted. An LCM pill was prepared and spotted and while losses of up to 15 bbl/hr were recorded, returns were thereafter constant. An oil show at 1951 meters in carbonaceous sandy clay (Casterton formation) prompted DST #2. The test resulted in the recovery of 1.3 bbl of sightly oil cut mud and mud tested at 29,000 ppm Chlorides was collected from the sample chamber. Drilling continued to 2088 meters in an attempt to confirm basement depth.

Interval	342 - 2088 Meters	8.1/2" Hole	No Casing Set

At 2088 meters, while still drilling pre-basement volcanics at approximately 2 m./hr, TD was declared. Ultimately after considering further testing of the Casterton and sidetracking the hole, P & A procedures commenced and were completed at 2100 hours on 3 June, 1995.

MUD:

Approximately 350 bbl of KCl/PHPA mud from the 12.1/4" section was available for use on commencement of the 8.1/2" hole section. While drilling this section, most of which consisted of the Eumeralla Formation (6 - 1463 meters), KCl concentration was increased from 3 - 5% by weight to 5 - 8% and PHPA maintained at 1.5 -2.0 ppb.

On no occasion of the twelve wiper trips or bit, BHA or test trips during this interval did the hole present problems. Only after stiffening the BHA at 1080 meters, in an effort to correct increasing hole deviation, was it necessary to ream the hole to bottom. Once reamed, no further significant tight hole was recorded.

All treatment to the system was by premixes of varying concentrations to maintain PHPA levels at between 1.0 - 2.0 ppb corrected for depletion and KCl % by weight between 5% at total depth to a maximum of 8% at the commencement of the section. Typically they ranged between 5.5 and 6.5 % by weight and on the evidence of the hole and the condition of the cuttings, was more than adequate. Mud weights were maintained at between 9.1 - 9.3 ppg to 1200 meters and thereafter increased to 9.5 ppg (maximum 9.6 ppg) with Barite additions. After DST #1 at 1486 meters it was reduced to 9.3 ppg and allowed, with the regulated use of solids control equipment, to drift to between 9.0 - 9.2 ppg.

Severe downhole losses were recorded on two occasions; firstly at 1531 meters and again at 1759 meters. Losses to the formation were first recorded at 1080 meters and continued with typical volumes of 30 - 40 bbl/day until approximately 1450 meters. At 1531 meters, some 70 meters into the Pretty Hill Formation, approximately 100 bbl was lost while running in the hole and immediately subsided until at 1759 meters when total losses were recorded. A 55 bbl 45 ppb Mica/Kwikseal pill was spotted and circulation regained. Over the following 7 days approximately 550 bbl of mud was lost to the formation and a total of 800 bbl between 1080 meters and total depth was recorded. LCM was maintained in the system with daily additions from 1905 meters to total depth with apparent effect.

At the commencement of the section new mud was prepared with 5 - 10 ppb Gel in the form of PHG. Further additions were not considered necessary.

Interval	342 - 2088 Meters	8.1/2" Hole	No Casing Set

SOLIDS CONTROL EQUIPMENT:

A single Triton shaker fitted with, firstly 3 x 50 mesh screens and beyond 780 meters with 3 x 84 mesh provided excellent primary solids control. A shortage of 84 mesh (not available) necessitated the use of 50 mesh towards the end of the well. Care in fitting the screens - a total of 5 screens were discarded-and their consequent long life was a feature. A 2 x 12" DEMCO desander, capable of handling 500 gpm each and a 12 x 4" SWECO desilter, 50 gpm each provided erratic but adequate sand and silt removal. As much as anything a four stage sand trap/settling tank system contributed to post shaker coarse solids removal. Solids build up (maximum MBT = 20 lb/bbl equivalent) was rarely excessive and never proved an intractable problem. With selective use of the solids control equipment, mud weights were able to be maintained within the ranges specified. Underflow weights for the desander were consistently in the range of 10.5 - 13.5 ppg with discard rates between 0.5 - 2.0 gpm.

CONCLUSIONS AND RECOMMENDATIONS:

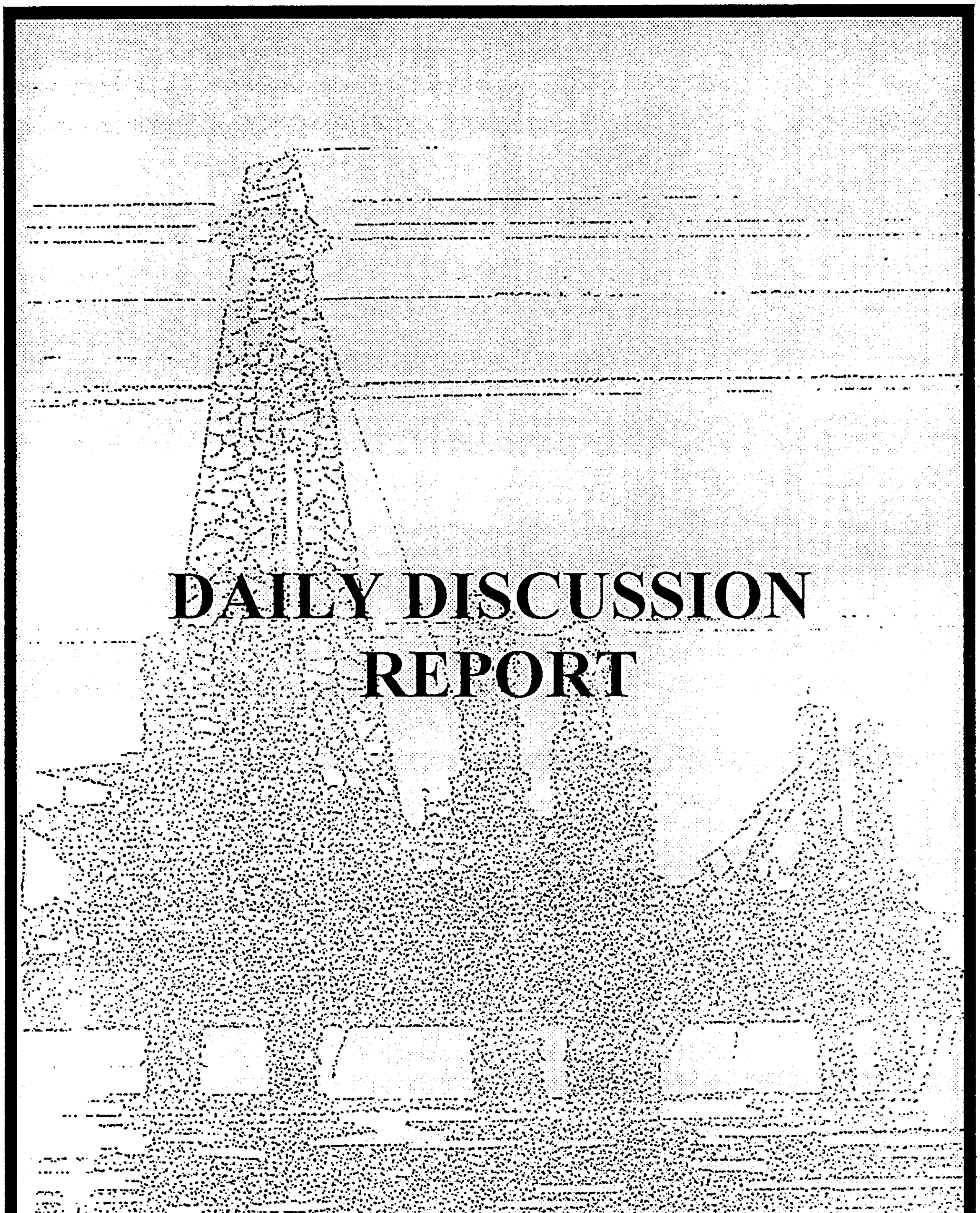
The caliper log plot showed considerable hole enlargement below the shoe to a depth of 740 meters, ranging erratically from 20% - 60% of nominal hole size. From 740 - 1680 meters an almost constant 5% - 10% enlargement was recorded. Thereafter to total depth, the hole can be described as in-gauge. No apparent lithological changes (nor pump pressures) account for these discrete intervals and may relate to the maturity of the sediments.

It has to be recognized that the Eumeralla Formation, identified to a depth of 1463 meters, is not as reactive as supposed. The Cl / K+ ratio, which indicates the degree of K+ exchange with the formation, was relatively constant and only below 1468 meters to approximately 1560 meters, while drilling a section of highly plastic kaolinitic clay was formation reactivity apparent.

For all the problems encountered in drilling Digby 1 ,none relate to the mud system or to the condition of the hole. As described all trips were trouble free and logging (over a total of approximately 48 hours) was completed, while unsatisfactorily, without incident.

Considering the unusual length of time it took to drill Digby 1 and the probable extent of lost circulation, as opposed to that recorded, the approximate 30% mud cost overrun is easily accounted for in the use of Barite, LCM and the additional volume required to replace volume lost downhole.

DAILY DISCUSSION REPORT



M-I AUSTRALIA PTY LTD

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION	Page: 1
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126	Well: W0003

Date : 09/05/95 Depth : Day : 1

Commence preparation of 500 bbl of 1.5 ppb PHPA/4% KCl system. PHPA/KCl mud to be used from spud. Mud properties to be adjusted once mixing completed and drilling commences.

Date : 10/05/95 Depth : 342.0 Day : 2

Digby 1 spudded 0100 hrs. Drill 12.25" hole to TD at 342m with regular surveys. Maximum deviation 0.75 deg. POOH for wiper trip. Prepare to run 9.625" casing.

Date : 11/05/95 Depth : 342.0 Day : 3

Continue to RIH. Work bridge at 327m- 6m fill. Circulate hole clean and POOH. Rig up and run and cement 9.625" casing - WOC. Nipple up BOPs.

Date : 12/05/95 Depth : 435.0 Day : 4

Continue to nipple up and test BOPs. Make up BHA and RIH - Tag cement at 319m. Drill floaat collar shoe track and cement with water drill 3m new hole. Displace hole to mud. Perform LOT and drill 8.5" hole to 435m.

Date : 13/05/95 Depth : 781.0 Day : 5

Drill 8.5" hole from 435m-656m POOH for 16 stand wiper trip - hole good. Drill from 656m-781m.

Date : 14/05/95 Depth : 924.0 Day : 6

Control drill (building angle) from 781m-896m. POOH for wiper trip-hole good. RIH-3m fill drill from 896m-944m.

Date : 15/05/95 Depth : 1040.0 Day : 7

Control drill (building angle - Maximum deviation = 2 deg) from 944m-1040m. Circulate hole clean and POOH - hole good. Make up stiff BHA and change bit. Commence RIH.

Date : 16/05/95 Depth : 1080.0 Day : 8

Continue to RIH. Precaution ream from 367m to bottom (STIFF ASSEMBLY) - 7m fill. Drill 8.5" hole from 1040m-1080m. Inspect drive shaft - failed transfer box. Wait on replacement.

Date : 17/05/95 Depth : 1080.0 Day : 9

Continue to wait on fabricated transfer box shaft. Circulate continuously at 165-170 gal/min and bottoms up every 4 hours at 300 gals/min. Install new shaft and trial.

Date : 18/05/95 Depth : 1195.0 Day : 10

Complete shaft replacement. POOH to shoe - hole good. Tight spot at 794m. RIH - hole good - 7m fill. Drill 8.5" hole from 1080m - 1231m with regular surveys. Maximum deviation at 1201m - 2.75 deg.

Date : 19/05/95 Depth : 1277.0 Day : 11

Control drill 8.5" hole from 1231m - 1247m. Deviation = 3.0 deg. POOH and re-make up BHA. RIH to 1237m. Wash to bottom - hole good. Control drill (3-5 m/hr) from 1247m-1269m. Maximum deviation = 3.25 deg. Control drill from 1269m-1277m.

Date : 20/05/95 Depth : 1373.0 Day : 12

Attempt to reduce hole deviation, currently 3 deg, by control drill at +/-5m/hr from 1277m - 1373m.

Date : 21/05/95 Depth : 1451.0 Day : 13

Control drill (4.5m/hr) from 1373m - 1418m. Make 13 stand wiper trip-hole good- 3m fill. Control drill from 1418m - 1451m (3-5m/hr) current hole deviation = 4 deg.

Date : 22/05/95 Depth : 1468.0 Day : 14

Control drill (4.25m/hr) from 1451m - 1468m. Circulate out sample and flow check drilliing break. Pull back stands, circulate and run back to bottom-no fill. POOH and lay out BHA, make up DST tool and RIH. Commence DST #1.

Date : 23/05/95 Depth : 1486.0 Day : 15

Continue DST #1 over interval 1460m-1468m. Shut in after 3 hrs, unseat packer and reverse circulate-no go. Conventional circulate pull test tool and retrieve sample - water only. Lay out test tool and make up stiff BHA. RIH - 2m fill. Drill "sticky" balling clay from 1468m - 1486m at 1 - 2 m/hr - bit and stabiliser balled?

Date : 24/05/95 Depth : 1523.0 Day : 16

Continue to drill 8.5" from 1486m-1489m at <1.0 m/hr. Bit stopped drilling. POOH tight hole at 683m. Break out bit and recover DST tool junk lodged in cones. Make up bit RR #5 and RIH. Drill from 1489m-1523m at 3-5m/hr through plastic reactive clay.

Date : 25/05/95 Depth : 1650.0 Day : 17

Continue to drill 8.5" hole from 1531m-1560m. Drill break-circulate up sample-minor sand. Drill from 1560m-1601m. Circulate drilling break. Pull back 2 stands and circulate up sand sample. Drill ahead from 1601 - 1664m @ 8.0 m/hr through Pretty Hill sands.

Date : 26/05/95   Depth : 1759.0   Day : 18

Drill from 1664m-1740m (dev = 5 deg). Wiper trip 12 stands - 1m. Fill. Drill from 1740m-1750m. Circulate and pull 2 stands, circulate up sample. Drill from 1750m-1753m. POOH for bit change. Make up bit #6 and RIH. Wash 13m to bottom. Drill from 1553m-1559m. Total loss of returns - 140 bbl lost. Observe well. Build volume with sump water and attempt to keep hole full-losses continue at 40 strokes/min. Mix and pump 55 bbl of 45 ppb Mica/Kwikseal pill. Able to circulate - observe well.

Date : 27/05/95   Depth : 1895.0   Day : 19

Circulate to balance mud weight. IN/OUT. Drill from 1759m-1772m-attempt to drill-high torque, very low ROP-work bit on bottom? Clear junk. Drill from 1772m - 1905m. Maximum deviation = 6 deg. Variable downhole losses continue approximately 5 bbl/hr.

Date : 28/05/95   Depth : 1951.0   Day : 20

Drill from 1905m - 1932m. Circulate 5 min. Pull 2 stands and circulate up sample-oil shoe. RIH-no fill. Drill from 1932m - 1951m. Circulate 5 min, pull 3 stands and circulate sample-OIL SHOW. Wiper trip to 1152m. Circulate and POOH for DST #2.

Date : 29/05/95   Depth : 1956.0   Day : 21

Pressure test BOPs and surface equipment. Make up and RIH with test tool. Work Stuck pipe at 1945m. Set packer and conduct DST #2. Cycle for 2 hrs and close sample chamber. Pull free and POOH. Test sample chamber contents - 29,000 ppm choride whole mud. Make up BHA and RIH. Drill from 1951m-1956m.

Date : 30/05/95   Depth : 2037.0   Day : 22

Drill 8.5" hole from 1956m - 2038m through possible weathered basement. Drill ahead to confirmed basement. Downhole losses continue at approximately 1 - 2 bbl/hr. Treat system with LCM. Current hole deviation = 5.5 deg.

Date : 31/05/95   Depth : 2087.0   Day : 23

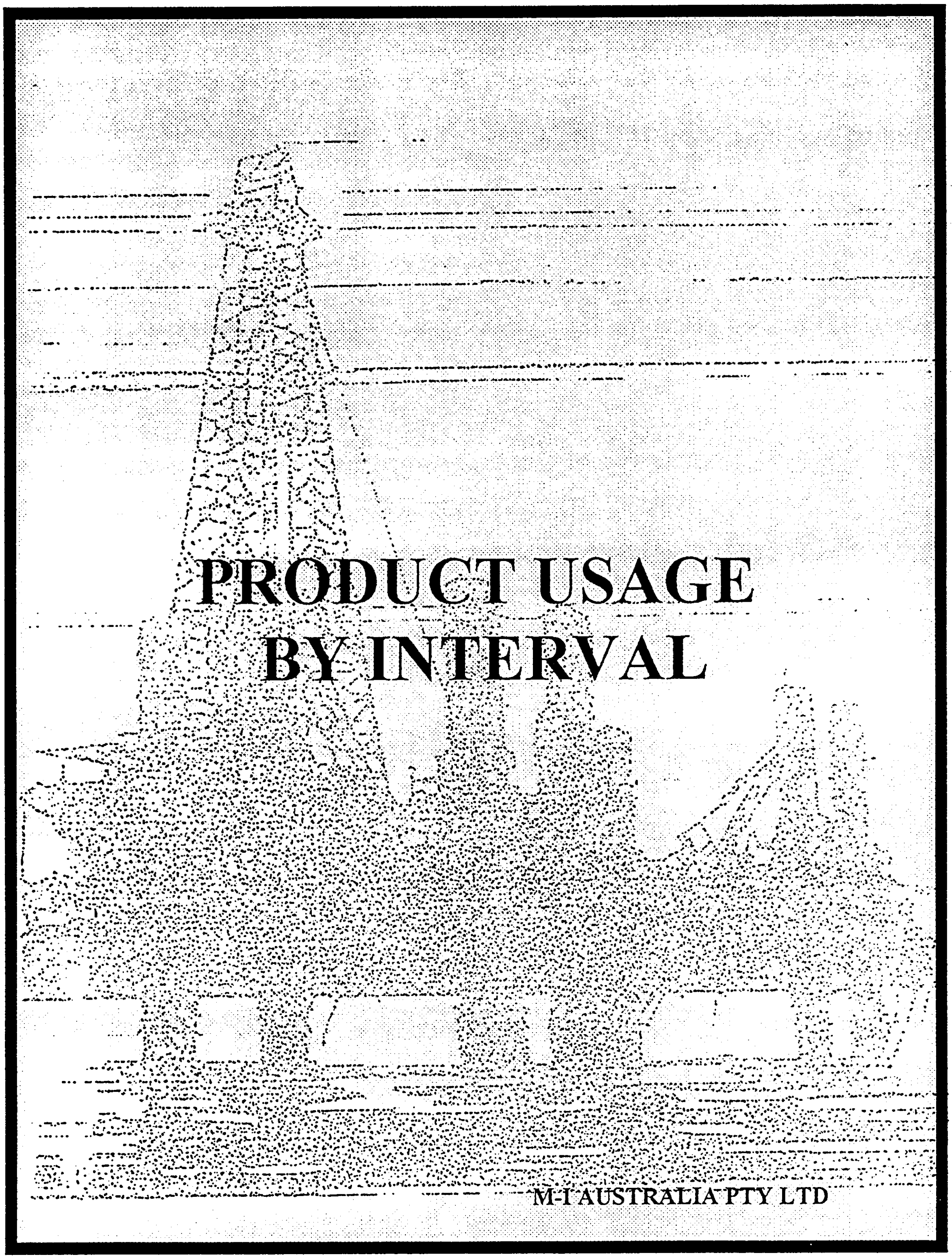
Continue to drill 8.5" hole from 2038m - 2088m through pre-basement? volcanics. POOH on wiper trip prior to logging.

Date : 01/06/95   Depth : 2088.0   Day : 24

Continue wiper trip to 1000m - hole good, no fill. Circulate bottoms up, survey (deviation = 5.5 deg) and POOH to log. Rig up and run logs #1 & 2.

Date : 02/06/95   Depth : 2088.0   Day : 25

Complete logging with velocity survey and side wall cores. Lay down BHA. RIH open ended and commence P & A with plug #1.


PRODUCT USAGE
BY INTERVAL
M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD | Contractor : CENTURY | Description : EXPLORATION

Well Name : DIGBY 1 | Field/Area : OTWAY BASIN | Location : PEP 105 & PEP 126

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 09/05/95 - 10/05/95, 0 - 342.0 m

12.1/4" Hole 9.5/8" Casing

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
CMC TG LV	25 KG SX	10	61.23	612.30
Caustic Soda	25 KG SX	5	22.35	111.75
M-I Gel	25 KG SX	48	9.44	453.12
Polypac	25 KG SX	5	131.74	658.70
Polyplus Powder	25 KG SX	20	173.25	3465.00
Potassm Chloride	25 KG SX	177	11.46	2028.42
Soda Ash	25 KG SX	2	14.31	28.62

*** INTERVAL WATER-BASE MUD COST TOTAL = 7,357.91

*** TOTAL MUD COST FOR INTERVAL = 7,357.91

Total Meters Drilled	:	**342 Meters**
Cost per Meter	:	**$21.51**
Total Days on Interval	:	**3 Days**
Cost per Day	:	**$2,452.63**
Total Barrels Added	:	**700 bbls**
Cost per Barrel	:	**$10.51**
Dilution Rate	:	**2.04 bbl/mtr**

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION

Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126

BREAKDOWN OF COST BY PRODUCT GROUP 09/05/95 - 10/05/95, 0 - 342.0 m

12.1/4" Hole   9.5/8" Casing

WATER BASE MUD PRODUCTS	*Cost*	*% Total*
1 - BENTONITE	453.12	6.2
2 - VISCOSIFIERS	658.70	9.0
3 - FLUID LOSS AGENTS	612.30	8.3
4 - SALTS	2,028.42	27.6
5 - ENCAPSULATORS	3,465.00	47.1
6 - ALKALIES	140.37	1.9
WATER BASE MUD TOTAL COST	7,357.91	100.0

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD
Contractor : CENTURY
Description : EXPLORATION

Well Name : DIGBY 1
Field/Area : OTWAY BASIN
Location : PEP 105 & PEP 126

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 11/05/95 - 02/06/95, 342.0 - 2088.0 m

8.1/2" Hole   No Casing Set

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
CMC TG LV	25 KG SX	7	61.23	428.61
Caustic Soda	25 KG SX	14	22.35	312.90
Conqor 303	25 LT DM	1	51.27	51.27
Cronox 2-100	208 LT DM	1	871.25	871.25
Kwik Seal M	40 LB SX	71	40.89	2903.19
M-I Bar	25 KG SX	440	5.53	2433.20
M-I Gel	25 KG SX	111	9.44	1047.84
Mica Medium	50 LB SX	62	18.01	1116.62
OS-1	25 KG SX	39	50.95	1987.05
Polypac	25 KG SX	33	131.74	4347.42
Polyplus Powder	25 KG SX	117	173.25	20270.25
Potassm Chloride	25 KG SX	1320	11.46	15127.20
Soda Ash	25 KG SX	16	14.31	228.96
Sodium Bicarb	25 KG SX	21	15.34	322.14
XCD	25 KG SX	12	422.29	5067.48

*** INTERVAL WATER-BASE MUD COST TOTAL = 56,515.38

*** TOTAL MUD COST FOR INTERVAL = 56,515.38

Total Meters Drilled	:	**1,746 Meters**
Cost per Meter	:	**$32.37**
Total Days on Interval	:	**23 Days**
Cost per Day	:	**$2,457.19**
Total Barrels Added	:	**3,381 bbls**
Cost per Barrel	:	**$16.72**
Dilution Rate	:	**1.94 bbl/mtr**

M-I DRILLING FLUIDS PRODUCT SUMMARY

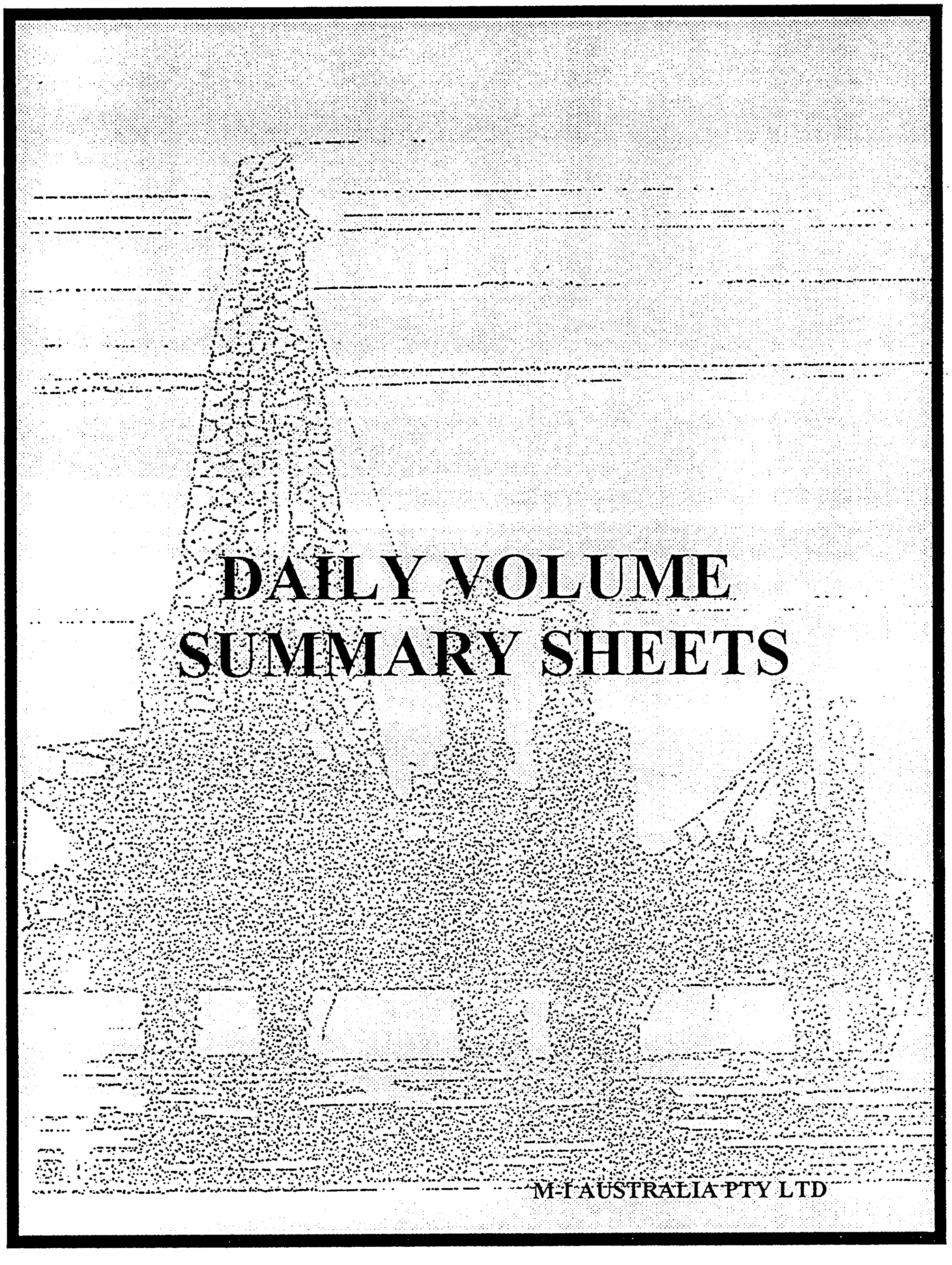
Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION

Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126

BREAKDOWN OF COST BY PRODUCT GROUP 11/05/95 - 02/06/95, 342.0 - 2088.0 m

8.1/2" Hole   No Casing Set

WATER BASE MUD PRODUCTS	*Cost*	*% Total*
1 - WEIGHT MATERIAL	2,433.20	4.3
2 - BENTONITE	1,047.84	1.9
3 - VISCOSIFIERS	9,414.90	16.7
4 - FLUID LOSS AGENTS	428.61	0.8
5 - SALTS	15,127.20	26.8
6 - ENCAPSULATORS	20,270.25	35.9
7 - ALKALIES	864.00	1.5
8 - LCM	4,019.81	7.1
9 - MISC	2,909.57	5.1
WATER BASE MUD TOTAL COST	56,515.38	100.0


DAILY VOLUME
SUMMARY SHEETS
M-I AUSTRALIA PTY LTD

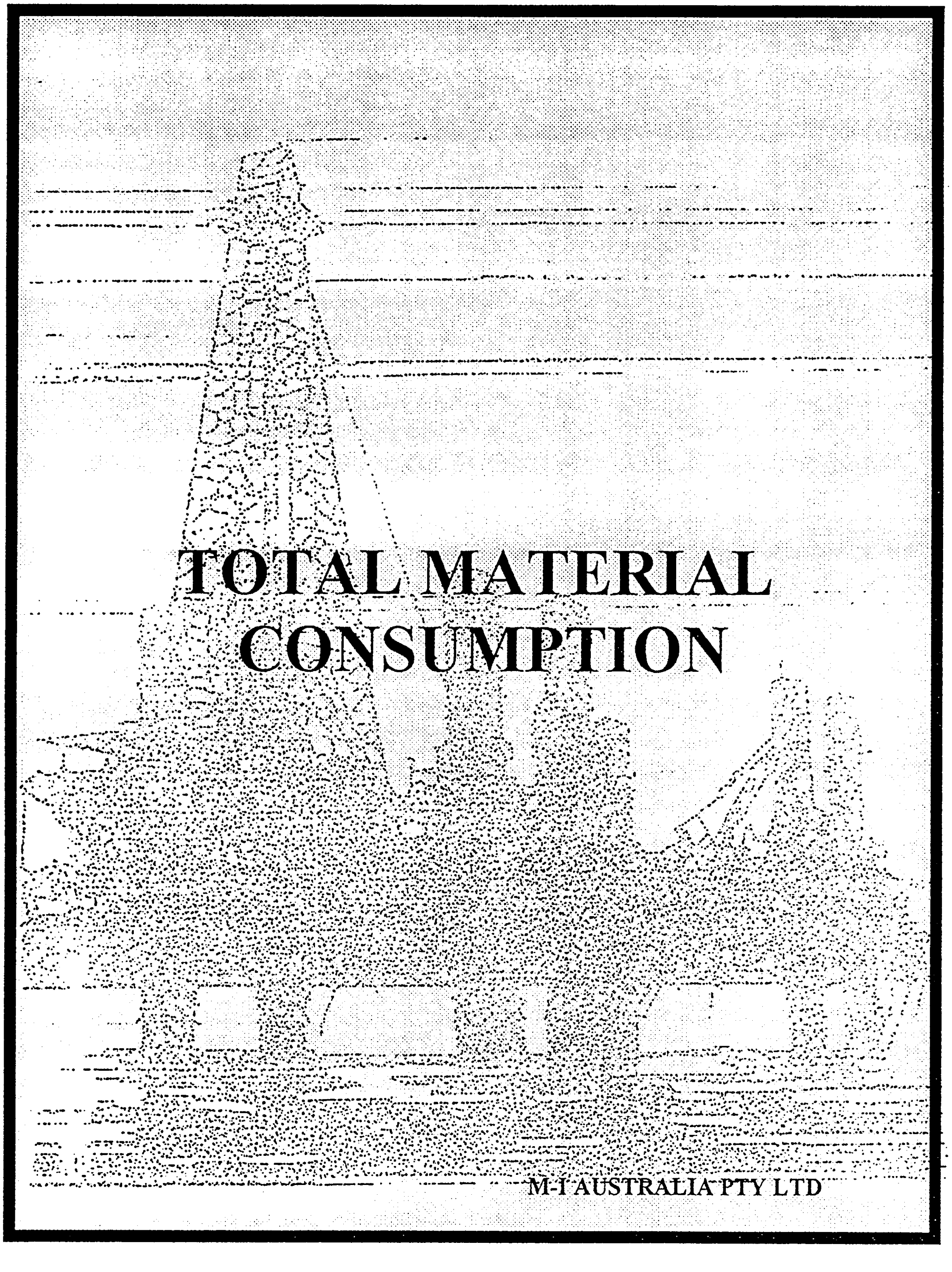
12.1/4" Hole

	Mud Volume Status					Mud Volume Built					Mud Volume Lost						
Date 1995	Depth Meters	Hole	Surf Active	Res	Total Vol	Water	Mud Built	Increase from Barite	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Casing Plugs	Daily Total	Cummul Lost
9-May	-	-		450	450		450		450	450						0	0
10-May	342	145	210	36	391		125		125	575	60	94	30			184	184
11-May	342	D/W	383		383		125		125	700		43	90			133	317

8.1/2" Hole

	Mud Volume Status					Mud Volume Built					Mud Volume Lost						
Date 1995	Depth Meters	Hole	Surf Active	Res	Total Vol	Water	Mud Built	Increase from Barite	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Casing Plugs	Daily Total	Cummul Lost
12-May	435	80	256		336		35		35	735	30	30	22			82	399
13-May	781	150	240		390		250		250	985	80	90	26			196	595
14-May	944	183	198	185	566		250		250	1235	60	50	9			119	714
15-May	1040	243	232	75	550		55		55	1290	31	40				71	785
16-May	1080	217	224	127	568		90		90	1380	7	50	15			72	857
17-May	1080	217	224	90	531				0	1380		7		30		37	894
18-May	1231	250	200	100	550		140		140	1520		65	20	36		121	1015
19-May	1277	258	215	65	538		70		70	1590		39	15	30		84	1099
20-May	1373	280	223	70	573		90		90	1680		30	5	18		53	1152
21-May	1451	295	287	80	662	28	120	2	150	1830	5	30	18	8		61	1213
22-May	1468	300	313	42	655				0	1830		7				7	1220
23-May	1486	304	392		696		100		100	1930	20	25	14			59	1279
24-May	1531	312	304	43	659		130		130	2060		30	35	102		167	1446
25-May	1664	349	205	100	654	25	100		125	2185	22	60	48			130	1576
26-May	1759	361	259	60	680	181	100		281	2466	34	36	15	170		255	1831
27-May	1905	392	270	93	755		250		250	2716	25	50	5	95		175	2006
28-May	1951	443	178	133	754		210		210	2926	15	30	15	151		211	2217
29-May	1956	393	216	125	734		90		90	3016	10	20	5	75		110	2327
30-May	2038	421	232	168	821		178	2	180	3196	30	20	10	33		93	2420
31-May	2088	432	258	128	818		95		95	3291	45	20		33		98	2518
1-Jun	2088	485	145	68	698				0	3291		15	90	15		120	2638
2-Jun	2088	432	185	124	741		90		90	3381		32		15		47	2685
3-Jun	2088	280	144	105	529				0	3381		25	187			212	2897

TOTAL MATERIAL CONSUMPTION



M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD | Contractor : CENTURY | Description : EXPLORATION

Well Name : DIGBY 1 | Field/Area : OTWAY BASIN | Location : PEP 105 & PEP 126

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 09/05/95 - 02/06/95, 0 - 2088.0 m

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
CMC TG LV	25 KG SX	17	61.23	1040.91
Caustic Soda	25 KG SX	19	22.35	424.65
Conqor 303	25 LT DM	1	51.27	51.27
Cronox 2-100	208 LT DM	1	871.25	871.25
Kwik Seal M	40 LB SX	71	40.89	2903.19
M-I Bar	25 KG SX	440	5.53	2433.20
M-I Gel	25 KG SX	159	9.44	1500.96
Mica Medium	50 LB SX	62	18.01	1116.62
OS-1	25 KG SX	39	50.95	1987.05
Polypac	25 KG SX	38	131.74	5006.12
Polyplus Powder	25 KG SX	137	173.25	23735.25
Potassm Chloride	25 KG SX	1497	11.46	17155.62
Soda Ash	25 KG SX	18	14.31	257.58
Sodium Bicarb	25 KG SX	21	15.34	322.14
XCD	25 KG SX	12	422.29	5067.48

*** INTERVAL WATER-BASE MUD COST TOTAL = 63,873.29

*** TOTAL MUD COST FOR INTERVAL = 63,873.29

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD **Contractor :** CENTURY **Description :** EXPLORATION

Well Name : DIGBY 1 **Field/Area :** OTWAY BASIN **Location :** PEP 105 & PEP 126

BREAKDOWN OF COST BY PRODUCT GROUP 09/05/95 - 02/06/95, 0 - 2088.0 m

WATER BASE MUD PRODUCTS	*Cost*	*% Total*
1 - WEIGHT MATERIAL	2,433.20	3.8
2 - BENTONITE	1,500.96	2.3
3 - VISCOSIFIERS	10,073.60	15.8
4 - FLUID LOSS AGENTS	1,040.91	1.6
5 - SALTS	17,155.62	26.9
6 - ENCAPSULATORS	23,735.25	37.2
7 - ALKALIES	1,004.37	1.6
8 - LCM	4,019.81	6.3
9 - MISC	2,909.57	4.6
WATER BASE MUD TOTAL COST	63,873.29	100.0

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES LTD | Contractor : CENTURY | Description : EXPLORATION

Well Name : DIGBY 1 | Field/Area : OTWAY BASIN | Location : PEP 105 & PEP 126

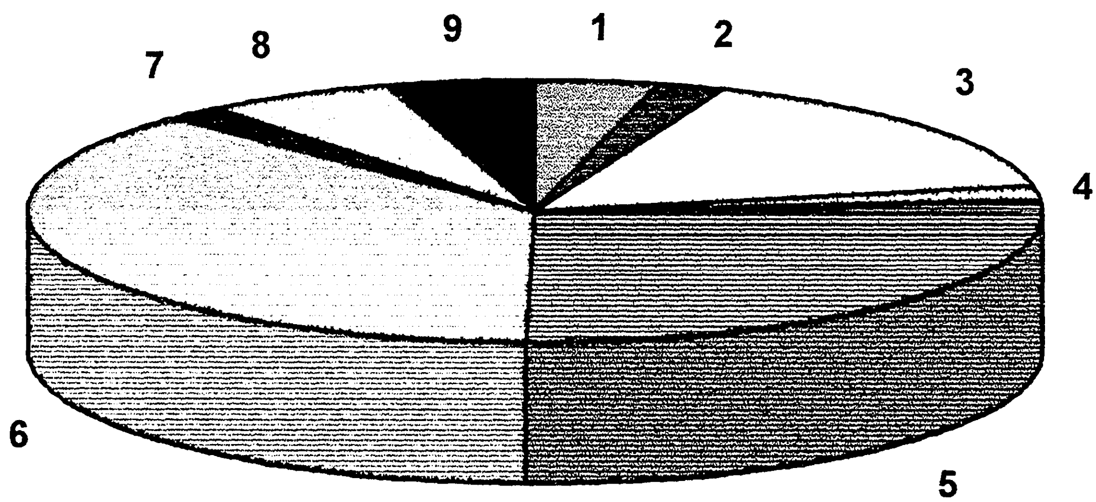
BREAKDOWN OF PRODUCT USAGE BY GROUP 09/05/95 - 02/06/95, 0 - 2088.0 m

WATER BASE MUD

PRODUCT CATEGORY	PRODUCTS USED		
WEIGHT MATERIAL	M-I Bar		
BENTONITE	M-I Gel		
VISCOSIFIERS	Polypac	XCD	
FLUID LOSS AGENTS	CMC TG LV		
SALTS	Potassm Chloride		
ENCAPSULATORS	Polyplus Powder		
ALKALIES	Caustic Soda	Soda Ash	Sodium Bicarb
LCM	Kwik Seal M	Mica Medium	
MISC	Conqor 303	Cronox 2-100	OS-1

	Operator : GFE RESOURCES LTD Well Name : DIGBY 1 Description : EXPLORATION Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126	*COST ANALYSIS*

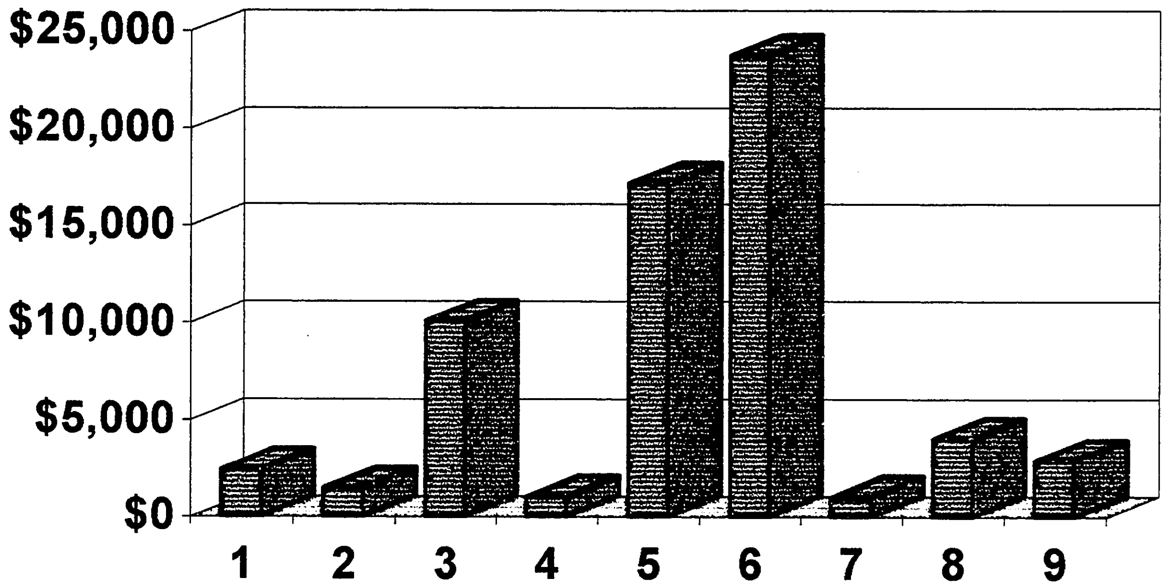
BREAKDOWN OF COST BY PRODUCT GROUP 09/05/95 - 02/06/95, 0 - 2088.0 m



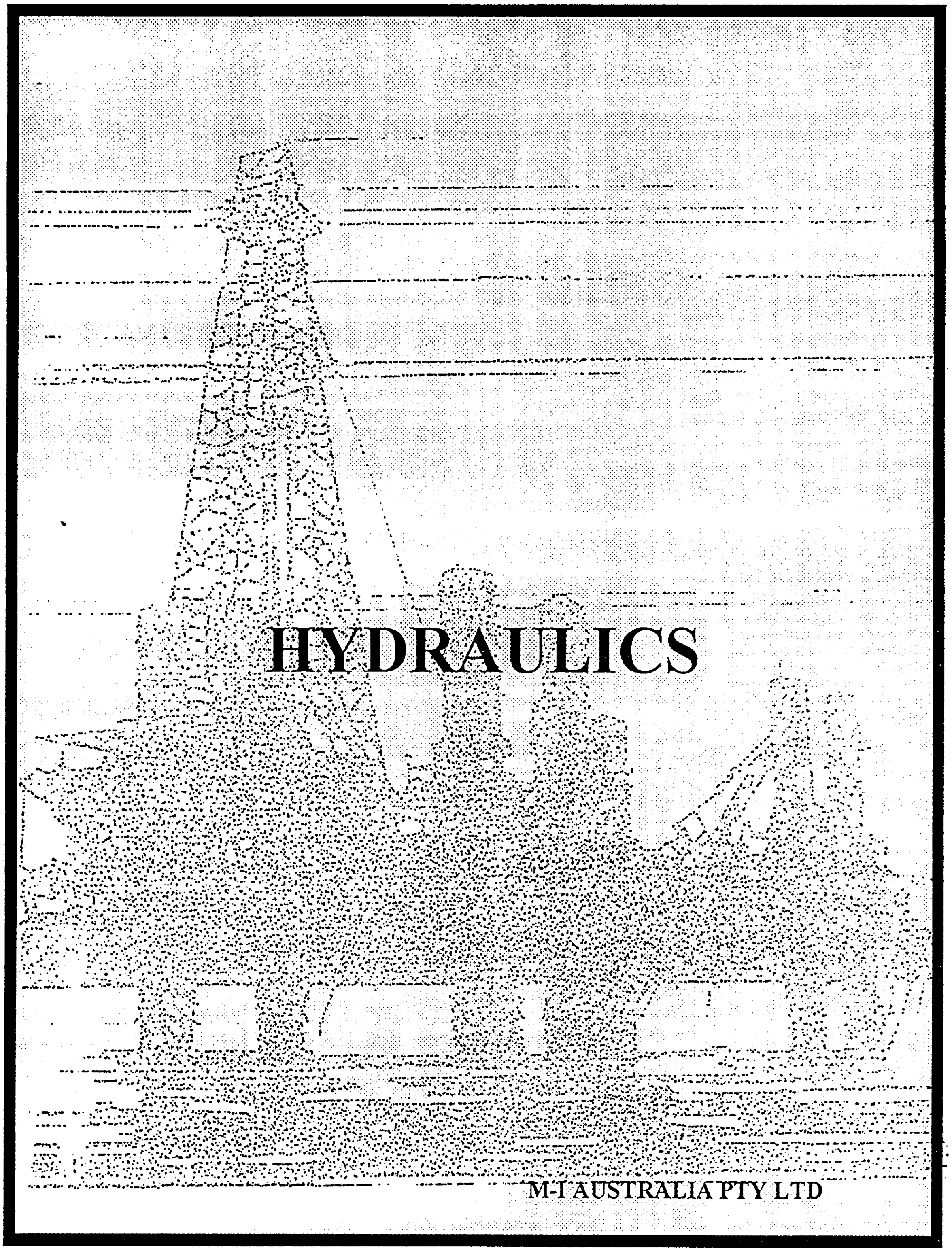
WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	*2,433.20*	*3.8*
2 - BENTONITE	*1,500.96*	*2.3*
3 - VISCOSIFIERS	*10,073.60*	*15.8*
4 - FLUID LOSS AGENTS	*1,040.91*	*1.6*
5 - SALTS	*17,155.62*	*26.9*
6 - ENCAPSULATORS	*23,735.25*	*37.2*
7 - ALKALIES	*1,004.37*	*1.6*
8 - LCM	*4,019.81*	*6.3*
9 - MISC	*2,909.57*	*4.6*
WATER BASE MUD TOTAL COST	*63,873.29*	*100.0*

	Operator : GFE RESOURCES LTD Well Name : DIGBY 1 Description : EXPLORATION Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126	*COST ANALYSIS*

BREAKDOWN OF COST BY PRODUCT GROUP 09/05/95 - 02/06/95, 0 - 2088.0 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	*2,433.20*	*3.8*
2 - BENTONITE	*1,500.96*	*2.3*
3 - VISCOSIFIERS	*10,073.60*	*15.8*
4 - FLUID LOSS AGENTS	*1,040.91*	*1.6*
5 - SALTS	*17,155.62*	*26.9*
6 - ENCAPSULATORS	*23,735.25*	*37.2*
7 - ALKALIES	*1,004.37*	*1.6*
8 - LCM	*4,019.81*	*6.3*
9 - MISC	*2,909.57*	*4.6*
WATER BASE MUD TOTAL COST	*63,873.29*	*100.0*



HYDRAULICS

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS HYDRAULICS RECAP

Operator: GFE RESOURCES LTD **Contractor:** CENTURY **Description:** EXPLORATION

Well Name: DIGBY 1 **Field/Area:** OTWAY BASIN **Location:** PEP 105 & PEP 126

*Date	09/05/95	10/05/95	11/05/95	12/05/95	13/05/95	14/05/95	15/05/95	16/05/95	17/05/95
*Depth	0.0	342.0	342.0	435.0	781.0	924.0	1040.0	1080.0	1080.0
*Days Since Spud	1	2	3	4	5	6	7	8	9
*RHEOLOGICAL PROPERTIES									
Mud Wt -lb/gal	8.6	8.9	8.9	9.1	9.4	9.1	9.3	9.3	9.3
Plastic Visc -cps	8	17	22	18	18	19	19	18	20
Yield Point -lb/100ft2	5	14	19	17	12	14	12	12	15
3-rpm Rdg -Fann deg	1	2	2	2	1	2	1	2	1
np Value	0.691	0.630	0.619	0.598	0.678	0.656	0.689	0.678	0.652
Kp -lb-sec^n/100ft2	0.1860	0.6490	0.9195	0.8952	0.4677	0.5902	0.4496	0.4677	0.6416
na Value	0.557	0.595	0.656	0.622	0.739	0.609	0.746	0.588	0.772
Ka -lb-sec^n/100ft2	0.4301	0.8083	0.7321	0.7743	0.3199	0.7906	0.3162	0.8178	0.3029
*FLOW DATA									
Flow Rate -gal/min	0	450	0	250	250	250	250	300	165
Pump Pressure -psi	0	700	0	1250	1350	1400	1400	1400	450
Pump -hhp	***	184	***	182	197	204	204	245	43
*PRESSURE LOSSES									
Drill String -psi	***	***	***	224	278	288	310	416	148
Bit -psi	***	220	***	680	700	680	690	1000	300
Annulus -psi	***	***	***	25	26	41	33	49	26
Total System -psi	***	***	***	929	1004	1009	1033	1465	474
*BIT HYDRAULICS									
Nozzles -1/32 inch	/ /	20/20/18	/ /	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -%	***	32	***	54	52	48	49	71	67
Bit -hhp	***	59	***	99	102	99	101	174	29
Bit HSI (Index)	***	0.50	***	1.70	1.80	1.70	1.80	3.10	0.50
Jet Velocity -m/sec	***	51.0	***	87.8	87.8	87.8	87.8	105.4	58.0
Impact Force -lbs	***	347	***	339	350	339	347	499	151
*DRILL COLLARS ANNULUS									
Velocity -m/min	***	***	***	56.3	56.3	56.3	56.3	67.5	37.1
Critical Vel -m/min	***	***	***	110.1	85.8	106.6	88.1	99.7	94.4
Reynolds Number	***	***	***	1038	1445	1084	1396	1538	767
Crit Re (Lam - Tran)	***	***	***	2619	2458	2636	2448	2664	2412
*DRILL PIPE ANNULUS									
Velocity -m/min	***	***	***	33.9	33.9	33.9	33.9	40.7	22.4
Critical Vel -m/min	***	***	***	83.3	59.7	81.3	61.0	77.0	64.0
Reynolds Number	***	***	***	759	1205	781	1173	1082	664
Crit Re (Lam - Tran)	***	***	***	2619	2458	2636	2448	2664	2412
*HOLE CLEANING									
Slip Velocity -m/min	***	***	***	16.7	19.7	17.2	19.9	17.7	19.5
Rising Velocity -m/min	***	***	***	17.2	14.2	16.7	14.0	23.0	2.8
Lifting Capacity -%	***	***	***	51	42	49	41	57	13
Cuttings Conc -%	***	***	***	2.87	2.54	0.93	1.09	0.86	***
Penetration Rate -m/hr	***	22.0	***	22.6	16.5	7.1	7.0	9.0	***
*CASING SHOE PRESSURES									
ECD -lb/gal	***	***	***	9.3	9.5	9.3	9.4	9.5	9.4
ECD+Cuttings -lb/gal	***	***	***	9.7	9.8	9.4	9.5	9.6	***
*TOTAL DEPTH PRESSURES									
ECD -lb/gal	***	***	***	9.4	9.6	9.4	9.5	9.6	9.4
ECD+Cuttings -lb/gal	***	***	***	9.8	9.9	9.5	9.6	9.7	***

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM W0003 July 11, 1995

M-I DRILLING FLUIDS HYDRAULICS RECAP

Operator : GFE RESOURCES LTD | Contractor : CENTURY | Description : EXPLORATION

Well Name : DIGBY 1 | Field/Area : OTWAY BASIN | Location : PEP 105 & PEP 126

*Date	18/05/95	19/05/95	20/05/95	21/05/95	22/05/95	23/05/95	24/05/95	25/05/95	26/05/95
*Depth	1195.0	1277.0	1373.0	1451.0	1468.0	1486.0	1523.0	1650.0	1759.0
*Days Since Spud	10	11	12	13	14	15	16	17	18
*RHEOLOGICAL PROPERTIES									
Mud Wt -lb/gal	9.5	9.5	9.5	9.5	9.5	9.4	9.3	9.3	9.4
Plastic Visc -cps	23	21	22	19	23	17	20	20	20
Yield Point -lb/100ft2	16	18	20	22	24	18	17	15	16
3-rpm Rdg -Fann deg	2	3	4	4	4	4	3	4	4
np Value	0.668	0.621	0.607	0.549	0.574	0.571	0.623	0.652	0.637
Kp -lb-sec^n/100ft2	0.6442	0.8651	1.0154	1.4259	1.3956	1.0624	0.8108	0.6416	0.7230
na Value	0.645	0.557	0.511	0.505	0.535	0.471	0.546	0.471	0.477
Ka -lb-sec^n/100ft2	0.7452	1.2904	1.8557	1.8716	1.7833	1.9795	1.3147	1.9795	1.9599
*FLOW DATA									
Flow Rate -gal/min	325	325	325	325	325	325	325	325	625
Pump Pressure -psi	1550	1600	1550	1600	1625	1525	1550	1625	1600
Pump -hhp	294	303	294	303	308	289	294	308	583
*PRESSURE LOSSES									
Drill String -psi	534	522	542	516	556	508	550	580	1729
Bit -psi	1190	1190	1190	1190	1190	1180	1170	1170	4360
Annulus -psi	65	79	98	101	111	93	89	102	148
Total System -psi	1789	1791	1830	1807	1857	1781	1809	1852	6237
*BIT HYDRAULICS									
Nozzles -1/32 inch	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -%	77	75	77	75	73	77	75	72	273
Bit -hhp	226	226	226	226	226	224	221	221	1591
Bit HSI (Index)	4.00	4.00	4.00	4.00	4.00	3.90	3.90	3.90	28.00
Jet Velocity -m/sec	114.2	114.2	114.2	114.2	114.2	114.2	114.2	114.2	219.5
Impact Force -lbs	598	598	598	598	598	592	586	586	2190
*DRILL COLLARS ANNULUS									
Velocity -m/min	73.2	73.2	73.2	73.2	73.2	73.2	73.2	73.2	140.7
Critical Vel -m/min	113.4	120.7	130.6	128.8	139.0	119.2	119.0	120.0	120.9
Reynolds Number	1428	1314	1169	1192	1069	1340	1342	1326	3546
Crit Re (Lam - Tran)	2586	2707	2770	2778	2737	2825	2723	2825	2816
*DRILL PIPE ANNULUS									
Velocity -m/min	44.1	44.1	44.1	44.1	44.1	44.1	44.1	44.1	84.7
Critical Vel -m/min	84.4	95.0	105.6	104.5	110.9	98.5	94.3	99.1	99.6
Reynolds Number	1072	893	754	764	708	826	900	818	2202
Crit Re (Lam - Tran)	2586	2707	2770	2778	2737	2825	2723	2825	2816
*HOLE CLEANING									
Slip Velocity -m/min	15.2	13.0	11.0	11.1	10.5	12.1	13.7	12.2	11.9
Rising Velocity -m/min	28.9	31.0	33.1	33.0	33.6	32.0	30.4	31.9	72.9
Lifting Capacity -%	65	70	75	75	76	73	69	72	86
Cuttings Conc -%	0.62	0.23	0.33	0.26	0.28	0.14	0.17	0.58	0.38
Penetration Rate -m/hr	8.2	3.3	5.0	4.0	4.3	2.0	2.3	8.5	12.5
*CASING SHOE PRESSURES									
ECD -lb/gal	9.7	9.8	9.8	9.8	9.8	9.7	9.6	9.6	9.8
ECD+Cuttings -lb/gal	9.8	9.8	9.9	9.8	9.9	9.7	9.6	9.6	9.8
*TOTAL DEPTH PRESSURES									
ECD -lb/gal	9.8	9.9	9.9	9.9	9.9	9.8	9.6	9.7	9.9
ECD+Cuttings -lb/gal	9.9	9.9	10.0	9.9	10.0	9.8	9.7	9.7	9.9

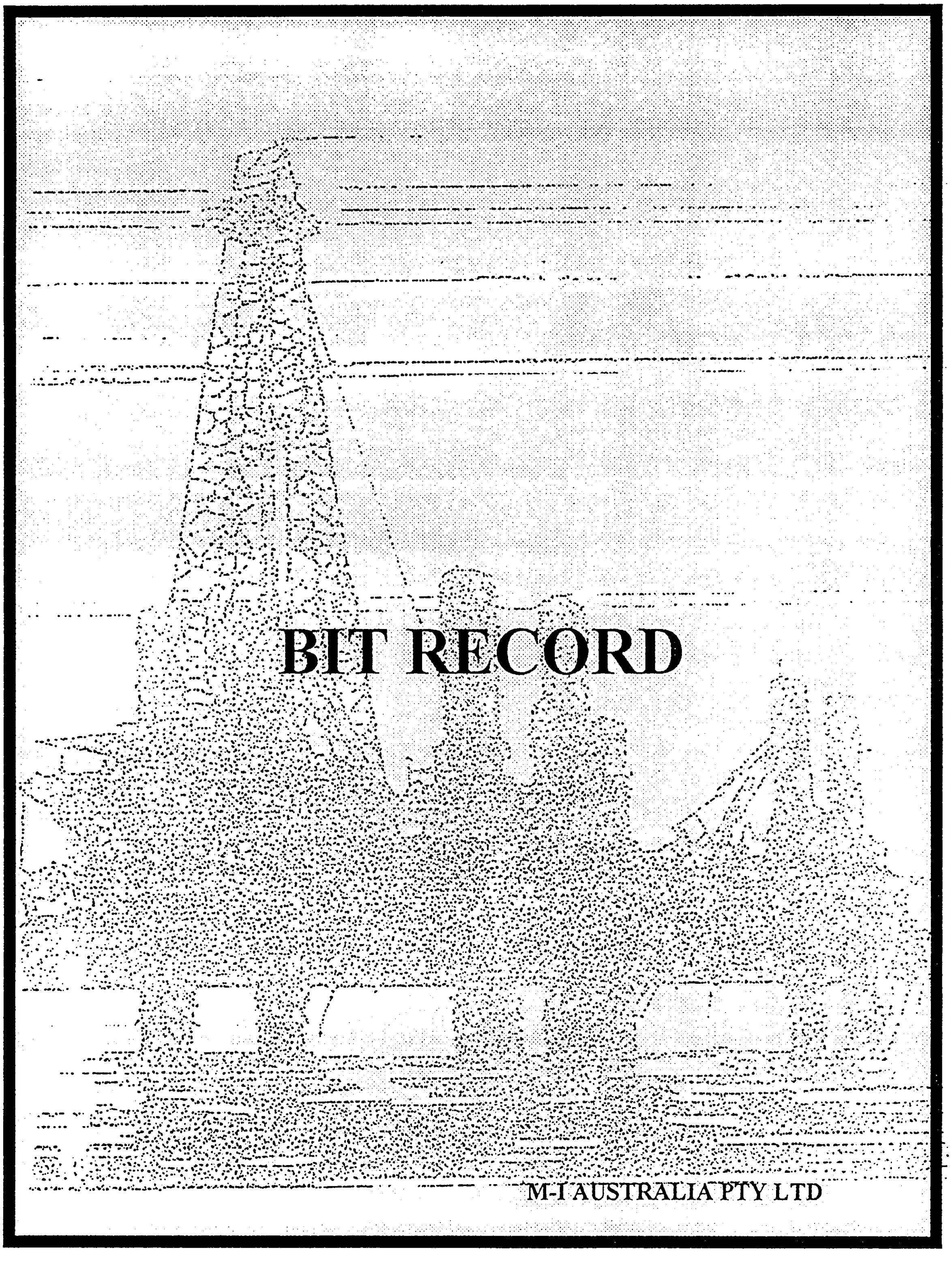
M-I DRILLING FLUIDS HYDRAULICS RECAP

Operator: GFE RESOURCES LTD **Contractor:** CENTURY **Description:** EXPLORATION

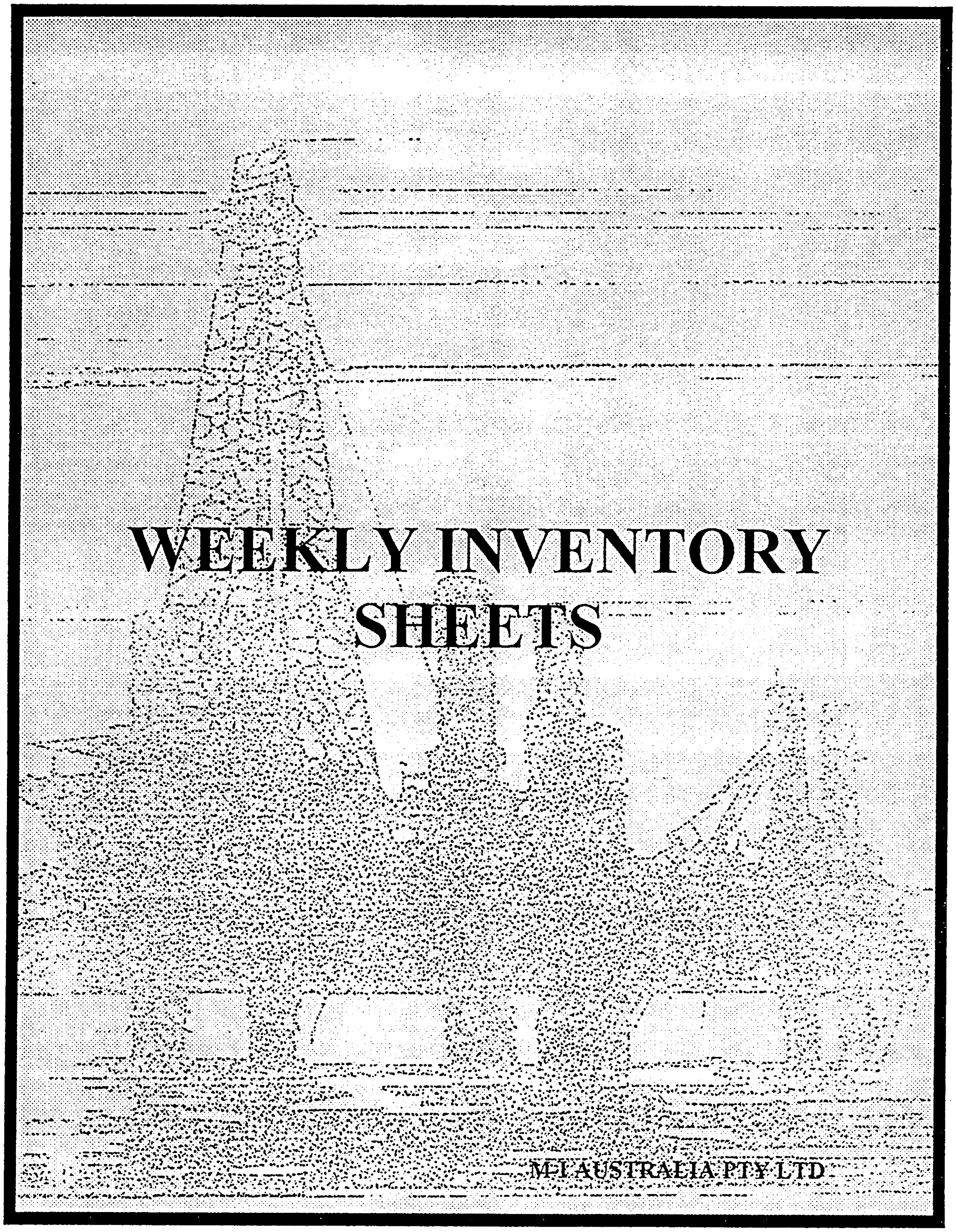
Well Name: DIGBY 1 **Field/Area:** OTWAY BASIN **Location:** PEP 105 & PEP 126

*Date	27/05/95	28/05/95	29/05/95	30/05/95	31/05/95	01/06/95	02/06/95
*Depth	1895.0	1951.0	1956.0	2037.0	2087.0	2088.0	2088.0
*Days Since Spud	19	20	21	22	23	24	25
*RHEOLOGICAL PROPERTIES							
Mud Wt -lb/gal	9.1	9.1	9.1	9.1	9.1	9.1	9.2
Plastic Visc -cps	16	15	16	16	15	14	16
Yield Point -lb/100ft2	10	13	15	15	13	12	14
3-rpm Rdg -Fann deg	2	3	3	2	3	3	3
np Value	0.691	0.619	0.600	0.600	0.619	0.621	0.616
Kp -lb-sec^n/100ft2	0.3719	0.6312	0.7843	0.7843	0.6312	0.5767	0.6858
na Value	0.557	0.485	0.507	0.595	0.485	0.469	0.500
Ka -lb-sec^n/100ft2	0.8603	1.4511	1.3997	0.8083	1.4511	1.4897	1.4161
*FLOW DATA							
Flow Rate -gal/min	300	300	300	300	300	300	0
Pump Pressure -psi	1400	1390	1325	1325	1400	1400	0
Pump -hhp	245	243	232	232	245	245	***
*PRESSURE LOSSES							
Drill String -psi	514	496	502	513	515	506	***
Bit -psi	970	970	970	970	970	970	***
Annulus -psi	70	88	94	83	94	90	***
Total System -psi	1554	1554	1566	1566	1579	1566	***
*BIT HYDRAULICS							
Nozzles -1/32 inch	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11	11/11/11
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -%	70	70	73	73	70	70	***
Bit -hhp	170	170	170	170	170	170	***
Bit HSI (Index)	3.00	3.00	3.00	3.00	3.00	3.00	***
Jet Velocity -m/sec	105.4	105.4	105.4	105.4	105.4	105.4	***
Impact Force -lbs	488	488	488	488	488	488	***
*DRILL COLLARS ANNULUS							
Velocity -m/min	67.5	67.5	67.5	67.5	67.5	67.5	***
Critical Vel -m/min	93.9	104.2	109.8	103.0	104.2	100.3	***
Reynolds Number	1682	1454	1342	1467	1454	1542	***
Crit Re (Lam - Tran)	2707	2806	2775	2655	2806	2828	***
*DRILL PIPE ANNULUS							
Velocity -m/min	40.7	40.7	40.7	40.7	40.7	40.7	***
Critical Vel -m/min	73.9	85.5	89.0	79.2	85.5	83.0	***
Reynolds Number	1143	911	862	1040	911	949	***
Crit Re (Lam - Tran)	2707	2806	2775	2655	2806	2828	***
*HOLE CLEANING							
Slip Velocity -m/min	19.6	16.3	15.3	17.7	16.3	17.0	***
Rising Velocity -m/min	21.1	24.4	25.4	22.9	24.4	23.6	***
Lifting Capacity -%	52	60	62	56	60	58	***
Cuttings Conc -%	0.86	0.46	0.23	0.35	0.19	***	***
Penetration Rate -m/hr	8.3	5.1	2.7	3.7	2.1	***	***
*CASING SHOE PRESSURES							
ECD -lb/gal	9.3	9.3	9.3	9.3	9.3	9.3	***
ECD+Cuttings -lb/gal	9.4	9.4	9.4	9.3	9.3	***	***
*TOTAL DEPTH PRESSURES							
ECD -lb/gal	9.3	9.4	9.4	9.3	9.4	9.4	***
ECD+Cuttings -lb/gal	9.4	9.4	9.4	9.4	9.4	***	***

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM W0003 July 11, 1995


BIT RECORD
M-I AUSTRALIA PTY LTD

Contractor - Century Rig 11					Location - Otway Basin, Victoria								Well : Digby 1		
Operator : GFE Resources Ltd					Permit - PEP 105 & PEP 126								Engineer: P Marshall		
Pump Name		Size	Liner Size/Stroke		Drill Collars OD x ID x Length		Pipe Drill		Tool Joint Type		Wt/Ft		Pump Output bbls/Stks		
National		7P50/8P80	5.5/7.5 #1 6.0/8.5 #2		6.1/4 x 161m		4.1/2		-		16.6		0.054 / 0.07		
Date 1995	Run No	Size	Make	Type	Jet Size	Depth Out	Meters Drilled	Hours Run	Wt on Bit	R P M	Pump Pressure	Vert Dev	Stks/min	Ann Vel m/min	Condition T-B-G
10-May	1	12.1/4	Varel	L114	2x20,1x18	342	331	15.5	11/20	120	6-800	0.75	99/77	39	1-2-1/16
12-May	2	8.1/2	HTC	ATJ05	3 x 11	1040	709	56	15/18k	100/110	1250/1400	2-Jan	100 #1	43	1-5-IN
15-May	3	8.1/2	Varel	ETC 417m	3 x 11	1247	428	82	10/17	110	1400/1625	4-Jan	110	47	1-1-IN
20-May	3RR	8.1/2	Varel	ETD 417m	3 x 11	1468	221	56	15/17	125	1600	4	109	47	1-5-IN
24-May	4	8.1/2	Varel	ETD 417m	3 x 11	1489	21	15	23/30	90/110	1600	4	109	47	L-S-R
25-May	5RR	8.1/2	Varel	ETD 417m	3 x 11	1752	263	36.5	16/20	90/110	May-04	5-25	110	47	1-5-1/4
27-May	6	8.1/2	HTC	ATJ05	3 x 11	1951	19	26	18/20	100	1350	6	101 #2	43	1-4-IN
30-May	6RR	8.1/2	HTC	ATJ05	3 x 11	2088	136	47	25/27	55	1325	5.5	101 #2	43	



WEEKLY INVENTORY SHEETS

M-I AUSTRALIA PTY LTD

Operator : GFE Resources **WEEKLY INVENTORY SHEETS** **Well : Digby 1**

DATE:	1995		8-May			9-May			10-May			11-May			12-May			13-May			14-May			Total for Week		
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
Barite	25 kg	440			440			440			440			440			440			440			440	0	0	440
Gel	25 kg	111			111			111		48	63			63			63		30	33		33	0	0	111	0
Pot Chloride	25 kg	537			537	400	137	800		40	760		160	600		80	520		120	400		120	280	400	657	280
Polyplus	25 kg	30			30	44		74		20	54		7	47		3	44		10	34		15	19	44	55	19
Polypac R	25 kg	27			27	32	5	54			54		1	53			53		2	51		3	48	32	11	48
CMC LV	25 kg	42			42		10	32			32		2	30			30			30			30	0	12	30
Caustic Soda	25 kg	15			15	42	5	52		1	51			51			51			51		2	49	42	8	49
Soda Ash	25 kg	16			16		1	15		1	14			14		2	12		5	7		4	3	0	13	3
Sodium Bicarb	25 kg	3			3			3			3		3	0			0			0			0	0	3	0
OS-1	25 kg	37			37			37			37			37		3	34		4	30		3	27	0	10	27
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
Lime	20 kg	16			16			16			16			16			16			16			16	0	0	16
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30
Mica Med	50 lb	30			30			30			30			30			30			30			30	0	0	30
Spersene	50 lb	13			13			13			13			13			13			13			13	0	0	13
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Bacban III	6 lb	2			2			2			2			2			2			2			2	0	0	2
Pipelax	208 lt	2			2			2			2			2			2			2			2	0	0	2

Operator : GFE Resources

WEEKLY INVENTORY SHEETS

Well : Digby 1

DATE:	1995		15-May			16-May			17-May			18-May			19-May			20-May			21-May			Total for Week		
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
Barite	25 kg	440			440			440			440		160	280			280		40	240		50	190	0	250	190
Gel	25 kg	0			0	96		96			96			96			96			96			96	96	0	96
Pot Chloride	25 kg	280		80	200	400	100	500			500			500			500			500		40	460	400	220	460
Polyplus	25 kg	19		4	15		6	9	47		56		5	51		5	46			46		13	33	47	33	33
Polypac R	25 kg	48		6	42			42	32		74			74		1	73			73			73	32	7	73
CMC LV	25 kg	30			30			30			30			30			30			30			30	0	0	30
Caustic Soda	25 kg	49		6	43			43			43			43			43		1	42		2	40	0	9	40
Soda Ash	25 kg	3		2	1		1	0			0			0			0			0			0	0	3	0
Sodium Bicarb	25 kg	0			0	40		40			40		4	36			36			36		2	34	40	6	34
OS-1	25 kg	27		4	23			23			23		6	17			17		3	14			14	0	13	14
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
Lime	20 kg	16			16			16			16			16			16			16			16	0	0	16
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30
Mica Med	50 lb	30			30			30			30			30			30			30			30	0	0	30
Spersene	50 lb	13			13			13			13			13			13			13			13	0	0	13
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Bacban III	6 lb	2			2			2			2			2			2			2			2	0	0	2
Pipelax	208 lt	2			2			2			2			2			2			2			2			2
XCD Polynmer	25 kg	0			0	17		17			17		2	15		2	13			13			13	17	4	13

Operator : GFE Resources **WEEKLY INVENTORY SHEETS** **Well : Digby 1**

DATE: **1995**

			22-May			23-May			24-May			25-May			26-May			27-May			28-May			Total for Week		
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
Barite	25 kg	190	320	30	480			480			480			480			480			480		80	400	320	110	400
Gel	25 kg	96			96			96			96			96			96			96			96	0	0	96
Pot Chloride	25 kg	460			460		80	380		80	300		80	220			220		170	50	360	90	320	360	500	320
Polyplus	25 kg	33			33		5	28		7	21		8	13	36	5	44		10	34	36	5	65	72	40	65
Polypac R	25 kg	73			73			73			73			73			73		9	64		2	62	0	11	62
CMC LV	25 kg	30			30			30			30			30		5	25			25			25	0	5	25
Caustic Soda	25 kg	40			40			40			40			40			40			40			40	0	0	40
Soda Ash	25 kg	0			0			0			0			0			0			0	42		42	42	0	42
Sodium Bicarb	25 kg	34			34		2	32		2	30		2	28			28		2	26			26	0	8	26
OS-1	25 kg	14			14		3	11			11		3	8			8		3	5	40	3	42	40	12	42
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
Lime	20 kg	16			16			16			16			16			16			16			16	0	0	16
Kwikseal Med	40 lb	30			30			30			30			30		30	0			0	101	13	88	101	43	88
Mica Fine	50 lb	0			0			0			0			0			0			0	20		20	20	0	20
Mica Med	50 lb	30			30			30			30			30		30	0			0	32		32	32	30	32
Mica Coarse	50 lb	0			0			0			0			0			0			0	26		26	26	0	26
Mud Fibre	40 lb	0			0			0			0			0			0			0	98		98	98	0	98
Spersene	50 lb	13			13			13			13			13			13			13			13	0	0	13
Conqor 303	25 lt	0	1		1			1			1			1			1			1			1	1	0	1
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5

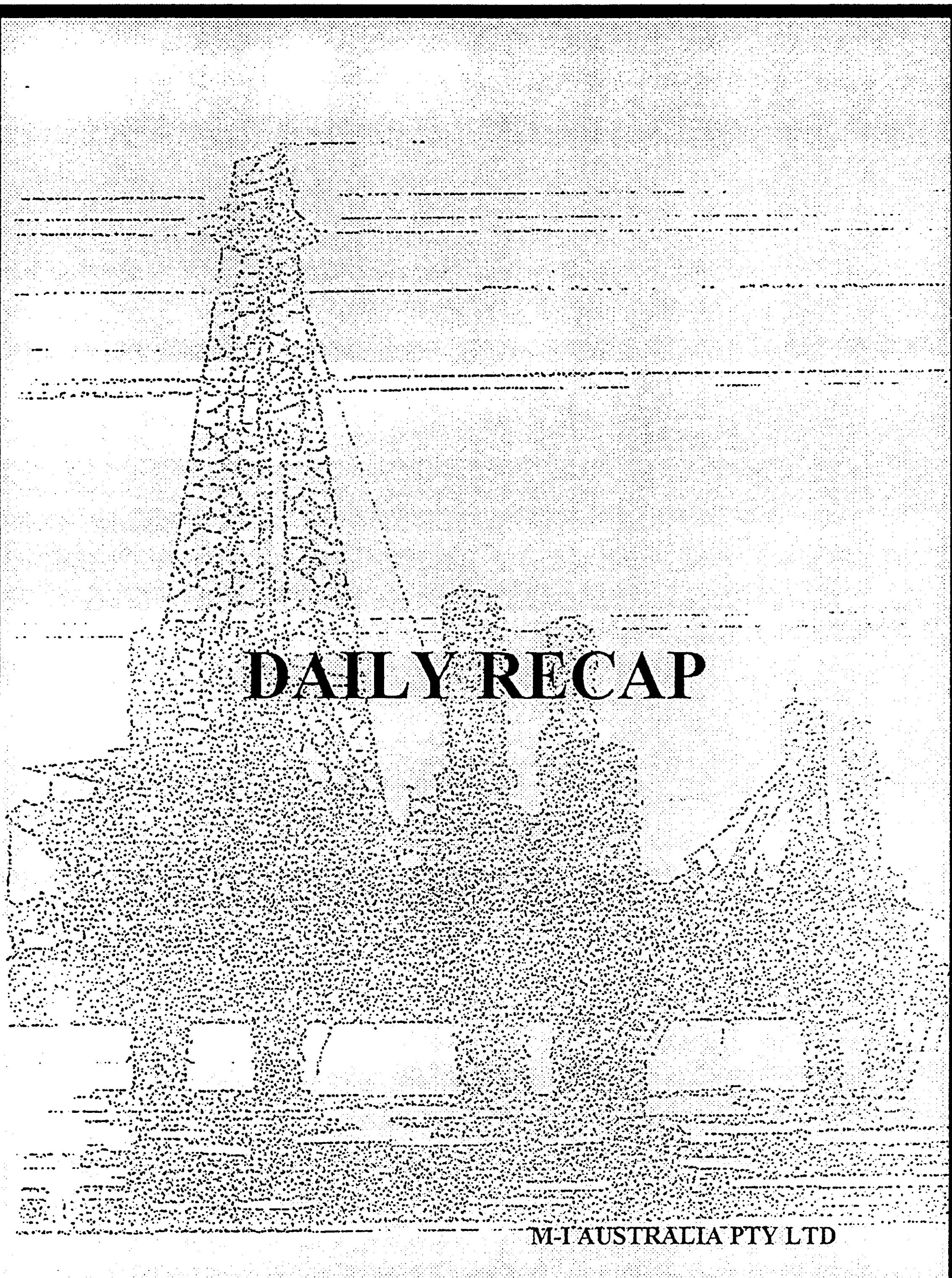
Operator : GFE Resources

WEEKLY INVENTORY SHEETS

Well : Digby 1

DATE:	1995		29-May			30-May			31-May			1-Jun			2-Jun			3-Jun			4-Jun			Total for Week		
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
Barite	25 kg	400		30	370		50	320			320			320			320			320			320	0	80	320
Gel	25 kg	96			96			96		48	48			48			48			48			48	0	48	48
Pot Chloride	25 kg	320		40	280		80	200			200			200			200			200			200	0	120	200
Polyplus	25 kg	65		3	62		10	52			52			52		-1	53			53			53	0	12	53
Polypac R	25 kg	62		2	60		8	52			52			52		-1	53			53			53	0	9	53
CMC LV	25 kg	25			25			25			25			25			25			25			25	0	0	25
Caustic Soda	25 kg	40			40		3	37		1	36			36		-1	37			37			37	0	3	37
Soda Ash	25 kg	42			42			42		1	41			41			41			41			41	0	1	41
Sodium Bicarb	25 kg	26			26		3	23		2	21			21		-1	22			22			22	0	4	22
OS-1	25 kg	42			42		2	40		2	38			38			38			38			38	0	4	38
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
Lime	20 kg	16			16			16			16			16			16			16			16	0	0	16
Kwikseal Med	40 lb	88			88		12	76		16	60			60			60			60			60	0	28	60
Mica Fine	50 lb	20			20			20			20			20			20			20			20	0	0	20
Mica Med	50 lb	32			32		18	14		14	0			0			0			0			0	0	32	0
Mica Coarse	50 lb	26			26			26			26			26			26			26			26	0	0	26
Mud Fibre	40 lb	98			98			98			98			98			98			98			98	0	0	98
Spersene	50 lb	13			13			13			13			13			13			13			13	0	0	13
Conqor 303	25 lt	1			1			1			1			1			1			1			1	0	0	1
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Bacban III	6 lb	2			2			2			2			2			2			2			2	0	0	2
Pipelax	208 lt	2			2			2			2			2			2			2			2	0	0	2
XCD Polymer	25 kg	9		3	6		1	5			5			5			5			5			5	0	4	5
Cronox 2-100	208 lt	0			0			0			0			0	1	1	0			0			0	1	1	0

DAILY RECAP



M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES LTD **Contractor :** CENTURY **Description :** EXPLORATION

Well Name : DIGBY 1 **Field/Area :** OTWAY BASIN **Location :** PEP 105 & PEP 126

Date - Day	09/05/95- 1	10/05/95- 2	11/05/95- 3	12/05/95- 4	13/05/95- 5	14/05/95- 6	15/05/95- 7
Depth/TVD -m		342.0 /342.0	342.0 /342.0	435.0 /435.0	781.0 /781.0	924.0 /924.0	1040.0/1040.0
Activity	P/U DRL ASS	WIPER TRIP	NIPPLE UP	DRILL 8.5"	DRILL 8.5"	DRILL 8.5"	RIH
Mud Type Code	251	251	251	251	251	251	251
Hole Size -in	12.25	12.25	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	450	355		336	390	381	475
Flow Rate -gal/min		450		250	250	250	250
Circ Pressure -psi		700		1250	1350	1400	1400
Avg ROP -m/hr		22		22.6	16.5	7.1	7
Sample From	PIT 00:01	FL 00:01	PIT 23:00	FL 21:00	FL 22:00	FL 21:00	PIT 21:30
Flow Line Temp -^F		96		94	105	112	
Mud Wt -lb/gal	8.6	8.9	8.9	9.1	9.4	9.1	9.3
Funnel Vis -s/qt	36 @ 65 ^F	45 @ 95 ^F	50 @ 76 ^F	46 @ 90 ^F	43 @ 90 ^F	43 @ 105^F	43 @ 95 ^F
PV -cps	8 @ 60 ^F	17 @ 85 ^F	22 @ 72 ^F	18 @ 76 ^F	18 @ 76 ^F	19 @ 97 ^F	19 @ 84 ^F
YP/R3 -lb/100ft2	5 / 1	14 / 2	19 / 2	17 / 2	12 / 1	14 / 2	12 / 1
10s/10m Gel	2 / 2	3 / 8	3 / 9	3 / 9	3 / 8	4 / 13	2 / 8
API Filtrate -cm3	14	7.6	5.8	6	5.6	5.2	4.6
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	2	3	4	4	4	3	4.8
Oil/Water -%vol	/ 98	/ 97	/ 96	/ 96	/ 96	/ 97	/ 95.2
Sand -%vol		1.5	0.5	0.75	1	0.5	0.5
MBT -lb/bbl		13.5	13	10	15	16.5	17.5
pH	9.0 @ 60 ^F	8.5 @ 65 ^F	8.5 @ 65 ^F	9.5 @ 65 ^F	8.5 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F
Alkal Mud (Pm)	0.1	0.1	0.1	0.1	0.1	0.2	0.1
Pf/Mf	0.1 / 0.3	0.05 / 0.2	0.05 / 0.2	0.1 / 0.3	0.05 / 0.3	0.05 / 0.3	0.05 / 0.2
Chlorides -mg/L	20000	17000	21000	40000	51000	33000	32000
Hardness (Ca)-mg/L	60	360	400	200	320	280	320
K+ PPM	21500	18750	21000	30000	44000	33000	32000
KCL WT %	4	3.5	4	5.5	8	6	6
PHPA		1.9	2.1	2	2	2.3	2.5
ENV		90000	85000	75000	40	100	140
Daily Mud Cost -	2945	4413	3347	1618	3930	4935	2767
Cumml Mud Cost -	2945	6145	9360	10978	14908	19843	22610
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used	KCL 137	KCL 40	KCL 160	KCL 80	KCL 120	KCL 120	KCL 80
	CAUS 4	CAUS 1	POLP 7	POLP 3	POLP 10	CAUS 2	CAUS 6
	PAC 5	POLP 20	PAC 1	SODA 2	PAC 2	POLP 15	POLP 4
	CMCL 10	SODA 1	CMCL 2	OS-1 3	SODA 5	PAC 3	PAC 6
	SODA 1	GEL 48	BCAR 3		GEL 30	SODA 4	SODA 2
					OS-1 4	GEL 33	OS-1 4
						OS-1 3	

Remarks

09/05 : Commence preparation of PHPA/KCl mud.
10/05 : Digby 1 spudded 0100 hrs. Drill 12.25" hole to 342m-TD. POOH for wiper trip. Prepare to run casing.
11/05 : Continue to RIH work bridge at 327m-6m fill. Circulate hole clean and POOH. Run and cement 9.625" casing.
12/05 : Cont to nipple up. M/U BHA & RIH. Drill collar,shoe track & cmt.Displ hole to mud,perform LOT and drill 8.5"TO 43
13/05 : Drill 8.5" hole from 435m-656m. POOH for wiper trip-hole good. Drill from 656m-781m.
14/05 : Control drill from 781m-896m. Max dev = 2 deg. POOH for wiper. Hole good. RIH-3m fill drill from 896m-944m.
15/05 : Control drill from 944m-1040m. Max dev = 2 deg. Circ & POOH. Hole good. M/U stiff BHA & change bit. RIH.

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION

Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126

Date - Day	16/05/95- 8	17/05/95- 9	18/05/95- 10	19/05/95- 11	20/05/95- 12	21/05/95- 13	22/05/95- 14
Depth/TVD -m	1080.0/1080.	1080.0/1080.	1195.0/1195.	1277.0/1277.	1373.0/1373.	1451.0/1451.	1468.0/1468.0
Activity	WAIT ON RIG	REPAIR RIG	DRILL 8.5"	DRILL 8.5"	DRILL 8.5"	DRILL 8.5"	DST#1
Mud Type Code	251	251	251	251	251	251	251
Hole Size -in	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	441	441	450	473	503	582	613
Flow Rate -gal/min	300	165	325	325	325	325	325
Circ Pressure -psi	1400	450	1550	1600	1550	1600	1625
Avg ROP -m/hr	9		8.2	3.3	5	4	4.3
Sample From	FL 20:30	FL 20:30	FL 17:30	FL 00:01	PIT 00:01	FL 00:01	PIT 00:01
Flow Line Temp -^F	115	115	118	120	120	128	
Mud Wt -lb/gal	9.3	9.3	9.5	9.5	9.5	9.5	9.5
Funnel Vis -s/qt	44 @ 112^F	43 @ 112^F	45 @ 112^F	47 @ 118^F	47 @ 118^F	47 @ 122^F	52 @ 95 ^F
PV -cps	18 @ 100^F	20 @ 100^F	23 @ 104^F	21 @ 110^F	22 @ 110^F	19 @ 115^F	23 @ 85 ^F
YP/R3 -lb/100ft2	12 / 2	15 / 1	16 / 2	18 / 3	20 / 4	22 / 4	24 / 4
10s/10m Gel	3 / 8	3 / 7	3 / 10	4 / 14	4 / 16	6 / 17	8 / 19
API Filtrate -cm3	5	4.4	4.2	4.4	4.8	5.4	5
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	4.5	4.5	5.5	5.5	5.7	6	6
Oil/Water -%vol	/ 95.5	/ 95.5	/ 94.5	/ 94.5	/ 94.3	/ 94	/ 94
Sand -%vol	0.5	0.25	0.5	0.5	0.75	0.25	0.25
MBT -lb/bbl	17.5	17.5	18.5	19	19.5	18	18
pH	9.0 @ 65 ^F	8.5 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F	8.5 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F
Alkal Mud (Pm)	0.1	0.1	0.1	0.2	0.1	0.2	0.1
Pf/Mf	0.05 / 0.2	0.05 / 0.1	0.05 / 0.35	0.1 / 0.6	0.05 / 0.4	0.1 / 0.45	0.05 / 0.3
Chlorides -mg/L	35000	35000	38000	35000	34000	30000	33000
Hardness (Ca)-mg/L	240	240	320	100	240	100	120
K+ PPM	34000	34000	35500	32500	30000	27000	29000
KCL WT %	6.5	6	6.5	6	5.5	5	5.5
PHPA	2.5	2.6	2.5	2.4	2.1	1.2	1.5
SO3=	100	40	80	100	40	80	40
Daily Mud Cost -	2214		2963	1843	396	3063	166
Cumml Mud Cost -	24824	24824	27771	29614	30010	33073	33239
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used	KCL 100		POLP 5	POLP 5	CAUS 1	KCL 40	BAR 30
	POLP 6		BCAR 4	PAC 1	OS-1 3	CAUS 2	
	SODA 2		OS-1 6	XCD 2	BAR 40	POLP 13	
			BAR 160			BCAR 2	
			XCD 2			BAR 50	

Remarks

16/05 : Contin.RIH & precaution ream to bottom-7m fill.Drill 8.5" 1040m-1080m. Transfer box drive shaft failed Wait on ri
17/05 : Contin.to wait on fabricated transfer box shaft.Circ.cont @ 165 gal/min.B/U @ 300g/min every 4HRS.Install new sha
18/05 : Complete shaft replacement POOH to shoe-hole good. RIH-7m fill. Drill 8.5" from 1080m-1231m. Max Dev - 2.75 deg.
19/05 : Control drill F/1231m.-1247m.DEV.=3deg.POOH & Re make up BHA.RIH-Hole good.Control drill to 1277m.MAX DEV.=3.25de
20/05 : Control drill at +/- 5.0 m/hr from 1277m-1373m. Max and current deviation = 3 deg.
21/05 : Control drill F/1373m.- 1418m.Make 13 STD wiper trip-hole good-3m.fill.control drill F/1418m.-1451m.Hole dev.=4de
22/05 : Control drill f/1451m.- 1468m.Circ.sample and flow check drill break. POOH, M/U DST tool, RIH & commence DST #1

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES LTD **Contractor :** CENTURY **Description :** EXPLORATION

Well Name : DIGBY 1 **Field/Area :** OTWAY BASIN **Location :** PEP 105 & PEP 126

Date - Day	23/05/95- 15	24/05/95- 16	25/05/95- 17	26/05/95- 18	27/05/95- 19	28/05/95- 20	29/05/95- 21
Depth/TVD -m	1486.0/1486.	1523.0/1523.	1650.0/1650.	1759.0/1759.	1895.0/1895.	1951.0/1951.	1956.0/1956.0
Activity	DRILL 8.5"	DRILL 8.5"	DRILL 8.5"	CIRC.& OBSV	DRILL 8.5"	POOH	DRILL 8.5"
Mud Type Code	251	251	251	251	251	251	251
Hole Size -in	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	696	616	554	620	662	621	609
Flow Rate -gal/min	325	325	325	625	300	300	300
Circ Pressure -psi	1525	1550	1625	1600	1400	1390	1325
Avg ROP -m/hr	2	2.3	8.5	12.5	8.3	5.1	2.7
Sample From	FL 00:01	FL 22:00	FL 22:00	FL 24:00	FL 23:00	PIT 24:00	FL 23:30
Flow Line Temp -^F	125	120	125	120	120	120	120
Mud Wt -lb/gal	9.4	9.3	9.3	9.4	9.1	9.1	9.1
Funnel Vis -s/qt	44 @ 116^F	45 @ 118^F	44 @ 118^F	45 @ 115^F	38 @ 115^F	39 @ 110^F	40 @ 110^F
PV -cps	17 @ 114^F	20 @ 105^F	20 @ 110^F	20 @ 110^F	16 @ 110^F	15 @ 100^F	16 @ 100^F
YP/R3 -lb/100ft2	18 / 4	17 / 3	15 / 4	16 / 4	10 / 2	13 / 3	15 / 3
10s/10m Gel	7 / 15	6 / 16	5 / 16	7 / 18	3 / 6	4 / 8	4 / 8
API Filtrate -cm3	5	5	5.2	6.4	5	4.8	5
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	6	5	5	5	3.5	3.5	3.5
Oil/Water -%vol	/ 94	/ 95.0	/ 95.0	/ 95.0	/ 96.5	/ 96.5	/ 96.5
Sand -%vol	0.25	0.25	2	1.5	0.75	0.75	1
MBT -lb/bbl	18	16	16	16	13	13	12.5
pH	9.0 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 65 ^F	8.5 @ 65 ^F
Alkal Mud (Pm)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pf/Mf	0.05 / 0.4	0.05 / 0.35	0.1 / 0.4	0.1 / 0.5	0.1 / 0.4	0.05 / 0.4	0.05 / 0.4
Chlorides -mg/L	33000	36000	38000	37000	29000	32000	33000
Hardness (Ca)-mg/L	120	160	120	160	160	240	280
K+ PPM	29000	32000	32500	28500	27000	29000	29000
KCL WT %	5.5	6	6	5.5	5	5.5	5.5
PHPA COR	1.2	1.4	1.3	1.4	0.95	0.8	1
SO3=	100	60	140	60	100	100	10
Daily Mud Cost -	1967	2146	2486	2939	5050	4977	2674
Cumml Mud Cost -	35205	37351	39838	42777	47827	52804	55478
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used	KCL 80	KCL 80	KCL 80	POLP 5	KCL 170	KCL 90	KCL 40
	POLP 5	POLP 7	POLP 8	CMCL 5	POLP 10	POLP 5	POLP 3
	BCAR 2	BCAR 2	BCAR 2	MYCM 30	PAC 9	PAC 2	PAC 2
	OS-1 3		OS-1 3	KWKM 30	BCAR 2	OS-1 3	BAR 30
					OS-1 3	BAR 80	XCD 3
						XCD 4	
						KWKM 13	

Remarks

23/05 : Cont DST #1 over interval 1460m.-1468m.Pull test tool- water only.M/U BHA & RIH.dillL F/1468m.-1486m.@ 1-2 m/hr
24/05 : Drill 8.5" F/1486m.-1489m.ROP<1.0 m/hr Bit stopped drill. POOH.Remove junk from bit.RIH and drill f/1489m.- 1523m
25/05 : Contin drill 8.5"f/1531m-1560m.Circ.drill brk.Drill 1560m -1601m.Drill brk.circ.up sand sample.Drill f/1601m.-166
26/05 : Drill 1664-1753m.POOH for bit change.RIH & drill f/1735m. -1759m.Loose total returns(140bbl)Pump LCM pill & obser
27/05 : Circ. to balance mud wt.Drill 8.5"f/1759m.- 1905m.through Pretty Hill sandstone.Max dev.=6deg.D/hole losses conti
28/05 : Drill f/1905m.-1932m.Circ.sample-OIL SHOW.Drill f/1932m.- 1951m. Circ sample-OIL SHOW. POOH for DST #2
29/05 : M/U & RIH with T/T run DST #2.Retrieve sample-whole mud. M/U and RIH.Drill f/1951m.-1956m.D/hole losses=3-5bbl/hr

M-I Drilling Fluids L.L.C DRILLING FLUIDS DATA MANAGEMENT SYSTEM W0003 July 11, 1995

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION

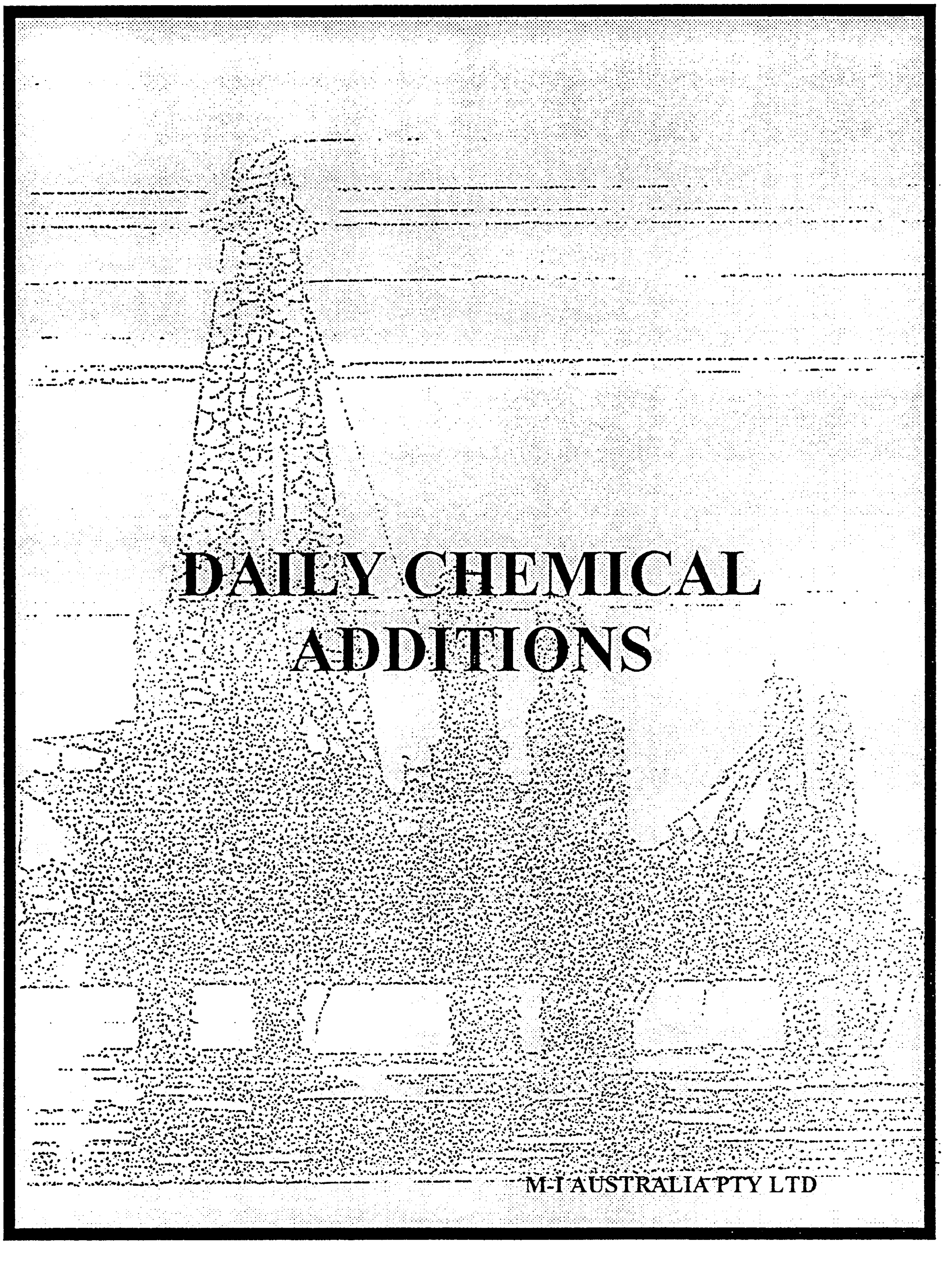
Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126

Date - Day	30/05/95- 22	31/05/95- 23	01/06/95- 24	02/06/95- 25			
Depth/TVD -m	2037.0/2037.	2087.0/2087.	2088.0/2088.	2088.0/2088.0			
Activity	DRILL 8.5"	WIPER TRIP	LOGGING	RIH TO P&A			
Mud Type Code	251	251	251	251			
Hole Size -in	8.5	8.5	8.5	8.5			
Circ Volume -bbl	653	690	630	617			
Flow Rate -gal/min	300	300	300				
Circ Pressure -psi	1325	1400	1400				
Avg ROP -m/hr	3.7	2.1					
Sample From	FL 23:00	FL 23:00	PIT 23:00	PIT 23:00			
Flow Line Temp -^F	136	138					
Mud Wt -lb/gal	9.1	9.1	9.1	9.2			
Funnel Vis -s/qt	40 @ 124^F	39 @ 124^F	38 @ 88 ^F	40 @ 88 ^F			
PV -cps	16 @ 110^F	15 @ 118^F	14 @ 84 ^F	16 @ 84 ^F			
YP/R3 -lb/100ft2	15 / 2	13 / 3	12 / 3	14 / 3			
10s/10m Gel	3 / 8	3 / 7	3 / 7	3 / 8			
API Filtrate -cm3	4.8	4.4	5	4.8			
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /			
Solids -%vol	3.5	3.5	3.5	3.5			
Oil/Water -%vol	/ 96.5	/ 96.5	/ 96.5	/ 96.5			
Sand -%vol	0.5	0.5	0.25	0.25			
MBT -lb/bbl	10	10.5	10.5	10.5			
pH	9.0 @ 65 ^F	9.0 @ 65 ^F	9.0 @ 70 ^F	8.5 @ 70 ^F			
Alkal Mud (Pm)	0.1	0.1	0.1	0.1			
Pf/Mf	0.05 / 0.5	0.05 / 0.6	0.05 / 0.55	0.05 / 0.4			
Chlorides -mg/L	33000	32500	30000	27000			
Hardness (Ca)-mg/L	160	80	160	100			
K+ PPM	29500	29500	27000	25000			
KCL WT %	5.5	5.5	5	4.5			
PHPA COR	1	0.85	0.8	0.75			
SO3=	40	60	40	40			
Daily Mud Cost -	5432	1529		60			
Cumml Mud Cost -	60605	62096	62096	63019			
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL			
Products Used	KCL 80	CAUS 1		CAUS -1			
	CAUS 3	SODA 1		POLP -4			
	POLP 10	GEL 48		PAC -1			
	PAC 8	BCAR 2		BCAR -1			
	BCAR 3	OS-1 2		CNQ3 1			
	OS-1 2	MYCM 14		CRON 1			
	BAR 50	KWKM 16					
	XCD 1						
	MYCM 18						
	KWKM 12						

Remarks

30/05 : Drill 8.5" hole from 1956m - 2038m. D/hole losses contin. @ 1-2 bbl/hr. Drill ahead to confirm basement depth.
31/05 : Continue to drill 8.5"f/2038m.-2088m.through pre-basement volcanics? POOH for wiper trip prior to logging.
01/06 : Continue wiper trip to 1000m.-hole good,no fill.Circ.B/U and POOH to log. R/U and run log #1 & 2
02/06 : Complete logging. Lay down BHA. RIH open ended and prepare to P & A.

DAILY CHEMICAL ADDITIONS



M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION Page: 1
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126 Well: W0003

Date		: 09/05/95	10/05/95	11/05/95	12/05/95	13/05/95	14/05/95	15/05/95
Depth	-m:		342.0	342.0	435.0	781.0	924.0	1040.0
Daily Mud Cost	:	2945	4413	3347	1618	3930	4935	2767
Cumulative Mud Cost	:	2945	6145	9360	10978	14908	19843	22610
CMC TG LV	25 KG S:	10		2				
Caustic Soda	25 KG S:	4	1				2	6
Conqor 303	25 LT D:							
Cronox 2-100	208 LT :							
Kwik Seal M	40 LB S:							
M-I Bar	25 KG S:							
M-I Gel	25 KG S:		48			30	33	
Mica Medium	50 LB S:							
OS-1	25 KG S:				3	4	3	4
Polypac	25 KG S:	5		1		2	3	6
Polyplus Powder	25 KG S:		20	7	3	10	15	4
Potassm Chloride	25 KG S:	137	40	160	80	120	120	80
Soda Ash	25 KG S:	1	1		2	5	4	2
Sodium Bicarb	25 KG S:			3				
XCD	25 KG S:							

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION   Page: 2
Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126   Well: W0003

		16/05/95	17/05/95	18/05/95	19/05/95	20/05/95	21/05/95	22/05/95
Depth	-m:	1080.0	1080.0	1195.0	1277.0	1373.0	1451.0	1468.0
Daily Mud Cost	:	2214		2963	1843	396	3063	166
Cumulative Mud Cost	:	24824	24824	27771	29614	30010	33073	33239
CMC TG LV	25 KG S:							
Caustic Soda	25 KG S:					1	2	
Conqor 303	25 LT D:							
Cronox 2-100	208 LT :							
Kwik Seal M	40 LB S:							
M-I Bar	25 KG S:			160		40	50	30
M-I Gel	25 KG S:							
Mica Medium	50 LB S:							
OS-1	25 KG S:			6		3		
Polypac	25 KG S:				1			
Polyplus Powder	25 KG S:	6		5	5		13	
Potassm Chloride	25 KG S:	100					40	
Soda Ash	25 KG S:	2						
Sodium Bicarb	25 KG S:			4			2	
XCD	25 KG S:			2	2			

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION   Page: 3
Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126   Well: W0003

		23/05/95	24/05/95	25/05/95	26/05/95	27/05/95	28/05/95	29/05/95
Date	:	23/05/95	24/05/95	25/05/95	26/05/95	27/05/95	28/05/95	29/05/95
Depth	-m:	1486.0	1523.0	1650.0	1759.0	1895.0	1951.0	1956.0
Daily Mud Cost	:	1967	2146	2486	2939	5050	4977	2674
Cumulative Mud Cost	:	35205	37351	39838	42777	47827	52804	55478
CMC TG LV	25 KG S:				5			
Caustic Soda	25 KG S:							
Conqor 303	25 LT D:							
Cronox 2-100	208 LT :							
Kwik Seal M	40 LB S:				30		13	
M-I Bar	25 KG S:						80	30
M-I Gel	25 KG S:							
Mica Medium	50 LB S:				30			
OS-1	25 KG S:	3		3		3	3	
Polypac	25 KG S:					9	2	2
Polyplus Powder	25 KG S:	5	7	8	5	10	5	3
Potassm Chloride	25 KG S:	80	80	80		170	90	40
Soda Ash	25 KG S:							
Sodium Bicarb	25 KG S:	2	2	2		2		
XCD	25 KG S:						4	3

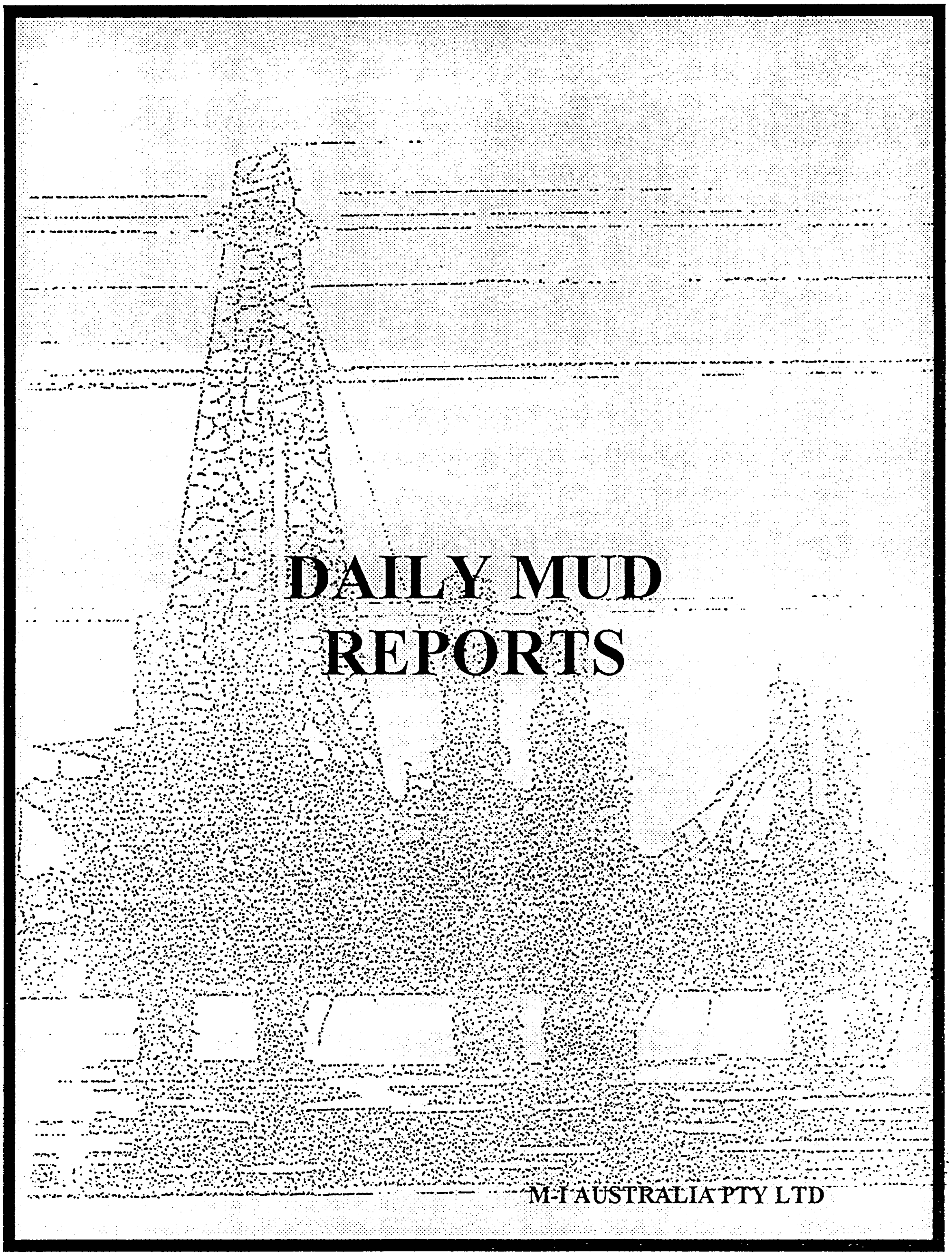
Date	:	30/05/95	31/05/95	01/06/95	02/06/95
Depth	-m:	2037.0	2087.0	2088.0	2088.0
Daily Mud Cost	:	5432	1529		60
Cumulative Mud Cost	:	60605	62096	62096	63019
CMC TG LV	25 KG S:				
Caustic Soda	25 KG S:	3	1		-1
Conqor 303	25 LT D:				1
Cronox 2-100	208 LT :				1
Kwik Seal M	40 LB S:	12	16		
M-I Bar	25 KG S:	50			
M-I Gel	25 KG S:		48		
Mica Medium	50 LB S:	18	14		
OS-1	25 KG S:	2	2		
Polypac	25 KG S:	8			-1
Polyplus Powder	25 KG S:	10			-4
Potassm Chloride	25 KG S:	80			
Soda Ash	25 KG S:		1		
Sodium Bicarb	25 KG S:	3	2		-1
XCD	25 KG S:	1			

== M-I DRILLING FLUIDS PRODUCT SUMMARY ==

Operator : GFE RESOURCES LTD   Contractor : CENTURY   Description : EXPLORATION   Well: W0003
Well Name : DIGBY 1   Field/Area : OTWAY BASIN   Location : PEP 105 & PEP 126

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 09/05/95 - 02/06/95, 0 m - 2088.0 m

WATER-BASE PROD	SIZE	AMOUNT
CMC TG LV	25 KG SX	17
Caustic Soda	25 KG SX	19
Conqor 303	25 LT DM	1
Cronox 2-100	208 LT DM	1
Kwik Seal M	40 LB SX	71
M-I Bar	25 KG SX	440
M-I Gel	25 KG SX	159
Mica Medium	50 LB SX	62
OS-1	25 KG SX	39
Polypac	25 KG SX	38
Polyplus Powder	25 KG SX	137
Potassm Chloride	25 KG SX	1497
Soda Ash	25 KG SX	18
Sodium Bicarb	25 KG SX	21
XCD	25 KG SX	12


DAILY MUD
REPORTS
M-I AUSTRALIA PTY LTD

WATER BASE MUD REPORT - Day : 1

M-I Drilling Fluids Company — DRILLING FLUIDS DATA MANAGEMENT SYSTEM

- -	Date : 09/05/95	Depth : m
Well No. : W0003	Spud Date : 09/05/95	Activity : P/U DRL ASS

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

	CASING		MUD VOLUME (bbl)
Bit : 12.250 in			
Nozzles: / / / / / 1/32"	Casing OD : in	Liner OD : in	Hole Volume :
Drill Pipe 1 OD : in 0 m	Casing ID : in	Liner ID : in	Pits Volume :
Drill Pipe 2 OD : in m	Casing TD : m	Liner TD : m	Circulating Volume : 450
Drill Collar OD : in m	Casing TVD : m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: PIT 00:01	Flow Rate -gal/min	:	NaCl	: 0.0 / 0
Flow Line Temp	: ^F	DP Annular Vel -m/min	:	KCl	: 1.5 / 14
Depth/TVD -m	:	DC Annular Vel -m/min	:	Low Gravity Solids	: 0.4 / 4
Mud Wt -lb/gal	: 8.6	DP Critical Vel -m/min	:	Bentonite	: 0.0 / 0
Funnel Vis -s/qt	: 36 @ 65 ^F	DC Critical Vel -m/min	:	Drill Solids	: 0.2 / 2
Plastic Visc -cps	: 8 @ 60 ^F	Circ. Pressure -psi	:	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 5 / 1	Bottoms Up -min	:	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 2 / 2	Total Circ Time -min	:	Inert/React : -	Average SG : 2.60
API F Loss -cc/30 min	: 14				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT Size	Hours
Cake API/HT -1/32"	: 1	Potassm Chloride 25 KG S	137	Shaker #1 : 3 X 50	
Solids -%vol	: 2	Caustic Soda 25 KG S	4	Shaker #2 :	
Oil/Water -%vol	: /98	Polypac 25 KG S	5	Shaker #3 :	
Sand -%vol	:	CMC TG LV 25 KG S	10	Shaker #4 :	
MBT -lb/bbl	:	Soda Ash 25 KG S	1	Mud Cleaner :	
pH	: 9.0 @ 60 ^F			Centrifuge :	
Alkal Mud (Pm)	: 0.1			Desander : 12"X 2	
Pf/Mf	: 0.1 / 0.3			Desilter : 4"X 12	
Chlorides -mg/l	: 20000			Degasser :	
Hardness Ca	: 60			MUD VOLUME ACCOUNTING	bbl
K+ PPM	: 21500			Oil Added :	:
KCL WT %	: 4			Water Added :	:
PHPA	:			Mud Built :450	:
ENV	:			Mud Received:	
np Value	: 0.691			Mud Disposed:	
Kp -lb-sec^n/100ft2	: 0.18597				
na Value	: 0.557				
Ka -lb-sec^n/100ft2	: 0.43013				

Remarks :
Commence preparation of PHPA/KCl mud.
Commence preparation of 500 bbl of 1.5 ppb PHPA/4% KCl system. PHPA/KCl mud to be used from spud. Mud properties to be adjusted once mixing completed and drilling commences.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 2945 Cumul Cost : 2945

M-I Drilling Fluids Co.

Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	~~9~~ 10 MAY 1995
DEPTH	
SPUD DATE	10 MAY
PRESENT ACTIVITY	PICK UP 12 1/4 BHA ASY

OPERATOR	GFE RESOURCES	CONTRACTOR	CENTURY
RIG NO.	11		
REPORT FOR	KEN SMITH	REPORT FOR	ROGER BINDON
SECTION, TOWNSHIP, RANGE	ONSHORE		
WELL NAME AND NO.	DIGBY # 1	FIELD OR BLOCK NO.	PEP 105/126
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN	STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
12 1/4	114 VAREL	1 x 18, 2 x 20

	TYPE	LENGTH
DRILL PIPE SIZE 4 1/2		
DRILL PIPE SIZE 4 1/2	HWDP	
DRILL COLLAR SIZE 6 1/4/8"		

CASING

SURFACE	in. @ ft.
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.

MUD VOLUME (BBL)

HOLE	
PITS	450
TOTAL CIRCULATING VOLUME	450
IN STORAGE	
WEIGHT	
MUD TYPE	KCl/PHPA

CIRCULATION DATA

PUMP SIZE x IN.	6 x 8.5
ANNULAR VEL (ft/min)	DP ___ DC 39
PUMP MAKE, MODEL	NAT 8P 80
ASSUMED EFF	95 %
CIRCULATION PRESSURE (psi)	600
bbl/stk	0.07/0.054
stk/min	98/77
BOTTOMS UP (min) (strk)	
bbl/min	10.68
gal/min	450
TOTAL CIRC TIME (min) (strk)	

MUD PROPERTIES

	☐ F.L. ☑ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	23:00	05:30
Flowline Temperature (°F)	-	76
Depth (ft) (TVD / ft)	-	62
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	8.7	8.7
Funnel Viscosity (sec/qt) API @ °F	36	47
Plastic Viscosity cp @ °F	8	17
Yield Point (lb/100 ft²)	5	19
Gel Strength (lb/100 ft²) 10 sec/10 min	1	2/5
Filtrate API (cm³/30 min)	14	15
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☑ calculated ☐ retort	2	2
Liquid Content (% by Vol) Oil/Water	-/98	/98
Sand Content (% by Vol)	-	TR
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	-	-
pH ☐ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	0.1/0.3	.1/.3
Chloride (mg/L)	20,000	20000
Total Hardness as Calcium (mg/L)	60	60
K+ ppm	21500	21500
KCl % wt	4	4
PHPA		1.8

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN.	35-45 sec/qt	10-15 cc

RECOMMENDED TOUR TREATMENT

COMMENCE PREP OF 5% KCl/PHPA SYSTEM. PHPA TO BE ADDED. ADJUST PROPERTIES WITH PAC R & PHG ONCE DRILLING COMMENCES.

REMARKS

RIG UP AND DRILL RATHOLE. PREPARE TO SPUD.

NOTE ADDITIONAL MUD CHEMS ARRIVED ON LOCATION. INITIAL INVENT TO BE PROV 10/5.

* NOTE USAGE INDICATE SPLIT AND UNUSABLE SKS.

PRODUCT INVENTORY

PRODUCT INVENTORY	BARITE	GEL	KCl	PHPA	PAC R	CMC LV	CAUSTIC SODA	OS-1	SODA ASH	BICARB SODA	SPERSENE	CaCl / LIME	CONQ / DEFOAM A	PIPELAX / BACBAN M	KWIKSEAL / MICA M
STARTING INVENTORY	440	111	537	30	27	42	15	37	16	3	13	39/16	-/5	2/2	39/30
RECEIVED															
USED LAST 24 hr			137	5	5	10	*5		1						
CLOSING INVENTORY	440	111	400		22	32	10	37	15	3	13	39/16	-/5	2/2	30/30
COST LAST 24 hr			.02 1570		.70 658	.30 612	111.75		14.31						
USED (from IADC) UNIT COST	8.53		11.46		131.74	61.23	22.35		14.31						

SOLIDS EQUIPMENT

SHAKER #1	3 x 50 mesh
SHAKER #2	/ mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	hours
DESILTER	hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822	FAX 0932[illegible]1877	$2967.08	$2967.08

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)

Rig Up/Service	24
Drilling	
Reaming/Coring	
Circulating	
Tripping	
Survey	
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	450
Mud Received (bbl)	
Mud Disposed (bbl)	
Starting Depth	
Ending Depth	
New Hole Vol. (bbl)	

SOLIDS ANALYSIS

Low Gravity %	
Low Gravity, ppb	
Bentonite %	
Bentonite, ppb	
Drill Solids %	
Drill Solids, ppb	
Shale CEC, ppb	
D/B Ratio	
High Gravity %	
High Gravity, ppb	

MUD RHEOLOGY and HYDRAULICS

Zero Gel	1	Avg ROP		ECD @	
n Factor	0.79	% Cutting		Leak Off @	
k Factor	0.29	psi	%	hhp	HSI	Jet Vel

	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	218	36	57	0.49	51
Annular Section	1	2	3	4	5
Hole Size	12.25	12.25			
Pipe OD	8.0	6.25			
Critical Velocity	69	55			
Annular Velocity	39	29			
Viscosity	77	75			
Annular Pressure	0.5	04			

WATER BASE MUD REPORT - Day : 2

M-I Drilling Fluids Company — - — Date : 10/05/95 — Depth : 342.0 m

DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : WIPER TRIP

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

	CASING		MUD VOLUME (bbl)
Bit : 12.250 in			
Nozzles:20/20/18/ / / 1/32"	Casing OD : in	Liner OD : in	Hole Volume :
Drill Pipe 1 OD : in 342 m	Casing ID : in	Liner ID : in	Pits Volume :
Drill Pipe 2 OD : in m	Casing TD : m	Liner TD : m	Circulating Volume : 355
Drill Collar OD : in m	Casing TVD : m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: FL 00:01
Flow Line Temp	: 96 ^F
Depth/TVD -m	:342.0 /342.0
Mud Wt -lb/gal	: 8.9
Funnel Vis -s/qt	: 45 @ 95 ^F
Plastic Visc -cps	: 17 @ 85 ^F
YP/R3 -lb/100ft2 /deg	: 14 / 2
10s/10m Gel -lb/100ft2	: 3 / 8
API F Loss -cc/30 min	: 7.6
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 3
Oil/Water -%vol	: /97
Sand -%vol	: 1.5
MBT -lb/bbl	: 13.5
pH	: 8.5 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.2
Chlorides -mg/l	: 17000
Hardness Ca	: 360
K+ PPM	: 18750
KCL WT %	: 3.5
PHPA	: 1.9
ENV	: 90000
np Value	: 0.630
Kp -lb-sec^n/100ft2	: 0.64902
na Value	: 0.595
Ka -lb-sec^n/100ft2	: 0.80831

CIRCULATION DATA	
Flow Rate -gal/min :	450
DP Annular Vel -m/min :	
DC Annular Vel -m/min :	
DP Critical Vel -m/min :	
DC Critical Vel -m/min :	
Circ. Pressure -psi :	700
Bottoms Up -min :	
Total Circ Time -min :	

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	40
Caustic Soda	25 KG S	1
Polyplus Powder	25 KG S	20
Soda Ash	25 KG S	1
M-I Gel	25 KG S	48

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: -0.1 / -1
KCl	: 1.5 / 14
Low Gravity Solids	: 2.9 / 26
Bentonite	: 1.3 / 12
Drill Solids	: 1.3 / 12
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 0.80	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 50	24
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	16
Desilter :	4"X 12	12
Degasser :		

MUD VOLUME ACCOUNTING	bbl
Oil Added :	Dump :30
Water Added :	SCE :60
Mud Built :125	Surface :94
Mud Received:	
Mud Disposed:184	

Remarks :

Digby 1 spudded 0100 hrs. Drill 12.25" hole to 342m-TD. POOH for wiper trip. Prepare to run casing.

Digby 1 spudded 0100 hrs. Drill 12.25" hole to TD at 342m with regular surveys. Maximum deviation 0.75 deg. POOH for wiper trip. Prepare to run 9.625" casing.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 4413 — Cumul Cost : 6145

M-I Drilling Fluids Co. Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	10 MAY 1995
DEPTH	342 m
SPUD DATE	10 MAY
PRESENT ACTIVITY	WIPER TRIP
OPERATOR	GFE RESOURCES LTD
CONTRACTOR	CENTURY
RIG NO.	11
REPORT FOR	KEN SMITH
REPORT FOR	ROGER BINDON
SECTION, TOWNSHIP, RANGE	ONSHORE
WELL NAME AND NO.	DIGBY # 1
FIELD OR BLOCK NO.	DIGBY JV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	12 1/4
TYPE	VAREL L114
JET SIZE	2 x 20, 1 x 18
DRILL PIPE SIZE / TYPE	4 1/2 / 16.6#
DRILL PIPE SIZE / TYPE / LENGTH	4 1/2 / HWDP / 55
DRILL COLLAR SIZE / LENGTH	8" / 6 1/4" / 18/161 m
CASING SURFACE	in. @ ft.
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.
HOLE	145
PITS	210
TOTAL CIRCULATING VOLUME	355
IN STORAGE	36
WEIGHT	8.6
MUD TYPE	KCl/PHPA
PUMP SIZE x IN.	5.5 x 7.5; 6.0 x 8.5
PUMP MAKE, MODEL	NAT 7P50 / 8P80
ASSUMED EFF	95 %
bbl/stk	0.054/0.07
stk/min	99/77
bbl/min	10.65
gal/min	450
ANNULAR VEL (ft/min)	DP 26 DC 39
CIRCULATION PRESSURE (psi)	700
BOTTOMS UP (min) (strk)	14
TOTAL CIRC TIME (min) (strk)	32

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT
Time Sample Taken	20.30	05.30
Flowline Temperature (°F) °C	96 (36)	
Depth (ft) (TVD / m)	342	342
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	8.9	8.8+
Funnel Viscosity (sec/qt) API @ 90 °F	45	48
Plastic Viscosity cp @ 84 °F	17	20
Yield Point (lb/100 ft²)	14	16
Gel Strength (lb/100 ft²) 10 sec/10 min	3/8	4/10
Filtrate API (cm³/30 min)	7.6	7.2
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	3	3
Liquid Content (% by Vol) Oil/Water	-/97	/97
Sand Content (% by Vol)	1.5	1.0
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	13.5	13.5
pH ☑ Strip ☐ Meter @ °F	8.5	8.3
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/.2
Chloride (mg/L)	17000	17000
Total Hardness as Calcium (mg/L)	360	360
K^+ mg/l	18750	18750
KCl % wt	3.5	3.5
PHPA ppb	1.9	1.9

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45 sec/qt	10-15 cc

RECOMMENDED TOUR TREATMENT

- PREPARE ADDIT VOL AS CONC PREMIX TO MAINTAIN KCl AND INCR PHPA CONC
- PREPARE PHG & BLEED INTO SYSTEM APPROX 6ppb
- RUN SCE EQUIP CONTIN
- CUTTINGS FRIABLE BUT 'DRY'

REMARKS

- SPUDDED DIGBY #1 @ 0100 HRS 10/5
- DRILL 12 1/4 HOLE TO TD @ 342 m WITH REGULAR SURVEYS - MAX DEV 0.75°
- CIRCULATE HOLE CLEAN & POOH FOR WIPER TRIP.
- PREPARE TO RUN 9.625" CASING

D/SAND 12.3 ppg U/FLOW 8.9 ppg O/FLOW 2.5 GPM
D/SILT 11.2 ppg U/FLOW 2.0 GPM

PRODUCT INVENTORY

PRODUCT INVENTORY	GEL	KCl	POLY PLUS	CAUSTIC	SODA ASH	POLY PAC R
STARTING INVENTORY	111	400	30	10	15	22
RECEIVED		400	44	42		32
USED LAST 24 hr	48	40	20	1	1	
CLOSING INVENTORY	63	760	54	51	14	54
COST LAST 24 hr	12 / 453	40 / 458	3465	22.35	14.31	
USED (from IADC)						

SOLIDS EQUIPMENT

SHAKER #1	3 x 50 mesh
SHAKER #2	/ mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	16 hours
DESILTER	12 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254322		$4413.18	$7380.26

TIME DISTRIBUTION (hrs)

Rig Up/Service	1.0
Drilling	15.5
Reaming/Coring	
Circulating	1.0
Tripping	3.5
Survey	3.0
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	125
Mud Received (bbl)	
Mud Disposed (bbl)	184
DUMP	30
SCE	60
SURFACE	94
TOTAL MUD	391
Starting Depth	-
Ending Depth	342
New Hole Vol. (bbl)	165

SOLIDS ANALYSIS

Low Gravity %	2.9
Low Gravity, ppb	26.6
Bentonite %	1.3
Bentonite, ppb	12.2
Drill Solids %	1.2
Drill Solids, ppb	11.3
Shale CEC, ppb	-
D/B Ratio	0.75
High Gravity %	-
High Gravity, ppb	-

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	22.2	ECD @	
n Factor	0.59	% Cutting		Leak Off @	
k Factor	0.80				
	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	223	32	57	0.5	51
Annular Section	1	2	3	4	5
Hole Size	12.25	12.25	12.25		
Pipe OD	8.0	6.25	4.5		
Critical Velocity	80	69	62		
Annular Velocity	39	30	25.9		
Viscosity	68	87	103		
Annular Pressure	0.5	2.4	1.5		

WATER BASE MUD REPORT - Day : 3

M-I Drilling Fluids Company - - Date : 11/05/95 Depth : 342.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : NIPPLE UP

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles: / / / / / 1/32"	Casing OD : in	Liner OD : in	Hole Volume :
Drill Pipe 1 OD : in 342 m	Casing ID : in	Liner ID : in	Pits Volume :
Drill Pipe 2 OD : in m	Casing TD : m	Liner TD : m	Circulating Volume :
Drill Collar OD : in m	Casing TVD : m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: PIT 23:00
Flow Line Temp	: ^F
Depth/TVD -m	:342.0 /342.0
Mud Wt -lb/gal	: 8.9
Funnel Vis -s/qt	: 50 @ 76 ^F
Plastic Visc -cps	: 22 @ 72 ^F
YP/R3 -lb/100ft2 /deg	: 19 / 2
10s/10m Gel -lb/100ft2	: 3 / 9
API F Loss -cc/30 min	: 5.8
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 4
Oil/Water -%vol	: /96
Sand -%vol	: 0.5
MBT -lb/bbl	: 13.0
pH	: 8.5 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.2
Chlorides -mg/l	: 21000
Hardness Ca	: 400
K+ PPM	: 21000
KCL WT %	: 4
PHPA	: 2.1
ENV	: 85000
np Value	: 0.619
Kp -lb-sec^n/100ft2	: 0.91951
na Value	: 0.656
Ka -lb-sec^n/100ft2	: 0.73210

CIRCULATION DATA	
Flow Rate -gal/min	:
DP Annular Vel -m/min	:
DC Annular Vel -m/min	:
DP Critical Vel -m/min	:
DC Critical Vel -m/min	:
Circ. Pressure -psi	:
Bottoms Up -min	:
Total Circ Time -min	:

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	160
Polyplus Powder	25 KG S	7
Polypac	25 KG S	1
CMC TG LV	25 KG S	2
Sodium Bicarb	25 KG S	3

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.1 / 1
KCl	: 1.5 / 14
Low Gravity Solids	: 2.6 / 24
Bentonite	: 1.3 / 12
Drill Solids	: 1.1 / 10
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 0.68	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 50	4
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	
Desilter :	4"X 12	
Degasser :		

MUD VOLUME ACCOUNTING	bbl		
Oil Added :		Dump	:90
Water Added :		SCE	:
Mud Built	:125	Surface	:43
Mud Received:			
Mud Disposed:133			

Remarks :
Continue to RIH work bridge at 327m-6m fill. Circulate hole clean and POOH. Run and cement 9.625" casing.
Continue to RIH. Work bridge at 327m- 6m fill. Circulate hole clean and POOH.
Rig up and run and cement 9.625" casing - WOC. Nipple up BOPs.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 3347 Cumul Cost : 9360

M-I Drilling Fluids Co. Magcobar/IMCO — A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	11 MAY 19 95
DEPTH	342 m
SPUD DATE	9 MAY
PRESENT ACTIVITY	NIPPLE UP BOPs
OPERATOR	GFE RESOURCES LTD
CONTRACTOR	CENTURY
RIG NO.	11
REPORT FOR	KEN SMITH
REPORT FOR	ROGER RINDON
SECTION, TOWNSHIP, RANGE	ONSHORE
WELL NAME AND NO.	DIGBY # 1
FIELD OR BLOCK NO.	DIGBY IV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	8½
TYPE	
JET SIZE	
DRILL PIPE SIZE / TYPE / LENGTH	
DRILL PIPE SIZE / TYPE / LENGTH	
DRILL COLLAR SIZE / LENGTH	
SURFACE CASING	9 5/8 in. @ ft.
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.
HOLE	O/H
PITS	383
TOTAL CIRCULATING VOLUME	
IN STORAGE	
WEIGHT	
MUD TYPE	KCl/PHPA
PUMP SIZE	5.5 / 6.0 X 7.5 / 8.5 IN
PUMP MAKE, MODEL	NAT 7P50 / 8P80
ASSUMED EFF	95 %
bbl/stk	0.054/0.07
stk/min	
bbl/min	
gal/min	
ANNULAR VEL (ft/min)	DP ___ DC ___
CIRCULATION PRESSURE (psi)	
BOTTOMS UP (min) (strk)	
TOTAL CIRC TIME (min) (strk)	

MUD PROPERTIES

	☐ F.L. ☑ PIT	☐ F.L. ☑ PIT
Sample From		
Time Sample Taken	23:00	05:30
Flowline Temperature (°F)	-	-
Depth (ft) (TVD / ft)	342	342
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	8.9	9.0
Funnel Viscosity (sec/qt) API @ 76 °F	50	52
Plastic Viscosity cp @ 72 °F	22	21
Yield Point (lb/100 ft²)	19	20
Gel Strength (lb/100 ft²) 10 sec/10 min	3/9	3/10
Filtrate API (cm³/30 min)	5.8	5.6
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	4	4
Liquid Content (% by Vol) Oil/Water	-/96	-/96
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	13.0	13.0
pH ☐ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/1.2
Chloride (mg/L)	21000	21000
Total Hardness as Calcium (mg/L)	400	400
K⁺ mg/l	21000	21000
KCl % wt	4	4
PHPA ppb	1.9	1.9

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45 sec/qt	5-7cc

RECOMMENDED TOUR TREATMENT

- DUMP SAND TRAP & PREPARE ADDITIONAL 8% KCl/PHPA MUD

NOTE: PROPS INDICATED IN MUD CHECK ARE THOSE OF 12¼" SECT BEFORE CONDITIONING WITH NEW MUD

REMARKS

CONTIN TO RIH - WORK BRIDGE @ 327m
- 6m FILL
- CIRC HOLE CLEAN & POOH
RIG UP, RUN & CEMENT 9 5/8" CSG.
- WOC
- NIPPLE UP BOPS.

PRODUCT INVENTORY

PRODUCT INVENTORY	KCl	POLY PLUS	PAC R	CMC LV	BICARB SODA
STARTING INVENTORY	760	54	54	32	3
RECEIVED					
USED LAST 24 hr	160	7	1	2	3
CLOSING INVENTORY	600	47	53	30	-
COST LAST 24 hr	·60 / 1933	·75 / 1212	·74 / 131	·46 / 122	46.02
USED (from IADC)					

SOLIDS EQUIPMENT

SHAKER #1	3 x 50 mesh
SHAKER #2	/ mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	hours
DESILTER	hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$3346.57	$10726.83

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	5.0	Water Added (bbl)		Low Gravity %	3.7
Drilling		Mud Built (bbl)	125	Low Gravity, ppb	33.5
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.3
Circulating	1.0	Mud Disposed (bbl)	133	Bentonite, ppb	11.4
Tripping	2.5	DUMP	90	Drill Solids %	2.1
Survey		SURF	43	Drill Solids, ppb	19.1
Logging				Shale CEC, ppb	-
Running Casing/Cmt	5.5	TOTAL MUD	383	D/B Ratio	1.26
Testing		Starting Depth		High Gravity %	
Fishing / NIPPLE UP	3.5	Ending Depth		High Gravity, ppb	
WOC	6.5	New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS

Zero Gel		Avg ROP		ECD @		
n Factor		% Cutting		Leak Off @		
k Factor		psi	%	hhp	HSI	Jet Vel
Bit Hydraulics						
Annular Section		1	2	3	4	5
Hole Size						
Pipe OD						
Critical Velocity						
Annular Velocity						
Viscosity						
Annular Pressure						

WATER BASE MUD REPORT - Day : 4

M-I Drilling Fluids Company - - Date : 12/05/95 Depth : 435.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 81
Drill Pipe 1 OD : 4.500 in 219 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 255
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 336
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: FL 21:00	Flow Rate -gal/min :	250	NaCl	: 1.0 / 11
Flow Line Temp	: 94 ^F	DP Annular Vel -m/min :	33.9	KCl	: 1.5 / 14
Depth/TVD -m	:435.0 /435.0	DC Annular Vel -m/min :	56.3	Low Gravity Solids	: 2.8 / 26
Mud Wt -lb/gal	: 9.1	DP Critical Vel -m/min :	83.3	Bentonite	: 0.9 / 8
Funnel Vis -s/qt	: 46 @ 90 ^F	DC Critical Vel -m/min :	110.1	Drill Solids	: 1.7 / 15
Plastic Visc -cps	: 18 @ 76 ^F	Circ. Pressure -psi :	1250	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 17 / 2	Bottoms Up -min :	11.1	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 3 / 9	Total Circ Time -min :	56.4	Inert/React : 1.38	Average SG : 2.60
API F Loss -cc/30 min	: 6.0				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size Hours
Cake API/HT -1/32"	: 1	Potassm Chloride 25 KG S	80	Shaker #1	: 3 X 50 8
Solids -%vol	: 4	Polyplus Powder 25 KG S	3	Shaker #2	:
Oil/Water -%vol	: /96	Soda Ash 25 KG S	2	Shaker #3	:
Sand -%vol	: 0.75	OS-1 25 KG S	3	Shaker #4	:
MBT -lb/bbl	: 10.0			Mud Cleaner	:
pH	: 9.5 @ 65 ^F			Centrifuge	:
Alkal Mud (Pm)	: 0.1			Desander	: 12"X 2 6
Pf/Mf	: 0.1 / 0.3			Desilter	: 4"X 12 6
Chlorides -mg/l	: 40000			Degasser	:
Hardness Ca	: 200				
K+ PPM	: 30000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 5.5			Oil Added :	Dump :22
PHPA	: 2.0			Water Added :	SCE :30
ENV	: 75000			Mud Built :35	surface :30
np Value	: 0.598			Mud Received:	
Kp -lb-sec^n/100ft2	: 0.89522			Mud Disposed:82	
na Value	: 0.622				
Ka -lb-sec^n/100ft2	: 0.77430				

Remarks :
Cont to nipple up. M/U BHA & RIH. Drill collar,shoe track & cmt.Displ hole to mud,perform LOT and drill 8.5"TO 435m
Continue to nipple up and test BOPs. Make up BHA and RIH - Tag cement at
319m. Drill floaat collar shoe track and cement with water drill 3m new hole.
Displace hole to mud. Perform LOT and drill 8.5" hole to 435m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 1618 Cumul Cost : 10978

M-I Drilling Fluids Co. Magcobar/IMCO — A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 12 MAY 19 95	DEPTH 435 m	SPUD DATE 10 MAY	PRESENT ACTIVITY DRILL 8½ HOLE
OPERATOR GFE RES LTD	CONTRACTOR CENTURY	RIG NO. 11	
REPORT FOR KEN SMITH	REPORT FOR ROGER BINDON	SECTION, TOWNSHIP, RANGE ONSHORE	
WELL NAME AND NO. DIGBY # 1	FIELD OR BLOCK NO. DIGBY JV	COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE HTC ATJ05	JET SIZE 3 x 11	SURFACE 9⅝ in. @ 337 ft	HOLE 80	PITS 256	PUMP SIZE 5.5 x 7.5 IN. / 6.0 8.5		ANNULAR VEL (ft/min) DP 34 DC 56
DRILL PIPE SIZE 4½	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME 336		PUMP MAKE, MODEL NAT 7P50 8P80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1250
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 55 m	INTERMEDIATE in. @ ft.	IN STORAGE	WEIGHT	bbl/stk 0.054/0.07	stk/min 110	BOTTOMS UP (min) (strk) 14 min
DRILL COLLAR SIZE 6¼"		LENGTH 161 m	PRODUCTION OR LINER in. @ ft.	MUD TYPE KCl/PHPA		bbl/min 5.94	gal/min 250	TOTAL CIRC TIME (min) (strk) 56 min

MUD PROPERTIES		
Sample From	☑F.L. ☐ PIT	☑F.L. ☐ PIT
Time Sample Taken	21:00	05:30
Flowline Temperature (°F) °C	92(34)	96(36)
Depth (ft) (TVD /) m	375	530
Weight ☑(ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.4
Funnel Viscosity (sec/qt) API @ °F	46	47
Plastic Viscosity cp @ °F	18	19
Yield Point (lb/100 ft²)	17	15
Gel Strength (lb/100 ft²) 10 sec/10 min	3/9	3/
Filtrate API (cm³/30 min)	6.0	7.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	4	4
Liquid Content (% by Vol) Oil/Water	1/96	1/96
Sand Content (% by Vol)	0.75	1.0
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	10.0	11.5
pH ☑ Strip ☐ Meter @ °F	9.5	9.0
Alkalinity Mud (P_m)	0.1	0.2
Alkalinity Filtrate (P_f/M_f)	0.1/0.3	0.05/0.4
Chloride (mg/L)	40000	55000
Total Hardness as Calcium (mg/L)	200	400
K⁺ mg/l	30000	40000
KCl % wt	5.5	7.0
PHPA	2.0	1.85
ENV 150	75000	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- INCREASE KCl CONC AND MAINTAIN PHPA BY PREMIX ADDITIONS.
- RUN SOLIDS CONTROL EQUIP CONTIN.
- COMMENCE OS-1 TREATMENT OF SYSTEM

REMARKS

CONTIN. TO NIPPLE UP BOPs. FUNCTION & PRESS TEST
M/U BHA & DRILL COLLAR, SHOE TRACK AND CEMENT. DRILL 3m NEW HOLE
DISPLACE HOLE TO MUD AND PERFORM LOT - MUD WT EQUIV = 22.3 ppg @ 345 m
DRILL 8½" HOLE F/345m - 435m

D/SAND 12.0ppg U/FLOW 9.2ppg O/FLOW @ 0.4 GPM
D/SILT 11.0ppg U/FLOW @ 2.0 GPM

PRODUCT INVENTORY	KCl	SODA ASH	OS-1	POLY PLUS
STARTING INVENTORY	600	14	37	47
RECEIVED				
USED LAST 24 hr	80	2	3	3
CLOSING INVENTORY	520	12	34	44
COST LAST 24 hr	.80 916	28.17	152.85	.75 519
USED (from IADC)	11.46	14.31	50.95	173.25

SOLIDS EQUIPMENT

SHAKER #1 3 x 50 mesh
SHAKER #2 / mesh
MUD CLEANER mesh
CENTRIFUGE hours
DESANDER 6 hours
DESILTER 6 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 1618.02	$ 12344.85

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	4.5	Water Added (bbl)		Low Gravity %	2.8
Drilling	4.5	Mud Built (bbl)	35	Low Gravity, ppb	25.1
Reaming/Coring	1.0	Mud Received (bbl)		Bentonite %	1.0
Circulating	1.0	Mud Disposed (bbl)	82	Bentonite, ppb	9.1
Tripping		DUMP	22	Drill Solids %	1.4
Survey		SURFACE	30	Drill Solids, ppb	13.0
Logging		SCE	30	Shale CEC, ppb	-
Running Casing		TOTAL MUD	334	D/B Ratio	1.10
Testing BOP	6.5	Starting Depth	342	High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
NIPP UP	6.5	New Hole Vol. (bbl)		KCl % wt	2.1

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	22.6	ECD @ [illegible]		
n Factor	0.62	% Cutting		Leak Off @		
k Factor	0.78	psi	9%	hhp	HSI	Jet Vel
Bit Hydraulics 14 MAY		676	54	99	8/3	41/88
Annular Section		1	2	3 DRILL	4	5
Hole Size		8.68	8.68	8.5		
Pipe OD		4.5	6.25	6.25		
Critical Velocity		83	106	110		
Annular Velocity		34	51	56		
Viscosity		77	53.5	50		
Annular Pressure		2.0	2.0	3.3		

WATER BASE MUD REPORT - Day : 5

M-I Drilling Fluids Company - - Date : 13/05/95 Depth : 781.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 155
Drill Pipe 1 OD : 4.500 in 565 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 235
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 390
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: FL 22:00	Flow Rate -gal/min :	250	NaCl	: 1.5 / 17
Flow Line Temp	: 105 ^F	DP Annular Vel -m/min :	35.9	KCl	: 1.5 / 13
Depth/TVD -m	:781.0 /781.0	DC Annular Vel -m/min :	56.3	Low Gravity Solids	: 4.4 / 40
Mud Wt -lb/gal	: 9.4	DP Critical Vel -m/min :	61.2	Bentonite	: 1.3 / 12
Funnel Vis -s/qt	: 43 @ 90 ^F	DC Critical Vel -m/min :	85.8	Drill Solids	: 2.9 / 26
Plastic Visc -cps	: 18 @ 76 ^F	Circ. Pressure -psi :	1350	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 12 / 1	Bottoms Up -min :	20.8	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 3 / 8	Total Circ Time -min :	65.5	Inert/React : 1.54	Average SG : 2.60
API F Loss -cc/30 min	: 5.6				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size Hours
Cake API/HT -1/32"	: 1	Potassm Chloride 25 KG S	120	Shaker #1 :	3 X 84 24
Solids -%vol	: 4	Polyplus Powder 25 KG S	10	Shaker #2 :	
Oil/Water -%vol	: /96	Polypac 25 KG S	2	Shaker #3 :	
Sand -%vol	: 1	Soda Ash 25 KG S	5	Shaker #4 :	
MBT -lb/bbl	: 15.0	M-I Gel 25 KG S	30	Mud Cleaner :	
pH	: 8.5 @ 65 ^F	OS-1 25 KG S	4	Centrifuge :	
Alkal Mud (Pm)	: 0.1			Desander :	12"X 2 22
Pf/Mf	: 0.05/ 0.3			Desilter :	4"X 12 22
Chlorides -mg/l	: 51000			Degasser :	
Hardness Ca	: 320				
K+ PPM	: 44000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 8			Oil Added :	Dump :26
PHPA	: 2.0			Water Added :	SCE :80
S03=	: 40			Mud Built :250	surface :90
np Value	: 0.678			Mud Received:	
Kp -lb-sec^n/100ft2	: 0.46771			Mud Disposed:196	
na Value	: 0.739				
Ka -lb-sec^n/100ft2	: 0.31986				

Remarks :
Drill 8.5" hole from 435m-656m. POOH for wiper trip-hole good. Drill from 656m-781m.
Drill 8.5" hole from 435m-656m POOH for 16 stand wiper trip - hole good.
Drill from 656m-781m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 3930 Cumul Cost : 14908

M-I Drilling Fluids Co.

Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 13 MAY 19		DEPTH 781 m	
SPUD DATE 10 MAY		PRESENT ACTIVITY DRILL 8½ HOLE	
OPERATOR GFE RESOURCES LTD	CONTRACTOR CENTURY	RIG NO. 11	
REPORT FOR KEN SMITH	REPORT FOR ROGER BINDON	SECTION, TOWNSHIP, RANGE ONSHORE	
WELL NAME AND NO. DIGBY #	FIELD OR BLOCK NO. DIGBY JV	COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	TYPE	JET SIZE	CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
8½	HTC ATJ05	3 x 11	SURFACE 9⅝ in. @ 337 ft	HOLE 150	PITS 240	PUMP SIZE 5.5 x 7.5 IN; 6.0 x 8.5		ANNULAR VEL (ft/min) DP 34 DC 56
DRILL PIPE SIZE 4½	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 390		PUMP MAKE, MODEL 7P 50 NAT 8P 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1350
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 55 m	INTERMEDIATE in. @ ft	IN STORAGE 45	WEIGHT	bbl/stk 0.054/0.07	stk/min 110	BOTTOMS UP (min) (strk) 25.-
DRILL COLLAR SIZE 6½		LENGTH 161 m	PRODUCTION OR LINER in. @ ft	MUD TYPE KCl/PHPA		bbl/min 5.94	gal/min 250	TOTAL CIRC TIME (min) (strk) 66.-

MUD PROPERTIES

	☑F.L. ☐ PIT	☑F.L. ☐ PIT
Sample From		
Time Sample Taken	22:00	0:600
Flowline Temperature (°F)	105(40)	110(43)
Depth (ft) (TVD / ft)	760	828
Weight ☑(ppg) ☐(lb/cu ft) ☐(sp gr)	9.4	9.3
Funnel Viscosity (sec/qt) API @ 102 °F	43	42
Plastic Viscosity cp @ 95 °F	18	16
Yield Point (lb/100 ft²)	12	11
Gel Strength (lb/100 ft²) 10 sec/10 min	3/8	2/8
Filtrate API (cm³/30 min)	5.6	5.4
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	4	4
Liquid Content (% by Vol) Oil/Water	1 96	1 96
Sand Content (% by Vol)	1%	1%
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	15.0	15.0
pH ☑ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	0.05/0.3	.05/0.3
Chloride (mg/L)	51000	50000
Total Hardness as Calcium (mg/L)	320	300
K⁺ mg/l	44000	44000
KCl % wt	8%	8%
PHPA	2.0	2.2
$SO_3^=$	40	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

CONTIN TO PREP KCl/PHPA PREMIX TO MAINTAIN KCl 5-8% wt & PHPA 2 ppb

- RUN SOLIDS CONTROL EQUIP CONTIN
- MAINTAIN RHEOLOGY WITH PHG & PAC R

REMARKS

DRILL 8½" HOLE F/435 m - 656 m

POOH FOR 16 STD WIPER TRIP

- HOLE GOOD - WASH 2 m TO BOTTOM.

DRILL F/656 m - 781 m

- MAX DEVIATION 2°

D/SAND 12.2 ppg U/F 9.4 ppg O/F @ 1 BPM

D/SILT 11 ppg U/F 9.4 ppg O/F 1.5 BPM

PRODUCT INVENTORY

PRODUCT INVENTORY	GEL	KCl	POLY PLUS	POLY PAC R	OS-1	SODA ASH
STARTING INVENTORY	63	520	44	53	34	12
RECEIVED						
USED LAST 24 hr	30	120	10	2	4	5
CLOSING INVENTORY	33	400	34	51	30	7
COST LAST 24 hr	·20 283	·20 1375	·50 1732	·48 263	·90 203	71.55
USED (from IADC)	9.44	11.46	173.25	131.74	50.95	14.31

SOLIDS EQUIPMENT

SHAKER #1	4 x 50 mesh
SHAKER #2	2 x 84 mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	22 hours
DESILTER	22 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$3929.73	$16274.58

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service		Water Added (bbl)		Low Gravity %	4.2
Drilling	19.5	Mud Built (bbl)	250	Low Gravity, ppb	38.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.4
Circulating	0.5	Mud Disposed (bbl)	196	Bentonite, ppb	12.5
Tripping	1.5	DUMP	26	Drill Solids %	2.5
Survey	2.5	SURFACE	90	Drill Solids, ppb	22.9
Logging		SCE	80	Shale CEC, ppb	-
Running Casing		TOTAL MUD	390	D/B Ratio	1.36
Testing		Starting Depth	435	High Gravity %	-
Fishing		Ending Depth	781	High Gravity, ppb	-
		New Hole Vol. (bbl)	80		

MUD RHEOLOGY and HYDRAULICS

Zero Gel 1	Avg ROP 16.5	ECD @			
n Factor 0.74	% Cutting	Leak Off @ 345 m 223 ft)			
k Factor 0.32	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	698	52	102	1.79	88
Annular Section	1	2	3	4	5
Hole Size	8.68	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	76	78	97		
Annular Velocity	34	36	56		
Viscosity	71	67	44		
Annular Pressure	9.3	3.6	16.0		

WATER BASE MUD REPORT - Day : 6

M-I Drilling Fluids Company	- -	Date : 14/05/95	Depth : 924.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM	Well No. : W0003	Spud Date : 09/05/95	Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

	CASING		MUD VOLUME (bbl)
Bit : 8.500 in			
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 184
Drill Pipe 1 OD : 4.500 in 708 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 197
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 381
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: FL 21:00	Flow Rate -gal/min :	250	NaCl	: 0.6 / 7
Flow Line Temp	: 112 ^F	DP Annular Vel -m/min :	35.9	KCl	: 1.5 / 14
Depth/TVD -m	:924.0 /924.0	DC Annular Vel -m/min :	56.3	Low Gravity Solids	: 3.3 / 30
Mud Wt -lb/gal	: 9.1	DP Critical Vel -m/min :	82.9	Bentonite	: 1.7 / 15
Funnel Vis -s/qt	: 43 @ 105^F	DC Critical Vel -m/min :	106.6	Drill Solids	: 1.4 / 13
Plastic Visc -cps	: 19 @ 97 ^F	Circ. Pressure -psi :	1400	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 14 / 2	Bottoms Up -min :	24.7	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 4 / 13	Total Circ Time -min :	64.0	Inert/React : 0.71	Average SG : 2.60
API F Loss -cc/30 min	: 5.2				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size Hours
Cake API/HT -1/32"	: 1	Potassm Chloride	25 KG S 120	Shaker #1 :	3 X 84 24
Solids -%vol	: 3	Caustic Soda	25 KG S 2	Shaker #2 :	
Oil/Water -%vol	: /97	Polyplus Powder	25 KG S 15	Shaker #3 :	
Sand -%vol	: 0.5	Polypac	25 KG S 3	Shaker #4 :	
MBT -lb/bbl	: 16.5	Soda Ash	25 KG S 4	Mud Cleaner :	
pH	: 9.0 @ 65 ^F	M-I Gel	25 KG S 33	Centrifuge :	
Alkal Mud (Pm)	: 0.2	OS-1	25 KG S 3	Desander :	12"X 2 21
Pf/Mf	: 0.05/ 0.3			Desilter :	4"X 12 21
Chlorides -mg/l	: 33000			Degasser :	
Hardness Ca	: 280				
K+ PPM	: 33000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 6			Oil Added :	Dump :9
PHPA	: 2.3			Water Added :	SCE :60
SO3=	: 100			Mud Built :250	surface :50
np Value	: 0.656			Mud Received:	
Kp -lb-sec^n/100ft2	: 0.59019			Mud Disposed:119	
na Value	: 0.609				
Ka -lb-sec^n/100ft2	: 0.79060				

Remarks :
Control drill from 781m-896m. Max dev = 2 deg. POOH for wiper. Hole good. RIH-3m fill drill from 896m-944m.
Control drill (building angle) from 781m-896m. POOH for wiper trip-hole good.
RIH-3m fill drill from 896m-944m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 4935 Cumul Cost : 19843

M-I Drilling Fluids Co.
Magcobar/IMCO — A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	14 MAY 1995
DEPTH	944
SPUD DATE	10 MAY
PRESENT ACTIVITY	DRILL 8½ HOLE
OPERATOR — REPORT FOR	GFE RESOURCES LTD — KEN SMITH
CONTRACTOR — REPORT FOR	CENTURY — ROGER BORDEN
RIG NO.	11
WELL NAME AND NO.	DIGBY # 1
FIELD OR BLOCK NO.	DIGBY IV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
SECTION, TOWNSHIP, RANGE	ONSHORE
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	8½
TYPE	HTC ATJ 05
JET SIZE	3 x 11
CASING SURFACE	9⅝ in. @ 337 ft
DRILL PIPE SIZE / TYPE	4½ / 16.6 #
DRILL PIPE SIZE / TYPE / LENGTH	4½ / HWDP / 56 m
DRILL COLLAR SIZE / LENGTH	6¼ / 161 m
INTERMEDIATE	in. @ ft
PRODUCTION OR LINER	in. @ ft
HOLE	183
PITS	198
TOTAL CIRCULATING VOLUME	381
IN STORAGE	185
WEIGHT	8.6
MUD TYPE	KCl / PHPA
PUMP SIZE X IN.	5.5 x 7.5
PUMP MAKE, MODEL	NAT 7P50
ASSUMED EFF	95 %
bbl/stk	0.053
stk/min	110
bbl/min	5.74
gal/min	250
ANNULAR VEL (ft/min)	DP 34 DC 56
CIRCULATION PRESSURE (psi)	1400
BOTTOMS UP (min) (strk)	31 min
TOTAL CIRC TIME (min) (strk)	64 min

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☐ F.L. ☐ PIT
Time Sample Taken	21:00	05:00
Flowline Temperature (°F)	112 (44)	115 (46)
Depth (ft) (TVD /) m	924	975
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.1
Funnel Viscosity (sec/qt) API @ 105 °F	43	42
Plastic Viscosity cp @ 97 °F	19	18
Yield Point (lb/100 ft²)	14	13
Gel Strength (lb/100 ft²) 10 sec/10 min	4/13	3/10
Filtrate API (cm³/30 min)	5.2	5.0
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	3	3
Liquid Content (% by Vol) Oil/Water	-/97	-/97
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	16.5	16.5
pH ☑ Strip ☐ Meter @ 75 °F	9.0	9.0
Alkalinity Mud (P_m)	0.2	0.15
Alkalinity Filtrate (P_f/M_f)	.05/0.3	.05/0.3
Chloride (mg/L)	33000	31000
Total Hardness as Calcium (mg/L)	280	160
K^+ mg/l	33000	32000
KCl % wt	6	6
PHPA ppb 0.74	2.3	2.3
$SO_4^=$	100	40

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- PREP CONC PHPA PREMIX / BLEED TO ACTIVE WHILE DRILLING
- MAINTAIN RHEOLOGY WITH PHC + PACR PREMIX
- RUN SCE CONTIN.
- CUTTINGS SMALLER HARDER DRIER

REMARKS

- DRILL 8½ HOLE FROM 781m - 896m
- POOH FOR WIPER. HOLE GOOD
- RIH - 3m FILL
- CONTROL DRILL AFTER CHECKING SURVEYS MAX DEV 2°
- DRILL F/896m - 944m

PRODUCT INVENTORY

	GEL	KCl	POLY PLUS	POLY PAC R	CAUSTIC SODA	SODA ASH	OS-1
STARTING INVENTORY	33	400	34	51	51	7	30
RECEIVED							
USED LAST 24 hr	33	120	15	3	2	4	3
CLOSING INVENTORY	-	280	19	48	49	3	27
COST LAST 24 hr	311.52	1375 (.20)	2598 (.75)	395 (.22)	44.70	57.24	152.55
USED (from IADC)	9.44	11.46	173.25	131.74	22.35	14.31	50.95

SOLIDS EQUIPMENT

SHAKER #1	2 x 84 / 1 x 50 mesh
SHAKER #2	mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	21 hours
DESILTER	21 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	3254822		$ 4935.48	$ 21210.06

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)

Rig Up/Service	
Drilling	18.0
Reaming/Coring	
Circulating	
Tripping	3.0
Survey	3.0
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	250
Mud Received (bbl)	72
Mud Disposed (bbl)	119
DUMP	9
SURFACE	50
SCE	60
TOTAL MUD	566
Starting Depth	710
Ending Depth	924
New Hole Vol. (bbl)	38

SOLIDS ANALYSIS

Low Gravity %	3.1
Low Gravity, ppb	28.6
Bentonite %	1.7
Bentonite, ppb	15.4
Drill Solids %	1.1
Drill Solids, ppb	9.7
Shale CEC, ppb	-
D/B Ratio	0.57
High Gravity %	-
High Gravity, ppb	-

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	7.0	ECD @	
n Factor	0.61	% Cutting		Leak Off @	
k Factor	0.79	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	676	48	99	1.74	88
Annular Section	1	2	3	4	5
Hole Size	8.68	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	215	240	301		
Annular Velocity	34	36	56		
Viscosity	71	61	37		
Annular Pressure	11.9	13.2	16.2		

WATER BASE MUD REPORT - Day : 7

M-I Drilling Fluids Company
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

- -
Well No. : W0003

Date : 15/05/95
Spud Date : 09/05/95

Depth : 1040.0 m
Activity : RIH

Operator : GFE RESOURCES LTD
Well Name : DIGBY 1
Report For: KEN SMITH

Contractor : CENTURY
Field/Area : OTWAY BASIN

Description : EXPLORATION
Location : PEP 105 & PEP 126

Bit : 8.500 in	**CASING**		**MUD VOLUME (bbl)**
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 210
Drill Pipe 1 OD : 4.500 in 824 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 265
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 475
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES		:
Sample From		PIT 21:30
Flow Line Temp		^F
Depth/TVD	-m	1040.0/1040.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	43 @ 95 ^F
Plastic Visc	-cps	19 @ 84 ^F
YP/R3	-lb/100ft2 /deg	12 / 1
10s/10m Gel	-lb/100ft2	2 / 8
API F Loss	-cc/30 min	4.6
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	4.8
Oil/Water	-%vol	/95.2
Sand	-%vol	0.5
MBT	-lb/bbl	17.5
pH		9.0 @ 65 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.05/ 0.2
Chlorides	-mg/l	32000
Hardness Ca		320
K+ PPM		32000
KCL WT %		6
PHPA		2.5
SO3=		140
np Value		0.689
Kp	-lb-sec^n/100ft2	0.44963
na Value		0.746
Ka	-lb-sec^n/100ft2	0.31617

CIRCULATION DATA		
Flow Rate	-gal/min	250
DP Annular Vel	-m/min	35.9
DC Annular Vel	-m/min	56.3
DP Critical Vel	-m/min	62.6
DC Critical Vel	-m/min	88.1
Circ. Pressure	-psi	1400
Bottoms Up	-min	28.1
Total Circ Time	-min	79.8

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	80
Caustic Soda	25 KG S	6
Polyplus Powder	25 KG S	4
Polypac	25 KG S	6
Soda Ash	25 KG S	2
OS-1	25 KG S	4

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.6 / 7
KCl	1.5 / 14
Low Gravity Solids	4.9 / 45
Bentonite	1.6 / 14
Drill Solids	3.1 / 28
Weight Material	N/A / N/A
Chemical Conc	- / 2.0
Inert/React : 1.44	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	19
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	12
Desilter	4"X 12	12
Degasser		

MUD VOLUME ACCOUNTING	bbl		
Oil Added :		Dump	:
Water Added :		SCE	:31
Mud Built	:55	surface	:40
Mud Received:			
Mud Disposed:71			

Remarks :
Control drill from 944m-1040m. Max dev = 2 deg. Circ & POOH. Hole good. M/U stiff BHA & change bit. RIH.
Control drill (building angle - Maximum deviation = 2 deg) from 944m-1040m.
Circulate hole clean and POOH - hole good. Make up stiff BHA and change bit.
Commence RIH.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 2767 Cumul Cost : 22610

M-I Drilling Fluids Co.
Magcobar/IMCO — A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 15 MAY 19 95	DEPTH 1040m	PRESENT ACTIVITY	
SPUD DATE 10 MAY		R.I.H	
OPERATOR: GFE RES LTD	CONTRACTOR: CENTURY	RIG NO. 11	
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE	
WELL NAME AND NO.: DIGBY #1	FIELD OR BLOCK NO.: DIGBY IV	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN	STATE/PROVINCE: VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE: 8 1/2	TYPE: VAREL ETD417H	JET SIZE: 3 x 11	SURFACE: 9 5/8 in. @ 337 ft	HOLE: 243	PITS: 232	PUMP SIZE: 5.5 x 7.5 IN.	ANNULAR VEL (ft/min): DP 24 DC 56
DRILL PIPE SIZE: 4 1/2	TYPE: 16.6#	LENGTH: 823	INTERMEDIATE: in. @ ft.	TOTAL CIRCULATING VOLUME: 475		PUMP MAKE, MODEL: NAT 7P 50; ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi): 1400
DRILL PIPE SIZE: 4 1/2	TYPE: HWDP	LENGTH: 56m	INTERMEDIATE: in. @ ft.	IN STORAGE: 75	WEIGHT: 8.7	bbl/stk: 0.054; stk/min: 110	BOTTOMS UP (min) (strk): 41 min
DRILL COLLAR SIZE: 6 1/4		LENGTH: 161m	PRODUCTION OR LINER: in. @ ft.	MUD TYPE: KCl/PHPA		bbl/min: 5.94; gal/min: 250	TOTAL CIRC TIME (min) (strk): 80 min

MUD PROPERTIES

	☐ F.L. ☑ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	21.30	16/5 05.30
Flowline Temperature (°F)	-	112 (44)
Depth (ft) (TVD /) m	1040	1040
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.2+
Funnel Viscosity (sec/qt) API @ 95 °F	43	42
Plastic Viscosity cp @ 84 °F	19	17
Yield Point (lb/100 ft²)	12	11
Gel Strength (lb/100 ft²) 10 sec/10 min	2/8	3/8
Filtrate API (cm³/30 min)	4.6	4.8
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	5	5
Liquid Content (% by Vol) Oil/Water	-/95	/95
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	17.5	17.5
pH ☐ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/0.2
Chloride (mg/L)	32000	32000
Total Hardness as Calcium (mg/L)	320	320
K⁺ mg/l	32000	32000
KCl % wt	6	6
PHPA ppb uncorrected 0.71	2.5	2.5
$SO_3^=$	140	140

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.2-9.3 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- CONTIN TO TREAT SYSTEM WITH KCl/PHPA CONC PREMIX
- RUN SCE INTERMITTANTLY
- PREPARE TO WEIGHT UP SYSTEM TO 9.5 ppg BY 1200m

REMARKS

DRILL 8½" HOLE F/944m - 1040m
CONTROL DRILL WITH MAX DEV 2°
CIRC HOLE CLEAN & POOH: HOLE GOOD
PRESS TEST SURFACE EQUIP & BOP:
M/U STIFF BHA & CHANGE BIT
SLIP & CUT DRILL LINE - RIH

* SACKS SPLIT DURING TRANSFER: REMAINS CONTAIN
D/SAND 11.6ppg U/FLOW 9.1ppg O/F 0.8GPM
D/SILT 10.8ppg U/F 1.0GPM

PRODUCT INVENTORY

PRODUCT INVENTORY	KCl	POLY PLUS	POLY PAC	CAUSTIC SODA	SODA ASH	DS-1
STARTING INVENTORY	280	19	48	49	3	27
RECEIVED						
USED LAST 24 hr	80	4	6	*6	2	4
CLOSING INVENTORY	200	15	42	43	1	23
COST LAST 24 hr	.80 916	693	.44 790	.10 134	28.62	.80 203
USED (from IADC)						

SOLIDS EQUIPMENT

SHAKER #1 2 x 84 mesh
SHAKER #2 1 x 50 mesh
MUD CLEANER ______ mesh
CENTRIFUGE ______ hours
DESANDER 12 hours
DESILTER 12 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$2766.76	$23976.82

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	2.5	Water Added (bbl)		Low Gravity %	4.8
Drilling	14.0	Mud Built (bbl)	55	Low Gravity, ppb	44.0
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.6
Circulating	0.5	Mud Disposed (bbl)	71	Bentonite, ppb	14.6
Tripping	4.0	DUMP		Drill Solids %	2.8
Survey	2.0	SURFACE	40	Drill Solids, ppb	25.9
Logging		SCE	31	Shale CEC, ppb	-
Running Casing		TOTAL MUD	550	D/B Ratio	1.31
Testing	1.0	Starting Depth	944	High Gravity %	-
Fishing		Ending Depth	1040	High Gravity, ppb	-
		New Hole Vol. (bbl)	26		

MUD RHEOLOGY and HYDRAULICS

Zero Gel	1	Avg ROP	20	ECD @		
n Factor	0.75	% Cutting		Leak Off @335m · 22.3 ppg		
k Factor	0.31	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		691	49	101	1.78	88
Annular Section		1	2	3	4	5
Hole Size		8.68	8.5	8.5		
Pipe OD		4.5	4.5	6.25		
Critical Velocity		61	63.0	88		
Annular Velocity		24	51	56		
Viscosity		32	36	30		
Annular Pressure		6.7	12.1	13.8		

WATER BASE MUD REPORT - Day : 8

M-I Drilling Fluids Company	- -	Date : 16/05/95	Depth : 1080.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM	Well No. : W0003	Spud Date : 09/05/95	Activity : WAIT ON RIG

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

	CASING		MUD VOLUME (bbl)
Bit : 8.500 in			
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 218
Drill Pipe 1 OD : 4.500 in 864 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 223
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 441
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: FL 20:30
Flow Line Temp	: 115 ^F
Depth/TVD -m	:1080.0/1080.0
Mud Wt -lb/gal	: 9.3
Funnel Vis -s/qt	: 44 @ 112^F
Plastic Visc -cps	: 18 @ 100^F
YP/R3 -lb/100ft2 /deg	: 12 / 2
10s/10m Gel -lb/100ft2	: 3 / 8
API F Loss -cc/30 min	: 5.0
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 4.5
Oil/Water -%vol	: /95.5
Sand -%vol	: 0.5
MBT -lb/bbl	: 17.5
pH	: 9.0 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.2
Chlorides -mg/l	: 35000
Hardness Ca	: 240
K+ PPM	: 34000
KCL WT %	: 6.5
PHPA	: 2.5
SO3=	: 100
np Value	: 0.678
Kp -lb-sec^n/100ft2	: 0.46771
na Value	: 0.588
Ka -lb-sec^n/100ft2	: 0.81775

CIRCULATION DATA	
Flow Rate -gal/min :	300
DP Annular Vel -m/min :	43.1
DC Annular Vel -m/min :	67.5
DP Critical Vel -m/min :	78.4
DC Critical Vel -m/min :	99.7
Circ. Pressure -psi :	1400
Bottoms Up -min :	24.2
Total Circ Time -min :	61.7

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	100
Polyplus Powder	25 KG S	6
Soda Ash	25 KG S	2

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.7 / 8
KCl	: 1.5 / 14
Low Gravity Solids	: 4.7 / 43
Bentonite	: 1.6 / 15
Drill Solids	: 2.9 / 26
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 1.34	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 84	20
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	6
Desilter :	4"X 12	6
Degasser :		

MUD VOLUME ACCOUNTING	bbl
Oil Added :	Dump :15
Water Added :	SCE :7
Mud Built :90	surface :50
Mud Received:	
Mud Disposed:72	

Remarks :
Contin.RIH & precaution ream to bottom-7m fill.Drill 8.5" 1040m-1080m. Transfer box drive shaft failed Wait on rig.
Continue to RIH. Precaution ream from 367m to bottom (STIFF ASSEMBLY) - 7m
fill. Drill 8.5" hole from 1040m-1080m. Inspect drive shaft - failed transfer
box. Wait on replacement.

M-I Sales Engineer: P.MARSHALL	Warehouse: ADELAIDE	Daily Cost : 2214	Cumul Cost : 24824

M-I Drilling Fluids Co.
Magcobar/IMCO · A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 16 MAY 19 95	DEPTH 1080m	SPUD DATE 10 MAY	PRESENT ACTIVITY WAIT ON RIG PARTS
OPERATOR GFE RESOURCES LTD	CONTRACTOR CENTURY	RIG NO. 11	
REPORT FOR KEN SMITH	REPORT FOR ROGER BINDON	SECTION, TOWNSHIP, RANGE ONSHORE	
WELL NAME AND NO. DIGBY #1	FIELD OR BLOCK NO. DIGBY IV	COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8 1/2	TYPE ETD 417m	JET SIZE 3 x 11	SURFACE 9 5/8 in. @ 337 ft	HOLE 217	PITS 224	PUMP SIZE 6 X 8.5 IN.		ANNULAR VEL (ft/min) DP 43 DC 68
DRILL PIPE SIZE 4 1/2	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 441		PUMP MAKE, MODEL NAT 8P80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1400
DRILL PIPE SIZE 4 1/2	TYPE HWDP	LENGTH 56m	INTERMEDIATE in. @ ft	IN STORAGE 127	WEIGHT 8.7	bbl/stk 0.0705	stk/min 100	BOTTOMS UP (min) (strk) 31 min
DRILL COLLAR SIZE 6 1/4		LENGTH 161	PRODUCTION OR LINER in. @ ft	MUD TYPE KCl/PHPA		bbl/min 7.05	gal/min 300	TOTAL CIRC TIME (min) (strk) 63 min

MUD PROPERTIES		
Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	20:30	05:30
Flowline Temperature (°F)	115(46)	115
Depth (ft) (TVD / ft)	1080	1080
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ 112 °F	44	45
Plastic Viscosity cp @ 100 °F	18	20
Yield Point (lb/100 ft²)	12	16
Gel Strength (lb/100 ft²) 10 sec/10 min	3/8	3/10
Filtrate API (cm³/30 min)	5.0	4.0
API HTHP Filtrate (cm³/30 min) @ °F	–	–
Cake Thickness (32nd in. API/HTHP)	1/–	1/–
Solids Content (% by Vol) ☐ calculated ☐ retort	4.5	4.5
Liquid Content (% by Vol) Oil/Water	95.5	95.5
Sand Content (% by Vol)	0.5	0.25
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	17.5	17.5
pH ☑ Strip ☐ Meter @ °F	9.0	8.5
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	.05/2	.05/0.15
Chloride (mg/L)	35000	35000
Total Hardness as Calcium (mg/L)	240	240
K^+ mg/l	34000	34500
KCl % wt	6.5	6.5
PHPA ppb uncorrect 0.49	2.5	2.6
$SO_3^=$	100	40

MUD PROPERTY SPECIFICATIONS		
WEIGHT	VISCOSITY	FILTRATE
9.2 - 9.3 ppg	35 - 45 sec/qt	5 - 7 cc

RECOMMENDED TOUR TREATMENT

- BLEED CONC KCl/PHPA PREMIX → ACTIVE WHILE CIRC
- RUN SCE INTERMITTANTLY

REMARKS

DRILL CONTIN TO RIH. PRECAUTIONAL REAM TO BOTTOM (STIFF BHA) - 7m FILL
DRILL 8½ HOLE F/1040m - 1080m
? FAILED TRANSFER BOX ON DRIVE SHAFT - INSPECT - WAIT ON REPLACEMENT
- CIRC B/U @ 100 SPM (300 g/min)
EVERY 2 HRS - NO CUTTINGS AT SHAKER
NOTE: FLOW RATES PREVIOUSLY REPORTED INCORRECTLY, AS 250 g/min HAVE BEEN 300 g/min
D/SAND 10.3 ppg U/FLOW 9.3 ppg O/FLOW 0.75 CEM
D/SILT 10.7 ppg U/FLOW 0.5 CEM

PRODUCT INVENTORY	GEL	KCl	POLY PLUS	BICARB SODA	XCD	SODA ASH
STARTING INVENTORY	–	200	15	–	–	2
RECEIVED	96	400		40	17	
USED LAST 24 hr		100	6			2
CLOSING INVENTORY	96	500	9	40	17	–
COST LAST 24 hr		1146	50 1037			28.62
USED (from IADC)						

SOLIDS EQUIPMENT

SHAKER #1	2 x 84 / 1 x 50 mesh
SHAKER #2	mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	6 hours
DESILTER	6 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 2214.12	$ 26190.94

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	4.0	Water Added (bbl)		Low Gravity %	4.6
Drilling	4.5	Mud Built (bbl)	90	Low Gravity, ppb	42.0
Reaming/Coring	5.5	Mud Received (bbl)		Bentonite %	1.6
Circulating		Mud Disposed (bbl)	72	Bentonite, ppb	14.9
Tripping		DUMP	15	Drill Solids %	2.6
Survey		SURFACE	50	Drill Solids, ppb	23.6
Logging		SCE	7	Shale CEC, ppb	1.19
Running Casing		TOTAL MUD	568	D/B Ratio	
Testing		Starting Depth	1040	High Gravity %	–
Fishing		Ending Depth	1080	High Gravity, ppb	–
WAIT ON PARTS	10.0	New Hole Vol. (bbl)	9		

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	9.0	ECD @			
n Factor	0.59	% Cutting		Leak Off @ 125m 22.3 ppg			
k Factor	0.97		psi	%	hhp	HSI	Jet Vel
Bit Hydraulics			995	71	174	2.07	105
Annular Section			1	2	3	4	5
Hole Size			8.68	8.5	8.5		
Pipe OD			4.5	4.5	6.25		
Critical Velocity			77	78	100		
Annular Velocity			41	43	68		
Viscosity			63	60	39		
Annular Pressure			10.5	18.1	18.1		

WATER BASE MUD REPORT - Day : 9

M-I Drilling Fluids Company - - Date : 17/05/95 Depth : 1080.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : REPAIR RIG

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 218
Drill Pipe 1 OD : 4.500 in 864 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 223
Drill Pipe 2 OD : 4.500 in 55.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 441
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	FL 20:30
Flow Line Temp	115 ^F
Depth/TVD -m	1080.0/1080.0
Mud Wt -lb/gal	9.3
Funnel Vis -s/qt	43 @ 112^F
Plastic Visc -cps	20 @ 100^F
YP/R3 -lb/100ft2 /deg	15 / 1
10s/10m Gel -lb/100ft2	3 / 7
API F Loss -cc/30 min	4.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	4.5
Oil/Water -%vol	/95.5
Sand -%vol	0.25
MBT -lb/bbl	17.5
pH	8.5 @ 65 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.1
Chlorides -mg/l	35000
Hardness Ca	240
K+ PPM	34000
KCL WT %	6.0
PHPA	2.6
S03=	40
np Value	0.652
Kp -lb-sec^n/100ft2	0.64163
na Value	0.772
Ka -lb-sec^n/100ft2	0.30287

CIRCULATION DATA	
Flow Rate -gal/min	165
DP Annular Vel -m/min	23.7
DC Annular Vel -m/min	37.1
DP Critical Vel -m/min	65.8
DC Critical Vel -m/min	94.4
Circ. Pressure -psi	450
Bottoms Up -min	44.0
Total Circ Time -min	112.3

PRODUCTS USED LAST 24 HOURS

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.7 / 8
KCl	1.5 / 14
Low Gravity Solids	4.7 / 43
Bentonite	1.6 / 15
Drill Solids	2.9 / 26
Weight Material	N/A / N/A
Chemical Conc	- / 2.0
Inert/React : 1.34	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	24
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	
Desilter	4"X 12	
Degasser		

MUD VOLUME ACCOUNTING		bbl
Oil Added :	D/hole	:30
Water Added :	SCE	:
Mud Built :	surface	:7
Mud Received:		
Mud Disposed:37		

Remarks :
Contin.to wait on fabricated transfer box shaft.Circ.cont @ 165 gal/min.B/U @ 300g/min every 4HRS.Install new shaft
Continue to wait on fabricated transfer box shaft. Circulate continuously at 165-170 gal/min and bottoms up every 4 hours at 300 gals/min. Install new shaft and trial.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 0 Cumul Cost : 24824

M-I Drilling Fluids Co.
Magcobar/IMCO A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 17 MAY 1995 | DEPTH 1080 m
SPUD DATE 10 MAY | PRESENT ACTIVITY: INSTALL NEW SHAFT

OPERATOR	CONTRACTOR	RIG NO.
GFE RES LTD	CENTURY	11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE

WELL NAME AND NO.	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA	STATE/PROVINCE
DIGBY #1	DIGBY JV	OTWAY BASIN	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE: 8½	TYPE: ETD 417m	JET SIZE: 3×11
DRILL PIPE SIZE: 4½	TYPE: 16.6#	LENGTH:
DRILL PIPE SIZE: 4½	TYPE: HWDP	LENGTH: 56 m
DRILL COLLAR SIZE: 6¼	LENGTH: 161 m	

CASING	
SURFACE	9⅝ in. @ 337 ft
INTERMEDIATE	in. @ ft
INTERMEDIATE	in. @ ft
PRODUCTION OR LINER	in. @ ft

MUD VOLUME (BBL)	
HOLE	217
PITS	224
TOTAL CIRCULATING VOLUME	441
IN STORAGE	90
WEIGHT	8.7
MUD TYPE	KCl/PHPA

CIRCULATION DATA	
PUMP SIZE	5.5 x 7.5 IN.
PUMP MAKE, MODEL	NAT 7P 50
ASSUMED EFF	95 %
bbl/stk	0.504
stk/min	72
bbl/min	3.9
gal/min	165
ANNULAR VEL (ft/min)	DP 24/82 DC 27/68
CIRCULATION PRESSURE (psi)	450
BOTTOMS UP (min) (strk)	56 min
TOTAL CIRC TIME (min) (strk)	113 min

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	20:00	05:30
Flowline Temperature (°F)	115(46)	115
Depth (ft) (TVD /)	1080	1099
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ 110 °F	43	42
Plastic Viscosity cp @ 95 °F	20	18
Yield Point (lb/100 ft²)	15	14
Gel Strength (lb/100 ft²) 10 sec/10 min	3/7	3/7
Filtrate API (cm³/30 min)	4.4	4.2
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☐ calculated ☐ retort	4.5	4.5
Liquid Content (% by Vol) Oil/Water	-/95.5	95.5
Sand Content (% by Vol)	0.25	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	17.5	18.0
pH ☐ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.1	.05/0.1
Chloride (mg/L)	35000	38000
Total Hardness as Calcium (mg/L)	240	280
K⁺ mg/l	34000	35000
K⁺	6.0	6.5
PHPA ppb 0.95	2.6	2.6
$SO_4^=$	40	80

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.2-9.3	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- OCCASIONAL TRANSFER OF PREMIX → ACTIVE
- NO TREATMENT
- NO CUTTINGS OVER SHAKER

REMARKS

- CONTIN TO WAIT ON FABRICATED TRANSFER BOX SHAFT
- CONTIN CIRC @ 160-170 gal/min EVERY 4 HRS CIRC P/U @ 300 gal/min
- INSTALL NEW SHAFT & TRIAL

* RECEIVED 32 sks PAC R, 47 POLYPLUS

PRODUCT INVENTORY

	POLY PLUS	PAC R
STARTING INVENTORY	69	42
RECEIVED	47	32
USED LAST 24 hr		
CLOSING INVENTORY	53 56	74
COST LAST 24 hr		
USED (from IADC)		

SOLIDS EQUIPMENT

SHAKER #1	2 × 84 / 1 × 50	mesh
SHAKER #2	/	mesh
MUD CLEANER		mesh
CENTRIFUGE		hours
DESANDER	-	hours
DESILTER	-	hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	073254322		$ 0.00	$ 26190.94

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service REP	12.0	Water Added (bbl)		Low Gravity %	4.6
Drilling		Mud Built (bbl)		Low Gravity, ppb	42.0
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.6
Circulating		Mud Disposed (bbl)	37	Bentonite, ppb	14.9
Tripping		DOWNHOLE	30	Drill Solids %	2.6
Survey		SURFACE	7	Drill Solids, ppb	23.6
Logging				Shale CEC, ppb	
Running Casing		TOTAL MUD	531	D/B Ratio	1.17
Testing		Starting Depth	-	High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
W.O. PARTS	12.0	New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS

Zero Gel	1	Avg ROP	-	ECD @	
n Factor	0.77	% Cutting		Leak Off @ 345	22.3
k Factor	0.30	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		301	67	29	0.51	58
Annular Section		1	2	3	4	5
Hole Size		8.68	8.5	8.5		
Pipe OD		4.5	4.5	6.25		
Critical Velocity		87	87.5	109		
Annular Velocity		22	24	37		
Viscosity		90	87	59		
Annular Pressure		7.8	15.1	14.0		

WATER BASE MUD REPORT - Day : 10

M-I Drilling Fluids Company — Date : 18/05/95 — Depth : 1195.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD
Contractor : CENTURY
Description : EXPLORATION
Well Name : DIGBY 1
Field/Area : OTWAY BASIN
Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 242
Drill Pipe 1 OD : 4.500 in 978 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 208
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 450
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES		CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	FL 17:30	Flow Rate -gal/min	325	NaCl	0.8 / 10
Flow Line Temp	118 ^F	DP Annular Vel -m/min	46.7	KCl	1.4 / 13
Depth/TVD -m	1195.0/1195.0	DC Annular Vel -m/min	73.2	Low Gravity Solids	6.1 / 55
Mud Wt -lb/gal	9.5	DP Critical Vel -m/min	86.2	Bentonite	1.6 / 14
Funnel Vis -s/qt	45 @ 112^F	DC Critical Vel -m/min	113.4	Drill Solids	4.3 / 39
Plastic Visc -cps	23 @ 104^F	Circ. Pressure -psi	1550	Weight Material	N/A / N/A
YP/R3 -lb/100ft2 /deg	16 / 2	Bottoms Up -min	24.8	Chemical Conc	- / 2.0
10s/10m Gel -lb/100ft2	3 / 10	Total Circ Time -min	58.2	Inert/React : 1.87	Average SG : 2.60
API F Loss -cc/30 min	4.2				
HTHP F Loss -cc/30 min	@ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size / Hours
Cake API/HT -1/32"	1	Polyplus Powder 25 KG S	5	Shaker #1	3 X 84 / 24
Solids -%vol	5.5	Sodium Bicarb 25 KG S	4	Shaker #2	
Oil/Water -%vol	/94.5	OS-1 25 KG S	6	Shaker #3	
Sand -%vol	0.5	M-I Bar 25 KG S	160	Shaker #4	
MBT -lb/bbl	18.5	XCD 25 KG S	2	Mud Cleaner	
pH	9.0 @ 65 ^F			Centrifuge	
Alkal Mud (Pm)	0.1			Desander	12"X 2
Pf/Mf	0.05/ 0.35			Desilter	4"X 12
Chlorides -mg/l	38000			Degasser	
Hardness Ca	320				
K+ PPM	35500			MUD VOLUME ACCOUNTING	bbl
KCL WT %	6.5			Oil Added :	D/hole :36
PHPA	2.5			Water Added :	dump :20
SO3=	80			Mud Built :140	surface :65
np Value	0.668			Mud Received:	
Kp -lb-sec^n/100ft2	0.64422			Mud Disposed:121	
na Value	0.645				
Ka -lb-sec^n/100ft2	0.74518				

Remarks :
Complete shaft replacement POOH to shoe-hole good. RIH-7m fill. Drill 8.5" from 1080m-1231m. Max Dev - 2.75 deg.
Complete shaft replacement. POOH to shoe - hole good. Tight spot at 794m. RIH
- hole good - 7m fill. Drill 8.5" hole from 1080m - 1231m with regular
surveys. Maximum deviation at 1201m - 2.75 deg.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 2963 Cumul Cost : 27771

WATER BASE MUD REPORT - Day : 11

M-I Drilling Fluids Company — Date : 19/05/95 — Depth : 1277.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION
Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 260
Drill Pipe 1 OD : 4.500 in 1060 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 213
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 473
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	FL 00:01
Flow Line Temp	120 ^F
Depth/TVD -m	1277.0/1277.0
Mud Wt -lb/gal	9.5
Funnel Vis -s/qt	47 @ 118^F
Plastic Visc -cps	21 @ 110^F
YP/R3 -lb/100ft2 /deg	18 / 3
10s/10m Gel -lb/100ft2	4 / 14
API F Loss -cc/30 min	4.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	5.5
Oil/Water -%vol	/94.5
Sand -%vol	0.5
MBT -lb/bbl	19.0
pH	9.0 @ 65 ^F
Alkal Mud (Pm)	0.2
Pf/Mf	0.1 / 0.6
Chlorides -mg/l	35000
Hardness Ca	100
K+ PPM	32500
KCL WT %	6.0
PHPA	2.4
SO3=	100
np Value	0.621
Kp -lb-sec^n/100ft2	0.86512
na Value	0.557
Ka -lb-sec^n/100ft2	1.29040

CIRCULATION DATA		
Flow Rate	-gal/min	325
DP Annular Vel	-m/min	46.7
DC Annular Vel	-m/min	73.2
DP Critical Vel	-m/min	96.7
DC Critical Vel	-m/min	120.7
Circ. Pressure	-psi	1600
Bottoms Up	-min	26.6
Total Circ Time	-min	61.1

PRODUCTS USED LAST 24 HOURS		
Polyplus Powder	25 KG S	5
Polypac	25 KG S	1
XCD	25 KG S	2

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.7 / 8
KCl	1.4 / 13
Low Gravity Solids	6.3 / 57
Bentonite	1.6 / 15
Drill Solids	4.4 / 40
Weight Material	N/A / N/A
Chemical Conc	- / 2.0
Inert/React : 1.89	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	24
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	
Desilter	4"X 12	
Degasser		

MUD VOLUME ACCOUNTING		bbl
Oil Added :	D/hole	:30
Water Added :	dump	:15
Mud Built :70	surface	:39
Mud Received:		
Mud Disposed:84		

Remarks :
Control drill F/1231m.-1247m.DEV.=3deg.POOH & Re make up BHA.RIH-Hole good.Control drill to 1277m.MAX DEV.=3.25deg
Control drill 8.5" hole from 1231m - 1247m. Deviation = 3.0 deg. POOH and re-make up BHA. RIH to 1237m. Wash to bottom - hole good. Control drill (3-5 m/hr) from 1247m-1269m. Maximum deviation = 3.25 deg. Control drill from 1269m-1277m.

M-I Sales Engineer: P.MARSHALL — Warehouse: ADELAIDE — Daily Cost : 1843 — Cumul Cost : 29614

WATER BASE MUD REPORT - Day : 12

M-I Drilling Fluids Company — - — Date : 20/05/95 — Depth : 1373.0 m

DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION

Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126

Report For: KEN SMITH

	CASING	MUD VOLUME (bbl)
Bit : 8.500 in		
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in Liner OD : in	Hole Volume : 280
Drill Pipe 1 OD : 4.500 in 1156 m	Casing ID : 8.680 in Liner ID : in	Pits Volume : 223
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m Liner TD : m	Circulating Volume : 503
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: PIT 00:01
Flow Line Temp	: 120 ^F
Depth/TVD -m	:1373.0/1373.0
Mud Wt -lb/gal	: 9.5
Funnel Vis -s/qt	: 47 @ 118^F
Plastic Visc -cps	: 22 @ 110^F
YP/R3 -lb/100ft2 /deg	: 20 / 4
10s/10m Gel -lb/100ft2	: 4 / 16
API F Loss -cc/30 min	: 4.8
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 5.7
Oil/Water -%vol	: /94.3
Sand -%vol	: 0.75
MBT -lb/bbl	: 19.5
pH	: 8.5 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.4
Chlorides -mg/l	: 34000
Hardness Ca	: 240
K+ PPM	: 30000
KCL WT %	: 5.5
PHPA	: 2.1
S03=	: 40
np Value	: 0.607
Kp -lb-sec^n/100ft2	: 1.01538
na Value	: 0.511
Ka -lb-sec^n/100ft2	: 1.85574

CIRCULATION DATA		
Flow Rate	-gal/min :	325
DP Annular Vel	-m/min :	46.7
DC Annular Vel	-m/min :	73.2
DP Critical Vel	-m/min :	107.2
DC Critical Vel	-m/min :	130.6
Circ. Pressure	-psi :	1550
Bottoms Up	-min :	28.7
Total Circ Time	-min :	65.0

PRODUCTS USED LAST 24 HOURS		
Caustic Soda	25 KG S	1
OS-1	25 KG S	3
M-I Bar	25 KG S	40

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.7 / 8
KCl	: 1.4 / 13
Low Gravity Solids	: 6.3 / 58
Bentonite	: 1.6 / 15
Drill Solids	: 4.5 / 41
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 1.85	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 84	24
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	
Desilter :	4"X 12	
Degasser :		

MUD VOLUME ACCOUNTING	bbl	
Oil Added :	D/hole	:18
Water Added :	dump	:5
Mud Built :90	surface	:30
Mud Received:		
Mud Disposed:53		

Remarks :
Control drill at +/- 5.0 m/hr from 1277m-1373m. Max and current deviation = 3 deg.
Attempt to reduce hole deviation, currently 3 deg, by control drill at
+/-5m/hr from 1277m - 1373m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 396 — Cumul Cost : 30010

M-I Drilling Fluids Co. Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 20 MAY 1995 | DEPTH 1373 | SPUD DATE 10 MAY | PRESENT ACTIVITY CONTROL DRILL 8½

OPERATOR	CONTRACTOR	RIG NO.
GFE RES. LTD	CENTURY	11
REPORT FOR KEN SMITH	REPORT FOR ROGER RIXON	SECTION, TOWNSHIP, RANGE ONSHORE
WELL NAME AND NO. DIGBY #1	FIELD OR BLOCK NO. DIGBY ...	COUNTY, PARISH OR OFFSHORE AREA ... / STATE/PROVINCE ...

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

Bit size / Type / Jet size	8½ / ... / 3x11
Surface casing	9⅝ in. @ 237 ft
Drill pipe size / type	4½ / 16.6
Drill pipe size / type / length	4½ / HWDP / 56m
Drill collar size / length	6¼ / 161
Hole	280
Pits	223
Total circulating volume	503
In storage	70
Weight	9.3
Mud type	KCl/PHPA
Pump size	6 X 8.5 in.
Pump make, model	NAT 8P80
Assumed eff	95 %
bbl/stk	0.0705
stk/min	110
bbl/min	7.75
gal/min	325
Annular vel (ft/min)	DP 47 DC 73
Circulation pressure (psi)	1550
Bottoms up (min)	36 min
Total circ time (min)	65 min

MUD PROPERTY SPECIFICATIONS: Weight 9.5-9.7 ppg; Viscosity 35-45 sec/qt; Filtrate <7cc

MUD PROPERTIES	F.L.	F.L.
Sample From	F.L.	F.L.
Time Sample Taken	22:00	06:00
Flowline Temperature (°F)	120(49)	120(49)
Depth (ft) (TVD)	1365	1398
Weight (ppg)	9.5	9.5
Funnel Viscosity (sec/qt) API @ 118 °F	47	50
Plastic Viscosity cp @ 115 °F	22	23
Yield Point (lb/100 ft²)	20	21
Gel Strength (lb/100 ft²) 10 sec/10 min	4/16	6/18
Filtrate API (cm³/30 min)	4.8	5.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) calculated	5.7	5.8
Liquid Content (% by Vol) Oil/Water	94.3	94.2
Sand Content (% by Vol)	0.75	0.75
Methylene Blue Capacity	19.5	20.0
pH Strip	8.5	8.8
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.4	.05/0.4
Chloride (mg/L)	34000	33000
Total Hardness as Calcium (mg/L)	240	200
K⁺ mg/l	30000	30000
KCl % wt	5.5	5.5
PHPA 0.38	2.1	2.0
$SO_3^=$	40	110

RECOMMENDED TOUR TREATMENT

- MAINTAIN VOL & PHPA WITH PREMIXED PREMIX
-

REMARKS

CONTROL DRILL F/1277 - 1373 (5m/hr)
MAX DEV 3° AND CONSISTENT

PRODUCT INVENTORY	BARITE	OS-1	CAUSTIC SODA
STARTING INVENTORY	280	17	43
RECEIVED			
USED LAST 24 hr	40	3	1
CLOSING INVENTORY	240	14	42
COST LAST 24 hr	20 / 321	85 / 152	22.35
USED (from IADC)	553	60.85	22.35

SOLIDS EQUIPMENT: SHAKER #1 2 x 84 / 1 x 150 mesh; SHAKER #2 ... mesh; MUD CLEANER ___ mesh; CENTRIFUGE ___ hours; DESANDER – hours; DESILTER – hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 396.40	$ 31392.60

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	0.5	Water Added (bbl)		Low Gravity %	5.1
Drilling	20.5	Mud Built (bbl)	90	Low Gravity, ppb	46.8
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.8
Circulating		Mud Disposed (bbl)	53	Bentonite, ppb	16.6
Tripping		D/HOLE	18	Drill Solids %	2.8
Survey	3.0	SURFACE	30	Drill Solids, ppb	25.9
Logging		DUMP	5	Shale CEC, ppb	-
Running Casing		TOTAL ...	573	D/B Ratio	1.6
Testing		Starting Depth	1277	High Gravity %	0.6
Fishing		Ending Depth	8.7	High Gravity, ppb	8.7
		New Hole Vol. (bbl)	...		

MUD RHEOLOGY and HYDRAULICS

Zero Gel	3	Avg ROP	5.0	ECD @	
n Factor	0.51	% Cutting		Leak Off @	...
k Factor	1.86	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	1192	77	226	3.93	114
Annular Section	1	2	3	4	5
Hole Size	8.48	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	106	107	130		
Annular Velocity	44	47	73		
Viscosity	90	85	57		
Annular Pressure	...	...	...		

WATER BASE MUD REPORT - Day : 13

M-I Drilling Fluids Company — DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Date : 21/05/95	Depth : 1451.0 m	Well No. : W0003
Spud Date : 09/05/95	Activity : DRILL 8.5"	

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1234 m
Drill Pipe 2 OD : 4.500 in 56.0 m
Drill Collar OD : 6.250 in 161.0 m

CASING

Casing OD : 9.625 in	Liner OD :	in
Casing ID : 8.680 in	Liner ID :	in
Casing TD : 337.0 m	Liner TD :	m
Casing TVD : 337.0 m	Liner TVD :	m

MUD VOLUME (bbl)

Hole Volume : 297
Pits Volume : 285
Circulating Volume : 582
Mud : POLYPLUS/KCL MUD

MUD PROPERTIES

Sample From		FL 00:01
Flow Line Temp		128 ^F
Depth/TVD	-m	1451.0/1451.0
Mud Wt	-lb/gal	9.5
Funnel Vis	-s/qt	47 @ 122^F
Plastic Visc	-cps	19 @ 115^F
YP/R3	-lb/100ft2 /deg	22 / 4
10s/10m Gel	-lb/100ft2	6 / 17
API F Loss	-cc/30 min	5.4
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	6.0
Oil/Water	-%vol	/94
Sand	-%vol	0.25
MBT	-lb/bbl	18.0
pH		9.0 @ 65 ^F
Alkal Mud (Pm)		0.2
Pf/Mf		0.1 / 0.45
Chlorides	-mg/l	30000
Hardness Ca		100
K+ PPM		27000
KCL WT %		5.0
PHPA COR		1.2
S03=		80
np Value		0.549
Kp	-lb-sec^n/100ft2	1.42586
na Value		0.505
Ka	-lb-sec^n/100ft2	1.87165

CIRCULATION DATA

Flow Rate	-gal/min	325
DP Annular Vel	-m/min	46.7
DC Annular Vel	-m/min	73.2
DP Critical Vel	-m/min	106.1
DC Critical Vel	-m/min	128.8
Circ. Pressure	-psi	1600
Bottoms Up	-min	30.4
Total Circ Time	-min	75.2

PRODUCTS USED LAST 24 HOURS

Potassm Chloride	25 KG S	40
Caustic Soda	25 KG S	2
Polyplus Powder	25 KG S	13
Sodium Bicarb	25 KG S	2
M-I Bar	25 KG S	50

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.5	6
KCl	1.4	13
Low Gravity Solids	6.6	60
Bentonite	1.4	13
Drill Solids	4.9	45
Weight Material	N/A	N/A
Chemical Conc	-	2.0

Inert/React : 2.22 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	3 X 84	24
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	6
Desilter	4"X 12	
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		D/hole	8
Water Added	30	dump/SCE	23
Mud Built	120	surface	30
Mud Received			
Mud Disposed	61		

Remarks :
Control drill F/1373m.- 1418m.Make 13 STD wiper trip-hole good-3m.fill.control drill F/1418m.-1451m.Hole dev.=4deg.
Control drill (4.5m/hr) from 1373m - 1418m. Make 13 stand wiper trip-hole good- 3m fill. Control drill from 1418m - 1451m (3-5m/hr) current hole deviation = 4 deg.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 3063 Cumul Cost : 33073

M-I Drilling Fluids Co.
Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 21 MAY 19 95 | DEPTH 1451 m | SPUD DATE 10 MAY | PRESENT ACTIVITY ~~CONTROL DRILL 8½"~~

OPERATOR: GEE RES LTD	CONTRACTOR: CENTURY	RIG NO. 11	
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE	
WELL NAME AND NO.: DIGBY #1	FIELD OR BLOCK NO.: DIGBY 1V	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN	STATE/PROVINCE: VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE 8½	TYPE ETD 417m	JET SIZE 3×11	SURFACE 9⅝ in. @ 337 ft.	HOLE 295	PITS 287	PUMP SIZE 6 X 8.5 IN.		ANNULAR VEL (ft/min) DP 47 DC 73
DRILL PIPE SIZE 4½	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME 582		PUMP MAKE, MODEL NAT 8P 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1600
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 56 m	INTERMEDIATE in. @ ft.	IN STORAGE 80	WEIGHT 8.8	bbl/stk 0.0705	stk/min 110	BOTTOMS UP (min) (strk) 38 min
DRILL COLLAR SIZE 6½"		LENGTH 161 m	PRODUCTION OR LINER in. @ ft.	MUD TYPE KCl/PHPA		bbl/min 7.75	gal/min 325	TOTAL CIRC TIME (min) (strk) 75 min

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	22:30	05:30
Flowline Temperature (°F)	128 (53)	130 (54)
Depth (ft) (TVD /)	1446	1468
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.5	9.5
Funnel Viscosity (sec/qt) API @ 122 °F	47	50
Plastic Viscosity cp @ 115 °F	19	22
Yield Point (lb/100 ft²)	22	22
Gel Strength (lb/100 ft²) 10 sec/10 min	6/17	7/20
Filtrate API (cm³/30 min)	5.4	5.2
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☐ calculated ☐ retort	6.0	6.0
Liquid Content (% by Vol) Oil/Water	94	94
Sand Content (% by Vol)	0.25	0.25
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	18.0	18.5
pH ☑ Strip ☐ Meter @ °F	9.0	c
Alkalinity Mud (P_m)	0.2	0.15
Alkalinity Filtrate (P_f/M_f)	0.1/0.5	0.1/0.4
Chloride (mg/L)	30000	34000
Total Hardness as Calcium (mg/L)	100	160
K⁺ mg/l	27000	32000
KCl % wt	5.0	6.0
PHPA corrected	1.2	1.5
SO₄	80	60

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.5-9.7 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

~~CONTIN TO TREAT SYSTEM WITH CONC PREMIX~~
~~- RUN DESANDER INTERMITTENTLY~~
~~- RUN OCCASIONAL STREAM OF WATER~~

REMARKS

~~CONTROL DRILL (25-35 m/hr) F/ 1373-1418m~~
~~HOLE DEV @ 1410 : 4°~~
~~POOH FOR 13 STND WIPER TRIP. HOLE GOOD~~
~~RIH - 3m FILL~~
~~CONTROL DRILL F/1418m - 1451m ROP 25 m/hr~~
~~HOLE DEV @ 1465 : 4°~~
DRILL BREAK @ 1468m CIRC B/U - SANDSTONE

DESANDER 11.2 U/FLOW 9.5 O/FLOW @ 0.55 BPM

PRODUCT INVENTORY

PRODUCT INVENTORY	BARITE	KCl	POLY PLUS	CAUSTIC SODA	BICARB SODA
STARTING INVENTORY	240	500	43	42	36
RECEIVED					
USED LAST 24 hr	50	40	13	2	2
CLOSING INVENTORY	190	460	30	40	34
COST LAST 24 hr	·50 276	·40 458	·21 2043	44.70	30.68
USED (from IADC)					

SOLIDS EQUIPMENT

SHAKER #1 3 x 84 mesh
SHAKER #2 / mesh
MUD CLEANER mesh
CENTRIFUGE hours
DESANDER 6 hours
DESILTER - hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	3754822		$ 2853.49	$ 34246.09

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS		MUD RHEOLOGY and HYDRAULICS					
Rig Up/Service		Water Added (bbl)	30	Low Gravity %	5.3	Zero Gel	4	Avg ROP	4.0	ECD @	
Drilling	19.5	Mud Built (bbl)	120	Low Gravity, ppb	48.3	n Factor	0.505	% Cutting		Leak Off @ 345m 223 psi	
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.6	k Factor	0.87	psi	%	hhp	HSI	Jet Vel
Circulating	0.5	Mud Disposed (bbl)	61	Bentonite, ppb	14.6	Bit Hydraulics	1192	75	226	3.98	114
Tripping	1.0	D/HOLE	8	Drill Solids %	3.3	Annular Section	1	2	3	4	5
Survey	3.0	SURFACE	30	Drill Solids, ppb	30.2	Hole Size	8.68	8.5	8.5		
Logging		DUMP/SCE	23	Shale CEC, ppb	-	Pipe OD	4.5	4.5	6.25		
Running Casing		TOTAL MUD	662	D/B Ratio	1.49	Critical Velocity	106	106	131		
Testing		Starting Depth	1373	High Gravity %	0.6	Annular Velocity	41	47	73		
Fishing		Ending Depth	1451	High Gravity, ppb	9.0	Viscosity	91	87	58		
		New Hole Vol. (bbl)	18			Annular Pressure	17.7	51.2	27.8		

WATER BASE MUD REPORT - Day : 14

M-I Drilling Fluids Company — - — Date : 22/05/95 — Depth : 1468.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DST#1

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION
Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 300
Drill Pipe 1 OD : 4.500 in 1251 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 313
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 613
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: PIT 00:01	Flow Rate -gal/min :	325	NaCl	: 0.6 / 7
Flow Line Temp	: ^F	DP Annular Vel -m/min :	46.7	KCl	: 1.4 / 13
Depth/TVD -m	:1468.0/1468.0	DC Annular Vel -m/min :	73.2	Low Gravity Solids	: 6.4 / 58
Mud Wt -lb/gal	: 9.5	DP Critical Vel -m/min :	112.7	Bentonite	: 1.5 / 13
Funnel Vis -s/qt	: 52 @ 95 ^F	DC Critical Vel -m/min :	139.0	Drill Solids	: 4.7 / 43
Plastic Visc -cps	: 23 @ 85 ^F	Circ. Pressure -psi :	1625	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 24 / 4	Bottoms Up -min :	30.6	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 8 / 19	Total Circ Time -min :	79.2	Inert/React : 2.12	Average SG : 2.60
API F Loss -cc/30 min	: 5.0				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size / Hours
Cake API/HT -1/32"	: 1	M-I Bar	25 KG S 30	Shaker #1 :	3 X 84 / 12
Solids -%vol	: 6.0			Shaker #2 :	
Oil/Water -%vol	: /94			Shaker #3 :	
Sand -%vol	: 0.25			Shaker #4 :	
MBT -lb/bbl	: 18.0			Mud Cleaner :	
pH	: 9.0 @ 65 ^F			Centrifuge :	
Alkal Mud (Pm)	: 0.1			Desander :	12"X 2 / 6
Pf/Mf	: 0.05/ 0.3			Desilter :	4"X 12
Chlorides -mg/l	: 33000			Degasser :	
Hardness Ca	: 120				
K+ PPM	: 29000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 5.5			Oil Added :	D/hole :
PHPA COR	: 1.5			Water Added :	dump/SCE :
SO3=	: 40			Mud Built :	surface :7
np Value	: 0.574			Mud Received:	
Kp -lb-sec^n/100ft2	: 1.39561			Mud Disposed:7	
na Value	: 0.535				
Ka -lb-sec^n/100ft2	: 1.78326				

Remarks :
Control drill f/1451m.- 1468m.Circ.sample and flow check drill break. POOH, M/U DST tool, RIH & commence DST #1
Control drill (4.25m/hr) from 1451m - 1468m. Circulate out sample and flow
check drilliing break. Pull back stands, circulate and run back to bottom-no
fill. POOH and lay out BHA, make up DST tool and RIH. Commence DST #1.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 166 — Cumul Cost : 33239

WATER BASE MUD REPORT - Day : 15

M-I Drilling Fluids Company - - Date : 23/05/95 Depth : 1486.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD | Contractor : CENTURY | Description : EXPLORATION
Well Name : DIGBY 1 | Field/Area : OTWAY BASIN | Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 304
Drill Pipe 1 OD : 4.500 in 1269 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 392
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 696
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: FL 00:01	Flow Rate -gal/min :	325	NaCl	: 0.6 / 7
Flow Line Temp	: 125 ^F	DP Annular Vel -m/min :	46.7	KCl	: 1.4 / 13
Depth/TVD -m	:1486.0/1486.0	DC Annular Vel -m/min :	73.2	Low Gravity Solids	: 5.6 / 51
Mud Wt -lb/gal	: 9.4	DP Critical Vel -m/min :	99.8	Bentonite	: 1.6 / 14
Funnel Vis -s/qt	: 44 @ 116^F	DC Critical Vel -m/min :	119.2	Drill Solids	: 3.9 / 35
Plastic Visc -cps	: 17 @ 114^F	Circ. Pressure -psi :	1525	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 18 / 4	Bottoms Up -min :	31.0	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 7 / 15	Total Circ Time -min :	89.9	Inert/React : 1.73	Average SG : 2.60
API F Loss -cc/30 min	: 5.0				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT Size	Hours
Cake API/HT -1/32"	: 1	Potassm Chloride	25 KG S 80	Shaker #1 : 3 X 84	19
Solids -%vol	: 6.0	Polyplus Powder	25 KG S 5	Shaker #2 :	
Oil/Water -%vol	: /94	Sodium Bicarb	25 KG S 2	Shaker #3 :	
Sand -%vol	: 0.25	OS-1	25 KG S 3	Shaker #4 :	
MBT -lb/bbl	: 18.0			Mud Cleaner :	
pH	: 9.0 @ 65 ^F			Centrifuge :	
Alkal Mud (Pm)	: 0.1			Desander : 12"X 2	8
Pf/Mf	: 0.05/ 0.4			Desilter : 4"X 12	6
Chlorides -mg/l	: 33000			Degasser :	
Hardness Ca	: 120				
K+ PPM	: 29000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 5.5			Oil Added :	D/hole :
PHPA COR	: 1.2			Water Added :100	dump/SCE :34
SO3=	: 100			Mud Built :	surface :25
np Value	: 0.571			Mud Received:	
Kp -lb-sec^n/100ft2	: 1.06245			Mud Disposed:59	
na Value	: 0.471				
Ka -lb-sec^n/100ft2	: 1.97954				

Remarks :
Cont DST #1 over interval 1460m.-1468m.Pull test tool- water only.M/U BHA & RIH.dillL F/1468m.-1486m.@ 1-2 m/hr
Continue DST #1 over interval 1460m-1468m. Shut in after 3 hrs, unseat packer and reverse circulate-no go. Conventional circulate pull test tool and retrieve sample - water only. Lay out test tool and make up stiff BHA. RIH - 2m fill. Drill "sticky" balling clay from 1468m - 1486m at 1 - 2 m/hr - bit and stabiliser balled?

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 1967 Cumul Cost : 35205

M-I Drilling Fluids Co.
Magcobar/IMCO — A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 23 MAY 19 95 | DEPTH 1486m
SPUD DATE 10 MAY | PRESENT ACTIVITY DRILL 8½" HOLE

OPERATOR	CONTRACTOR	RIG NO.
GFE RES LTD	CENTURY	11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE

WELL NAME AND NO.	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA	STATE/PROVINCE
DIGBY #1	DIGBY 1V	OTWAY BASIN	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE: 8½	TYPE: VAREL ETD417	JET SIZE: 3 x 11	CASING SURFACE: 9⅝ in. @ 337 m
DRILL PIPE SIZE: 4½	TYPE: 16.6#	LENGTH:	INTERMEDIATE: in. @ ft.
DRILL PIPE SIZE: 4½	TYPE: HWDP	LENGTH: 56m	INTERMEDIATE: in. @ ft.
DRILL COLLAR SIZE: 6¼"	LENGTH: 161m		PRODUCTION OR LINER: in. @ ft.

HOLE	304
PITS	392
TOTAL CIRCULATING VOLUME	696
IN STORAGE	
WEIGHT	
MUD TYPE	KCl/PHPA

PUMP SIZE	6 X 8.5 IN.
PUMP MAKE, MODEL	NAT 8P 80
ASSUMED EFF	95 %
bbl/stk	0.0705
stk/min	110
bbl/min	7.75
gal/min	325
ANNULAR VEL (ft/min)	DP 47 DC 73
CIRCULATION PRESSURE (psi)	1525
BOTTOMS UP (min) (strk)	40 min
TOTAL CIRC TIME (min) (strk)	89 min

MUD PROPERTIES

	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	2100	05:30
Flowline Temperature (°F)	125 (52)	125
Depth (ft) (TVD / m)	1480	1489
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	9.3+
Funnel Viscosity (sec/qt) API @ 116 °F	44	47
Plastic Viscosity cp @ 112 °F	17	16
Yield Point (lb/100 ft²)	18	20
Gel Strength (lb/100 ft²) 10 sec/10 min	7/15	7/17
Filtrate API (cm³/30 min)	5.0	5.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	6.0	6.0
Liquid Content (% by Vol) Oil/Water	94	94
Sand Content (% by Vol)	0.25	TR
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	18.0	17.5
pH ☐ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.4	.05/0.4
Chloride (mg/L)	33000	35000
Total Hardness as Calcium (mg/L)	120	160
K⁺ mg/l	29000	32000
KCl % wt	5.5	6.0
PHPA	1.2	1.25
$SO_3^=$	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 - 9.5 ppg	35 - 45 sec/qt	5 - 7 cc

RECOMMENDED TOUR TREATMENT

TREAT SYSTEM CONTIN WITH KCl/PHPA PREMIX
- RUN SOLIDS CONTROL EQUIP + STREAM OF WATER TO REDUCE MUD WT : 9.3 ppg

REMARKS

CONTIN DST #1 OVER INTERVAL 1460m - 1468m SHUT IN AFTER 3½
PULL PACKER FREE & REVERSE CIRC
- NO GAS CIRC OUT & PULL TEST TOOL
RETRIEVE SAMPLE - WATER ONLY
LAY OUT TEST TOOL & M/U STIFF BHA
RIH - 2m FILL
DRILL 'STICKY' BALLING CLAY @ 1-2 m/hr
(BIT + STAB BALLED)? F/ 1468 - 1486m

DESILTER U/FLOW 13 ppg @ 2 GPM
DESANDER U/FLOW 11.2 ppg @ 0.75 GPM
* USING PREV CHARGED AMOUNTS OF PRODUCT SKS

PRODUCT INVENTORY

	KCl	POLY PLUS	OS-1	SOD BICARB	CAUSTIC SODA	BARITE
STARTING INVENTORY	460	30	14	34	40	160
RECEIVED						320
USED LAST 24 hr	80	5	3	2	*	
CLOSING INVENTORY	380	25	11	32	40	480
COST LAST 24 hr	.80 916	.85 785	.85 153	30.15		
USED (from IADC)	11.46	157.17	50.85	15.34		

SOLIDS EQUIPMENT

SHAKER #1 3 x 84 mesh
SHAKER #2 / mesh
MUD CLEANER ____ mesh
CENTRIFUGE ____ hours
DESANDER 8 hours
DESILTER 6 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 1886.18	$ 36298.17

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs) / MUD VOLUME ACCOUNTING / SOLIDS ANALYSIS

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	2.0	Water Added (bbl)		Low Gravity %	5.6
Drilling	9.5	Mud Built (bbl)	100	Low Gravity, ppb	50.6
Reaming/Coring	0.5	Mud Received (bbl)		Bentonite %	1.6
Circulating	1.5	Mud Disposed (bbl)	59	Bentonite, ppb	14.9
Tripping	4.5	DUMP	14	Drill Solids %	3.5
Survey		SCE	20	Drill Solids, ppb	32.2
Logging		SURFACE	25	Shale CEC, ppb	-
Running Casing		TOTAL MUD	696	D/B Ratio	1.55
Testing		Starting Depth	1468	High Gravity %	-
Fishing		Ending Depth	1486	High Gravity, ppb	-
DST	6.0	New Hole Vol. (bbl)	4	KCl % wt	7.0

MUD RHEOLOGY and HYDRAULICS

Zero Gel	4	Avg ROP	1.9	ECD @	
n Factor	0.47	% Cutting		Leak Off @ 345	12.3 ppg
k Factor	1.97	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	1180	77	224	3.94	114

Annular Section	1	2	3	4	5
Hole Size	8.15	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	113	100	117		
Annular Velocity	44	47	73		
Viscosity	91	87	50		
Annular Pressure	11.7	57.7	38.4		

WATER BASE MUD REPORT - Day : 16

M-I Drilling Fluids Company — Date : 24/05/95 — Depth : 1523.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION
Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 312
Drill Pipe 1 OD : 4.500 in 1306 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 304
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 616
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES		
Sample From		FL 22:00
Flow Line Temp		120 ^F
Depth/TVD	-m	1523.0/1523.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	45 @ 118^F
Plastic Visc	-cps	20 @ 105^F
YP/R3	-lb/100ft2 /deg	17 / 3
10s/10m Gel	-lb/100ft2	6 / 16
API F Loss	-cc/30 min	5.0
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	5.0
Oil/Water	-%vol	/95.0
Sand	-%vol	0.25
MBT	-lb/bbl	16.0
pH		9.0 @ 65 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.05/ 0.35
Chlorides	-mg/l	36000
Hardness Ca		160
K+ PPM		32000
KCL WT %		6.0
PHPA COR		1.4
S03=		60
np Value		0.623
Kp	-lb-sec^n/100ft2	0.81085
na Value		0.546
Ka	-lb-sec^n/100ft2	1.31469

CIRCULATION DATA		
Flow Rate	-gal/min	325
DP Annular Vel	-m/min	46.7
DC Annular Vel	-m/min	73.2
DP Critical Vel	-m/min	95.9
DC Critical Vel	-m/min	119.0
Circ. Pressure	-psi	1550
Bottoms Up	-min	31.9
Total Circ Time	-min	79.6

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	80
Polyplus Powder	25 KG S	7
Sodium Bicarb	25 KG S	2

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.8 / 9
KCl	1.5 / 14
Low Gravity Solids	4.6 / 42
Bentonite	1.4 / 13
Drill Solids	3.0 / 27
Weight Material	N/A / N/A
Chemical Conc	- / 2.0
Inert/React : 1.52	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	22
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	12
Desilter	4"X 12	
Degasser		

MUD VOLUME ACCOUNTING	bbl	
Oil Added :	D/hole	:102
Water Added :	dump/SCE	:35
Mud Built :130	surface	:30
Mud Received:		
Mud Disposed:167		

Remarks :
Drill 8.5" F/1486m.-1489m.ROP<1.0 m/hr Bit stopped drill. POOH.Remove junk from bit.RIH and drill f/1489m.- 1523m.
Continue to drill 8.5" from 1486m-1489m at <1.0 m/hr. Bit stopped drilling.
POOH tight hole at 683m. Break out bit and recover DST tool junk lodged in cones. Make up bit RR #5 and RIH. Drill from 1489m-1523m at 3-5m/hr through plastic reactive clay.

M-I Sales Engineer: P.MARSHALL — Warehouse: ADELAIDE — Daily Cost : 2146 — Cumul Cost : 37351

M-I Drilling Fluids Co. Magcobar/IMCO — A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	24 MAY 1995
DEPTH	1531 m
SPUD DATE	10 MAY
PRESENT ACTIVITY	DRILL 8½ HOLE
OPERATOR	GFE RES. LTD
REPORT FOR	KEAL SMITH
CONTRACTOR	CENTURY
REPORT FOR	ROGER BIWOOD
RIG NO.	11
SECTION, TOWNSHIP, RANGE	ONSHORE
WELL NAME AND NO.	DIGBY # 1
FIELD OR BLOCK NO.	DIGBY 11
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	8½
TYPE	ETD 417 m
JET SIZE	3 x 11
DRILL PIPE SIZE / TYPE	4½ / 16.6#
DRILL PIPE SIZE / TYPE / LENGTH	4½ / HWDP / 56 m
DRILL COLLAR SIZE / LENGTH	6¼ / 161 m
CASING SURFACE	9⅝ in. @ 337 ft
INTERMEDIATE	in. @ ft
INTERMEDIATE	in. @ ft
PRODUCTION OR LINER	in. @
HOLE	312
PITS	304
TOTAL CIRCULATING VOLUME	616
IN STORAGE	43
WEIGHT	8.8
MUD TYPE	KCl/PHPA
PUMP SIZE	6 X 8.5 IN.
PUMP MAKE, MODEL	NAT 8P80
ASSUMED EFF	95 %
bbl/stk	0.0705
stk/min	110
bbl/min	7.75
gal/min	325
ANNULAR VEL (ft/min)	DP 47 DC 73
CIRCULATION PRESSURE (psi)	1550
BOTTOMS UP (min) (strk)	40 min
TOTAL CIRC TIME (min) (strk)	79 min

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	22 00	05:30
Flowline Temperature (°F)	122 (50)	123
Depth (ft) (TVD / ft)	1523	1530
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ 118 °F	45	47
Plastic Viscosity cp @ 105 °F	20	20
Yield Point (lb/100 ft²)	17	19
Gel Strength (lb/100 ft²) 10 sec/10 min	6 / 16	7 / 18
Filtrate API (cm³/30 min)	5.0	5.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1 / -	1 / -
Solids Content (% by Vol) ☑ calculated ☐ retort	5.0	5.0
Liquid Content (% by Vol) Oil/Water	95	95
Sand Content (% by Vol)	0.25	0.25
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	16.0	16.0
pH ☑ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.05	0.1
Alkalinity Filtrate (P_f/M_f)	.05 / 1.35	.05 / 1.40
Chloride (mg/L)	36000	35000
Total Hardness as Calcium (mg/L)	160	100
K^+ mg/l	32000	32000
KCl % wt	6.0	6.0
PHPA	1.4	1.4
$SO_3^=$	60	60

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- TREAT SYSTEM WITH CONTINUAL ADDITION OF PHPA / KCl PREMIX
- CONTINUE TO REDUCE MUD WT: 9.3 ppg

GILES, YOUR FIGURES FOR STOCK AT COBDEN ARE CORRECT. 36 MAGNAFLOC WILL BE DELIVER. TODAY 25/5

REMARKS

DRILL 8½" F/ 1486m - 1489m (<1 m/hr)
- SURVEY @ 1487m : 3.75°
POOH - TIGHT @ 683m. BREAK OUT BIT
- DST TOOL LINK LOOSE ...
M/U BIT RR#5 & RIH
DRILL F/ 1489m - 1531M 3-5 m/hr IN PLASTIC CLAY

DESANDER U/FLOW 13.2 ppg @ 0.2 GPM

* CUMM COST CREDITED / SODA ASH: 14.31

PRODUCT INVENTORY

	KCl	POLY PLUS	BICARB SODA	CAUSTIC SODA	SODA ASH
STARTING INVENTORY	380	25	32	40	
RECEIVED					
USED LAST 24 hr	80	7	2	N/C	STOCK ADJUST
CLOSING INVENTORY	300	18	30	40	-
COST LAST 24 hr	916.80	1100.19	32.68	-	* 14.31
USED (from IADC)	11.46	157.17	15.34		

SOLIDS EQUIPMENT

SHAKER #1	2 x 84 mesh
SHAKER #2	/ mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	12 hours
DESILTER	- hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	03 3351877		$ 2047.67	$ 28331.53

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	2.0	Water Added (bbl)		Low Gravity %	4.6
Drilling	15.5	Mud Built (bbl)	130	Low Gravity, ppb	41.5
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.4
Circulating		Mud Disposed (bbl)	167	Bentonite, ppb	13.1
Tripping	5.5	SURFACE	30	Drill Solids %	2.8
Survey	1.0	DUMP/SCE	35	Drill Solids, ppb	25.9
Logging		DILUTE	102	Shale CEC, ppb	-
Running Casing		TOTAL MUD	659	D/B Ratio	1.22
Testing		Starting Depth	1486	High Gravity %	-
Fishing		Ending Depth	1523	High Gravity, ppb	-
		New Hole Vol. (bbl)	9	KCl % wt	7.7

MUD RHEOLOGY and HYDRAULICS

Zero Gel 3	Avg ROP 2.3		ECD @		
n Factor 0.55	% Cutting		Leak Off @ 345	22.5 ppg	
k Factor 1.31	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	1167	75	221	3.90	114
Annular Section	1	2	3	4	5
Hole Size	8.68	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	98	100	119		
Annular Velocity	44	47	73		
Viscosity	84.5	81	51		
Annular Pressure	14.8	19.5	24.3		

WATER BASE MUD REPORT - Day : 17

M-I Drilling Fluids Company	- -	Date : 25/05/95	Depth : 1650.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM	Well No. : W0003	Spud Date : 09/05/95	Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD
Contractor : CENTURY
Description : EXPLORATION
Well Name : DIGBY 1
Field/Area : OTWAY BASIN
Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1433 m
Drill Pipe 2 OD : 4.500 in 56.0 m
Drill Collar OD : 6.250 in 161.0 m

CASING

Casing OD : 9.625 in	Liner OD :	in	
Casing ID : 8.680 in	Liner ID :	in	
Casing TD : 337.0 m	Liner TD :	m	
Casing TVD : 337.0 m	Liner TVD :	m	

MUD VOLUME (bbl)
Hole Volume : 339
Pits Volume : 215
Circulating Volume : 554
Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: FL 22:00
Flow Line Temp	: 125 ^F
Depth/TVD -m	:1650.0/1650.0
Mud Wt -lb/gal	: 9.3
Funnel Vis -s/qt	: 44 @ 118^F
Plastic Visc -cps	: 20 @ 110^F
YP/R3 -lb/100ft2 /deg	: 15 / 4
10s/10m Gel -lb/100ft2	: 5 / 16
API F Loss -cc/30 min	: 5.2
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 5.0
Oil/Water -%vol	: /95.0
Sand -%vol	: 2.0
MBT -lb/bbl	: 16.0
pH	: 9.0 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.1 / 0.4
Chlorides -mg/l	: 38000
Hardness Ca	: 120
K+ PPM	: 32500
KCL WT %	: 6.0
PHPA COR	: 1.3
SO3=	: 140
np Value	: 0.652
Kp -lb-sec^n/100ft2	: 0.64163
na Value	: 0.471
Ka -lb-sec^n/100ft2	: 1.97954

CIRCULATION DATA		
Flow Rate	-gal/min :	325
DP Annular Vel	-m/min :	46.7
DC Annular Vel	-m/min :	73.2
DP Critical Vel	-m/min :	100.5
DC Critical Vel	-m/min :	120.0
Circ. Pressure	-psi :	1625
Bottoms Up	-min :	34.6
Total Circ Time	-min :	71.6

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	80
Polyplus Powder	25 KG S	8
Sodium Bicarb	25 KG S	2
OS-1	25 KG S	3

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.9 / 10
KCl	: 1.5 / 14
Low Gravity Solids	: 4.5 / 41
Bentonite	: 1.4 / 13
Drill Solids	: 2.9 / 26
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0

Inert/React : 1.44 Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 84	24
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	13
Desilter :	4"X 12	
Degasser :		

MUD VOLUME ACCOUNTING	bbl	
Oil Added :	dump	:48
Water Added :25	SCE	:22
Mud Built :100	surface	:60
Mud Received:		
Mud Disposed:130		

Remarks :
Contin drill 8.5"f/1531m-1560m.Circ.drill brk.Drill 1560m -1601m.Drill brk.circ.up sand sample.Drill f/1601m.-1664m
Continue to drill 8.5" hole from 1531m-1560m. Drill break-circulate up sample-
minor sand. Drill from 1560m-1601m. Circulate drilling break. Pull back 2
stands and circulate up sand sample. Drill ahead from 1601 - 1664m @ 8.0 m/hr
through Pretty Hill sands.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 2486 Cumul Cost : 39838

M-I Drilling Fluids Co. Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 25 MAY 19 95	DEPTH 1664 m	
SPUD DATE 10 MAY	PRESENT ACTIVITY DRILL 8½ HOLE	
OPERATOR GEE RES LTD	CONTRACTOR CENTURY	RIG NO. 11
REPORT FOR KEN SMITH	REPORT FOR ROGER [illegible]	SECTION, TOWNSHIP, RANGE ONSHORE
WELL NAME AND NO. DIGBY #1	FIELD OR BLOCK NO. DIGBY ... COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE 8½	TYPE ETD 117	JET SIZE 3×11	SURFACE 9⅝ in. @ 377 ft	HOLE 349	PITS 205	PUMP SIZE 6 X 8.5 IN.	ANNULAR VEL (ft/min) DP 47 DC 73
DRILL PIPE SIZE 4½	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 554		PUMP MAKE, MODEL NAT BP 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1625
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 56 m	INTERMEDIATE in. @ ft	IN STORAGE 100	WEIGHT 8.8	bbl/stk 0.0705	stk/min 110	BOTTOMS UP (min) (strk) 45 ...
DRILL COLLAR SIZE 6¼		LENGTH 161 m	PRODUCTION OR LINER in. @ ft	MUD TYPE KCl/PHPA		bbl/min 7.75	gal/min 325	TOTAL CIRC TIME (min) (strk) 72 ...

MUD PROPERTIES

	☒ F.L. ☐ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	22:00	05:00
Flowline Temperature (°F)	125 (52)	125
Depth (ft) (TVD /)	1650	1726
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3+
Funnel Viscosity (sec/qt) API @ 118 °F	44	47
Plastic Viscosity cp @ 110 °F	20	21
Yield Point (lb/100 ft²)	15	15
Gel Strength (lb/100 ft²) 10 sec/10 min	5/16	5/17
Filtrate API (cm³/30 min)	5.2	5.8
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☒ calculated ☐ retort	5.0	5.0
Liquid Content (% by Vol) Oil/Water	95	95
Sand Content (% by Vol)	2%	2.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	16.0	16.0
pH ☐ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.15
Alkalinity Filtrate (P_f/M_f)	0.1/0.4	0.1/0.5
Chloride (mg/L)	38000	39000
Total Hardness as Calcium (mg/L)	120	120
K⁺ mg/l	32500	33000
KCl % wt	6.0	6.0
PHPA	1.3	1.4
SO_3	140	110

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- CONTIN TO TREAT SYSTEM W/ KCl/PHPA PREMIX
- RUN DESANDER CONTIN
- DUMP SAND TRAP REGULARLY

REMARKS

DRILL 8½" F/1531m - 1560m - DRILL BRK
- CIRC UP SAMPLE - MINOR SAND
DRILL F/1560m - 1601m - DRILL BREAK
CIRC UP SAMPLE - PULL BACK 2 STDS
& CIRC UP SAND SAMPLE
DRILL F/1601 - 1664m THROUGH SANDS

DESANDER U/FLOW 14.5 ppg @ 1.2 GPM

PRODUCT INVENTORY

	KCl	POLY PLUS	OS-1	BICARB SODA
STARTING INVENTORY	300	18	11	30
RECEIVED				
USED LAST 24 hr	80	8	3	2
CLOSING INVENTORY	220	10	8	28
COST LAST 24 hr	.80 916	36 1257	.85 152	30.68
USED (from IADC)	1141			

SOLIDS EQUIPMENT

SHAKER #1 3 × 84 mesh
SHAKER #2 / mesh
MUD CLEANER ____ mesh
CENTRIFUGE ____ hours
DESANDER 13 hours
DESILTER ____ hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	073254822		$2357.69	$40689.22

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service		Water Added (bbl)	25	Low Gravity %	4.4
Drilling	19.0	Mud Built (bbl)	100	Low Gravity, ppb	40.2
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.5
Circulating	1.5	Mud Disposed (bbl)	130	Bentonite, ppb	13.3
Tripping	0.5	SURFACE	60	Drill Solids %	2.7
Survey	3.0	DUMP	48	Drill Solids, ppb	24.4
Logging		SCE	22	Shale CEC, ppb	-
Running Casing		TOTAL MUD	1.54	D/B Ratio	1.31
Testing		Starting Depth	1531	High Gravity %	-
Fishing		Ending Depth		High Gravity, ppb	-
		New Hole Vol. (bbl)		KCl % vol	2.3

MUD RHEOLOGY and HYDRAULICS

Zero Gel 4	Avg ROP 8.5		ECD @ ____			
n Factor 0.47	% Cutting		Leak Off @ 345 - 22.3 ppg			
k Factor 1.97	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics	1167	72	221	3.90	114	
Annular Section	1	2	3	4	5	
Hole Size	8.68	8.5	8.5			
Pipe OD	4.5	4.5	6.25			
Critical Velocity	97	101	120			
Annular Velocity	44	47	72			
Viscosity	910	87	50.5			
Annular Pressure	16.2	635	24.6			

WATER BASE MUD REPORT - Day : 18

M-I Drilling Fluids Company
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

- -	Date : 26/05/95	Depth : 1759.0 m
Well No. : W0003	Spud Date : 09/05/95	Activity : CIRC.& OBSV

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

Bit : 8.500 in	CASING		MUD VOLUME	(bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume :	362
Drill Pipe 1 OD : 4.500 in 1542 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume :	258
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume :	620
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud :	POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: FL 24:00
Flow Line Temp	: 120 ^F
Depth/TVD -m	:1759.0/1759.0
Mud Wt -lb/gal	: 9.4
Funnel Vis -s/qt	: 45 @ 115^F
Plastic Visc -cps	: 20 @ 110^F
YP/R3 -lb/100ft2 /deg	: 16 / 4
10s/10m Gel -lb/100ft2	: 7 / 18
API F Loss -cc/30 min	: 6.4
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 5.0
Oil/Water -%vol	: /95.0
Sand -%vol	: 1.5
MBT -lb/bbl	: 16.0
pH	: 9.0 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.1 / 0.5
Chlorides -mg/l	: 37000
Hardness Ca	: 160
K+ PPM	: 28500
KCL WT %	: 5.5
PHPA COR	: 1.4
SO3=	: 60
np Value	: 0.637
Kp -lb-sec^n/100ft2	: 0.72304
na Value	: 0.477
Ka -lb-sec^n/100ft2	: 1.95988

CIRCULATION DATA		
Flow Rate	-gal/min :	625
DP Annular Vel	-m/min :	89.8
DC Annular Vel	-m/min :	140.7
DP Critical Vel	-m/min :	101.0
DC Critical Vel	-m/min :	120.9
Circ. Pressure	-psi :	1600
Bottoms Up	-min :	19.2
Total Circ Time	-min :	41.7

PRODUCTS USED LAST 24 HOURS		
Polyplus Powder	25 KG S	5
CMC TG LV	25 KG S	5
Mica Medium	50 LB S	30
Kwik Seal M	40 LB S	30

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.8 / 9
KCl	: 1.5 / 13
Low Gravity Solids	: 5.4 / 49
Bentonite	: 1.3 / 12
Drill Solids	: 3.8 / 35
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 1.92	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 84	17.5
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	8
Desilter :	4"X 12	8
Degasser :		

MUD VOLUME ACCOUNTING	bbl
Oil Added :	dump :15
Water Added :181	surface/SCE :70
Mud Built :100	down hole :170
Mud Received:	
Mud Disposed:255	

Remarks :
Drill 1664-1753m.POOH for bit change.RIH & drill f/1735m. -1759m.Loose total returns(140bbl)Pump LCM pill & observe
Drill from 1664m-1740m (dev = 5 deg). Wiper trip 12 stands - 1m. Fill. Drill from 1740m-1750m. Circulate and pull 2 stands, circulate up sample. Drill from 1750m-1753m. POOH for bit change. Make up bit #6 and RIH. Wash 13m to bottom. Drill from 1553m-1559m. Total loss of returns - 140 bbl lost. Observe well. Build volume with sump water and attempt to keep hole full-losses continue at 40 strokes/min. Mix and pump 55 bbl of 45 ppb Mica/Kwikseal pill. Able to circulate - observe well.

M-I Sales Engineer: P.MARSHALL	Warehouse: ADELAIDE	Daily Cost : 2939	Cumul Cost : 42777

M-I Drilling Fluids Co.
Magcobar/IMCO A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 26 MAY 19 95 | DEPTH 1759 m
SPUD DATE 10 MAY | PRESENT ACTIVITY CIRC & OBSERVE WELL

OPERATOR	CONTRACTOR	RIG NO.
GFE RES LTD	CENTURY	11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE

WELL NAME AND NO.	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA	STATE/PROVINCE
DIGBY #1	DIGBY JV	OTWAY BASIN	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	TYPE	JET SIZE	CASING SURFACE	HOLE	PITS	PUMP SIZE	ANNULAR VEL (ft/min)
8 1/2	VAREL ETD 417	3×11	9 5/8 in. @ 337 ft	361	259	6" × 8.5 in.	DP 47 DC 73

DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE	TOTAL CIRCULATING VOLUME	PUMP MAKE, MODEL	ASSUMED EFF	CIRCULATION PRESSURE (psi)
4 1/2	16.6#		in. @ ft	620	NAT 8P 80	95 %	1600

DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE	IN STORAGE	WEIGHT	bbl/stk	stk/min	BOTTOMS UP (min) (strk)
4 1/2	HWDP	56 m	in. @ ft	60	8.6	0.0705	110	47 min

DRILL COLLAR SIZE	LENGTH	PRODUCTION OR LINER	MUD TYPE	bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)
6 1/4"	161 m	in. @ ft	KCl/PHPA	7.75	325	80 min

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	24 00	05 00
Flowline Temperature (°F)	120 (49)	120
Depth (ft) (TVD / ft)	1759	1761
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	9.0+
Funnel Viscosity (sec/qt) API @ °F	45	37
Plastic Viscosity cp @ °F	20	11
Yield Point (lb/100 ft²)	16	10
Gel Strength (lb/100 ft²) 10 sec/10 min	7/10	3/12
Filtrate API (cm³/30 min)	6.4	12.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	5.0	4.0
Liquid Content (% by Vol) Oil/Water	95	96
Sand Content (% by Vol)	1.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	16.0	13.0
pH ☑ Strip ☐ Meter @ °F	9.0	8.5
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	0.1/0.5	0.05/0.6
Chloride (mg/L)	37000	23000
Total Hardness as Calcium (mg/L)	160	160
K^+ mg/l	28500	22000
KCl % wt	5.5	4.5
PHPA	1.4	0.7
$SO_4^=$	60	0

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.1-9.3 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- MAINTAIN VOL & TREATMENT WITH PREMIX
- RUN SCE CONT TO COMBAT FINE SAND
BUILD UP & ASSOC WT INCR
- BUILD VOL DURING LOSSES WITH SUMP WATER
NOTE: 24HR MUD CHECK REPRESENTS MUD IN HOLE BEFORE SUMP WATER ADDITION

REMARKS

SURVEY @ 1660m: 5°
DRILL F/1664m - 1740m CIRC & POOH 12 STDS - RIH TO FILL
DRILL F/1740m - 1750m CIRC & PULL 3 STDS: CIRC UP SAMPLE RIH
DRILL F/1750m - 1753m POOH FOR BIT CHANGE M/U BIT No 6 & RIH WASH 13m TO BOTTOM
DRILL F/1753m - 1759m - TOTAL LOSS OF CIRC BUILD CIRC VOL WITH RESERVE PREMIX & SUMP WATER - PUMP 55 BBLS @ 25 lb/bbl 45ppb LCM PILL - OBSERVE WELL
DESAND UFLOW 13.6ppg @ 1.5 GPM
DESILT UFLOW 13.0ppg 1.5 GPM

PRODUCT INVENTORY

PRODUCT INVENTORY	POLY PLUS	CMC LV	MICA M	KWIK SEAL M							
STARTING INVENTORY	10	30	30	30							
RECEIVED	36										
USED LAST 24 hr	5	5	30	30							
CLOSING INVENTORY	41	25									
COST LAST 24 hr	35 / 785	.15 / 306	.30 / 540	.70 / 1226							
USED (from IADC)											

SOLIDS EQUIPMENT

SHAKER #1 3 / 84 mesh
SHAKER #2 / mesh
MUD CLEANER mesh
CENTRIFUGE hours
DESANDER 8 hours
DESILTER 8 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 2859 00	$ 43548.22

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	2.0	Water Added (bbl)	181	Low Gravity %	5.3
Drilling	7.5	Mud Built (bbl)	100	Low Gravity, ppb	48.2
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.4
Circulating	5.0	Mud Disposed (bbl)	255	Bentonite, ppb	12.3
Tripping	7.5	D/HOLE	170	Drill Solids %	3.7
Survey	2.0	SURF + SCE	70	Drill Solids, ppb	33.4
Logging		DUMP	15	Shale CEC, ppb	-
Running Casing		TOTAL MUD	680	D/B Ratio	1.85
Testing		Starting Depth	1644	High Gravity %	-
Fishing		Ending Depth	1759	High Gravity, ppb	-
		New Hole Vol. (bbl)		KCl % vol	1.9

MUD RHEOLOGY and HYDRAULICS

Zero Gel	4	Avg ROP	12.5	ECD @		
n Factor	0.47	% Cutting		Leak Off @ 245 - 27.3 ppg		
k Factor	1.95	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	1180	74	224	3.94	114	
Annular Section	1	2	3	4	5	
Hole Size	8.18	8.5	8.5			
Pipe OD	4.5	4.5	6.25			
Critical Velocity	99	101	120			
Annular Velocity	44	47	73			
Viscosity	93	88	51.7			
Annular Pressure	16.4	67.8	25.2			

WATER BASE MUD REPORT - Day : 19

M-I Drilling Fluids Company - - Date : 27/05/95 Depth : 1895.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD
Well Name : DIGBY 1
Report For: KEN SMITH

Contractor : CENTURY
Field/Area : OTWAY BASIN

Description : EXPLORATION
Location : PEP 105 & PEP 126

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1678 m
Drill Pipe 2 OD : 4.500 in 56.0 m
Drill Collar OD : 6.250 in 161.0 m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 337.0 m Liner TD : m
Casing TVD : 337.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 391
Pits Volume : 271
Circulating Volume : 662
Mud : POLYPLUS/KCL MUD

MUD PROPERTIES		
Sample From		FL 23:00
Flow Line Temp		120 ^F
Depth/TVD	-m	1895.0/1895.0
Mud Wt	-lb/gal	9.1
Funnel Vis	-s/qt	38 @ 115^F
Plastic Visc	-cps	16 @ 110^F
YP/R3	-lb/100ft2 /deg	10 / 2
10s/10m Gel	-lb/100ft2	3 / 6
API F Loss	-cc/30 min	5.0
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	3.5
Oil/Water	-%vol	/96.5
Sand	-%vol	0.75
MBT	-lb/bbl	13.0
pH		9.0 @ 65 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.1 / 0.4
Chlorides	-mg/l	29000
Hardness Ca		160
K+ PPM		27000
KCL WT %		5.0
PHPA COR		0.95
S03=		100
np Value		0.691
Kp	-lb-sec^n/100ft2	0.37193
na Value		0.557
Ka	-lb-sec^n/100ft2	0.86027

CIRCULATION DATA		
Flow Rate	-gal/min	300
DP Annular Vel	-m/min	43.1
DC Annular Vel	-m/min	67.5
DP Critical Vel	-m/min	75.2
DC Critical Vel	-m/min	93.9
Circ. Pressure	-psi	1400
Bottoms Up	-min	43.1
Total Circ Time	-min	92.7

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	170
Polyplus Powder	25 KG S	10
Polypac	25 KG S	9
Sodium Bicarb	25 KG S	2
OS-1	25 KG S	3

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.4 / 5
KCl	1.5 / 14
Low Gravity Solids	3.6 / 33
Bentonite	1.2 / 11
Drill Solids	2.2 / 20
Weight Material	N/A / N/A
Chemical Conc	- / 2.0

Inert/React : 1.36 Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	22.0
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	3
Desilter	4"X 12	4
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added :		dump	:20
Water Added :		surface/SCE	:60
Mud Built	:250	down hole	:95
Mud Received:			
Mud Disposed:	175		

Remarks :
Circ. to balance mud wt.Drill 8.5"f/1759m.- 1905m.through Pretty Hill sandstone.Max dev.=6deg.D/hole losses contin.
Circulate to balance mud weight. IN/OUT. Drill from 1759m-1772m-attempt to drill-high torque, very low ROP-work bit on bottom? Clear junk. Drill from 1772m - 1905m. Maximum deviation = 6 deg. Variable downhole losses continue approximately 5 bbl/hr.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 5050 Cumul Cost : 47827

M-I Drilling Fluids Co. Magcobar/IMCO A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 27 MAY 19 95	DEPTH 1905 m	SPUD DATE 10 MAY	PRESENT ACTIVITY DRILL 8½ HOLE
OPERATOR GFE RES LTD	CONTRACTOR CENTURY	RIG NO. 11	
REPORT FOR KEN SMITH	REPORT FOR ROGER RINDON	SECTION, TOWNSHIP, RANGE ONSHORE	
WELL NAME AND NO. DIGBY #1	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE ETD 417m	JET SIZE 3×11	SURFACE 9⅝ in. @ 337 m	HOLE 392	PITS 270	PUMP SIZE 5½ x 7.5 IN.		ANNULAR VEL (ft/min) DP 43 DC 68
DRILL PIPE SIZE 4½	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 662		PUMP MAKE, MODEL NAT 7P50	ASSUMED EFF. 95 %	CIRCULATION PRESSURE (psi) 1400
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 56m	INTERMEDIATE in. @ ft	IN STORAGE 73	WEIGHT 8.8	bbl/stk 0.054	stk/min 132	BOTTOMS UP (min) (strk) 55 min
DRILL COLLAR SIZE 6¼"	LENGTH 161m		PRODUCTION OR LINER in. @ ft	MUD TYPE KCl/PHPA		bbl/min 7.13	gal/min 300	TOTAL CIRC TIME (min) (strk) 93 min

MUD PROPERTIES	☑ F.L. ☐ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	23:00	06:30
Flowline Temperature (°F)	120 (49)	120
Depth (ft) (TVD / ft)	1895	1932
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.0+
Funnel Viscosity (sec/qt) API @ 118 °F	38	38
Plastic Viscosity cp @ 110 °F	16	15
Yield Point (lb/100 ft²)	10	13
Gel Strength (lb/100 ft²) 10 sec/10 min	3/6	3/7
Filtrate API (cm³/30 min)	5.0	4.6
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☑ calculated ☐ retort	3.5	3.5
Liquid Content (% by Vol) Oil/Water	96.5	96.5
Sand Content (% by Vol)	0.75	0.75
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	13.0	13.0
pH ☐ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	0.1/0.4	.1/.45
Chloride (mg/L)	29000	31000
Total Hardness as Calcium (mg/L)	160	200
K^+ mg/l	27000	28000
KCl % wt	5.0	5.0
PHPA	0.95	0.9
$SO_4^=$	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0-9.1 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

PREPARE KCl/PHPA PREMIX TO MAINTAIN VOL AS REQ.
- RUN SCE INTERMITTANTLY
- PROPOSE TO TREAT SYSTEM WITH LCM.

REMARKS

- CIRC TO BALANCE MUD WT IN/OUT
- DRILL F/1759m - 1772m - HIGH TORQUE V LOW ROP - ATTEMPT TO DRILL WORK BIT ON BOTTOM - HIGH VARIABLE TORQUE
DRILL F/ 1772m - 1905m MAX DEV 6°
- VARIABLE DOWN HOLE LOSSES UP TO 5 bbl/HR

* RECEIVED MUD MATERIAL - TO BE CHECKED & REPORTED ON REPORT # 20

DESANDER 10.3 ppg U/FLOW @ 2 GPM
DESILTER 12.6 ppg U/FLOW @ 1.5 GPM

PRODUCT INVENTORY	KCl	POLY PLUS	PAC R	DS-1	SOD BICARB	CAUSTIC SODA	XCD
STARTING INVENTORY	220	41	73	8	28	40	
RECEIVED							
USED LAST 24 hr	170	10	9	3	2		
CLOSING INVENTORY	50	31	64	5	21 26	40	
COST LAST 24 hr	.20 1948	.70 1571	.66 1195	.85 152	30.68		
USED (from IADC)							

SOLIDS EQUIPMENT
SHAKER #1 3 x 84 mesh
SHAKER #2 / mesh
MUD CLEANER mesh
CENTRIFUGE hours
DESANDER 3 hours
DESILTER 4 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 4889.09	$ 48437.31

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	2.5	Water Added (bbl)		Low Gravity %	3.5
Drilling	17.5	Mud Built (bbl)	250	Low Gravity, ppb	32.5
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.2
Circulating	1.5	Mud Disposed (bbl)	175	Bentonite, ppb	10.9
Tripping		SURFACE	50	Drill Solids %	2.1
Survey	2.5	DUMP/SCE	30	Drill Solids, ppb	18.0
Logging		D/HOLE	95	Shale CEC, ppb	
Running Casing		TOTAL MUD	755	D/B Ratio	1.29
Testing		Starting Depth	1772	High Gravity %	-
Fishing		Ending Depth	1905	High Gravity, ppb	-
		New Hole Vol. (bbl)	31	KCl % vol	1.9

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	8.3	ECD @	
n Factor	0.56	% Cutting		Leak Off @ 345 - 22.3 ppg	
k Factor	0.86	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	973	70	170	2.0	105
Annular Section	1	2	3	4	5
Hole Size	8.68	8.5	8.5		
Pipe OD	4.5	4.5	6.25		
Critical Velocity	73	75	77		
Annular Velocity	40.5	43	68		
Viscosity	60	58	37		
Annular Pressure	9.6	44.7	16.2		

WATER BASE MUD REPORT - Day : 20

M-I Drilling Fluids Company — - — Date : 28/05/95 — Depth : 1951.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : POOH

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION
Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	CASING		MUD VOLUME (bbl)
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 403
Drill Pipe 1 OD : 4.500 in 1734 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 218
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 621
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES		
Sample From		PIT 24:00
Flow Line Temp		120 ^F
Depth/TVD	-m	1951.0/1951.0
Mud Wt	-lb/gal	9.1
Funnel Vis	-s/qt	39 @ 110^F
Plastic Visc	-cps	15 @ 100^F
YP/R3	-lb/100ft2 /deg	13 / 3
10s/10m Gel	-lb/100ft2	4 / 8
API F Loss	-cc/30 min	4.8
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	3.5
Oil/Water	-%vol	/96.5
Sand	-%vol	0.75
MBT	-lb/bbl	13.0
pH		9.0 @ 65 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.05/ 0.4
Chlorides	-mg/l	32000
Hardness Ca		240
K+ PPM		29000
KCL WT %		5.5
PHPA COR		0.8
SO3=		100
np Value		0.619
Kp	-lb-sec^n/100ft2	0.63117
na Value		0.485
Ka	-lb-sec^n/100ft2	1.45110

CIRCULATION DATA		
Flow Rate	-gal/min	300
DP Annular Vel	-m/min	43.1
DC Annular Vel	-m/min	67.5
DP Critical Vel	-m/min	86.7
DC Critical Vel	-m/min	104.2
Circ. Pressure	-psi	1390
Bottoms Up	-min	44.5
Total Circ Time	-min	86.9

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	90
Polyplus Powder	25 KG S	5
Polypac	25 KG S	2
OS-1	25 KG S	3
M-I Bar	25 KG S	80
XCD	25 KG S	4
Kwik Seal M	40 LB S	13

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.6 / 7
KCl	1.5 / 14
Low Gravity Solids	3.4 / 31
Bentonite	1.2 / 11
Drill Solids	2.0 / 18
Weight Material	N/A / N/A
Chemical Conc	- / 2.0
Inert/React : 1.21	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 84	19.0
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	
Desilter	4"X 12	6
Degasser		

MUD VOLUME ACCOUNTING	bbl		
Oil Added		dump	15
Water Added		surface/SCE	45
Mud Built	210	down hole	151
Mud Received			
Mud Disposed	211		

Remarks :
Drill f/1905m.-1932m.Circ.sample-OIL SHOW.Drill f/1932m.- 1951m. Circ sample-OIL SHOW. POOH for DST #2
Drill from 1905m - 1932m. Circulate 5 min. Pull 2 stands and circulate up sample-oil shoe. RIH-no fill. Drill from 1932m - 1951m. Circulate 5 min, pull 3 stands and circulate sample-OIL SHOW. Wiper trip to 1152m. Circulate and POOH for DST #2.

M-I Sales Engineer: P.MARSHALL — Warehouse: ADELAIDE — Daily Cost : 4977 — Cumul Cost : 52804

M-I Drilling Fluids Co.

Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 28 MAY 19 95	DEPTH 1951 m	SPUD DATE 10 MAY	PRESENT ACTIVITY POOH FOR DST #2
OPERATOR GFE RES LTD	CONTRACTOR CENTURY	RIG NO. 11	
REPORT FOR KEN SMITH	REPORT FOR ROGER RINDOW	SECTION, TOWNSHIP, RANGE ONSHORE	
WELL NAME AND NO. DIGBY #1	FIELD OR BLOCK NO. DIGBY JV	COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE	TYPE	JET SIZE	CASING SURFACE	HOLE	PITS	PUMP SIZE	ANNULAR VEL (ft/min)
8 1/2	ETD 417 m	3 x 11	9 5/8 in. @ 337 ft	443	178	5 1/2 x 7.5 in.	DP 43 DC 68

DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE	TOTAL CIRCULATING VOLUME	PUMP MAKE, MODEL	ASSUMED EFF	CIRCULATION PRESSURE (psi)
4 1/2	16.6#		in. @ ft	621	NAT 7P 50	95 %	1390

DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE	IN STORAGE	WEIGHT	bbl/stk	stk/min	BOTTOMS UP (min) (strk)
4 1/2	HWDP	56 m	in. @ ft	133	9.0	0.054	132	62 min

DRILL COLLAR SIZE	LENGTH	PRODUCTION OR LINER	MUD TYPE	bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)
6 1/4	161 m	in. @ ft	KCl/PHPA	7.13	300	87 min

MUD PROPERTIES

Sample From	☐ F.L. ☑ PIT	☐ F.L. ☑ PIT
Time Sample Taken	24:00	05:30
Flowline Temperature (°F)	120(49)	-
Depth (ft) (TVD / ft)	1951	1951
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.1
Funnel Viscosity (sec/qt) API @ 110 °F	39	42
Plastic Viscosity cp @ 100 °F	15	20
Yield Point (lb/100 ft²)	13	15
Gel Strength (lb/100 ft²) 10 sec/10 min	4 18	4 19
Filtrate API (cm³/30 min)	4.8	5.2
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1 -	1 -
Solids Content (% by Vol) ☐ calculated ☐ retort	3.5	3.5
Liquid Content (% by Vol) Oil/Water	96.5	96.5
Sand Content (% by Vol)	0.75	0.-
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	13.0	13.0
pH ☑ Strip ☐ Meter @ °F	9.0	9.0
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	.05 6.4	.05 1.45
Chloride (mg/L)	32000	32000
Total Hardness as Calcium (mg/L)	240	240
K' mg/l	29000	29000
KCl % wt	5.5	5.5
PHPA	0.8	0.8
$SO_4^=$	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0 - 9.1 ppg	35 - 42 sec/qt	5 - 7 cc

RECOMMENDED TOUR TREATMENT

- PREPARE WEIGHTED KCl/PHPA MUD TO MAINTAIN VOL. LOSSES AV 5-8-10 bbl/HR
-

REMARKS

DRILL F/1905m - 1932m, CIRC PULL 3 STDS & CIRC UP SAMPLE - RIH - NO FILL
DRILL F/1932m - 1951m F/CHECK CIRC 5 min, PULL 3 STDS & CIRC UP SAMPLE
- OIL SHOW TRIP TO 1452m, RIH, NO FILL
CIRC 5 min, PULL 3 STDS & CIRC SAMPLE
- OIL SHOW IN CARBONACEOUS SANDY SHALE
POOH FOR DST #2

DESILTER U/FLOW 13.6 ppg @ 1.5 GPM
DESANDER U/FLOW
* RECEIVED 22/5

PRODUCT INVENTORY

PRODUCT INVENTORY	BARITE	KCl	XCD	POLY PAC	POLY PLUS	SODA ASH	DS-1	MICA M	MICA F	MICA C	KWIK SEAL M	MUD FIBRE	CONQOR 25 & 303		
STARTING INVENTORY	160	50	13	64	31	-	5	-	-	-	-	-	-		
RECEIVED	*320	360			36	42	40	32	20	26	101	98	#1		
USED LAST 24 hr	80	90	4	2	5		3				13				
CLOSING INVENTORY	400	320	9	62	62	42	42	32	20	26	88	98	1		
COST LAST 24 hr	.40 442	.40 1031	.16 1689	.48 263	.55 785		.85 152				.51 531				
USED (from IADC)	5.53	11.46	.29 422	.74 131	.17 57		10.95				40.352				

SOLIDS EQUIPMENT

SHAKER #1 2 x 50 / 1 x 84 mesh
SHAKER #2 1 mesh
MUD CLEANER ______ mesh
CENTRIFUGE ______ hours
DESANDER ______ hours
DESILTER 6 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254522		$4896.71	$53334.02

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	1.0	Water Added (bbl)		Low Gravity %	3.3
Drilling	9.0	Mud Built (bbl)	210	Low Gravity, ppb	30.0
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.2
Circulating	5.0	Mud Disposed (bbl)	211	Bentonite, ppb	11.2
Tripping	8.0	SURFACE	30	Drill Solids %	1.8
Survey	1.0	DUMP/SCE	30	Drill Solids, ppb	16.3
Logging		D/HOLE	151	Shale CEC, ppb	-
Running Casing		TOTAL MUD	754	D/B Ratio	1.11
Testing		Starting Depth	1905	High Gravity %	
Fishing		Ending Depth	1951	High Gravity, ppb	
		New Hole Vol. (bbl)	13	KCl % vol	2.3

MUD RHEOLOGY and HYDRAULICS

Zero Gel 2	Avg ROP 5.1		ECD @			
n Factor 0.43	% Cutting		Leak Off @ 215 = 22.3 PPG			
k Factor 1.45	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics	973	70	170	3.0	105.5	
Annular Section	1	2	3	4	5	
Hole Size	8.68	8.5	8.5			
Pipe OD	4.5	4	6.25			
Critical Velocity	85	87	104			
Annular Velocity	40.5	43	68			
Viscosity	74	71	42			
Annular Pressure	12.1	57.5	18.7			

WATER BASE MUD REPORT - Day : 21

M-I Drilling Fluids Company — Date : 29/05/95 — Depth : 1956.0 m

DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION

Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126

Report For: KEN SMITH

Bit / Pipe		CASING		MUD VOLUME (bbl)	
Bit : 8.500 in					
Nozzles:11/11/11/ / / 1/32"		Casing OD : 9.625 in	Liner OD : in	Hole Volume : 404	
Drill Pipe 1 OD : 4.500 in	1739 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 205	
Drill Pipe 2 OD : 4.500 in	56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 609	
Drill Collar OD : 6.250 in	161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD	

MUD PROPERTIES		CIRCULATION DATA		SOLIDS ANALYSIS (% / lb/bbl)	
Sample From	FL 23:30	Flow Rate -gal/min	300	NaCl	0.6 / 7
Flow Line Temp	120 ^F	DP Annular Vel -m/min	43.1	KCl	1.5 / 14
Depth/TVD -m	1956.0/1956.0	DC Annular Vel -m/min	67.5	Low Gravity Solids	3.3 / 30
Mud Wt -lb/gal	9.1	DP Critical Vel -m/min	90.3	Bentonite	1.2 / 11
Funnel Vis -s/qt	40 @ 110^F	DC Critical Vel -m/min	109.8	Drill Solids	1.9 / 18
Plastic Visc -cps	16 @ 100^F	Circ. Pressure -psi	1325	Weight Material	N/A / N/A
YP/R3 -lb/100ft2 /deg	15 / 3	Bottoms Up -min	44.5	Chemical Conc	- / 2.0
10s/10m Gel -lb/100ft2	4 / 8	Total Circ Time -min	85.3	Inert/React : 1.25	Average SG : 2.60
API F Loss -cc/30 min	5.0				
HTHP F Loss -cc/30 min	@ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT	Size / Hours
Cake API/HT -1/32"	1	Potassm Chloride 25 KG S	40	Shaker #1	3 X 84 / 3.0
Solids -%vol	3.5	Polyplus Powder 25 KG S	3	Shaker #2	
Oil/Water -%vol	/96.5	Polypac 25 KG S	2	Shaker #3	
Sand -%vol	1.0	M-I Bar 25 KG S	30	Shaker #4	
MBT -lb/bbl	12.5	XCD 25 KG S	3	Mud Cleaner	
pH	8.5 @ 65 ^F			Centrifuge	
Alkal Mud (Pm)	0.1			Desander	12"X 2 / 1.5
Pf/Mf	0.05/ 0.4			Desilter	4"X 12 / 1.5
Chlorides -mg/l	33000			Degasser	
Hardness Ca	280				
K+ PPM	29000			MUD VOLUME ACCOUNTING	bbl
KCL WT %	5.5			Oil Added :	dump :10
PHPA COR	1.0			Water Added :	surface/SCE :25
SO3=	10			Mud Built :90	down hole :75
np Value	0.600			Mud Received:	
Kp -lb-sec^n/100ft2	0.78428			Mud Disposed:110	
na Value	0.507				
Ka -lb-sec^n/100ft2	1.39972				

Remarks :
M/U & RIH with T/T run DST #2.Retrieve sample-whole mud. M/U and RIH.Drill f/1951m.-1956m.D/hole losses=3-5bbl/hr
Pressure test BOPs and surface equipment. Make up and RIH with test tool. Work
Stuck pipe at 1945m. Set packer and conduct DST #2. Cycle for 2 hrs and close
sample chamber. Pull free and POOH. Test sample chamber contents - 29,000 ppm
choride whole mud. Make up BHA and RIH. Drill from 1951m-1956m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 2674 Cumul Cost : 55478

Magcobar/IMCO — A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

SPUD DATE	10 MAY
PRESENT ACTIVITY	DRILL 8½ HOLE
OPERATOR	GFE RES LTD
CONTRACTOR	CENTURY
RIG NO.	11
REPORT FOR	KEN SMITH
REPORT FOR	ROGER BINDON
SECTION, TOWNSHIP, RANGE	ONSHORE
WELL NAME AND NO.	DIGBY # 1
FIELD OR BLOCK NO.	DIGBY IV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE FDD 217M	JET SIZE 3 × 11	SURFACE 9⅝ in. @ 277 ft.	HOLE 393	PITS 216	PUMP SIZE 5½ X 7½ IN.		ANNULAR VEL (ft/min) DP 43 DC 69
DRILL PIPE SIZE 4½	TYPE 16.6	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME 609		PUMP MAKE, MODEL NAT 7P 50	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1325
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 56m	INTERMEDIATE in. @ ft.	IN STORAGE 125	WEIGHT 90	bbl/stk 0.054	stk/min 132	BOTTOMS UP (min) (strk) 55 min
DRILL COLLAR SIZE 6¼		LENGTH 161m	PRODUCTION OR LINER in. @ ft.	MUD TYPE KCl/PHPA		7.13 bbl/min	300 gal/min	TOTAL CIRC TIME (min) (strk) 85 min

MUD PROPERTIES

	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Sample From	F.L.	F.L.
Time Sample Taken	23:30	06:00
Flowline Temperature (°F)	120(49)	122
Depth (ft) (TVD / ft)	1953	1980
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.0+
Funnel Viscosity (sec/qt) API @ °F	40	39
Plastic Viscosity cp @ °F	16	15
Yield Point (lb/100 ft²)	15	14
Gel Strength (lb/100 ft²) 10 sec/10 min	4/18	3/18
Filtrate API (cm³/30 min)	5.0	5.4
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1/-	1/-
Solids Content (% by Vol) ☐ calculated ☐ retort	3.5	3.5
Liquid Content (% by Vol) Oil/Water	96.5	96.5
Sand Content (% by Vol)	1%	0.75
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	11.5
pH ☐ Strip ☐ Meter @ °F	8.5	9.0
Alkalinity Mud (P_m)	0.05	0.1
Alkalinity Filtrate (P_f/M_f)	.05/0.4	.1/0.45
Chloride (mg/L)	33000	32000
Total Hardness as Calcium (mg/L)	280	100
K⁺ mg/l	29000	29000
KCl % wt	5.5	5.5
PHPA	1.0	0.9
SO_3	10	180

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0-9.1 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- PREPARE ADDITIONAL WEIGHTED PHPA/KCl MUD - 24 HR LOSSES 3.5 bbl/hr DOWNHOLE
- PROPOSE TREATMENT FOR pH, SO_3 & TH
- RUN SCE CONTIN. & MAINTAIN WT 9.0-9.1

REMARKS

- PRESSURE TEST BOPs - SURFACE EQUIP.
- M/U & RIH WITH TEST TOOL
- WORK ? STUCK PIPE @ 1945m
- DST #2 - CLOSE SAMPLE CHAMBER, PULL FREE & POOH REC 1.36 bbl SL. OIL CUT MUD
- BREAK OUT TEST TOOL. TEST SAMPLE CHAMBER CONTENTS - 29000 ppm Cl⁻ MUD
- M/U BHA, RIH AND
- DRILL F/ 1951m - 1956m

GILES - I WILL STILL REQ 1 x CRONOX FOR PEA - Thanks

DESANDER U/FLOW: 12.7 ppg @ 1.5 GPM
DESILTER U/FLOW: 11.8 ppg @ 1.2 GPM

PRODUCT INVENTORY

PRODUCT INVENTORY	BARITE	KCl	PAC R	XCD	POLY PLUS	MICA M	K SEAL M
STARTING INVENTORY	400	320	62	9	62	32	88
RECEIVED							
USED LAST 24 hr	30	40	2	3	3		
CLOSING INVENTORY	370	280	60	6	59	32	88
COST LAST 24 hr	.90 165	.40 458	.48 263	.87 1266	.51 471		
USED (from IADC)	553	1146	7174	22229	15717	7801	4089

SOLIDS EQUIPMENT

- SHAKER #1 2 × 50 / 1 × 80 mesh
- SHAKER #2 / mesh
- MUD CLEANER ____ mesh
- CENTRIFUGE ____ hours
- DESANDER 1.5 hours
- DESILTER 1.5 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
DAVE MARSHALL	043254822		$ 2626.16	$ 55960.18

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS		MUD RHEOLOGY and HYDRAULICS					
Rig Up/Service	1.0	Water Added (bbl)		Low Gravity %	3.5	Zero Gel	3	Avg ROP	2.7	ECD @	
Drilling	1.5	Mud Built (bbl)	90	Low Gravity, ppb	30.0	n Factor	0.507	% Cutting		Leak Off @ 245	12.3 ppg
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.2	k Factor	1.40	psi	%	hhp	HSI	Jet Vel
Circulating	0.5	Mud Disposed (bbl)	110	Bentonite, ppb	11.2	Bit Hydraulics		973	73	170	3.0	105.5
Tripping	12.0	SURFACE	20	Drill Solids %	1.8	Annular Section		1	2	3	4	5
Survey		DUMP/SCE	15	Drill Solids, ppb	16.3	Hole Size		8.68	9.5	8.5		
Logging		DHOLE	75	Shale CEC, ppb	-	Pipe OD		4.5	4.5	6.25		
Running Casing		TOTAL (...)	734	D/B Ratio	1.4	Critical Velocity		89	90	110		
Testing	1.0	Starting Depth	1951	High Gravity %		Annular Velocity		40	43	68		
Fishing		Ending Depth	1956	High Gravity, ppb		Viscosity		79	75	45		
DST	8.0	New Hole Vol. (bbl)	1	KCl % vol	2.2	Annular Pressure		128	75	20.2		

MI-39P

	New Hole Vol. (bbl)	19	KCl % VOL	12.1	Annular Pressure	12.5	7.3	21		

WATER BASE MUD REPORT - Day : 22

M-I Drilling Fluids Company	- -	Date : 30/05/95	Depth : 2037.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM	Well No. : W0003	Spud Date : 09/05/95	Activity : DRILL 8.5"

Operator : GFE RESOURCES LTD
Well Name : DIGBY 1
Report For: KEN SMITH

Contractor : CENTURY
Field/Area : OTWAY BASIN

Description : EXPLORATION
Location : PEP 105 & PEP 126

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1820 m
Drill Pipe 2 OD : 4.500 in 56.0 m
Drill Collar OD : 6.250 in 161.0 m

CASING

Casing OD : 9.625 in	Liner OD :	in	
Casing ID : 8.680 in	Liner ID :	in	
Casing TD : 337.0 m	Liner TD :	m	
Casing TVD : 337.0 m	Liner TVD :	m	

MUD VOLUME (bbl)
Hole Volume : 421
Pits Volume : 232
Circulating Volume : 653
Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: FL 23:00
Flow Line Temp	: 136 ^F
Depth/TVD -m	:2037.0/2037.0
Mud Wt -lb/gal	: 9.1
Funnel Vis -s/qt	: 40 @ 124^F
Plastic Visc -cps	: 16 @ 110^F
YP/R3 -lb/100ft2 /deg	: 15 / 2
10s/10m Gel -lb/100ft2	: 3 / 8
API F Loss -cc/30 min	: 4.8
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 3.5
Oil/Water -%vol	: /96.5
Sand -%vol	: 0.5
MBT -lb/bbl	: 10.0
pH	: 9.0 @ 65 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.5
Chlorides -mg/l	: 33000
Hardness Ca	: 160
K+ PPM	: 29500
KCL WT %	: 5.5
PHPA COR	: 1.0
SO3=	: 40
np Value	: 0.600
Kp -lb-sec^n/100ft2	: 0.78428
na Value	: 0.595
Ka -lb-sec^n/100ft2	: 0.80831

CIRCULATION DATA		
Flow Rate	-gal/min :	300
DP Annular Vel	-m/min :	43.1
DC Annular Vel	-m/min :	67.5
DP Critical Vel	-m/min :	80.7
DC Critical Vel	-m/min :	103.0
Circ. Pressure	-psi :	1325
Bottoms Up	-min :	46.5
Total Circ Time	-min :	91.4

PRODUCTS USED LAST 24 HOURS		
Potassm Chloride	25 KG S	80
Caustic Soda	25 KG S	3
Polyplus Powder	25 KG S	10
Polypac	25 KG S	8
Sodium Bicarb	25 KG S	3
OS-1	25 KG S	2
M-I Bar	25 KG S	50
XCD	25 KG S	1
Mica Medium	50 LB S	18
Kwik Seal M	40 LB S	12

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.6 / 7
KCl	: 1.5 / 14
Low Gravity Solids	: 3.3 / 30
Bentonite	: 0.8 / 8
Drill Solids	: 2.2 / 20
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 1.82	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	3 X 84	24
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	12
Desilter :	4"X 12	14
Degasser :		

MUD VOLUME ACCOUNTING	bbl	
Oil Added :	dump/SCE	:40
Water Added :	surface	:20
Mud Built :180	down hole	:33
Mud Received:		
Mud Disposed:93		

Remarks :
Drill 8.5" hole from 1956m - 2038m. D/hole losses contin. @ 1-2 bbl/hr. Drill ahead to confirm basement depth.
Drill 8.5" hole from 1956m - 2038m through possible weathered basement. Drill ahead to confirmed basement. Downhole losses continue at approximately 1 - 2 bbl/hr. Treat system with LCM. Current hole deviation = 5.5 deg.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 5432 Cumul Cost : 60605

WATER BASE MUD REPORT - Day : 23

M-I Drilling Fluids Company - - Date : 31/05/95 Depth : 2087.0 m

DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : WIPER TRIP

Operator : GFE RESOURCES LTD	Contractor : CENTURY	Description : EXPLORATION
Well Name : DIGBY 1	Field/Area : OTWAY BASIN	Location : PEP 105 & PEP 126
Report For: KEN SMITH		

	CASING		MUD VOLUME (bbl)
Bit : 8.500 in			
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 432
Drill Pipe 1 OD : 4.500 in 1870 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 258
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 690
Drill Collar OD : 6.250 in 161.0 m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:	CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: FL 23:00	Flow Rate -gal/min :	300	NaCl	: 0.6 / 7
Flow Line Temp	: 138 ^F	DP Annular Vel -m/min :	43.1	KCl	: 1.5 / 14
Depth/TVD -m	:2087.0/2087.0	DC Annular Vel -m/min :	67.5	Low Gravity Solids	: 3.3 / 30
Mud Wt -lb/gal	: 9.1	DP Critical Vel -m/min :	86.7	Bentonite	: 0.9 / 8
Funnel Vis -s/qt	: 39 @ 124^F	DC Critical Vel -m/min :	104.2	Drill Solids	: 2.2 / 20
Plastic Visc -cps	: 15 @ 118^F	Circ. Pressure -psi :	1400	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 13 / 3	Bottoms Up -min :	47.6	Chemical Conc	: - / 2.0
10s/10m Gel -lb/100ft2	: 3 / 7	Total Circ Time -min :	96.6	Inert/React : 1.71	Average SG : 2.60
API F Loss -cc/30 min	: 4.4				
HTHP F Loss -cc/30 min	: @ ^F	PRODUCTS USED LAST 24 HOURS		SOLIDS EQUIPMENT Size	Hours
Cake API/HT -1/32"	: 1	Caustic Soda 25 KG S	1	Shaker #1 : 3 X 84	24
Solids -%vol	: 3.5	Soda Ash 25 KG S	1	Shaker #2 :	
Oil/Water -%vol	: /96.5	M-I Gel 25 KG S	48	Shaker #3 :	
Sand -%vol	: 0.5	Sodium Bicarb 25 KG S	2	Shaker #4 :	
MBT -lb/bbl	: 10.5	OS-1 25 KG S	2	Mud Cleaner :	
pH	: 9.0 @ 65 ^F	Mica Medium 50 LB S	14	Centrifuge :	
Alkal Mud (Pm)	: 0.1	Kwik Seal M 40 LB S	16	Desander : 12"X 2	14
Pf/Mf	: 0.05/ 0.6			Desilter : 4"X 12	14
Chlorides -mg/l	: 32500			Degasser :	
Hardness Ca	: 80				
K+ PPM	: 29500			MUD VOLUME ACCOUNTING	bbl
KCL WT %	: 5.5			Oil Added :	dump/SCE :45
PHPA COR	: 0.85			Water Added :	surface :20
SO3=	: 60			Mud Built :95	down hole :33
np Value	: 0.619			Mud Received:	
Kp -lb-sec^n/100ft2	: 0.63117			Mud Disposed:98	
na Value	: 0.485				
Ka -lb-sec^n/100ft2	: 1.45110				

Remarks :
Continue to drill 8.5"f/2038m.-2088m.through pre-basement volcanics? POOH for wiper trip prior to logging.
Continue to drill 8.5" hole from 2038m - 2088m through pre-basement?
volcanics. POOH on wiper trip prior to logging.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 1529 Cumul Cost : 62096

WATER BASE MUD REPORT - Day : 24

M-I Drilling Fluids Company - - Date : 01/06/95 Depth : 2088.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM Well No. : W0003 Spud Date : 09/05/95 Activity : LOGGING

Operator : GFE RESOURCES LTD Contractor : CENTURY Description : EXPLORATION
Well Name : DIGBY 1 Field/Area : OTWAY BASIN Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1871 m
Drill Pipe 2 OD : 4.500 in 56.0 m
Drill Collar OD : 6.250 in 161.0 m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 337.0 m Liner TD : m
Casing TVD : 337.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 432
Pits Volume : 198
Circulating Volume : 630
Mud : POLYPLUS/KCL MUD

MUD PROPERTIES	:
Sample From	: PIT 23:00
Flow Line Temp	: ^F
Depth/TVD -m	:2088.0/2088.0
Mud Wt -lb/gal	: 9.1
Funnel Vis -s/qt	: 38 @ 88 ^F
Plastic Visc -cps	: 14 @ 84 ^F
YP/R3 -lb/100ft2 /deg	: 12 / 3
10s/10m Gel -lb/100ft2	: 3 / 7
API F Loss -cc/30 min	: 5.0
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 3.5
Oil/Water -%vol	: /96.5
Sand -%vol	: 0.25
MBT -lb/bbl	: 10.5
pH	: 9.0 @ 70 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.55
Chlorides -mg/l	: 30000
Hardness Ca	: 160
K+ PPM	: 27000
KCL WT %	: 5.0
PHPA COR	: 0.8
SO3=	: 40
np Value	: 0.621
Kp -lb-sec^n/100ft2	: 0.57674
na Value	: 0.469
Ka -lb-sec^n/100ft2	: 1.48969

CIRCULATION DATA		
Flow Rate	-gal/min :	300
DP Annular Vel	-m/min :	43.1
DC Annular Vel	-m/min :	67.5
DP Critical Vel	-m/min :	84.1
DC Critical Vel	-m/min :	100.3
Circ. Pressure	-psi :	1400
Bottoms Up	-min :	47.6
Total Circ Time	-min :	88.2

PRODUCTS USED LAST 24 HOURS

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.5 / 6
KCl	: 1.5 / 14
Low Gravity Solids	: 3.5 / 32
Bentonite	: 0.9 / 8
Drill Solids	: 2.4 / 22
Weight Material	: N/A / N/A
Chemical Conc	: - / 2.0
Inert/React : 1.86	Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1 :	2X50+84	5
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	12"X 2	
Desilter :	4"X 12	
Degasser :		

MUD VOLUME ACCOUNTING		bbl
Oil Added :	dump/SCE	:90
Water Added :	surface	:15
Mud Built :	down hole	:15
Mud Received:		
Mud Disposed:120		

Remarks :
Continue wiper trip to 1000m.-hole good,no fill.Circ.B/U and POOH to log. R/U and run log #1 & 2
Continue wiper trip to 1000m - hole good, no fill. Circulate bottoms up,
survey (deviation = 5.5 deg) and POOH to log. Rig up and run logs #1 & 2.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 0 Cumul Cost : 62096

M-I Drilling Fluids Co.
Magcobar/IMCO — A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	1 JUNE 19 95
DEPTH	2088 m
SPUD DATE	10 MAY
PRESENT ACTIVITY	LOGGING

OPERATOR	GFE RES LTD	CONTRACTOR	CENTURY
RIG NO.	11		
REPORT FOR	KEN SMITH	REPORT FOR	ROGER BINDON
SECTION, TOWNSHIP, RANGE	ONSHORE		
WELL NAME AND NO.	DIGBY #1	FIELD OR BLOCK NO.	DIGBY JV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN	STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY / CASING / MUD VOLUME (BBL) / CIRCULATION DATA

BIT SIZE / TYPE / JET SIZE		CASING SURFACE	9 5/8 in. @ 337 ft.
DRILL PIPE SIZE / TYPE / LENGTH		INTERMEDIATE	in. @ ft.
DRILL PIPE SIZE / TYPE / LENGTH		INTERMEDIATE	in. @ ft.
DRILL COLLAR SIZE / LENGTH		PRODUCTION OR LINER	in. @ ft.
HOLE	485	PITS	145
TOTAL CIRCULATING VOLUME	630		
IN STORAGE	68	WEIGHT	8.6
MUD TYPE	KCl/PHPA		
PUMP SIZE	6 X 8.5 IN.	ANNULAR VEL (ft/min)	DP [illegible] DC [illegible]
PUMP MAKE, MODEL	NAT 8P 80	ASSUMED EFF	75 %
CIRCULATION PRESSURE (psi)	1400		
bbl/stk	0.0705	stk/min	101
bbl/min	7.12	gal/min	[illegible]
BOTTOMS UP (min) (strk)	61	TOTAL CIRC TIME (min) (strk)	[illegible]

MUD PROPERTIES

	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	23 00	
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)	2088	
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	
Funnel Viscosity (sec/qt) API @ 88 °F	38	
Plastic Viscosity cp @ 84 °F	14	
Yield Point (lb/100 ft²)	12	
Gel Strength (lb/100 ft²) 10 sec/10 min	2 / 7	/
Filtrate API (cm³/30 min)	5.0	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 / -	/
Solids Content (% by Vol) ☐ calculated ☐ retort	3.5	
Liquid Content (% by Vol) Oil/Water	96.5	/
Sand Content (% by Vol)	0.25	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	10.5	
pH ☐ Strip ☐ Meter @ °F	9.0	
Alkalinity Mud (P_m)	0.05	
Alkalinity Filtrate (P_f/M_f)	.05/0.55	/
Chloride (mg/L)	30000	
Total Hardness as Calcium (mg/L)	160	
K^+ mg/l	27000	
KCl % wt	5.0	
PHPA	0.80	
SO_3	40	

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0-9.1 ppg	35-45 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- DUMP / CLEAN SAND TRAP [illegible]
- NO MUD BUILT [illegible]
- D/HOLE LOSSES WHILE LOGGING [illegible]

REMARKS

CONTINUE WIPER TRIP TO [illegible] - HOLE GOOD, NO FILL
CIRC B/U [illegible]
. POOH TO LOG

RIG UP BPB AND RUN LOG # 1
[illegible]
[illegible] LOG # 2
[illegible]
[illegible]

PRODUCT INVENTORY

PRODUCT INVENTORY																
STARTING INVENTORY																
RECEIVED																
USED LAST 24 hr																
CLOSING INVENTORY																
COST LAST 24 hr																
USED (from IADC)																

SOLIDS EQUIPMENT

SHAKER #1	2 x 50 / 1 x 84 mesh
SHAKER #2	mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	- hours
DESILTER	- hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 0.00	$ 62759.76

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service		Water Added (bbl)		Low Gravity %	3.5
Drilling		Mud Built (bbl)		Low Gravity, ppb	31.6
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.8
Circulating	1.0	Mud Disposed (bbl)	120	Bentonite, ppb	7.6
Tripping	7.0	SURFACE	15	Drill Solids %	2.4
Survey	1.0	DUMP	90	Drill Solids, ppb	21.5
Logging	15.0	D/HOLE	15	Shale CEC, ppb	
Running Casing		TOTAL MUD	678	D/B Ratio	1.91
Testing		Starting Depth		High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
		New Hole Vol. (bbl)		KCl % VOL	1.9

MUD RHEOLOGY and HYDRAULICS

Zero Gel		Avg ROP		ECD @	
n Factor		% Cutting		Leak Off @	
k Factor	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics					
Annular Section	1	2	3	4	5
Hole Size					
Pipe OD					
Critical Velocity					
Annular Velocity					
Viscosity					
Annular Pressure					

WATER BASE MUD REPORT - Day : 25

M-I Drilling Fluids Company — - — Date : 02/06/95 — Depth : 2088.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : W0003 — Spud Date : 09/05/95 — Activity : RIH TO P&A

Operator : GFE RESOURCES LTD — Contractor : CENTURY — Description : EXPLORATION
Well Name : DIGBY 1 — Field/Area : OTWAY BASIN — Location : PEP 105 & PEP 126
Report For: KEN SMITH

Bit : 8.500 in	**CASING**		**MUD VOLUME (bbl)**
Nozzles:11/11/11/ / / 1/32"	Casing OD : 9.625 in	Liner OD : in	Hole Volume : 447
Drill Pipe 1 OD : 4.500 in 2032 m	Casing ID : 8.680 in	Liner ID : in	Pits Volume : 170
Drill Pipe 2 OD : 4.500 in 56.0 m	Casing TD : 337.0 m	Liner TD : m	Circulating Volume : 617
Drill Collar OD : in m	Casing TVD : 337.0 m	Liner TVD : m	Mud : POLYPLUS/KCL MUD

MUD PROPERTIES

Sample From	PIT 23:00
Flow Line Temp	^F
Depth/TVD -m	2088.0/2088.0
Mud Wt -lb/gal	9.2
Funnel Vis -s/qt	40 @ 88 ^F
Plastic Visc -cps	16 @ 84 ^F
YP/R3 -lb/100ft2 /deg	14 / 3
10s/10m Gel -lb/100ft2	3 / 8
API F Loss -cc/30 min	4.8
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	3.5
Oil/Water -%vol	/96.5
Sand -%vol	0.25
MBT -lb/bbl	10.5
pH	8.5 @ 70 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.4
Chlorides -mg/l	27000
Hardness Ca	100
K+ PPM	25000
KCL WT %	4.5
PHPA COR	0.75
SO3=	40
np Value	0.616
Kp -lb-sec^n/100ft2	0.68576
na Value	0.500
Ka -lb-sec^n/100ft2	1.41607

CIRCULATION DATA

Flow Rate -gal/min	
DP Annular Vel -m/min	
DC Annular Vel -m/min	
DP Critical Vel -m/min	87.2
DC Critical Vel -m/min	
Circ. Pressure -psi	
Bottoms Up -min	
Total Circ Time -min	

PRODUCTS USED LAST 24 HOURS

Caustic Soda	25 KG S	-1
Polyplus Powder	25 KG S	-4
Polypac	25 KG S	-1
Sodium Bicarb	25 KG S	-1
Conqor 303	25 LT D	1
Cronox 2-100	208 LT	1

SOLIDS ANALYSIS (% / lb/bbl)

	%	lb/bbl
NaCl	0.3	4
KCl	1.5	14
Low Gravity Solids	4.5	41
Bentonite	0.8	7
Drill Solids	3.5	32
Weight Material	N/A	N/A
Chemical Conc	-	2.0

Inert/React : 2.70 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	2X50+84	5
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	12"X 2	
Desilter	4"X 12	
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added :		dump/SCE :	
Water Added :		surface :	32
Mud Built :	90	down hole :	15
Mud Received:			
Mud Disposed:	47		

Remarks :
Complete logging. Lay down BHA. RIH open ended and prepare to P & A.
Complete logging with velocity survey and side wall cores. Lay down BHA. RIH open ended and commence P & A with plug #1.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 60 — Cumul Cost : 63019

M-I Drilling Fluids Co. Magcobar/IMCO A Dresser/Halliburton Company
P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE	2nd June 19 95
DEPTH	2088m TD
SPUD DATE	10 MAY
PRESENT ACTIVITY	RIH TO P&A
OPERATOR	GFE RES LTD
CONTRACTOR	CENTURY
RIG NO.	11
REPORT FOR	KEN SMITH
REPORT FOR	ROGER BINDON
SECTION, TOWNSHIP, RANGE	ONSHORE
WELL NAME AND NO.	DIGBY #1
FIELD OR BLOCK NO.	DIGBY NV
COUNTY, PARISH OR OFFSHORE AREA	OTWAY BASIN
STATE/PROVINCE	VICTORIA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA	
BIT SIZE: O/E	TYPE:	JET SIZE:	SURFACE: 9 5/8 in. @ 337 ft	HOLE: 432	PITS: 185	PUMP SIZE: 6 x 8.5 IN.	ANNULAR VEL (ft/min) DP ___ DC ___
DRILL PIPE SIZE: 4 1/2	TYPE: 16.6#	LENGTH:	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME: 617		PUMP MAKE, MODEL: NAT 8P80; ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE: 4 1/2	TYPE: HWDP	LENGTH:	INTERMEDIATE in. @ ft	IN STORAGE: 124	WEIGHT: 8.8	bbl/stk: 0.0705 stk/min	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH:	PRODUCTION OR LINER in. @ ft	MUD TYPE: KCl/PHPA		bbl/min gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES

	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	23:00	
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)	2088	
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1+	
Funnel Viscosity (sec/qt) API @ °F	40	
Plastic Viscosity cp @ °F	16	
Yield Point (lb/100 ft²)	14	
Gel Strength (lb/100 ft²) 10 sec/10 min	3/18	/
Filtrate API (cm³/30 min)	4.8	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1/-	/
Solids Content (% by Vol) ☐ calculated ☐ retort	3.5	
Liquid Content (% by Vol) Oil/Water	96.5	/
Sand Content (% by Vol)	0.25	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	10.5	
pH ☐ Strip ☐ Meter @ °F	8.5	
Alkalinity Mud (P_m)	0.05	
Alkalinity Filtrate (P_f/M_f)	.05/0.4	/
Chloride (mg/L)	27000	
Total Hardness as Calcium (mg/L)	100	
K^+ mg/l	25000	
KCl % wt	4.5	
PHPA	0.75	
$SO_4^=$	40	

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.0 - 9.1 ppg	35-45 sec/qt	< 7 cc

RECOMMENDED TOUR TREATMENT

- MUD BUILT FROM PREV PREMIXED PILL

REMARKS

CONTIN RUN LOG #2 - HALLIBURTON
RUN LOG #3 VD - REPEAT LOG #2
RUN LOG #4 SIDEWALL CORES.
RIH WITH BHA POOH WITH BHA & LAY DOWN.

RIH O/E AND PREPARE TO SET PLUG #1

NOTE: -VE USAGE INDICATES CREDIT
NOTE CUMM TOTAL ADJUSTED + $305.52
REPRESENTING 19 SKS POLYPLUS UNDERCHARGED BY $16.08/SK & APPEARS IN FDC4 AS CR01

PRODUCT INVENTORY

PRODUCT INVENTORY	POLY PAC R	CONQOR 303	ARONOX 2-100	CAUSTIC SODA	SOD BICARB	POLY PLUS
STARTING INVENTORY	52	1	-	36	21	49
RECEIVED			1			
USED LAST 24 hr	-1	1	1	-1	-1	-4
CLOSING INVENTORY	53	-	-	37	22	53
COST LAST 24 hr	-131.74	5127	871.25	-15.34	-22.35	-693.00
USED (from IADC)		5127	871.25			

SOLIDS EQUIPMENT

SHAKER #1	2 x 50 / 1 x 210 mesh
SHAKER #2	/ mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER	hours
DESILTER	hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	03 3254522		FDC4 + 366.00 $ 60.09 See above Note	$ 63125.57

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service	0.5	Water Added (bbl)		Low Gravity %	3.5
Drilling		Mud Built (bbl)	90	Low Gravity, ppb	32.5
Reaming/Coring		Mud Received (bbl)		Bentonite %	2.2
Circulating		Mud Disposed (bbl)	47	Bentonite, ppb	8.2
Tripping	4.0	SURFACE	32	Drill Solids %	2.2
Survey		D/HOLE	15	Drill Solids, ppb	19.0
Logging	19.5			Shale CEC, ppb	-
Running Casing		TOTAL MUD	741	D/B Ratio	1.26
Testing		Starting Depth		High Gravity %	-
Fishing		Ending Depth		High Gravity, ppb	-
		New Hole Vol. (bbl)		KCl % VOL	1.8

MUD RHEOLOGY and HYDRAULICS

Zero Gel		Avg ROP		ECD @		
n Factor		% Cutting		Leak Off @		
k Factor		psi	%	hhp	HSI	Jet Vel
Bit Hydraulics						
Annular Section		1	2	3	4	5
Hole Size						
Pipe OD						
Critical Velocity						
Annular Velocity						
Viscosity						
Annular Pressure						

M-I Drilling Fluids Co.

Magcobar/IMCO A Dresser/Halliburton Company

P.O. BOX 42842 ■ HOUSTON, TEXAS 77242 USA

DATE 3rd June 19 95 | DEPTH 2088 m TD

SPUD DATE 10 MAY | PRESENT ACTIVITY P & A

OPERATOR: GFE RES LTD	CONTRACTOR: CENTURY	RIG NO.: 11	
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE	
WELL NAME AND NO.: DIGBY #1	FIELD OR BLOCK NO.: DIGBY IV	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN	STATE/PROVINCE: VICTORIA

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE in. @ ft.	HOLE 424 ~~284~~	PITS —	PUMP SIZE X IN.		ANNULAR VEL (ft/min) DP ___ DC ___
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME —		PUMP MAKE, MODEL	ASSUMED EFF %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	IN STORAGE —	WEIGHT —	bbl/stk	stk/min	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER in. @ ft.	MUD TYPE KCl/PHPA		bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES	☐ F.L. ☐ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken		
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)		
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)		
Funnel Viscosity (sec/qt) API @ °F		
Plastic Viscosity cp @ °F		
Yield Point (lb/100 ft²)		
Gel Strength (lb/100 ft²) 10 sec/10 min	/	/
Filtrate API (cm³/30 min)		
API HTHP Filtrate (cm³/30 min) @ °F		
Cake Thickness (32nd in. API/HTHP)	/	/
Solids Content (% by Vol) ☐ calculated ☐ retort		
Liquid Content (% by Vol) Oil/Water	/	/
Sand Content (% by Vol)		
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud		
pH ☐ Strip ☐ Meter @ °F		
Alkalinity Mud (P_m)		
Alkalinity Filtrate (P_f/M_f)	/	/
Chloride (mg/L)		
Total Hardness as Calcium (mg/L)		

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE

RECOMMENDED TOUR TREATMENT

SPOT 80 bbls CRONOX / CAUSTIC TREATED MUD IN CASED HOLE

- DUMP ALL SURFACE VOLUME

REMARKS

COMMENCE P & A

SET CEMENT PLUG #1 F/ 1950-1890 –
#2 F/ 1490 - 1430 –
#3 F/ 380 - 300 m

END OF WELL
Depart LOCATION 4 June '95

PRODUCT INVENTORY															
STARTING INVENTORY															
RECEIVED															
USED LAST 24 hr															
CLOSING INVENTORY															
COST LAST 24 hr															
USED (from IADC)															

SOLIDS EQUIPMENT

SHAKER #1 ___ / ___ mesh
SHAKER #2 ___ / ___ mesh
MUD CLEANER ___ mesh
CENTRIFUGE ___ hours
DESANDER ___ hours
DESILTER ___ hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL			$ 0.00	$ 63125.57

NOTICE: THIS REPORT IS SUBJECT TO THE TERMS AND CONDITIONS SET FORTH ON REVERSE SIDE HEREOF.

TIME DISTRIBUTION (hrs)		MUD VOLUME ACCOUNTING		SOLIDS ANALYSIS	
Rig Up/Service		Water Added (bbl)		Low Gravity %	
Drilling		Mud Built (bbl)		Low Gravity, ppb	
Reaming/Coring		Mud Received (bbl)		Bentonite %	
Circulating		Mud Disposed (bbl)		Bentonite, ppb	
Tripping		DUMP	317 ~~457~~	Drill Solids %	
Survey				Drill Solids, ppb	
Logging				Shale CEC, ppb	
Running Casing		TOTAL MUD	424 ~~284~~	D/B Ratio	
Testing		Starting Depth		High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
P & A	24.0	New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS						
Zero Gel		Avg ROP		ECD @ ___		
n Factor		% Cutting		Leak Off @ ___		
k Factor		psi	%	hhp	HSI	Jet Vel
Bit Hydraulics						
Annular Section		1	2	3	4	5
Hole Size						
Pipe OD						
Critical Velocity						
Annular Velocity						
Viscosity						
Annular Pressure						

APPENDIX 3

GFE RESOURCES LTD

APPENDIX 3

DAILY REPORT SUMMARY

OF DRILLING OPERATIONS

DIGBY-1

GFE Resources Ltd

DRILLING OPERATIONS SUMMARY

DIGBY-1

Permit:	DIGBY JV	**Spud Date:**	10 / 05 / 1995	**Rig:**	Century Rig 11
GFE Rep:	K. Smith	**Geologist:**	D. Horner		

TIME	HOURS		OPERATIONS
9 / 05 / 95			
0600 - 2400	18	-	Rig up. Mix spud mud. Drill rat-hole and mouse-hole.
10 / 05 / 95			
0000 - 0100	1	-	Lay out rat-hole and mouse-hole drilling gear.
0100 - 0400	3	-	Spud-in and drill 12¼" hole from 11 to 43m.
0400 - 0430	½	-	Circulate and survey at 29m.
0430 - 0500	½	-	Drill 12¼" hole from 43 to 53m.
0500 - 0530	½	-	Circulate and survey at 40m.
0530 - 0700	1½	-	Drill 12¼" hole from 53 to 89m.
0700 - 0730	½	-	Circulate and survey at 76m.
0730 - 0900	1½	-	Drill 12¼" hole from 89 to 143m.
0900 - 0930	½	-	Circulate and survey at 130m.
0930 - 1200	2½	-	Drill 12¼" hole from 143 to 204m.
1200 - 1230	½	-	Circulate and survey at 192m.
1230 - 1500	2½	-	Drill 12¼" hole from 204 to 260m.
1500 - 1530	½	-	Circulate and survey at 247m.
1530 - 1930	4	-	Drill 12¼" hole from 260 to 342m.
1930 - 2000	½	-	Circulate hole clean.
2000 - 2030	½	-	Survey at 333m.
2030 - 2130	1	-	Pull out of hole. Work tight hole at 310m. Pick up kelly and ream from 303 to 310m.
2130 - 2400	2½	-	Pull out of hole. Wiper trip - strap out to top of 8" DC's.
11 / 05 / 95			
0000 - 0100	1	-	Run in hole. Work through bridge at 327m. Six metres of fill.
0100 - 0130	½	-	Circulate hole clean.
0130 - 0300	1½	-	Pull out of hole.
0300 - 0400	1	-	Lay out 8" DC's, stabiliser and bit.
0400 - 0900	5	-	Rig up to run, and run $9^5/_8$" surface casing.
0900 - 0930	½	-	Break casing collar and head up Dowell.
0930 - 1000	½	-	Circulate casing with 150 bbls.
1000 - 1130	1½	-	Mix and pump cement.
1130 - 1830	7	-	Wait on cement.
1830 - 2000	1½	-	Slack off. Lay out cement head, landing joint and conductor barrel. Break out cement head nubbin and recover casing collar.
2000 - 2400	4	-	Nipple up BOP's.

TIME	HOURS		OPERATIONS
12 / 05 / 95			
0000 - 0530	5½	-	Nipple up BOP's, install flare line, install choke, function test BOP's.
0530 - 0600	½	-	Pressure test BOP's.
0600 - 0730	1½	-	Pressure test blind rams and flare line to 1500 psi, pipe rams, all choke manifold valves, HCR and manual valve to 3000 psi.
0730 - 1300	5½	-	Lift BOP and change out soft iron ring gasket that started to leak while testing - kill line valves and would not respond to tightening.
1300 - 1330	½	-	Pressure test kill line valves to 3000 psi and Hydril to 1500 psi.
1330 - 1530	2	-	Make up 8½" pendulum BHA and run in hole. Top of cement at 318.5m.
1530 - 1630	1	-	Pressure test upper and lower kelly cocks to 1000 psi with rig pump.
1630 - 1730	1	-	Drill out shoe track and 3m of new hole.
1730 - 1800	½	-	Displace hole to mud.
1800 - 1900	1	-	Run Formation Integrity Test at 345m with 9.2 ppg mud weight to 770 psi (EMW of 22.3 ppg).
1900 - 1930	½	-	Attempt to unblock jets - pipe rams had failed to open after FIT.
1930 - 2400	4½	-	Drill 8½" hole from 345 to 435m.
13 / 05 / 95			
0000 - 0100	1	-	Drill 8½" hole from 435 to 454m.
0100 - 0130	½	-	Circulate and survey at 441m.
0130 - 0300	1½	-	Drill 8½" hole from 454 to 483m.
0300 - 0330	½	-	Circulate and survey at 470m.
0330 - 0830	5	-	Drill 8½" hole from 483 to 588m.
0830 - 0900	½	-	Circulate and survey at 575m.
0900 - 1330	4½	-	Drill 8½" hole from 588 to 656m.
1330 - 1400	½	-	Circulate hole clean.
1400 - 1500	1	-	Wiper trip from 656m to casing shoe - hole good.
1500 - 1530	½	-	Break circulation at 643m and wash to bottom. Two metres of fill.
1530 - 1800	2½	-	Drill 8½" hole from 656 to 694m.
1800 - 1830	½	-	Circulate and survey at 681m.
1830 - 2400	5½	-	Drill 8½" hole from 694 to 781m.
14 / 05 / 95			
0000 - 0030	½	-	Circulate and survey at 768m.
0030 - 0300	2½	-	Drill 8½" hole from 781 to 810m.
0300 - 0330	½	-	Circulate and survey at 796m.
0330 - 0800	4½	-	Drill 8½" hole from 810 to 838m.
0800 - 0830	½	-	Circulate and survey at 834m.
0830 - 1200	3½	-	Drill 8½" hole from 838 to 866m.
1200 - 1230	½	-	Circulate and survey at 863m.
1230 - 1500	2½	-	Drill 8½" hole from 866 to 895m.
1500 - 1530	½	-	Circulate and survey at 892m.
1530 - 1730	2	-	Wiper trip from 895 to 652m - hole good. Lay out bent single of drill pipe and run in hole to 892m. Break circulation and clean to bottom. Three metres of fill.
1730 - 2100	3½	-	Drill 8½" hole from 895 to 924m.
2100 - 2130	½	-	Circulate and survey at 920m.
2130 - 2400	2½	-	Drill 8½" hole from 924 to 943m.
15 / 05 / 95			
0000 - 0130	1½	-	Drill 8½" hole from 943 to 953m.
0130 - 0200	½	-	Circulate and survey at 950m.
0200 - 0600	4	-	Drill 8½" hole from 953 to 981m.
0600 - 0630	½	-	Circulate and survey at 978m.

0630 - 1100	4½	-	Drill 8½" hole from 981 to 1010m.
1100 - 1130	½	-	Circulate and survey at 1007m.
1130 - 1530	4	-	Drill 8½" hole from 1010 to 1039m.
1530 - 1630	1	-	Circulate and survey at 1036m - misrun at first attempt.
1630 - 1700	½	-	Circulate hole prior to trip for BHA change.
1700 - 1930	2½	-	Pull out of hole for BHA change.
1930 - 2000	½	-	Break and lay out bit, bit sub, shock sub and stabiliser. Make up cup tester.
2000 - 2030	½	-	Pressure test pipe rams, choke manifold valves, HCR, manual valve and kill line valves to 3000 psi and Hydril to 1500 psi.
2030 - 2100	½	-	Make up stiff BHA.
2100 - 2230	1½	-	Run in hole to casing shoe. Lay out work single.
2230 - 2400	1½	-	Slip and cut drilling line.
16 / 05 / 95			
0000 - 0530	5½	-	Run in hole with stiff assembly reaming any indicated tight spots, starting at 367m.
0530 - 1000	4½	-	Drill 8½" hole from 1039 to 1080m.
1000 - 2400	14	-	Check drum clutch when unable to pull out of slips after making connection. Clutch OK - check drive line back to gear-box - broken shaft. Remove shaft and send to Adelaide for duplicating. Continue circulating hole at 170 gpm with periodic flushes at 300 gpm. Turn string a few rotations every two hours with kelly spinner.
17 / 05 / 95			
0000 - 0600	6	-	Continue circulating and turning string while waiting on shaft for gearbox.
0600 - 1900	13	-	Circulate hole at 170 gpm with flushes of 300 gpm and rotate string a few revolutions every four hours with kelly spinner while waiting on shaft for gearbox.
1900 - 2400	5	-	Install new gearbox shaft, re-fit panels and hydraulic oil tank.
18 / 05 / 95			
0000 - 0030	½	-	Re-fit panels and fill hydraulic oil tank with oil.
0030 - 0330	3	-	Wiper trip to casing shoe before drilling ahead. Work tight hole at 795m - 15000 lbs of over-pull. Seven metres of fill.
0330 - 0530	2	-	Drill 8½" hole from 1080 to 1099m.
0530 - 0600	½	-	Circulate and survey at 1085m.
0600 - 1230	6½	-	Drill 8½" hole from 1099 to 1156m.
1230 - 1300	½	-	Circulate and survey at 1143m.
1300 - 1630	3½	-	Drill 8½" hole from 1156 to 1185m.
1630 - 1700	½	-	Circulate and survey at 1172m.
1700 - 2030	3½	-	Drill 8½" hole from 1185 to 1214m.
2030 - 2100	½	-	Circulate and survey at 1201m.
2100 - 2400	3	-	Drill 8½" hole from 1214 to 1230m.
19 / 05 / 95			
0000 - 0200	2	-	Drill 8½" hole from 1230 to 1242m.
0200 - 0230	½	-	Circulate and survey at 1229m.
0230 - 0300	½	-	Drill 8½" hole from 1242 to 1247m.
0300 - 0530	2½	-	Pull out of hole for BHA change.
0530 - 0600	½	-	Service rig at casing shoe.
0600 - 0630	½	-	Continue to pull out of hole for BHA change.
0630 - 0730	1	-	Break down 8½" stiff assembly and make up 8½" pendulum assembly.
0730 - 1030	3	-	Run in hole to top of fill at 1236m.
1030 - 1100	½	-	Break circulation and wash to bottom at 1247m.

1100 - 1130	½	-	Survey at 1236m prior to drilling ahead.
1130 - 1800	6½	-	Drill 8½" hole from 1247 to 1260m.
1800 - 1830	½	-	Circulate and survey at 1256m.
1830 - 2130	3	-	Drill 8½" hole from 1260 to 1269m.
2130 - 2200	½	-	Circulate and survey at 1265m.
2200 - 2400	2	-	Drill 8½" hole from 1269 to 1276m.
20 / 05 / 95			
0000 - 3000	3	-	Drill 8½" hole from 1276 to 1288m.
0300 - 0400	1	-	Circulate and survey at 1285m - one misrun.
0400 - 0830	4½	-	Drill 8½" hole from 1288 to 1307m.
0830 - 0900	½	-	Circulate and survey at 1304m.
0900 - 1030	1½	-	Drill 8½" hole from 1307 to 1317m.
1030 - 1100	½	-	Circulate and survey at 1313m.
1100 - 1130	½	-	Service rig.
1130 - 1530	4	-	Drill 8½" hole from 1317 to 1336m.
1530 - 1600	½	-	Circulate and survey at 1333m.
1600 - 2000	4	-	Drill 8½" hole from 1336 to 1355m.
2000 - 2030	½	-	Circulate and survey at 1352m.
2030 - 2400	3½	-	Drill 8½" hole from 1355 to 1373m.
21 / 05 / 95			
0000 - 0200	2	-	Drill 8½" hole from 1373 to 1384m.
0200 - 0230	½	-	Circulate and survey at 1381m.
0230 - 0900	6½	-	Drill 8½" hole from 1384 to 1413m.
0900 - 0930	½	-	Circulate prior to survey and wiper trip.
0930 - 1000	½	-	Survey at 1409m.
1000 - 1100	1	-	Wiper trip to 1170m - hole good. Run in hole to 1409m. Wash to bottom (3.3m of fill).
1100 - 1330	2½	-	Drill 8½" hole from 1413 to 1422m.
1330 - 1400	½	-	Circulate and survey at 1419m.
1400 - 1700	3	-	Drill 8½" hole from 1422 to 1432m.
1700 - 1730	½	-	Circulate and survey at 1428m.
1730 - 2030	3	-	Drill 8½" hole from 1432 to 1442m.
2030 - 2100	½	-	Circulate and survey at 1438m.
2100 - 2400	3	-	Drill 8½" hole from 1442 to 1451m.
22 / 05 / 95			
0000 - 0030	½	-	Circulate and survey at 1447m.
0030 - 0300	2½	-	Drill 8½" hole from 1451 to 1460m.
0300 - 0330	½	-	Circulate and survey at 1457m.
0330 - 0500	1½	-	Drill 8½" hole from 1460 to 1468m.
0500 - 0730	2½	-	Flow-check, pull two stands and circulate geological sample at 1468m.
0730 - 1030	3	-	Run in hole 2 stands - no fill. Pull out of hole - strap pipe.
1030 - 1100	½	-	Slip 10.7m of drilling line at casing shoe.
1100 - 1200	1	-	Continue to pull out of hole. Lay out stabiliser, jars, shock sub and bit. Tight hole at 1122m.
1200 - 1230	½	-	Pressure test pipe rams, all choke manifold valves, HCR, manual valve and kill-line valves to 2000 psi and Hydril and flare line to 1500 psi.
1230 - 1430	2	-	Make up test tool.
1430 - 1630	2	-	Run in hole with test tool.
1630 - 1700	½	-	Head up surface equipment.
1700 - 1730	½	-	Pressure test surface lines to 2000 psi.

1730 - 2400	6½	-	Set packer and run DST #1 from 1460 to 1468m with Baker Oil Tools.
23 / 05 / 95			
0000 - 0100	1	-	Run DST #1 - Final shut-in.
0100 - 0300	2	-	Pull free, drop bar and reverse circulate contents of string - string plugged off three times.
0300 - 0430	1½	-	Circulate conventionally.
0430 - 0500	½	-	Rig down surface equipment.
0500 - 0830	3½	-	Pull out of hole with test tool.
0830 - 1100	2½	-	Break and lay out test tools.
1100 - 1430	3½	-	Make up 8½" stiff BHA and run in hole. Break circulation at 1458m and clean to bottom. Two meters of fill.
1430 - 2400	9½	-	Drill 8½" hole from 1468 to 1485m. Bit suspected of being balled-up because of low penetration rate. Try various methods in attempt to un-ball bit - unsuccessful.
24 / 05 / 95			
0000 - 0530	5½	-	Drill 8½" hole from 1485 to 1489m with continued attempts to un-ball bit.
0530 - 0600	½	-	Survey at 1487m prior to pulling out of hole for inspection of bit.
0600 - 0930	3½	-	Pull out of hole to check bit. Work tight hole at 682m.
0930 - 1000	½	-	Break bit and remove knock-out plug (from Baker's test tool drop-bar sub) from between apices of bit cones.
1000 - 1030	½	-	Service rig.
1030 - 1130	1	-	Make up Bit #5RR and run in hole with 8½" stiff assembly to casing shoe.
1130 - 1200	½	-	Slip 7m of drilling line.
1200 - 1300	1	-	Run in hole.
1300 - 1330	½	-	Pick up kelly and break circulation at 1477m. Tag bottom without rotating.
1330 - 2030	7	-	Drill 8½" hole from 1489 to 1519m.
2030 - 2100	½	-	Circulate and survey at 1515m.
2100 - 2400	3	-	Drill 8½" hole from 1519 to 1531m.
25 / 05 / 95			
0000 - 0400	4	-	Drill 8½" hole from 1531 to 1548m.
0400 - 0500	1	-	Circulate and survey at 1544m.
0500 - 0930	4½	-	Drill 8½" hole from 1548 to 1577m.
0930 - 1000	½	-	Circulate and survey at 1573m.
1000 - 1030	½	-	Service rig.
1030 - 1530	5	-	Drill 8½" hole from 1577 to 1601m.
1530 - 1700	1½	-	Flow-check, pull two stands and circulate geological sample at 1601m.
1700 - 1730	½	-	Drill 8½" hole from 1601 to 1605m.
1730 - 1800	½	-	Circulate and survey at 1602m.
1800 - 2030	2½	-	Drill 8½" hole from 1605 to 1634m.
2030 - 2100	½	-	Circulate and survey at 1630m.
2100 - 2400	3	-	Drill 8½" hole from 1634 to 1663m.
26 / 05 / 95			
0000 - 0030	½	-	Circulate and survey at 1659m.
0030 - 0200	1½	-	Drill 8½" hole from 1663 to 1692m.
0200 - 0230	½	-	Circulate and survey at 1688m.
0230 - 0400	1½	-	Drill 8½" hole from 1692 to 1721m.
0400 - 0430	½	-	Circulate and survey at 1717m.
0430 - 0700	2½	-	Drill 8½" hole from 1721 to 1740m.
0700 - 0730	½	-	Circulate prior to wiper trip.
0730 - 0830	1	-	Wiper trip back to 1487m. Work tight hole at 1388m and 1640m.

0830 - 0900	½	-	Break circulation and wash to bottom. One metre of fill.
0900 - 1000	1	-	Drill 8½" hole from 1740 to 1749m.
1000 - 1130	1½	-	Flow-check, pull 2 stands and circulate geological sample at 1749m. Run in hole 2 stands.
1130 - 1200	½	-	Survey at 1745m.
1200 - 1230	½	-	Drill 8½" hole from 1749 to 1752m - bit torqueing-up.
1230 - 1630	4	-	Pull out of hole for bit change.
1630 - 1730	1	-	Make up Bit #6 and run in hole to casing shoe.
1730 - 1830	1	-	Slip 9m and cut 26m of drilling line.
1830 - 2000	1½	-	Run in hole.
2000 - 2030	½	-	Break circulation and clean to bottom.
2030 - 2100	½	-	Drill 8½" hole from 1752 to 1759m - total loss of circulation - lost approximately 140 bbls. Fluid visible in annulus.
2100 - 2400	3	-	Mix and pump 55 bbls of LCM at 45 ppb. Displace to annulus at 2.6 bpm. Observe annulus for stability, then circulate and condition mud.
27 / 05 / 95			
0000 - 0230	2½	-	Circulate and condition mud.
0230 - 0300	½	-	Work bit gently on bottom. Bit #5RR missing 3 inserts.
0300 - 0400	1	-	Drill 8½" hole from 1759 to 1771m.
0400 - 0530	1½	-	Work bit gently on bottom - high rotary torque. Attempt to drill while ensuring no junk on bottom.
0530 - 0600	½	-	Drill 8½" hole from 1771 to 1778m.
0600 - 0630	½	-	Circulate and survey at 1774m.
0630 - 0900	2½	-	Drill 8½" hole from 1778 to 1807m.
0900 - 0930	½	-	Service rig.
0930 - 1000	½	-	Survey at 1803m.
1000 - 1230	2½	-	Drill 8½" hole from 1807 to 1836m.
1230 - 1300	½	-	Circulate and survey at 1832m.
1300 - 1630	3½	-	Drill 8½" hole from 1836 to 1864m.
1630 - 1700	½	-	Circulate and survey at 1861m.
1700 - 2030	3½	-	Drill 8½" hole from 1864 to 1893m.
2030 - 2100	½	-	Circulate and survey at 1890m.
2100 - 2400	3	-	Drill 8½' hole from 1893 to 1905m.
28 / 05 / 95			
0000 - 0400	4	-	Drill 8½" hole from 1905 to 1922m.
0400 - 0430	½	-	Circulate and survey at 1918m.
0430 - 0600	1½	-	Drill 8½" hole from 1922 to 1932m.
0600 - 0800	2	-	Flow-check, pull 2 stands and circulate geological sample at 1932m. Run in hole 2 stands.
0800 - 0830	½	-	Service rig.
0830 - 1200	3½	-	Drill 8½" hole from 1932 to 1951m.
1200 - 1330	1½	-	Flow-check, pull 3 stands and circulate geological sample at 1951m.
1330 - 1700	3½	-	Wiper trip to 1132m. Break circulation at 1611m to unplug jet. Run in hole to 1937m, break circulation and clean to bottom. Two metres of fill.
1700 - 1830	1½	-	Circulate 5 minutes, pull 3 stands and circulate.
1830 - 1900	½	-	Run to bottom and survey at 1947m.
1900 - 1930	½	-	Circulate 5 minutes, pull 3 stands and circulate.
1930 - 2200	2½	-	Pull out of hole for DST #2 - strap pipe.
2200 - 2230	½	-	Slip 9m of drilling line at casing shoe.
2230 - 2400	1½	-	Pull out of hole. Lay out jars, stabilisers and near bit reamer.

29 / 05 / 95		
0000 - 0100	1	- Pick up cup-tester and pressure test BOP and all choke manifold valves, HCR, manual valve and kill-line valve to 2500 psi and Hydril and flare-line to 1500 psi.
0100 - 0300	2	- Pick up and make up test tools.
0300 - 0700	4	- Run in hole slowly with test tool.
0700 - 0730	½	- Head-up surface equipment.
0730 - 0800	½	- Pressure test surface DST lines to 2000 psi.
0800 - 0830	½	- Work test-string free - stuck at 1944m.
0830 - 1130	3	- Set packer, open tool and run DST #2 from 1920 to 1951m with Baker Oil Tools.
1130 - 1530	4	- Pull out of hole with test tool. Recovered 1.28 bbls of mud with trace of oil.
1530 - 1730	2	- Break and lay out test tools.
1730 - 1900	1½	- Make up 8½" stiff BHA and run in hole to casing shoe.
1900 - 1930	½	- Slip 5.1m of drilling line.
1930 - 2200	2½	- Continue to run in hole to 1937m.
2200 - 2230	½	- Break circulation and clean to bottom. Pump fresh mud spacer before drilling ahead.
2230 - 2400	1½	- Drill 8½" hole from 1951 to 1955m.
30 / 05 / 95		
0000 - 0600	6	- Drill 8½" hole from 1955 to 1980m.
0600 - 0630	½	- Circulate and survey at 1976m.
0630 - 0700	½	- Service rig.
0700 - 1330	6½	- Drill 8½" hole from 1980 to 2008m.
1330 - 1400	½	- Circulate and survey at 2004m.
1400 - 2300	9	- Drill 8½" hole from 2008 to 2036 m.
2300 - 2330	½	- Circulate and survey at 2033m.
2330 - 2400	½	- Drill 8½" hole from 2036 to 2037m.
31 / 05 / 95		
0000 - 2330	23½	- Drill 8½" hole from 2037 to 2088m (T.D.).
2330 - 2400	½	- Wiper trip to 1000m.
1 / 06 / 95		
0000 - 0300	3	- Wiper trip to 1000m and run in hole - hole good - no fill.
0300 - 0400	1	- Circulate hole prior to logging.
0400 - 0500	1	- Survey at 2081m. Lubricate sand-line.
0500 - 0930	4½	- Pull out of hole to log - strap pipe - lay out near bit reamer, stabilisers and jars.
0930 - 2400	14½	- Rig up BPB and run logs. Run #1 DLL-MLL-Cal-BHS-GR. Run #2 CNL-LDL-GR (tool failed).
2 / 06 / 95		
0000 - 0600	6	- Continue to attempt Run #2, abandon after unsuccessful attempt to repair main tool and failure of back-up tool. Proceed to Run #3 Velocity Survey.
0600 - 1930	13½	- Run logs with BPB. Run #3 Velocity survey. Re-run #2 CNL-PDS-GR-Cal. Run #4 Sidewall Cores (48).
1930 - 2000	½	- Make up BHA and run in hole.
2000 - 2030	½	- Slip 9.7m of drilling line.
2030 - 2230	2	- Lay out BHA.
2230 - 2400	1½	- Run in hole with open ended drill pipe.

3 / 06 / 95		
0000 - 0100	1	- Continue run in hole with open ended drill pipe.
0100 - 0200	1	- Head up and circulate bottoms up.
0200 - 0330	1½	- Pressure test lines and run cement plug #1 from 1950 to 1890m with 71 sacks of Class A cement.
0330 - 0400	½	- Pull back to 1490m.
0400 - 0500	1	- Head up and run cement plug #2 from 1490 to 1430m with 78 sacks of Class A cement.
0500 - 0600	1	- Pull back 6 stands and circulate to balanced mud prior to laying down drill pipe.
0600 - 0800	2	- Lay out 54 joints of drill pipe.
0800 - 0930	1½	- Run in hole and tag plug #2 at 1428m.
0930 - 1330	4	- Lay out drill pipe.
1330 - 1400	½	- Run plug #3 from 380 to 283m with 180 sacks of Class A cement.
1400 - 1430	½	- Pull back 7 stands and break circulation.
1430 - 1530	1	- Break kelly, recover kelly spinner and kelly bushing while waiting on cement.
1530 - 1600	½	- Pull out of hole.
1600 - 1830	2½	- Lay out kelly and swivel.
1830 - 1900	½	- Run in hole - tag plug #3 at 333m with 15,000 lbs.
1900 - 2000	1	- Run cement plug #4 at 300 to 333m with 40 sacks of Class A cement.
2000 - 2030	½	- Pull back to 300m, and displace hole to inhibited mud.
2030 - 2130	1	- Lay out drill pipe.
2130 - 2200	½	- Pressure test plug #4 to 500 psi.
2200 - 2400	2	- Tear out BOP's.
4 / 06 / 95		
0000 - 0200	2	- Tear out BOP's.
0200 - 0300	1	- Run surface plug by hand. Clean casing bowl and finish cleaning mud tanks. Release rig.

Release Rig at 0300 hours, 4 June 1995.

APPENDIX 4

GFE RESOURCES LTD

APPENDIX 4

LITHOLOGICAL DESCRIPTIONS

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

DIGBY-1

APPENDIX 4A

CUTTINGS DESCRIPTIONS

DIGBY-1

GFE Resources Ltd

APPENDIX 4A

CUTTINGS DESCRIPTION

WELL NAME:	PEP 134 Digby-1	**DATE:**	6 October, 1995
GEOLOGIST:	Dave Horner	**PAGE:**	1 of 40

Interval (m)	%	Description
6-10	100	Claystone: off white to medium orange brown, trace yellow to red, slightly to occasionally very silty, trace black carbonaceous material, non calcareous, firm, non fissile.
10-20	50	Claystone: medium olive grey, non to occasionally very silty, trace black carbonaceous flecks, occasionally trace black coaly detritus, non calcareous, firm, non-fissile.
	30	Sandstone: medium orange to dark orange brown, very fine to fine, occasionally medium to coarse grains, subangular, poorly sorted, weak silica cement, moderate iron oxide cement, common to dominantly abundant medium orange to brown argillaceous and silt matrix, common light brown partially altered feldspar grains, friable to moderately hard, very poor visual porosity, no oil fluorescence.
	20	Claystone: as for 6 to 10m.
20-30	70	Sandstone: medium grey, very fine to fine, occasionally medium grains, dominantly fine, subangular, poorly sorted, weak silica cement, abundant medium grey argillaceous and silt matrix, abundant black coal detritus and flecks, common pyrite, trace partially altered feldspars, trace grey green and red lithics, friable, very poor visual porosity, no oil fluorescence.
	30	Claystone: medium grey, very silty, often very fine to finely arenaceous grading to silty sandstone, common very fine to fine partially altered feldspar grains, common to abundant black carbonaceous flecks and detritus, trace pyrite, firm, non-fissile.
30-40	90	Sandstone: medium grey, very fine to medium, dominantly fine, subangular, poor to moderately sorting, weak silica cement, abundant medium olive grey to medium brown grey argillaceous and silt matrix, abundant off white to green to grey to red lithics, common black coaly detritus, trace pyrite, very poor visual porosity, no oil fluorescence.
	10	Claystone: as for 20 to 30m.
40-50	100	Sandstone: medium olive grey, very fine to medium, dominantly medium, subangular to subrounded, moderately sorted, weak silica cement, common to abundant medium olive grey argillaceous and silt matrix, abundant white to green to grey to red lithics, trace green mica flakes, common black coal detritus, trace pyrite, friable, very poor to poor inferred porosity, no oil fluorescence.
50-60	60	Sandstone: as for 40 to 50m.
	40	Claystone: medium grey to medium olive grey to medium brown grey, very silty, often very arenaceous grading to sandstone, common black carbonaceous flecks and detritus, trace pyrite, firm, non-fissile.
60-70	60	Claystone: as for 50 to 60m.
	40	Sandstone: medium olive grey, very fine to medium, dominantly medium, subangular to subrounded, moderately sorted, weak silica cement, common to abundant medium olive grey argillaceous and silt matrix, abundant white to green to grey to red lithics, trace green mica flakes, common black coal detritus, trace pyrite, friable, very poor to poor inferred porosity, no oil fluorescence.

70-80	70	**Claystone**: light to dominantly medium grey, common medium green grey, occasional medium brown grey, slightly to occasionally very silty, occasionally very fine to finely arenaceous, common very fine to fine off white partially altered feldspar grains, trace black to brown carbonaceous flecks and detritus, slightly calcareous in part, trace pyrite, trace micromica, firm, non-fissile.
	30	**Sandstone**: medium olive grey, very fine to medium, dominantly medium, subangular to subrounded, moderately sorted, weak silica cement, common to abundant medium olive grey argillaceous and silt matrix, abundant white to green to grey to red lithics, trace green mica flakes, common black coal detritus, trace pyrite, friable, very poor to poor inferred porosity, no oil fluorescence.
80-90	90	**Claystone**: light to medium grey, medium green grey, medium brown grey, slightly to occasionally very silty, occasionally very fine to finely arenaceous, common very fine to fine off white partially altered feldspar grains, trace black to brown carbonaceous flecks and detritus, slightly calcareous in part, trace pyrite, trace micromica, firm, non-fissile.
	10	**Sandstone**: as for 70 to 80m.
90-110	100	**Claystone**: medium grey to medium green grey to medium brown grey, moderately to very silty, slightly calcareous in part, common black carbonaceous flecks and detritus, common very fine quartz and partially altered feldspar grains in part, trace micromica, rare pyrite, firm, non to slightly subfissile.
110-120	100	**Claystone**: medium grey to medium green grey to medium brown grey, moderately to very silty, slightly calcareous in part, common black carbonaceous flecks and detritus, common to abundant very fine quartz and partially altered feldspar grains in part, rare very fine red lithics where arenaceous, trace micromica, rare pyrite, firm, non to slightly subfissile.
120-130	90	**Claystone**: as for 110 to 120m.
	10	**Sandstone**: medium grey, very fine to medium, dominantly fine, subangular to subrounded, poorly sorted, weak silica and calcareous cements, abundant medium grey argillaceous and silt matrix, abundant grey brown, off white, green and red lithics, common black carbonaceous detritus, friable to occasionally moderately hard, no visual porosity, no oil fluorescence.
130-140	100	**Claystone**: medium grey to medium green grey to medium brown grey, slightly to moderately silty, slightly calcareous in part, common black carbonaceous flecks and detritus, trace very fine quartz and partially altered feldspar grains in part, rare very fine red lithics in part, trace micromica, rare pyrite, firm, non to slightly subfissile.
140-150	100	**Claystone**: medium grey to medium green grey, slightly to moderately silty, slightly calcareous in part, common black carbonaceous flecks and detritus, trace very fine quartz and partially altered feldspar grains in part, rare very fine red lithics in part, trace micromica, rare pyrite, firm, non to slightly subfissile.
150-170	100	**Claystone**: medium grey to medium green grey to medium brown grey, very silty, slightly calcareous in part, common black carbonaceous flecks and detritus, often abundant very fine quartz and partially altered feldspar grains in part, rare very fine red lithics in part, trace micromica, rare pyrite, firm, non to slightly subfissile.
170-180	80	**Claystone**: as for 150 to 170m.
	20	**Sandstone**: medium grey, very fine to medium, dominantly fine to medium, subangular to subrounded, poorly sorted, weak silica and calcareous cements, abundant medium grey argillaceous and silt matrix, abundant grey brown, off white, green and red lithics, common black carbonaceous detritus, rare pyrite, friable, no visual porosity, no oil fluorescence.
180-220	100	**Claystone**: medium grey to medium green grey to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace very fine multicoloured lithics in part, common black carbonaceous detritus and flecks, trace coarse green and brown mica flakes, rare pyrite, trace micromica, firm, slightly subfissile.

Interval (m)	%	Description
220-230	80	**Claystone**: medium grey to medium green grey, occasionally medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace very fine multicoloured lithics in part, common black carbonaceous detritus and flecks, trace coarse green and brown mica flakes, rare pyrite, trace micromica, firm, slightly subfissile.
	20	**Sandstone**: light green grey, very fine to medium, dominantly fine to medium, subangular, moderately sorted, moderately strong calcareous cement, common to abundant white to light brown argillaceous matrix, abundant green grey lithics, trace red lithics, common to abundant light brown partially altered feldspar grains, trace coarse brown and green mica flakes, trace pyrite, trace to common black carbonaceous detritus, hard, no visual porosity, no oil fluorescence but trace dull yellow orange calcite fluorescence, no cut.
230-240	100	**Claystone**: as for 220 to 230m.
	Trace	**Sandstone**: as for 220 to 230m.
240-250	90	**Claystone**: as for 220 to 230m.
	10	**Sandstone**: as for 220 to 230m.
250-280	100	**Claystone**: light to medium grey, medium green grey, occasionally medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace very fine multicoloured lithics in part, common black carbonaceous detritus and flecks, trace coarse green and brown mica flakes, rare pyrite, trace micromica, firm, slightly subfissile.
280-310	100	**Claystone**: light to medium green grey, medium grey, light to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace very fine multicoloured lithics in part, common black carbonaceous detritus and flecks, rare pyrite, trace micromica, firm, slightly subfissile.
	Trace	**Sandstone**: light green grey, very fine to medium, dominantly fine to medium, subangular, moderately sorted, moderately strong calcareous cement, common to abundant white to light brown argillaceous matrix, abundant green grey lithics, trace red lithics, common to abundant light brown partially altered feldspar grains, trace to common black to dark brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence but trace dull yellow orange calcite fluorescence, no cut.
310-320	100	**Claystone**: as for 280 to 310m.
320-342	100	**Claystone**: light to medium green grey, light to medium brown grey, light to medium grey, moderately to very silty, slightly calcareous in part, occasionally very finely arenaceous with quartz and partially altered feldspar grains, common very fine to fine multicoloured lithics in part, trace to common black carbonaceous detritus and flecks, trace micromica, firm, slightly subfissile.
	Trace	**Sandstone**: light green grey to light brown grey, occasionally off white, very fine to medium, dominantly fine to medium, subangular, moderately sorted, moderately strong calcareous cement, common to abundant white to light brown argillaceous matrix, abundant green grey lithics, trace red lithics, common to abundant light brown partially altered feldspar grains, trace to common black to dark brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence but trace dull yellow orange calcite fluorescence, no cut.
342-350	100	**Claystone**: light to medium brown grey, medium brown, occasionally light to medium green grey, moderately to very silty, occasionally very fine to finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile with abundant cement contamination.

Interval (m)	%	Description
350-355	90	**Claystone**: light to medium brown grey, medium brown, occasionally light to medium green grey, moderately to very silty, occasionally very fine to finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile.
	10	**Sandstone**: light to medium green grey, very fine to medium, dominantly medium, subangular, moderately sorted, strong calcareous cement, abundant light brown argillaceous matrix, abundant light brown partially altered feldspar grains, abundant grey green lithics, common orange to red lithics, trace to common black carbonaceous detritus, trace fine mica flakes, moderately hard, very poor visual porosity, no oil fluorescence but trace dull yellow orange calcite mineral fluorescence, no cut.
355-365	100	**Claystone**: as for 350 to 355m.
	Trace	**Sandstone**: light to medium green grey, very fine to medium, dominantly fine, subangular, moderately sorted, strong calcareous cement, abundant light brown argillaceous matrix, abundant light brown partially altered feldspar grains, abundant grey green lithics, common orange to red lithics, trace to common black carbonaceous detritus, trace fine mica flakes, moderately hard, very poor visual porosity, no oil fluorescence but trace dull yellow orange calcite mineral fluorescence, no cut.
365-370	100	**Claystone**: light to medium brown grey, often light to medium green grey, moderately to very silty, occasionally very fine to finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile.
370-380	100	**Claystone**: as for 365 to 370m.
	Trace	**Sandstone**: as for 355 to 365m.
380-390	100	**Claystone**: light to medium brown grey, common light to medium green grey, moderately to very silty, occasionally very fine to finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile.
	Trace	**Sandstone**: as for 355 to 365m.
390-400	100	**Claystone**: light to medium brown grey, common light to medium green grey, common medium to dark brown in part, moderately to very silty, occasionally very fine to finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile.
400-405	100	**Claystone**: as for 390 to 400m.
	Trace	**Sandstone**: light to medium green grey, very fine to medium, dominantly fine, subangular, moderately sorted, strong calcareous cement, abundant light brown argillaceous matrix, abundant light brown partially altered feldspar grains, abundant grey green lithics, common red lithics, trace to common black carbonaceous detritus, trace fine to coarse green and brown mica flakes, hard, very poor visual porosity, no oil fluorescence but trace dull yellow orange calcite mineral fluorescence, no cut.
405-420	100	**Claystone**: as for 390 to 400m.
420-425	100	**Claystone**: light to medium brown grey, light to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, minor slickensides, firm, slightly subfissile.
	Trace	**Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, no oil fluorescence.
425-430	100	**Claystone**: as for 420 to 425m.

430-445	100	**Claystone**: light to medium brown grey, light to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile.
445-450	90	**Claystone**: light to medium brown grey, light to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile.
	10	**Calcite**: (fracture infilling) white to light brown, macrocrystalline, hard. **Fluorescence**: The claystone has trace moderately bright to bright patchy to solid golden orange fluorescence giving a bright light yellow white slow streaming cut fluorescence, no natural cut colour, moderate to thick ring residue.
450-455	100	**Claystone**: light to medium brown grey, light to medium green grey, very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile.
	Trace	**Calcite**: (fracture infilling) white to light brown, macrocrystalline, hard. **Fluorescence**: The claystone has trace moderately bright to bright patchy to solid golden orange fluorescence giving a bright light yellow white slow streaming cut fluorescence, no natural cut colour, moderate to thick ring residue.
455-460	100	**Claystone**: light to medium brown grey, light to medium green grey, occasionally dark brown and very carbonaceous, very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile.
460-465	100	**Claystone**: light to medium brown grey, light to medium green grey, very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile.
	Trace	**Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity. **Fluorescence**: The sandstone has trace moderately bright to bright patchy to solid golden orange fluorescence giving a bright light yellow white slow streaming cut fluorescence, no natural cut colour, moderate to thick ring residue.
465-470	100	**Claystone**: as for 460 to 465m.
	Trace	**Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix grading to arenaceous claystone, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, no oil fluorescence.
470-475	100	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: as for 465 to 470m.

475-480	80	**Claystone**: as for 470 to 475m.
	20	**Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, no oil fluorescence.
480-485	80	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, rare pyrite, trace to common micromica, firm, slightly subfissile.
	20	**Sandstone**: as for 475 to 480m.
485-490	95	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, trace medium to dark brown and very carbonaceous, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile.
	5	**Sandstone**: as for 475 to 480m.
490-500	100	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, rare pyrite, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, no oil fluorescence.
500-505	70	**Claystone**: as for 490 to 500m.
	30	**Sandstone**: light to medium grey, very fine to fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, no oil fluorescence.
505-510	60	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, rare pyrite, trace to common micromica, firm, slightly subfissile.
	40	**Sandstone**: as for 500 to 505m.
510-515	90	**Claystone**: as for 505 to 510m.
	10	**Sandstone**: as for 500 to 505m.
515-520	100	**Claystone**: as for 505 to 510m.
	Trace	**Sandstone**: as for 500 to 505m.
520-530	100	**Claystone**: light to medium brown grey, light to medium green grey, occasionally light to medium grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile.

Interval (m)	%	Description
530-540	90	**Claystone**: as for 520 to 530m.
	10	**Sandstone**: light to medium grey, very fine to occasionally fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
540-545	100	**Claystone**: light to medium brown grey, light to medium green grey, occasionally light to medium grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile.
	Trace	**Calcite**: (fracture infilling) white to light brown, macrocrystalline, hard.
545-550	100	**Claystone**: as for 540 to 545m, but with common carbonaceous detritus.
	Trace	**Sandstone**: light to medium grey, very fine to occasionally fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
550-555	90	**Claystone**: light to medium brown grey, light to medium green grey, occasionally light to medium grey, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, slightly calcareous, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile.
	10	**Sandstone**: as for 545 to 550m.
555-560	100	**Claystone**: light to medium green grey, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, very slightly calcareous, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: as for 545 to 550m.
560-565	70	**Claystone**: as for 555 to 560m.
	30	**Sandstone**: off white to very light brown, very fine to occasionally fine, subangular, moderately sorted, weak to moderate calcareous cement, abundant off white argillaceous matrix (matrix supported) common multicoloured lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to moderately hard, no visual porosity, no oil fluorescence.
565-570	50	**Claystone**: as for 555 to 560m.
	50	**Sandstone**: as for 560 to 565m.
570-575	90	**Claystone**: light to medium green grey, light to medium brown grey, common medium grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, very slightly calcareous, trace to common micromica, firm, slightly subfissile.
	10	**Sandstone**: as for 560 to 565m.
575-580	100	**Claystone**: as for 570 to 575m.
	Trace	**Sandstone**: as for 560 to 565m.
580-585	100	**Claystone**: as for 570 to 575m.

585-590	100	**Claystone**: light to medium green grey, light to medium brown grey, common medium grey, very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: as for 560 to 565m.
590-595	60	**Claystone**: light to medium green grey, light to medium brown grey, light to medium grey, very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	40	**Sandstone**: light to medium grey, very fine to fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
595-600	95	**Claystone**: as for 590 to 595m.
	5	**Sandstone**: off white to very light brown, very fine to occasionally fine, subangular, moderately sorted, weak to moderate calcareous cement, abundant off white argillaceous matrix (matrix supported), common multicoloured lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to moderately hard, no visual porosity, no oil fluorescence.
600-605	100	**Claystone**: light to medium brown grey, off white to light grey, trace light to medium green grey, very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: as for 595 to 600m.
605-610	90	**Claystone**: as for 600 to 605m.
	10	**Sandstone**: as for 595 to 600m.
610-615	95	**Claystone**: as for 600 to 605m.
	5	**Sandstone**: as for 595 to 600m, but with very strong calcareous cement.
615-620	90	**Claystone**: as for 600 to 605m.
	10	**Sandstone**: off white to very light brown, very fine to occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant off white argillaceous matrix (matrix supported), common multicoloured lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to moderately hard, no visual porosity, no oil fluorescence but trace to 30% dull yellow orange mineral fluorescence, no cut.
	Trace	**Calcite**: off white to light brown, macrocrystalline, hard, probable fracture infilling.
620-625	70	**Claystone**: light to medium brown, occasionally off white, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	30	**Sandstone**: as for 615 to 620m.

625-630	80	**Claystone**: as for 620 to 625m.
	20	**Sandstone**: light to medium grey, very fine to fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence but 30% dull yellow orange mineral fluorescence, no cut.
630-635	60	**Claystone**: as for 620 to 625m.
	40	**Sandstone**: off white to very light brown, very fine to fine, minor medium grains, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported in part), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to moderately hard, no visual porosity, no oil fluorescence but 20% dull yellow orange mineral fluorescence, no cut.
635-640	70	**Claystone**: light to medium brown, occasionally off white, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	30	**Sandstone**: as for 630 to 635m.
640-645	60	**Claystone**: as for 635 to 640m.
	40	**Sandstone**: off white to very light brown, very fine to fine, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported in part), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to moderately hard, no visual porosity, no oil fluorescence but trace to 10% dull yellow orange mineral fluorescence, no cut.
645-650	80	**Claystone**: as for 635 to 640m.
	20	**Sandstone**: as for 640 to 645m.
650-655	90	**Claystone**: light to medium brown, occasionally off white, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	10	**Sandstone**: as for 640 to 645m.
655-660	70	**Claystone**: as for 650 to 655m.
	30	**Sandstone**: off white to very light brown, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported in part), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence but trace to 5-10% dull yellow orange mineral fluorescence, no cut.
660-665	100	**Claystone**: as for 650 to 655m.
	Trace	**Sandstone**: as for 655 to 660m.
665-670	60	**Claystone**: as for 650 to 655m.
	40	**Sandstone**: off white to very light brown, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported in part), common green grey and trace red brown lithics, abundant altered feldspar grains, trace coarse brown mica flakes, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence but trace to 5-10% dull yellow orange mineral fluorescence, no cut.

670-680	70	**Claystone**: off white to medium brown, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains grading to argillaceous sandstone, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
	30	**Sandstone**: as for 665 to 670m.
680-685	95	**Claystone**: as for 670 to 680m.
	5	**Sandstone**: as for 665 to 670m.
685-690	90	**Claystone**: as for 670 to 680m.
	10	**Sandstone**: as for 665 to 670m.
	Trace	**Calcite**: (fracture infilling) white to light brown, macrocrystalline, hard.
690-695	70	**Sandstone**: off white to very light brown, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence but trace to 5-10% dull yellow orange mineral fluorescence, no cut.
	30	**Claystone**: off white to medium brown, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains grading to argillaceous sandstone, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
695-700	90	**Claystone**: as for 690 to 695m.
	10	**Sandstone**: as for 690 to 695m.
	Trace	**Coal**: (detrital) very dark brown to black, platy fracture, earthy texture, moderately argillaceous, rare disseminated pyrite in part, hard, brittle.
700-710	100	**Claystone**: off white to medium brown, light to medium brown grey, moderately to very silty, occasionally abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, slightly calcareous, trace to common micromica, firm, slightly subfissile.
710-720	100	**Claystone**: as for 700 to 710m.
	Trace	**Sandstone**: off white to very light brown, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant off white argillaceous matrix (matrix supported), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence.
720-725	100	**Claystone**: off white to medium brown, light to medium brown grey, occasionally medium grey, dominantly light brown, moderately to very silty, often abundant very fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, moderately calcareous, trace to common micromica, firm, slightly subfissile.
725-730	90	**Claystone**: as for 720 to 725m.
	10	**Sandstone**: off white to very light brown, very fine to occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant off white argillaceous matrix (matrix supported), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence.
730-735	100	**Claystone**: as for 720 to 725m, but with minor medium brown cryptocrystalline dolomite.

Interval (m)	%	Description
735-740	100	**Claystone**: as for 720 to 725m.
740-745	90	**Claystone**: as for 720 to 725m.
	10	**Sandstone**: as for 725 to 730m.
745-750	100	**Claystone**: off white to medium brown, dominantly light brown, occasionally light to medium grey, moderately to very silty, often abundant very fine quartz, altered feldspar and multicoloured lithic sand grains, trace black to brown carbonaceous detritus, moderately calcareous, trace medium brown cryptocrystalline dolomite in part, trace to common micromica, firm, slightly subfissile.
	Trace	**Sandstone**: as for 725 to 730m.
750-755	100	**Claystone**: as for 745 to 750m.
755-760	100	**Claystone**: as for 745 to 750m.
	Trace	**Sandstone**: as for 725 to 730m.
760-770	100	**Claystone**: as for 745 to 750m.
	Trace	**Sandstone**: off white to very light brown, very fine to occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant off white argillaceous matrix (matrix supported), common green grey and trace red brown lithics, abundant altered feldspar grains, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence.
770-775	100	**Claystone**: light to medium brown grey, occasionally off white, occasionally light to medium brown, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, firm, subfissile.
775-780	80	**Claystone**: as for 770 to 775m.
	20	**Sandstone**: off white to light brown grey to light grey, very fine, subangular, moderately to well sorted, weak to occasionally strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green lithics, trace very fine black to brown carbonaceous detritus, friable to occasionally hard, no visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.
780-785	100	**Claystone**: as for 770 to 775m.
	Trace	**Sandstone**: as for 775 to 780m.
785-790	100	**Claystone**: off white to dark brown, medium grey, dominantly dark brown and moderately carbonaceous, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, firm, subfissile.
	Trace	**Sandstone**: as for 775 to 780m.
790-795	100	**Claystone**: light to medium brown grey, occasionally off white, occasionally light to medium brown.
795-800	70	**Claystone**: as for 790 to 795m.
	30	**Sandstone**: off white to light brown grey to light grey, very fine, subangular, moderately to well sorted, weak to dominantly strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green lithics, trace very fine black to brown carbonaceous detritus, friable to occasionally hard, no visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.

Interval (m)	%	Description
800-805	100	**Claystone**: off white to medium brown grey, occasionally light to medium brown grey, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.
	Trace	**Sandstone**: as for 795 to 800m.
805-810	100	**Claystone**: off white to medium brown grey, occasionally light to medium brown grey, medium olive grey in part, moderately silty, trace crystalline calcite (fracture infilling), occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.
	Trace	**Sandstone**: as for 795-800m.
810-815	90	**Claystone**: as for 805 to 810m, but dominantly medium to dark brown grey.
	10	**Sandstone**: off white to light brown grey to light grey, very fine, subangular, moderately to well sorted, weak to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green lithics, trace very fine black to brown carbonaceous detritus, friable to occasionally hard, no visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.
815-820	100	**Claystone**: as for 810 to 815m.
	Trace	**Sandstone**: as for 810 to 815m.
820-825	100	**Claystone**: off white to medium grey, light to medium brown grey, light to medium brown, occasionally medium olive grey, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slight to moderately calcareous, trace micromica, firm, subfissile.
	Trace	**Sandstone**: as for 810 to 815m.
825-830	50	**Claystone**: as for 820 to 825m.
	50	**Sandstone**: off white to light brown grey to light grey, very fine, subangular, moderately to well sorted, moderate calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green lithics, trace very fine black to brown carbonaceous detritus, friable to occasionally hard, no visual porosity, no oil fluorescence but trace dull yellow orange mineral fluorescence, no cut.
830-835	70	**Sandstone**: off white to light grey, very fine to dominantly fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, very poor inferred porosity.
		Fluorescence: The sandstone has trace patchy bright orange-gold fluorescence giving a moderately bright slow streaming to crush light yellow white cut fluorescence, no natural cut colour, moderate ring residue.
	30	**Claystone**: light to medium brown grey, light to medium grey, occasionally off white, occasionally light to medium olive grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.

Interval (m)	%	Description
835-840	100	**<u>Claystone</u>**: as for 830 to 835m.
	Trace	**<u>Sandstone</u>**: off white to light grey, very fine to fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence but trace to 20% dull yellow orange mineral fluorescence, no cut.
840-845	70	**<u>Claystone</u>**: as for 830 to 835m.
	30	**<u>Sandstone</u>**: as for 835 to 840m.
845-850	100	**<u>Claystone</u>**: medium brown grey, off white to medium brown, light to medium grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.
	Trace	**<u>Sandstone</u>**: as for 835 to 840m.
850-855	90	**<u>Claystone</u>**: as for 845 to 850m.
	10	**<u>Sandstone</u>**: as for 835 to 840m.
855-860	90	**<u>Claystone</u>**: as for 845 to 850m.
	10	**<u>Sandstone</u>**: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence but trace to 20% dull yellow orange mineral fluorescence, no cut.
860-865	70	**<u>Claystone</u>**: medium brown grey, off white to medium brown, light to medium grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slight to moderately calcareous, trace micromica, firm, subfissile.
	20	**<u>Sandstone</u>**: as for 855-860m.
	10	**<u>Coal</u>**: black to dark brown, earthy texture, platy fracture, slightly to dominantly very argillaceous, hard and brittle.
865-870	100	**<u>Claystone</u>**: as for 860 to 865m.
870-875	100	**<u>Claystone</u>**: as for 860 to 865m.
	Trace	**<u>Sandstone</u>**: as for 855 to 860m.
875-885	100	**<u>Claystone</u>**: medium brown grey, off white to medium brown, light to medium grey, moderately to very silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.
	Trace	**<u>Sandstone</u>**: as for 855 to 860m.

Interval (m)	%	Description
885-890	95	<u>Claystone</u>: as for 845 to 850m.
	5	<u>Sandstone</u>: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence but trace to 20% dull yellow orange mineral fluorescence, no cut.
890-895	90	<u>Claystone</u>: medium brown grey, off white to medium brown, occasionally light to medium grey, moderately to very silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, rare pyrite, slight to moderately calcareous, trace micromica, firm, subfissile.
	10	<u>Sandstone</u>: as for 885 to 890m.
895-900	80	<u>Claystone</u>: as for 890 to 895m.
	20	<u>Sandstone</u>: as for 885 to 890m.
900-910	100	<u>Claystone</u>: off white to medium brown grey, light to medium grey, occasionally medium olive grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, trace black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
	Trace	<u>Sandstone</u>: as for 885 to 890m.
910-915	100	<u>Claystone</u>: off white to medium brown grey, light to medium grey, common medium olive grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, trace black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
	Trace	<u>Sandstone</u>: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence but trace to 20% dull yellow orange mineral fluorescence, no cut.
915-925	100	<u>Claystone</u>: off white to medium brown grey, light to medium grey, common medium olive grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, common black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
	Trace	<u>Sandstone</u>: as for 910 to 915m.
925-950	100	<u>Claystone</u>: medium olive grey, common off white to medium brown grey, light to medium grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, common black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
950-955	100	<u>Claystone</u>: medium olive grey, common off white to medium brown grey, light to medium grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, common black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
	Trace	<u>Sandstone</u>: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence but trace to 20% dull yellow orange mineral fluorescence, no cut.

Interval (m)	%	Description
955-960	90	Claystone: as for 950 to 955m, but often medium brown grey.
	10	Coal: black to medium brown, often very argillaceous, earthy texture, platy fracture, hard, brittle.
960-965	100	Claystone: medium brown grey, common off white to light brown grey, light to medium olive grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, common to abundant black to brown carbonaceous detritus and flecks, slightly calcareous, trace micromica, subfissile.
	Trace	Sandstone: as for 950 to 955m.
965-975	80	Claystone: medium brown grey, common off white to light brown grey, light to medium olive grey, moderately to very silty, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace green grey lithics, common black to brown carbonaceous detritus and flecks, slightly calcareous, trace medium brown cryptocrystalline dolomite, trace micromica, subfissile.
	20	Sandstone: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, trace grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, hard, no visual porosity, no oil fluorescence but trace to 10% dull yellow orange mineral fluorescence, no cut.
975-980	90	Claystone: as for 965 to 975m.
	10	Sandstone: as for 965 to 975m.
980-985	90	Claystone: off white to medium grey, light to medium olive grey, light to medium brown grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	10	Sandstone: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence but trace to 5% dull yellow orange mineral fluorescence, no cut.
	Trace	Coal: black to dark brown, non to occasionally very argillaceous, earthy texture, platy fracture, hard, brittle.
985-990	90	Claystone: as for 980 to 985m.
	10	Sandstone: as for 980 to 985m.
990-995	90	Claystone: off white to medium grey, light to medium olive grey, light to medium brown grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, common medium brown cryptocrystalline dolomite and ankerite, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	10	Sandstone: as for 980 to 985m.
995-1000	90	Claystone: off white to medium brown grey, medium olive grey, light to medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, trace medium brown cryptocrystalline dolomite, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	10	Sandstone: as for 980 to 985m.

1000-1005	60	**Claystone**: as for 995 to 1000m, but in part dark grey and very carbonaceous.
	30	**Coal**: black to dark brown, dominantly very argillaceous grading to dark grey to dark brown carbonaceous Claystone, earthy texture, platy fracture, hard, brittle.
	10	**Sandstone**: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence but trace to 5% dull yellow orange mineral fluorescence, no cut.
1005-1010	80	**Claystone**: as for 995 to 1000m.
	20	**Sandstone**: as for 980 to 985m.
1010-1015	80	**Claystone**: off white to light brown, trace medium olive grey, trace medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	20	**Sandstone**: as for 980 to 985m.
	Trace	**Coal**: black to occasionally very dark brown, non to occasionally slightly argillaceous, earthy to slightly subvitreous texture, platy to slightly subconchoidal fracture, hard and brittle.
1015-1020	70	**Claystone**: as for 1010 to 1015m.
	30	**Sandstone**: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence but trace to 5% dull yellow orange mineral fluorescence, no cut.
1020-1025	100	**Claystone**: dominantly medium brown grey, often off white to light brown, trace medium olive grey, trace medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1015 to 1020m.
1025-1030	80	**Claystone**: as for 1020 to 1025m.
	10	**Sandstone**: as for 1015 to 1020m.
	10	**Coal**: black to occasionally very dark brown, non to occasionally slightly argillaceous, earthy to occasionally subvitreous texture, platy to occasionally subconchoidal fracture, hard and brittle.
1030-1035	90	**Claystone**: off white to light brown, often medium brown grey, trace medium olive grey, trace medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly calcareous, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile.
	10	**Sandstone**: as for 1015 to 1020m.

1035-1040	95	__Claystone__: as for 1030 to 1035m.
	5	__Sandstone__: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence but trace to 5% dull yellow orange mineral fluorescence, no cut.
1040-1045	70	__Sandstone__: off white to light brown grey, very fine to occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace brown mica flakes, trace black to brown carbonaceous detritus and flecks, friable to hard, no visual porosity.
	30	__Claystone__: off white to medium brown grey, light to medium grey, trace light to medium brown, moderately silty, often very finely arenaceous with quartz and altered feldspar grains, trace multicoloured lithics where arenaceous, slightly to moderately calcareous, trace to common black to brown carbonaceous detritus and flecks, trace to common micromica, firm, subfissile.
1045-1050	90	__Claystone__: off white to medium brown grey, light to medium grey, trace light to medium brown, dominantly medium grey to medium brown grey, moderately silty, often very finely arenaceous with quartz and altered feldspar grains, trace multicoloured lithics where arenaceous, slightly to moderately calcareous, trace to common black to brown carbonaceous detritus and flecks, trace to common micromica, firm, subfissile.
	10	__Sandstone__: as for 1040 to 1045m.
	Trace	__Coal__: black, earthy to subvitreous texture, platy to subconchoidal fracture, hard, brittle.
1050-1055	90	__Claystone__: as for 1045 to 1050m.
	10	__Sandstone__: as for 1040 to 1045m.
1055-1060	100	__Claystone__: as for 1045 to 1050m.
	Trace	__Sandstone__: as for 1040 to 1045m.
1060-1065	100	__Claystone__: off white to medium brown grey, light to medium grey, trace light to medium brown, dominantly medium brown grey, moderately silty, often very finely arenaceous with quartz and altered feldspar grains, trace multicoloured lithics where arenaceous, slightly to moderately calcareous, trace to common black to brown carbonaceous detritus and flecks, trace to common micromica, firm, subfissile.
1065-1070	100	__Claystone__: as for 1060 to 1065m.
	Trace	__Sandstone__: off white to light brown grey, very fine to occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace brown mica flakes, trace black to brown carbonaceous detritus and flecks, friable to hard, no visual porosity.
1070-1080	100	__Claystone__: off white to medium brown grey, light to medium grey, trace light to medium brown, dominantly medium grey, moderately silty, often very finely arenaceous with quartz and altered feldspar grains, trace multicoloured lithics where arenaceous, slightly to moderately calcareous, trace to common black to brown carbonaceous detritus and flecks, trace to common micromica, firm, subfissile.
	Trace	__Sandstone__: as for 1065 to 1070m.

1080-1085	100	**Claystone**: off white to medium grey, light to medium brown grey, dominantly medium grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1065 to 1070m.
1085-1090	90	**Claystone**: as for 1080 to 1085m.
	10	**Sandstone**: off white to occasionally light brown grey, very fine with occasional fine grains, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1090-1095	70	**Claystone**: as for 1080 to 1085m.
	30	**Sandstone**: as for 1085 to 1090m.
1095-1100	80	**Sandstone**: very light grey, very fine to medium, dominantly fine, subangular, moderately sorted, weak to moderate calcareous and silica cements, common to abundant white argillaceous matrix, common to abundant off white partially altered feldspar grains, common grey green, yellow and red lithics, trace fine black coal detritus, friable to moderately hard, very poor visual porosity, poor inferred porosity, no oil fluorescence.
	20	**Claystone**: off white to medium grey, light to medium brown grey, dominantly medium grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile.
1100-1105	60	**Claystone**: off white to medium green grey, light to medium grey, off white to medium brown grey, dominantly medium green grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile.
	40	**Sandstone**: off white to occasionally light brown grey, very fine with occasional fine grains, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1105-1110	90	**Claystone**: medium grey to medium olive grey to medium brown grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile.
	10	**Sandstone**: as for 1100 to 1105m, but with common fine quartz grains.
1110-1115	90	**Claystone**: as for 1105 to 1110m.
	10	**Sandstone**: off white to medium green grey, very fine with occasional fine grains, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white to medium green argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace to common brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1115-1125	100	**Claystone**: light to medium brown grey, medium grey to medium olive grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1110 to 1115m.

Interval (m)	%	Description
1125-1130	100	<u>Claystone</u>: as for 1115 to 1125m.
	Trace	<u>Sandstone</u>: off white to medium grey, very fine with occasional fine grains, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace to common brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1130-1140	100	<u>Claystone</u>: light to medium brown grey, medium grey to medium olive grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, occasionally common fine brown mica flakes, firm, subfissile.
	Trace	<u>Sandstone</u>: as for 1125 to 1130m.
1140-1145	90	<u>Claystone</u>: as for 1130 to 1140m.
	10	<u>Sandstone</u>: off white to light brown, occasionally light grey to light green grey, very fine to occasionally fine grained, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white to light brown argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace to common brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1145-1150	80	<u>Claystone</u>: off white to medium grey, light to medium brown grey, occasionally medium olive grey, moderately to very silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	20	<u>Sandstone</u>: off white to light grey to light brown grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace fine brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1150-1155	100	<u>Claystone</u>: as for 1145 to 1150m.
	Trace	<u>Sandstone</u>: as for 1145 to 1150m.
1155-1160	90	<u>Claystone</u>: as for 1145 to 1150m.
	10	<u>Sandstone</u>: as for 1145 to 1150m.
1160-1165	100	<u>Claystone</u>: light to medium green grey, off white to medium grey, light to medium brown grey, moderately to very silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
1165-1170	100	<u>Claystone</u>: as for 1160 to 1165m.
	Trace	<u>Sandstone</u>: off white to light grey to light brown grey, light to medium green grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace fine brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1170-1175	90	<u>Claystone</u>: as for 1160 to 1165m.
	10	<u>Sandstone</u>: as for 1165 to 1170m.

Interval (m)	%	Description
1175-1180	60	Claystone: as for 1160 to 1165m.
	40	Sandstone: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace fine brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1180-1185	90	Claystone: light to medium brown grey, off white to medium grey, light to medium green grey, moderately to very silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	10	Sandstone: as for 1175 to 1180m.
1185-1190	90	Claystone: light to medium brown, off white to medium grey, light to medium green grey, moderately to very silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	10	Sandstone: as for 1175 to 1180m.
1190-1195	80	Claystone: as for 1185 to 1190m.
	20	Sandstone: as for 1175 to 1180m.
1195-1200	70	Claystone: as for 1185 to 1190m.
	30	Sandstone: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, common coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1200-1210	100	Claystone: light to medium brown, off white to medium grey, occasionally light to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	Sandstone: as for 1195 to 1200m.
1210-1215	100	Claystone: as for 1200 to 1210m.
1215-1220	100	Claystone: as for 1200 to 1210m.
	Trace	Sandstone: as for 1195 to 1200m.
1220-1225	100	Claystone: light to medium brown, off white to medium grey, occasionally light to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.

Interval (m)	%	Description
1225-1230	100	**Claystone**: as for 1220 to 1225m.
	Trace	**Sandstone**: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, common coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1230-1235	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, dominantly medium brown to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1225 to 1230m.
1235-1240	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, dominantly medium grey to medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1225 to 1230m.
1240-1245	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, dominantly medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
1245-1250	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, dominantly medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1250-1255	80	**Claystone**: as for 1245 to 1250m.
	20	**Sandstone**: as for 1245 to 1250m.
1255-1260	70	**Claystone**: as for 1245 to 1250m, but dominantly light brown grey.
	30	**Sandstone**: as for 1245 to 1250m.

Interval (m)	%	Description
1260-1265	60	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, dominantly light to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	40	**Sandstone**: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1265-1270	100	**Claystone**: as for 1260 to 1265m, but dominantly light to medium brown grey to medium grey.
	Trace	**Sandstone**: as for 1260 to 1265m.
1270-1275	100	**Claystone**: as for 1260 to 1265m.
1275-1280	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, dominantly medium green grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
1280-1285	60	**Claystone**: as for 1275 to 1280m.
	40	**Sandstone**: off white to light brown grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1285-1290	50	**Claystone**: as for 1275 to 1280m.
	50	**Claystone**: medium brown, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, moderately carbonaceous, trace brown to black carbonaceous detritus and flecks, trace micromica, firm, subfissile.
	Trace	**Sandstone**: as for 1280 to 1285m.
1290-1295	90	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	10	**Sandstone**: as for 1280 to 1285m.
1295-1300	100	**Claystone**: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, dominantly medium grey to medium brown grey, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	**Sandstone**: off white to light grey to light brown grey, very fine to occasionally fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.

1300-1305	95	<u>Claystone</u>: as for 1295 to 1300m, but with trace dark brown grey and moderately carbonaceous.
	5	<u>Sandstone</u>: as for 1295 to 1300m.
1305-1310	60	<u>Claystone</u>: as for 1300 to 1305m.
	40	<u>Sandstone</u>: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1310-1315	50	<u>Claystone</u>: off white to medium grey, light to medium green grey, light to medium brown grey, light to medium brown, dominantly medium grey to medium brown grey, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	50	<u>Sandstone</u>: as for 1305 to 1310m.
1315-1320	100	<u>Claystone</u>: off white to medium grey, light to medium green grey, light to medium brown grey, light to medium brown, dominantly off white to light brown, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	<u>Sandstone</u>: as for 1305 to 1310m.
1320-1325	100	<u>Claystone</u>: off white to medium grey, light to medium green grey, light to medium brown grey, light to medium brown, dominantly medium grey, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	Trace	<u>Sandstone</u>: as for 1305 to 1310m.
1325-1330	60	<u>Claystone</u>: off white to medium grey, light to medium green grey, light to medium brown grey, light to medium brown, dominantly off white to medium grey, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
	40	<u>Sandstone</u>: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1330-1335	60	<u>Sandstone</u>: as for 1325 to 1330m.
	40	<u>Claystone</u>: off white to medium grey, light to medium green grey, light to medium brown grey, light to medium brown, dominantly medium grey to off white, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile.
1335-1340	90	<u>Sandstone</u>: off white to very light brown grey, very fine to fine, subangular, moderately sorted, weak calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white altered feldspar grains, trace grey green lithics, trace brown mica flakes, trace very fine brown to black carbonaceous detritus, friable, no visual porosity, no oil fluorescence.
	10	<u>Claystone</u>: as for 1330 to 1335m.

1340-1345	100	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly light brown grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	Trace	Sandstone: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1345-1350	90	Claystone: as for 1340 to 1345m.
	10	Sandstone: as for 1340 to 1345m.
1350-1355	90	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly off white to light green grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	10	Sandstone: as for 1340 to 1345m.
1355-1360	60	Claystone: as for 1350 to 1355m, but dominantly medium green grey.
	40	Sandstone: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1360-1365	100	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly light brown grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	Trace	Sandstone: as for 1355 to 1360m.
1365-1370	95	Claystone: as for 1360 to 1365m.
	5	Sandstone: as for 1355 to 1360m.
1370-1375	90	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly medium grey to medium brown grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	10	Sandstone: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1375-1380	100	Claystone: as for 1370 to 1375m, but with common dark brown and moderately carbonaceous.
	Trace	Sandstone: as for 1370 to 1375m.
1380-1385	100	Claystone: as for 1370 to 1375m.
	Trace	Sandstone: as for 1370 to 1375m.
1385-1390	90	Claystone: as for 1370 to 1375m, but dominantly medium green grey.
	10	Sandstone: as for 1370 to 1375m.

Interval (m)	%	Description
1390-1395	95	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly medium grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace light brown crystalline calcite - fracture infill, trace micromica, firm, slightly subfissile.
	5	Sandstone: as for 1370 to 1375m.
1395-1400	90	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly medium green grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	10	Sandstone: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1400-1405	100	Claystone: off white to medium brown grey, light to medium green grey, light to medium grey, light to medium brown, dominantly medium grey, occasionally abundant very fine quartz and partially altered feldspar grains, slightly calcareous in part, trace black carbonaceous flecks and detritus, trace micromica, firm, slightly subfissile.
	Trace	Sandstone: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white altered feldspar grains, trace to common grey green and brown lithics, trace brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1405-1410	100	Claystone: as for 1400 to 1405m.
1410-1420	90	Claystone: off white to medium grey, medium brown grey, medium green grey, trace very fine partly altered feldspar grains in part, trace black to brown carbonaceous flecks and detritus, trace to common micromica and fine brown mica flakes, slightly calcareous in part, occasionally very finely arenaceous grading to sandstone, firm to moderately hard, subfissile.
	10	Sandstone: off white to light brown grey, very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common partly altered feldspar grains, trace grey and brown lithics, common fine brown mica flakes in part, trace black carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
1420-1425	100	Claystone: as for 1410 to 1420m, but dominantly medium brown grey.
	Trace	Sandstone: as for 1410 to 1420m.
1425-1430	100	Claystone: off white to medium grey, medium brown grey, light to medium green grey, dominantly light green grey, trace very fine partly altered feldspar grains in part, trace black to brown carbonaceous flecks and detritus, trace to common micromica and fine brown mica flakes, slightly calcareous in part, occasionally very finely arenaceous grading to sandstone, firm to moderately hard, subfissile.
	Trace	Sandstone: as for 1410 to 1420m.
1430-1435	100	Claystone: as for 1425 to 1430m.
	Trace	Sandstone: as for 1410 to 1420m.

Interval (m)	%	Description
1435-1440	95	**Claystone**: off white to medium grey, medium brown grey, light to medium green grey, dominantly medium grey, trace very fine partly altered feldspar grains in part, trace black to brown carbonaceous flecks and detritus, trace to common micromica and fine brown mica flakes, slightly calcareous in part, occasionally very finely arenaceous grading to sandstone, firm to moderately hard, subfissile.
	5	**Sandstone**: off white to light brown grey, very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common partly altered feldspar grains, trace grey and brown lithics, common fine brown mica flakes in part, trace black carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
1440-1450	100	**Claystone**: as for 1435 to 1440m.
1450-1455	100	**Claystone**: as for 1435 to 1440m.
	Trace	**Sandstone**: off white to light brown grey, very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common partly altered feldspar grains, trace grey and brown lithics, common fine brown mica flakes in part, trace black carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
1455-1460	100	**Claystone**: off white to medium grey, medium brown grey, light to medium green grey, dominantly medium grey, trace very fine partly altered feldspar grains in part, trace black to brown carbonaceous flecks and detritus, trace to common micromica and fine brown mica flakes, slightly calcareous in part, occasionally very finely arenaceous grading to sandstone, firm to moderately hard, subfissile.
	Trace	**Sandstone**: off white to light brown grey, very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common partly altered feldspar grains, trace grey and brown lithics, common fine brown mica flakes in part, trace black carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
1460-1465	80	**Sandstone**: light grey, very fine to medium, dominantly fine, angular to subrounded, dominantly subangular, poor to moderately sorted, moderate silica and calcareous cement, common to abundant white argillaceous matrix, trace red garnet, trace fine black carbonaceous detritus, trace brown mica flakes, moderately hard, nil to very poor visual porosity, very poor inferred porosity.
	20	**Claystone**: as for 1455 to 1460m.
		Fluorescence: The sandstone has 60% dull to bright pinpoint to patchy very pale yellow white to milky white fluorescence with dull milky white crush cut, thin ring residue.
1465-1468	100	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subrounded, dominantly subangular, poorly sorted, moderate silica and weak calcareous cement, common to dominantly abundant white argillaceous matrix, trace red garnet, trace black carbonaceous detritus, trace brown and green mica flakes, friable to hard, nil to poor visual porosity, poor inferred porosity.
		Fluorescence: The sandstone has 70% dull to bright pinpoint to patchy very pale yellow white to milky white fluorescence, giving dull very pale yellow to milky white crush cut, no natural cut colour, no natural oil stain, thin ring residue, no free oil in drilling but trace pinpoint bright milky white fluorescence from a cuttings/water mix.
1468-1470	80	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common red garnet, trace black coal detritus, friable to occasionally hard, poor to fair visual porosity.
		Fluorescence: The sandstone has 25% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
	20	**Claystone**: off white to medium grey, medium green grey, occasionally medium brown grey, moderately to very silty, slightly calcareous in part, occasionally very finely arenaceous with quartz and partially altered feldspar grains, trace black coal detritus, common micromica, moderately hard, subfissile.

Interval (m)	%	Description
1470-1475	50	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common to abundant white argillaceous matrix, trace red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity.
		Fluorescence: The sandstone has 30% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
	30	**Claystone**: (kaolinite) white, structureless sticky clay.
	20	**Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile.
1475-1480	40	**Claystone**: (kaolinite) white, structureless sticky clay.
	30	**Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile.
	30	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity.
		Fluorescence: The sandstone has 30% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1480-1485	80	**Claystone**: (kaolinite) white, structureless sticky clay.
	20	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity.
	Trace	**Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile.
		Fluorescence: The sandstone has 50% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1485-1489	70	**Claystone**: (kaolinite) white, structureless sticky clay.
	20	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate to occasionally very strong silica cement, trace weak calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace to common red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity.
	10	**Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile.
		Fluorescence: The sandstone has 50% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1489-1490	90	**Claystone**: (kaolinite) white, trace very fine to fine dispersed quartz sand grains in part, structureless sticky clay.
	10	**Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile.
	Trace	**Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate to occasionally very strong silica cement, trace weak to occasionally moderate calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace to common red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity.
		Fluorescence: The sandstone has trace dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.

Interval (m)	%	Description
1490-1495	70	**Claystone**: (kaolinite) white, trace very fine to fine dispersed quartz sand grains in part, structureless sticky clay.
	30	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subrounded, dominantly subangular, moderately sorted, moderate calcareous and silica cements, trace to abundant white argillaceous matrix, trace garnet, trace grey lithics, trace black coaly detritus, trace brown mica flakes, friable, fair inferred porosity.
		Fluorescence: The sandstone has trace moderately bright solid light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1495-1500	70	**Claystone**: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	30	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subrounded, dominantly subangular, moderately sorted, moderate calcareous and silica cements, trace to abundant white argillaceous matrix, trace garnet, trace grey lithics, trace black coaly detritus, trace brown mica flakes, friable, fair inferred porosity.
		Fluorescence: The sandstone has trace moderately bright solid light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1500-1505	70	**Claystone**: medium grey, very silty, trace very fine partially altered feldspar grains, trace dark grey and very carbonaceous grading to coal, trace black carbonaceous flecks, trace very fine brown mica flakes in part, trace micromica, moderately hard, subfissile.
	20	**Claystone**: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	5	**Coal**: black, earthy texture, platy fracture, slightly to very argillaceous, hard and brittle.
	5	**Sandstone**: as for 1495 to 1500m.
1505-1510	95	**Claystone**: light to medium grey, moderately to very silty, trace to occasionally common very fine partially altered feldspar grains, trace dark brown - very carbonaceous and grading to coal, trace to common black carbonaceous flecks, nil to common very fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	5	**Claystone**: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	Trace	**Sandstone**: as for 1495 to 1500m.
1510-1515	70	**Claystone**: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	20	**Claystone**: light to medium grey, moderately to very silty, trace to occasionally common very fine partially altered feldspar grains, trace dark brown - very carbonaceous and grading to coal, trace to common black carbonaceous flecks, nil to common very fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	10	**Sandstone**: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, common black carbonaceous material, friable to moderately hard, no visual porosity, no oil fluorescence.
1515-1520	95	**Claystone**: medium grey, moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	5	**Claystone**: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	Trace	**Sandstone**: as for 1510 to 1515m.

1520-1525	50	Claystone: medium grey, moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	50	Claystone: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	Trace	Sandstone: as for 1510 to 1515m.
1525-1530	50	Claystone: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	45	Claystone: medium grey to occasionally medium green grey, moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	5	Sandstone: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, common black carbonaceous material, friable to moderately hard, no visual porosity, no oil fluorescence.
	Trace	Coal: black, earthy texture, platy fracture, slightly to very argillaceous, hard and brittle.
1530-1535	60	Claystone: medium grey to occasionally medium green grey, moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile
	20	Claystone: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	20	Sandstone: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, strong calcareous and silica cements, common to abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, trace black carbonaceous material, hard, very poor inferred porosity.
		Fluorescence: The sandstone has 70% patchy dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut, thin yellow ring residue.
1535-1540	100	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slight to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	Trace	Sandstone: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, strong calcareous and silica cements, common to abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, trace black carbonaceous material, hard, very poor inferred porosity.
		Fluorescence: The sandstone has 70% patchy dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut, thin yellow ring residue.
1540-1545	40	Claystone: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	30	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slight to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	30	Sandstone: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, strong calcareous and silica cements, common to abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, trace black carbonaceous material, hard, very poor inferred porosity.
		Fluorescence: The sandstone has 10% patchy dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut, thin yellow ring residue.

Interval (m)	%	Description
1545-1550	40	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slight to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	30	Claystone: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
	30	Sandstone: off white, very fine to fine, dominantly very fine, angular to dominantly subangular, moderately sorted, strong calcareous and silica cements, common to abundant white argillaceous matrix grading to claystone (matrix supported), trace garnet, trace green grey lithics, trace black carbonaceous material, hard, very poor inferred porosity, no oil fluorescence.
1550-1555	90	Sandstone: light grey, very fine to medium, dominantly fine, angular to subangular, moderately to well sorted, weak silica and trace weak calcareous cements, trace to abundant dominantly common white argillaceous matrix, trace garnet, trace brown, grey and green lithics, trace brown mica flakes, trace black coaly detritus, friable, fair inferred porosity.
	10	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slightly to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
		Fluorescence: The sandstone has trace dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1555-1560	95	Sandstone: light grey, very fine to granular, dominantly coarse, angular to subangular, poorly sorted, weak silica and calcareous cements, trace white argillaceous matrix, trace red, brown and green grey lithics, trace black coaly detritus, trace brown and clear mica flakes, friable with dominantly loose grains in sample, good inferred porosity.
	5	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slightly to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
		Fluorescence: The sandstone has 5% dull solid medium yellow fluorescence giving very weak very dull yellow crush cut, trace residue.
1560-1565	80	Claystone: medium grey to occasionally medium green grey, trace medium brown grey, slight to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile.
	20	Sandstone: light grey, very fine to granular, dominantly coarse, angular to subangular, very poorly sorted, weak silica and calcareous cements, trace white argillaceous matrix, trace red, brown and green grey lithics, trace black coaly detritus, trace brown and clear mica flakes, friable with dominantly loose grains in sample, good inferred porosity.
		Fluorescence: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1565-1570	50	Claystone: medium grey, occasionally medium brown grey to medium green grey, very silty, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	30	Claystone: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	20	Sandstone: off white, very fine to dominantly fine, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common brown green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity.
		Fluorescence: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.

Interval (m)	%	Description
1570-1575	50	__Claystone__: medium grey, occasionally medium brown grey to medium green grey, very silty, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	40	__Claystone__: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	__Sandstone__: off white, very fine to dominantly fine, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common brown green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity.
		__Fluorescence__: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1575-1580	50	__Claystone__: medium grey, occasionally medium brown grey to medium green grey, very silty, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	40	__Claystone__: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	__Sandstone__: off white, very fine to dominantly fine, often very silty, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common brown green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity.
		__Fluorescence__: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1580-1585	50	__Claystone__: medium grey, occasionally medium green grey, very silty, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	40	__Claystone__: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	__Sandstone__: off white, very fine to dominantly fine, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common brown green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity.
		__Fluorescence__: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1585-1590	80	__Claystone__: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	20	__Claystone__: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	Trace	__Sandstone__: as for 1580 to 1585m.
		__Fluorescence__: The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.

Interval (m)	%	Description
1590-1595	80	**Claystone**: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
	10	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	**Sandstone**: off white, very fine to dominantly fine, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common white argillaceous matrix, trace to common brown green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity, no oil fluorescence.
1595-1600	50	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subangular, poor to moderately sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace to common brown green and grey lithics, trace garnet, trace black coaly detritus, friable, fair inferred porosity, no oil fluorescence.
	40	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	**Claystone**: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
1600-1605	60	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subangular, poor to moderately sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace to common brown green and grey lithics, trace garnet, trace black coaly detritus, friable, fair inferred porosity, no oil fluorescence.
	40	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
1605-1610	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine to medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace black coaly detritus, friable, fair visual porosity. **Fluorescence:** The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1610-1615	70	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	30	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine to medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity. **Fluorescence:** The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1615-1620	70	**Sandstone**: off white to light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cement, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	30	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.

Interval (m)	%	Description
1620-1625	70	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity.
	20	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
	10	**Claystone**: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
		Fluorescence: The sandstone has trace dull pinpoint to patchy yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1625-1630	80	**Sandstone**: off white to light grey, medium brown, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common strong brown dolomite cement, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, very poor to fair visual porosity.
	20	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
		Fluorescence: The sandstone has trace dull pinpoint to patchy yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1630-1635	80	**Sandstone**: off white to light grey, trace medium brown, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, trace strong brown dolomite cement, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	20	**Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, structureless and sticky.
1635-1640	70	**Sandstone**: off white to light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	30	**Claystone**: as for 1630 to 1635m.
1640-1645	90	**Sandstone**: as for 1635 to 1640m.
	10	**Claystone**: as for 1630 to 1635m.
1645-1650	80	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	20	**Claystone**: as for 1630 to 1635m.
1650-1660	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, abundant white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1660-1665	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, trace to common white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.

1665-1675	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, abundant white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1675-1680	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, common white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
	Trace	**Claystone**: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
1680-1695	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, abundant white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1695-1700	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, trace to common white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1700-1710	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, trace white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence.
1710-1720	100	**Sandstone**: off white to light grey, medium brown in part, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, strong brown dolomite cement in part, trace to common white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, no oil fluorescence
1720-1725	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly coarse, angular to subangular, very poorly sorted, weak silica and trace weak calcareous cements, common to abundant white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity. **Fluorescence:** The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1725-1730	100	**Sandstone**: off white to light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cements, abundant white argillaceous matrix, trace red brown and green lithics, rare garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity. **Fluorescence:** The sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
	Trace	**Claystone**: medium grey to medium brown, occasionally medium green grey, very silty, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile.
1730-1740	100	**Sandstone**: light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity. **Fluorescence:** The sandstone has 5% bright pinpoint to patchy pale yellow white fluorescence giving dull milky white crush cut, thin ring residue.

1740-1745	100	Sandstone: light grey, very fine to very coarse, dominantly medium to coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity. Fluorescence: The sandstone has 3% bright pinpoint to patchy pale yellow white fluorescence giving dull milky white crush cut, thin ring residue.
1745-1750	100	Sandstone: light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity. Fluorescence: The sandstone has trace bright pinpoint to patchy pale yellow white fluorescence giving dull milky white crush cut, thin ring residue.
1750-1755	90	Sandstone: light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity.
	10	Claystone: medium grey to medium green grey, trace medium brown grey, moderately to very silty, trace black carbonaceous flecks, trace micromica, moderately hard, subfissile. Fluorescence: The sandstone has trace bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1755-1760		No sample - total loss of returns occurred from 1757m - pump LCM to partially cure same.
1760-1770	100	Sandstone: light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor inferred porosity, no oil fluorescence.
1770-1775	100	Sandstone: light grey, very fine to very coarse, dominantly fine, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity, no oil fluorescence.
1775-1780	90	Sandstone: light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	10	Claystone: medium grey to medium green grey, trace medium brown grey, moderately to very silty, trace black carbonaceous flecks, trace micromica, moderately hard, subfissile.
1780-1785	100	Sandstone: light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1785-1790	100	Sandstone: light grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	Trace	Claystone: medium grey, occasionally medium green grey to medium brown grey, moderately silty, trace black coaly detritus and flecks, trace micromica, moderately hard, moderately dispersive, subfissile.
1790-1800	100	Sandstone: light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1800-1815	100	Sandstone: light grey to light green grey, very fine to very coarse, dominantly medium, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.

Interval (m)	%	Description
1815-1820	100	**Sandstone**: light grey to light green grey, very fine to very coarse, dominantly medium to coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1820-1825	100	**Sandstone**: very light green grey, very fine to occasionally granular, dominantly medium to coarse, angular, very poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, rare garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1825-1830	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, very poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, rare garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1830-1835	100	**Sandstone**: as for 1825 to 1830m.
	Trace	**Claystone**: medium grey, moderately to very silty, trace black carbonaceous flecks, common micromica, moderately hard, moderately dispersive, subfissile.
1835-1840	100	**Sandstone**: very light green grey, very fine to occasionally granular, dominantly coarse, angular, very poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, rare garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1840-1845	100	**Sandstone**: very light green grey, very fine to occasionally granular, dominantly medium, angular, very poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, rare garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1845-1850	100	**Sandstone**: very light green grey, very fine to occasionally granular, dominantly medium to coarse, angular, very poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, rare garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	Trace	**Claystone**: medium grey, moderately to very silty, trace black carbonaceous flecks, common micromica, moderately hard, moderately dispersive, subfissile.
1850-1860	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, trace garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	Trace	**Claystone**: medium to dark grey, slightly to moderately carbonaceous, slightly to moderately silty, trace to common micromica, moderately hard, subfissile.
1860-1865	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1865-1870	90	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, trace garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence but 10% dull yellow orange mineral fluorescence.
	10	**Claystone**: off white to dark grey, dominantly medium grey, occasionally medium green grey to medium brown grey, moderately to very silty, moderately carbonaceous where dark grey, trace to common black carbonaceous flecks, trace to common micromica, moderately hard, subfissile.

Interval (m)	%	Description
1870-1875	90	**Sandstone**: as for 1865-1970, but common dull orange yellow mineral fluorescence.
	10	**Claystone**: off white to dark grey, dominantly medium grey, occasionally medium green grey to medium brown grey, moderately to very silty, in part grading to siltstone, moderately carbonaceous where dark grey, trace to common black carbonaceous flecks, trace to common micromica, moderately hard, subfissile.
1875-1880	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1880-1885	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine to medium, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	Trace	**Claystone**: as for 1870 to 1875m.
1885-1890	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly medium, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
1890-1895	100	**Sandstone**: very light green grey, very fine to very coarse, dominantly fine, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	Trace	**Claystone**: medium to dominantly dark brown grey, moderately silty, moderately to very carbonaceous, trace to common micromica, firm to moderately hard, subfissile.
1895-1900	80	**Sandstone**: very light green grey, very fine to very coarse, dominantly medium, angular, poorly sorted, moderate silica and trace weak calcareous cements, trace to dominantly common white argillaceous matrix, common garnet, trace brown, grey and green lithics, trace black coaly detritus, moderately hard, fair inferred porosity, no oil fluorescence.
	20	**Claystone**: medium to dominantly dark brown grey, moderately silty, moderately to very carbonaceous, trace to common micromica, firm to moderately hard, subfissile. The claystone has no fluorescence but gives dull moderately bright pale yellow crush cut, thin yellow ring residue.
1900-1905	100	**Claystone**: very dark grey, slightly to moderately silty, moderately to very carbonaceous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives dull moderately bright pale yellow crush cut, thin yellow ring residue.
1905-1910	100	**Claystone**: as for 1900 to 1905m.
	Trace	**Sandstone**: as for 1895 to 1900m.
1910-1920	100	**Claystone**: very dark grey to dark brown, slightly to moderately silty, moderately to very carbonaceous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives dull moderately bright pale yellow crush cut, thin yellow ring residue.
1920-1925	50	**Claystone**: as for 1910 to 1920m.
	50	**Sandstone**: light brown grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica and trace weak calcareous cements, moderately strong light brown cement giving dull yellow mineral fluorescence, trace white to light brown argillaceous matrix, friable to hard, very poor to poor visual porosity, poor to fair inferred porosity. **Fluorescence:** The sandstone has 100% dull to moderately bright pinpoint to solid yellow gold fluorescence giving dull pale yellow crush cut, thin yellow ring residue.

1925-1932	50	Claystone: as for 1910 to 1920m.
	50	Sandstone: light brown grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica and trace weak calcareous cements, moderately strong light brown cement giving dull yellow mineral fluorescence, trace white to light brown argillaceous matrix, friable to hard, very poor to poor visual porosity, poor to fair inferred porosity.
		Fluorescence: The sandstone has 100% dull to moderately bright pinpoint to solid yellow gold fluorescence giving dull pale yellow crush cut, thin yellow ring residue.
1932-1935	60	Claystone: very dark grey to grey black, very dark brown grey, very carbonaceous grading to coal, slightly to moderately silty, common micromica, moderately hard, subfissile.
		The claystone has no fluorescence but gives dull to moderately bright pale yellow crush cut.
	30	Sandstone: light brown grey, very fine to very coarse, dominantly coarse, angular to subangular, very poorly sorted, moderate to strong silica cement, moderately strong brown cement with dull orange mineral fluorescence, trace light brown argillaceous matrix, occasionally abundant very dark brown grey argillaceous matrix, hard, very poor visual porosity, poor inferred porosity.
	10	Coal: black, earthy texture, platy fracture, non to very argillaceous and grading to carbonaceous claystone, common micromica where argillaceous, hard and brittle.
		The coal has no fluorescence but gives dull to moderately bright pale yellow crush cut.
		Fluorescence: The sandstone has 70% dull pinpoint to patchy yellow gold fluorescence giving dull pale yellow crush cut, thin ring residue.
1935-1940	90	Sandstone: light grey to light brown grey, fine to very coarse, dominantly very coarse, angular to subangular, moderately sorted, weak silica cement, trace weak calcareous cement, moderately strong brown cement having moderately bright orange mineral fluorescence, trace to common white argillaceous matrix, trace black coal detritus, friable with dominantly loose grains in sample, poor visual porosity, fair to good inferred porosity.
	10	Claystone: as for 1932 to 1935m.
	Trace	Coal: as for 1932 to 1935m.
		Fluorescence: The sandstone has 90% moderately bright pinpoint to solid yellow gold fluorescence giving dull to moderately bright light yellow crush cut, light straw natural cut colour, thin yellow ring residue, no free oil in drilling mud, trace weak brown oil stain in some aggregates.
1940-1945	40	Sandstone: light grey to light brown grey, fine to very coarse, dominantly medium, angular to subangular, moderately sorted, weak silica cement, trace weak calcareous cement, moderately strong brown cement having moderately bright orange mineral fluorescence, trace to common white argillaceous matrix, trace black coal detritus, friable to moderately hard with dominantly loose grains in sample, poor visual porosity, poor to fair inferred porosity.
	30	Claystone: as for 1932 to 1935m.
	30	Coal: as for 1932 to 1935m.
		Fluorescence: The sandstone has 70% moderately bright pinpoint to solid yellow gold fluorescence giving dull to moderately bright light yellow crush cut, light straw natural cut colour, thin yellow ring residue, no free oil in drilling mud, trace weak brown oil stain in some aggregates.

1945-1951	50	**Claystone**: very dark grey to grey black, very dark brown grey, very carbonaceous grading to coal, slightly to moderately silty, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives dull to moderately bright pale yellow crush cut.
	30	**Sandstone**: light brown, fine to very coarse, dominantly medium, angular to subangular, moderately sorted, moderate silica cement, trace weak calcareous cement, moderately strong brown cement having moderately bright orange mineral fluorescence, trace to common white argillaceous matrix, trace black coal detritus, friable to moderately hard, poor visual porosity, poor to fair inferred porosity.
	20	**Coal**: black, earthy texture, platy fracture, non to very argillaceous and grading to carbonaceous claystone, common micromica where argillaceous, hard and brittle. The coal has no fluorescence but gives dull to moderately bright pale yellow crush cut. **Fluorescence**: The sandstone has 70% moderately bright pinpoint to solid yellow gold fluorescence giving dull to moderately bright light yellow crush cut, light straw natural cut colour, thin yellow ring residue, no free oil in drilling mud, trace weak brown oil stain in some aggregates.
1951-1955	100	**Claystone**: very dark grey to very dark brown grey to grey black, moderately to very carbonaceous occasionally grading to argillaceous coal, slightly to moderately silty, non calcareous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives very weak pale yellow white crush cut.
1955-1985	100	**Claystone**: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, non calcareous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives very weak pale yellow white crush cut.
1985-1990	100	**Claystone**: dark brown grey to very dark grey to grey black, moderately to very carbonaceous, slightly to moderately silty, non calcareous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives very weak pale yellow white crush cut.
1990-1995	100	**Claystone**: as for 1985 to 1990m, but dominantly very dark brown grey.
1995-2000	100	**Claystone**: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, non calcareous, trace angular coarse clear quartz - possibly fracture infill, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives very weak pale yellow white crush cut.
2000-2015	100	**Claystone**: as for 1955-1985.
2015-2020	100	**Claystone**: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, rare very coarse dispersed quartz sand grains, non calcareous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives very weak pale yellow white crush cut.
2020-2025	70	**Claystone**: as for 2015 to 2020m.
	20	**Claystone**: medium brown grey, very silty grading to siltstone, common micromica, non calcareous, angular fracture, occasional slickenside surfaces often lined with ankerite/calcite, trace vein quartz and calcite, soft to moderately hard, subfissile.
	10	**Sandstone**: possibly reworked volcanics (?), mottled brown, grey green and black, medium to very coarse grading to very fine to silt, quartz grains welded in with altered feldspars, mafic and other minerals, hard, no visual porosity, dull orange mineral fluorescence.
	Trace	**Quartz grains**: loose, medium to very coarse, clear to translucent, angular to subrounded. **Fluorescence**: The sandstone especially where more quartz rich has 1% bright yellow pinpoint fluorescence giving weak dull pale yellow white crush cut, trace residue.

2025-2030	100	**Shale**: medium brown to medium grey brown, moderately silty, non calcareous, trace to common micromica, trace crystalline angular quartz fragments - fracture infill, trace slickensides, moderately hard, angular fragments, subfissile. **Fluorescence:** The fracture infill material often has bright yellow fluorescence with weak instant dull pale yellow white cut, trace residue.
2030-2035	100	**Shale**: medium to dark brown grey, occasionally grey black and moderately carbonaceous, moderately to very silty, common micromica, slightly dolomitic, moderately hard, subfissile, 50% dull orange mineral fluorescence.
2035-2040	100	**Shale**: light to dark brown grey, dominantly medium brown grey, occasionally dark grey, trace black carbonaceous detritus in part, trace micromica, slightly dolomitic, moderately hard, subfissile, 50% dull orange mineral fluorescence.
2040-2045	100	**Shale**: medium brown grey, occasionally dark brown grey, very silty, trace black carbonaceous detritus, common very fine off white lithics in part, trace to common very fine brown regrown crystals in part, slightly dolomitic, trace micromica, hard, angular fracture - possible contact metamorphic (?).
2045-2050	100	**Sandstone**: off white, very fine to very coarse, dominantly fine, angular, poor to moderately sorted, very strong silica cement, no visual matrix, trace green brown and black lithics, very hard, no visual porosity. **Fluorescence:** The sandstone has trace pinpoint moderately bright medium yellow fluorescence giving very weak dull light yellow crush cut, trace residue.
2050-2055	80 10 10	**Volcanics** (?): mottled green, grey, off white and red brown, diffuse grain boundaries, fine to medium grained, very calcareous, hard, possibly partially weathered. **Shale**: as for 2035 to 2040m - probable cavings. **Sandstone**: as for 2045 to 2050m - probably cavings.
2055-2060	100	**Volcanics**: mottled medium green, microcrystalline to occasionally finely crystalline, medium to dark green ground mass with very fine off white and black grains in part, in part altered to red brown to white clay, very calcareous, trace calcite veining, hard.
2060-2065	100	**Volcanics**: as for 2055 to 2060m, but with decreasing red brown clay - becoming less altered.
2065-2070	100	**Volcanics**: medium to dark green, finely crystalline, off white, light green and black minerals embedded in a dark green ground mass - possibly pyroxene, olivine and feldspar, very calcareous, common calcite infilled fractures, trace slickensides, trace altered to red brown clay, hard.
2070-2075	100	**Volcanics**: as for 2065 to 2070m, but generally becoming fresher with depth.
2075-2085	100	**Volcanics**: medium to dominantly dark green, finely crystalline, off white, light green and black minerals embedded in a dark green ground mass - possibly pyroxene, olivine and feldspar, very calcareous, common calcite infilled fractures, trace slickensides, hard.
2085-2088 TD	100	**Volcanics**: medium to dominantly dark green, finely crystalline, off white, light green and black minerals embedded in a dark green ground mass - possibly pyroxene, olivine and feldspar, very calcareous, trace altered to red brown shale, common calcite infilled fractures, trace slickensides, hard.

APPENDIX 4B

LITHOLOGICAL DESCRIPTIONS

FROM DAILY REPORTS

DIGBY-1

GFE Resources Ltd

APPENDIX 4B

GEOLOGICAL SUMMARY

DIGBY-1

Permit:	DIGBY JV	**Spud Date:**	14 / 02 / 1995	**Rig:**	Century Rig 11
GFE Rep:	K. Smith	**Geologist:**	D. Horner		

Interval (m)	*ROP (Av.) (m/hr)*	*Lithological and Fluorescence Description*
6-19	12-20 *(Av. 18)*	<u>Claystone</u>: off white to medium orange brown, trace yellow to red, slightly to occasionally very silty, trace black carbonaceous material, non-calcareous, firm, non-fissile, grading with depth to <u>Sandstone</u>: medium orange to dark orange brown, very fine to fine, occasionally medium to coarse grains, subangular, poorly sorted, weak silica cement, moderate iron oxide cement, common to dominantly abundant medium orange to brown argillaceous and silt matrix, common light brown partially altered feldspar grains, friable to moderately hard, very poor visual porosity, no oil fluorescence.
19-67	12-50 *(Av. 27)*	<u>Sandstone</u>: medium olive grey, very fine to medium, dominantly medium, subangular to subrounded, moderately sorted, weak silica cement, common to abundant medium olive grey argillaceous and silt matrix, abundant white to green to grey to red lithics, trace green mica flakes, common black coal detritus, trace pyrite, friable, very poor to poor inferred porosity, no oil fluorescence, grading to <u>Claystone</u>: medium grey to medium olive grey to medium brown grey, very silty, often very arenaceous (grading to sandstone), common black carbonaceous flecks and detritus, non-calcareous, trace pyrite, firm, non-fissile.
67-136	15-130 *(Av. 40)*	<u>Claystone</u>: medium grey to medium green grey to medium brown grey, moderately to very silty, slightly calcareous in part, common black carbonaceous flecks and detritus, common to abundant very fine quartz and partially altered feldspar grains in part, rare very fine red lithics where arenaceous, trace micromica, rare pyrite, firm, non to slightly subfissile, grading in part to and with minor interlaminated and finely interbedded <u>Sandstone</u>: medium grey, very fine to medium, dominantly fine, subangular to subrounded, poorly sorted, weak silica and calcareous cements, abundant medium grey argillaceous and silt matrix, abundant grey, brown, off white, green and red lithics, common black carbonaceous detritus, friable to occasionally moderately hard, no visual porosity, no oil fluorescence.
136-342	3-110 *(Av. 45)*	<u>Claystone</u>: light to medium green grey, light to medium brown grey, light to medium grey, moderately to very silty, very slightly calcareous in part, occasionally very finely arenaceous with quartz and partially altered feldspar grains, common very fine to fine multicoloured lithics in part, trace to common black carbonaceous detritus and flecks, trace micromica, firm, slightly subfissile, with minor interbedded <u>Sandstone</u>: light green grey, very fine to medium, dominantly fine to medium, subangular, moderately sorted, moderately strong calcareous cement, common to abundant white to light brown argillaceous matrix, abundant green grey lithics, trace red lithics, common to abundant light brown partially altered feldspar grains, trace to common black to dark brown carbonaceous detritus, hard, no visual porosity, no oil fluorescence, but trace dull yellow orange calcite mineral fluorescence, no cut.

342-445	5-60 *(Av. 30)*	**Claystone**: light to medium brown grey, common light to medium green grey, moderately to very silty, occasionally very finely to finely arenaceous with quartz, altered feldspar and multicoloured lithics grains, trace to common black carbonaceous detritus, trace coarse brown and green mica flakes, firm, slightly subfissile, interlaminated and occasionally finely interbedded with minor **Sandstone**: light to medium green grey, very fine to medium, dominantly fine to medium, subangular, moderately sorted, strong calcareous cement, abundant light brown argillaceous matrix, abundant light brown partially altered feldspar grains, abundant grey green lithics, common orange to red lithics, trace to common black carbonaceous detritus, trace fine mica flakes, moderately hard, very poor visual porosity, no oil fluorescence but trace dull yellow orange calcite mineral fluorescence, no cut.
445-470	5-60 *(Av. 20)*	**Claystone**: light to medium brown grey, light to medium green grey, very silty, occasionally very finely arenaceous with quartz, altered feldspar and multicoloured lithic grains, trace black to brown carbonaceous detritus and flecks, trace micromica, slightly to occasionally moderately calcareous, firm, slightly subfissile, interlaminated and grading to minor **Sandstone**: light to medium grey, very fine, subangular, moderately to well sorted, strong to very strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, with **Calcite**: (fracture infilling) white to light brown, macrocrystalline, hard. **Fluorescence**: The claystone and occasionally sandstone have trace to 10% moderately bright to bright patchy to solid golden orange fluorescence giving a bright light yellow white slow streaming cut fluorescence, no natural cut colour, moderate to thick ring residue.
470-538	3-60 *(Av. 27)*	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, trace medium to dark brown and very carbonaceous, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile, with minor interlaminated and interbedded **Sandstone**: light to medium grey, very fine to fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, no oil fluorescence.
538-597	8-60 *(Av. 27)*	**Claystone**: light to medium brown grey, light to medium grey, occasionally light to medium green grey, trace medium to dark brown and very carbonaceous, very silty, often very finely arenaceous with quartz, partially altered feldspars and multicoloured lithics, trace brown to black carbonaceous detritus, trace to common micromica, firm, slightly subfissile, with minor interlaminated and interbedded **Sandstone**: light to medium grey, very fine to fine, subangular, moderately to well sorted, strong calcareous cement, common to abundant off white to medium grey argillaceous and silt matrix, abundant partially altered feldspar grains, common grey green lithics, trace red and brown lithics, trace very fine black to brown carbonaceous matter, hard, no visual porosity, very poor inferred porosity, no oil fluorescence.

597-694	6-55 *(Av. 24)*	<u>Claystone</u>: off white to medium brown, light to medium brown grey, moderately to very silty, often abundant very fine to occasionally fine quartz, altered feldspar and multicoloured lithic sand grains grading to argillaceous sandstone, trace black to brown carbonaceous detritus, slightly calcareous, trace white macrocrystalline calcite fracture infilling in part, trace to common micromica, firm, slightly subfissile, interbedded with <u>Sandstone</u>: off white to very light brown, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate to very strong calcareous cement, abundant off white argillaceous matrix (matrix supported in part), common green grey and trace red brown lithics, abundant altered feldspar grains, trace coarse brown mica flakes, trace black to brown carbonaceous flecks and detritus, friable to hard, no visual porosity, no oil fluorescence, but trace to 5-10% dull yellow orange mineral fluorescence, no cut.
694-828	1.5-60 *(Av. 20)*	<u>Claystone</u>: off white to medium grey, light to medium brown grey, light to medium brown, occasionally medium olive grey, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains and trace grey green lithics, trace black to dark brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile, with minor interlaminated and occasionally interbedded <u>Sandstone</u>: off white to light brown grey to light grey, very fine, subangular, moderately to well sorted, weak to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green lithics, trace very fine black to brown carbonaceous detritus, friable to occasionally hard, no visual porosity, no oil fluorescence, but trace dull yellow orange mineral fluorescence, no cut.
828-832	3-12 *(Av. 7.5)*	<u>Sandstone</u>: off white to light grey, very fine to fine, subangular, moderately to well sorted, moderately strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, very poor inferred porosity, interbedded with <u>Claystone</u>: light to medium brown grey, light to medium grey, occasionally off white to light to medium olive grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile.
832-838	5-12 *(Av. 7.5)*	<u>Sandstone</u>: off white to light grey, very fine to dominantly fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, very poor inferred porosity, interbedded with <u>Claystone</u>: light to medium brown grey, light to medium grey, occasionally off white, occasionally light to medium olive grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile. <u>Fluorescence</u>: the sandstone has trace patchy bright orange gold fluorescence giving a moderately bright light yellow white slow streaming to crush cut fluorescence, no natural cut colour, moderate ring residue.

838-981	1.5-21 *(Av. 12)*	**Claystone**: medium brown grey, off white to medium brown, light to medium grey, moderately silty, occasionally very finely arenaceous with quartz and altered feldspar grains, rare multicoloured lithics, trace to occasionally common black to brown carbonaceous detritus and flecks, slightly to moderately calcareous, trace micromica, firm, subfissile, with minor interlaminated and interbedded **Sandstone**: off white to light grey, very fine to fine, dominantly very fine, subangular, moderately to well sorted, very strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant altered feldspar grains, common grey green lithics, rare red brown lithics, trace black to brown carbonaceous matter, trace coarse brown mica flakes, trace pyrite, hard, no visual porosity, no oil fluorescence, but trace to 20% dull yellow orange mineral fluorescence, no cut, and minor interlaminated **Coal**: black to dark brown, earthy texture, platy fracture, slightly to dominantly very argillaceous, hard and brittle.
981-1044	5-75 *(Av. 8)*	**Claystone**: off white to medium brown grey, medium olive grey, light to medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly to occasionally moderately calcareous, trace medium brown cryptocrystalline dolomite and ankerite in part, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile, interlaminated and interbedded with **Sandstone**: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence, but trace to 5% dull yellow orange mineral fluorescence, no cut, with minor detrital and laminar **Coal**: black to occasionally very dark brown, non to occasionally very argillaceous, earthy to occasionally subvitreous texture, platy to occasionally subconchoidal fracture, hard and brittle.
1044-1080	6-25 *(Av. 12)*	**Claystone**: off white to medium brown grey, medium olive grey, light to medium grey, moderately silty, often very finely arenaceous with quartz and off white partially altered feldspar grains, trace very fine grey green and red brown lithics where arenaceous, slightly to occasionally moderately calcareous, trace medium brown cryptocrystalline dolomite and ankerite in part, trace to common black to brown carbonaceous flecks and detritus, trace very fine brown and clear mica flakes, trace to common micromica, firm, subfissile, interlaminated and interbedded with **Sandstone**: off white to light brown, very fine, occasionally fine, subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant partially altered feldspar grains, trace grey, green, red and brown lithics, common black to brown carbonaceous detritus in part, friable to hard, no visual porosity, no oil fluorescence, but trace to 5% dull yellow orange mineral fluorescence, no cut, with minor detrital and laminar **Coal**: black to occasionally very dark brown, non to occasionally very argillaceous, earthy to occasionally subvitreous texture, platy to occasionally subconchoidal fracture, hard and brittle.

1080-1099	9-15 *(Av. 12)*	Claystone: off white to medium grey, light to medium brown grey, dominantly medium grey, moderately to very silty, occasionally abundant very fine altered feldspar and quartz grains with trace multicoloured lithics, slightly calcareous, trace to common brown to black carbonaceous flecks and detritus, trace to common micromica, firm, subfissile, interlaminated and finely interbedded with Sandstone: off white to occasionally light brown grey, very fine with occasional fine grains, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), trace grey green and brown lithics, abundant off white partially altered feldspar grains, trace brown mica flakes, trace fine black and brown carbonaceous detritus, friable to hard, no visual porosity, no oil fluorescence.
1099-1102	20-40 *(Av. 27)*	Sandstone: very light grey, very fine to medium, dominantly fine, subangular, moderately sorted, weak to moderate calcareous and silica cements, common to abundant white argillaceous matrix, common to abundant off white partially altered feldspar grains, common grey green, yellow and red lithics, trace fine black coal detritus, friable to moderately hard, very poor visual porosity, poor inferred porosity, no oil fluorescence.
1102-1247	5.5-40 *(Av. 8.5)*	Claystone: light to medium brown, off white to medium grey, light to medium green grey, light to medium brown grey, dominantly medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile, with minor laminated Sandstone: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, common coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1247-1297	1-5.5 *(Av. 4)*	Claystone: light to medium brown, off white to medium grey, light to medium green grey, dominantly light to medium brown grey, moderately to very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace to common micromica, firm, subfissile, with minor Claystone: medium brown, moderately silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, moderately carbonaceous, trace brown to black carbonaceous detritus and flecks, trace micromica, firm, subfissile, laminated and finely interbedded with Sandstone: off white to light grey to light brown grey, light to medium green grey, dominantly light to medium brown, very fine to fine, dominantly very fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white partially altered feldspar grains, trace grey green and brown lithics, trace coarse brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description
1297-1400	3-18 *(Av. 5.5)*	**Claystone**: off white to medium grey, light to medium green grey, light to medium brown grey, light brown, dominantly medium grey to medium green grey, occasionally medium brown and moderately carbonaceous, very silty, occasionally very finely arenaceous with quartz and off white partially altered feldspar grains, trace to common brown to black carbonaceous detritus and flecks, slightly calcareous, trace fine brown mica flakes, trace medium brown crystalline calcite in part - fracture infill, trace to common micromica, firm, subfissile, laminated and thinly interbedded with **Sandstone**: off white to light brown grey, very fine to fine, subangular, moderately to well sorted, moderate to strong calcareous cement, abundant white argillaceous matrix (matrix supported), abundant off white altered feldspar grains, trace to common grey green and brown lithics, trace fine brown mica flakes, trace to common black to brown carbonaceous detritus and flecks, friable to moderately hard, no visual porosity, no oil fluorescence.
1400-1463	2-7.5 *(Av. 4)*	**Claystone**: off white to medium grey, medium brown grey, light to medium green grey, dominantly medium grey, trace very fine partly altered feldspar grains in part, trace black to brown carbonaceous flecks and detritus, trace to common micromica and fine brown mica flakes, slightly calcareous in part, occasionally very finely arenaceous grading to sandstone, firm to moderately hard, subfissile, interlaminated with **Sandstone**: off white to light brown grey, very fine, subangular, moderately to well sorted, moderate silica and calcareous cements, common to abundant white argillaceous matrix, common partly altered feldspar grains, trace grey and brown lithics, common fine brown mica flakes in part, trace black carbonaceous detritus, hard, no visual porosity, no oil fluorescence.
1463-1468	4-30 *(Av. 18)*	**Sandstone**: light grey, very fine to coarse, dominantly fine, angular to subrounded, dominantly subangular, poorly sorted, moderate silica and weak calcareous cements, common to dominantly abundant white argillaceous matrix, trace red garnet, trace black carbonaceous detritus, trace brown and green mica flakes, friable to hard, nil to poor visual porosity, poor inferred porosity. **Fluorescence**: the sandstone has 70% dull to bright pinpoint to patchy very pale yellow white to milky white fluorescence, giving dull very pale yellow white to milky white crush cut, no natural cut colour, no natural oil stain, thin ring residue, no free oil in drilling, but trace pinpoint bright milky white fluorescence from a cuttings/water mix.
1468-1489	0.4-10 *(Av. 2)*	**Claystone**: (kaolinite) white, structureless sticky clay, with minor **Claystone**: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile, with minor laminated **Sandstone**: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate to occasionally very strong silica cement, trace weak to occasionally moderate calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace to common red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity. **Fluorescence**: The sandstone has 25-50% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.

1489-1502	1-20 *(Av. 4)*	<u>Claystone</u>: (kaolinite) white, structureless sticky clay, occasionally very calcareous, occasionally abundant dispersed very fine to fine quartz sand grains, with trace <u>Claystone</u>: medium to dark grey, dominantly medium grey, very silty, common micromica, hard, subfissile, with minor laminated <u>Sandstone</u>: off white to light grey, very fine to coarse, dominantly fine to medium, angular to subrounded, dominantly subangular, poorly sorted, moderate to occasionally very strong silica cement, trace weak to occasionally moderate calcareous cement, abundant white argillaceous matrix grading to kaolinite, trace to common red garnet, trace green lithics, trace black coaly detritus, friable to hard, very poor visual porosity. <u>Fluorescence</u>: The sandstone has trace to 50% dull to moderately bright pinpoint to patchy light yellow fluorescence giving dull pale yellow white crush cut, trace residue.
1502-1548	3-18 *(Av. 4.3)*	<u>Claystone</u>: medium grey, moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile, interbedded with <u>Claystone</u>: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous, with minor finely interbedded <u>Coal</u>: black, earthy texture, platy fracture, slightly to very argillaceous, hard and brittle, and occasionally interlaminated <u>Sandstone</u>: off white, very fine to occasionally medium, dominantly fine, angular to dominantly subangular, moderately sorted, moderate to strong calcareous cement, abundant white argillaceous matrix grading in part to claystone (matrix supported), trace garnet, trace green grey lithics, common black carbonaceous material, friable to hard, nil to very poor visual porosity. <u>Fluorescence</u>: From 1530 to 1545m the sandstone has 10-70% patchy, dull to moderately bright, light yellow fluorescence giving dull pale yellow white crush cut and thin yellow ring residue from very tight sandstone laminae.
1548-1553	5-12 *(Av. 9)*	<u>Sandstone</u>: off white, very fine to medium, dominantly very fine, angular to dominantly subangular, moderately sorted, moderate calcareous cement, common to abundant white argillaceous matrix, trace garnet, trace green grey lithics, trace black carbonaceous material, friable with abundant loose grains in sample, very poor to fair inferred porosity, no oil fluorescence, interbedded with <u>Claystone</u>: medium grey to occasionally medium green grey, trace medium brown grey, slightly to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile, with minor <u>Claystone</u>: (kaolinite) white, trace to occasionally abundant very fine to fine dispersed quartz sand grains in part, structureless sticky clay, occasionally calcareous.
1553-1560	5-20 *(Av. 10)*	<u>Sandstone</u>: light grey, very fine to granular, dominantly fine at top becoming dominantly coarse at base, angular to subangular, very poorly sorted, weak silica and calcareous cements, trace white argillaceous matrix, trace red, brown, green and grey lithics, trace black coaly detritus, trace brown and clear mica flakes, friable with dominantly loose grains in sample, good inferred porosity, interbedded with <u>Claystone</u>: medium grey to occasionally medium green grey, trace medium brown grey, slightly to very dominantly moderately silty, trace black coaly detritus, trace very fine partially altered feldspar grains in part, trace carbonaceous flecks, common micromica, moderately hard, subfissile. <u>Fluorescence</u>: the sandstone has trace to 5% dull to moderately bright light yellow fluorescence giving dull pale yellow white crush cut, trace residue .

1560-1598	4-10 *(Av. 4.5)*	**Claystone**: medium grey, occasionally medium green grey, very silty, in part grading to siltstone, trace very fine partially altered feldspar grains, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile, interbedded with **Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, sticky and structureless, with minor interlaminated **Sandstone**: off white, very fine to dominantly fine, angular to subangular, moderately sorted, moderate silica and weak calcareous cements, common to abundant white argillaceous matrix, trace to common brown, green and grey lithics, trace brown mica flakes, trace black coaly detritus, hard, no visual porosity. **Fluorescence**: the sandstone has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1598-1731	3.5-60 *(Av. 22)*	**Sandstone**: off white to light grey, very fine to very coarse, dominantly fine to medium, angular to subangular, poorly sorted, weak silica and trace weak calcareous cement, rare strong dolomite cement, trace to abundant white argillaceous matrix, trace red, brown and green lithics, trace garnet, trace brown mica flakes, trace black coaly detritus, friable, fair visual porosity, grading to and interbedded with **Claystone**: (kaolinite) white, slightly calcareous in part, occasionally abundant dispersed very fine to fine quartz sand grains, sticky and structureless, with minor interbedded **Claystone**: medium grey to medium brown, occasionally medium green grey, very silty, trace black carbonaceous flecks and detritus, trace fine brown mica flakes, trace to common micromica, moderately hard, subfissile. **Fluorescence**: (from tight aggregates only) The sandstone from 1605 to 1615m, 1620 to 1630m and 1720 to 1730m has trace dull pinpoint to solid yellow fluorescence giving very weak dull yellow crush cut, trace residue.
1731-1778	2.7-20 *(Av. 12)*	**Sandstone**: light grey, very fine to very coarse, dominantly fine to coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to fair inferred porosity, with very minor finely interbedded **Claystone**: medium grey to medium green grey, trace medium brown grey, moderately to very silty, trace black carbonaceous flecks, trace micromica, moderately hard, subfissile. **Fluorescence**: from 1730 to 1750m the sandstone has trace to 5% bright pinpoint to patchy pale yellow white fluorescence giving dull milky white crush cut, trace to thin ring residue.
1778-1899	4-30 *(Av. 13)*	**Sandstone**: light grey, very fine to very coarse, dominantly fine to coarse, angular to subangular, poorly sorted, moderate silica cement, trace weak calcareous cement, trace to common white argillaceous matrix, trace garnet, trace brown, red, grey and green lithics, trace black coaly detritus, moderately hard, poor to dominantly fair inferred porosity, with very minor finely interbedded **Claystone**: medium grey to medium green grey, trace medium brown grey, occasionally dark grey and moderately carbonaceous, moderately to very silty, trace black carbonaceous flecks, trace micromica, moderately hard, subfissile.
1899-1922	3-6 *(Av. 4.5)*	**Claystone**: very dark grey to dark brown, slightly to moderately silty, moderately to very carbonaceous, common micromica, moderately hard, subfissile. The claystone has no fluorescence but gives dull moderately bright pale yellow crush cut, thin yellow ring residue.

1922-1932	5-20 *(Av. 12)*	**Sandstone**: light brown grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, moderate silica and trace weak calcareous cements, moderately strong light brown cement giving dull yellow mineral fluorescence, trace white to light brown argillaceous matrix, friable to hard, very poor to poor visual porosity, poor to fair inferred porosity, interbedded with **Claystone**: very dark grey to dark brown, slightly to moderately silty, moderately to very carbonaceous, common micromica, moderately hard, subfissile. The claystone has no fluorescence, but gives dull moderately bright pale yellow crush cut, thin yellow ring residue. **Fluorescence**: The sandstone has 100% dull to moderately bright pinpoint to solid yellow gold fluorescence giving dull pale yellow crush cut, thin yellow ring residue.
1932-1951	4-27 *(Av. 10)*	**Sandstone**: light brown, fine to very coarse, dominantly medium to very coarse, angular to subangular, moderately sorted, weak to moderate silica cement, trace weak calcareous cement, moderately strong brown cement having moderately bright orange mineral fluorescence, trace to common white argillaceous matrix, trace black coal detritus, friable to moderately hard, poor visual porosity, poor to fair with some possibly good inferred porosity, interbedded with **Claystone**: very dark grey to grey black, very dark brown grey, very carbonaceous grading to coal, slightly to moderately silty, common micromica, moderately hard, subfissile. The claystone has no fluorescence, but gives dull to moderately bright pale yellow crush cut. Grading to and interbedded with **Coal**: black, earthy texture, platy fracture, non to very argillaceous and grading to carbonaceous claystone, common micromica where argillaceous, hard and brittle. The coal has no fluorescence, but gives dull to moderately bright pale yellow crush cut. **Fluorescence**: The sandstone has 70 to 100% moderately bright pinpoint to solid yellow gold fluorescence giving dull to moderately bright light yellow crush cut, light straw natural cut colour, thin yellow ring residue, no free oil in drilling mud, trace weak brown oil stain in some aggregates.
1951-1980	3.3-7 *(Av. 4.5)*	**Claystone**: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, non-calcareous, common micromica, moderately hard, subfissile. The claystone has no fluorescence, but gives a very weak pale yellow white crush cut.
1980-2022	3.3-7.5 *(Av. 5)*	**Claystone**: dark brown grey to very dark grey, moderately to very carbonaceous, slightly to moderately silty, non-calcareous, trace angular coarse clear quartz - possibly fracture infill, common micromica, moderately hard, subfissile. The claystone has no fluorescence, but gives very weak pale yellow white crush cut.
2022-2045	2.2-4.5 *(Av. 3)*	**Shale**: medium brown grey, very silty, grading to siltstone in part, common micromica, non-calcareous, angular fracture, occasional slickenside surfaces often lined with ankerite/calcite, trace vein quartz and calcite, soft to moderately hard, subfissile, grading towards base to **Shale**: medium brown grey, occasionally dark brown grey, very silty, trace black carbonaceous detritus, common very fine off white lithics in part, trace to common very fine brown crystals in part, slightly dolomitic, trace micromica, hard, angular fracture - possible contact metamorphic (?). **Fluorescence**: The fracture infill material often has bright yellow fluorescence with weak instant dull pale yellow white crush cut, trace residue.
2045-2050	4-4 *(Av. 4)*	**Sandstone**: off white, very fine to very coarse, dominantly fine, angular, poor to moderately sorted, very strong silica cement, no visual matrix, trace green brown and black lithics, very hard, no visual porosity. **Fluorescence**: The sandstone has trace pinpoint moderately bright medium yellow fluorescence giving very weak dull light yellow crush cut, trace residue.

2050-2056	2.2-3.8 *(Av. 3)*	**Volcanics** (?): mottled green, grey, off white and red brown, diffuse grain boundaries, fine to medium grained, very calcareous, hard, possibly partially weathered.
2056-2088 (T.D.)	1.7-2.5 *(Av. 2)*	**Volcanics**: medium to dark green, finely crystalline, off white, light green and black minerals embedded in a dark green ground mass (possibly pyroxene), olivine and feldspar, very calcareous, common calcite infilling fractures, trace slickensides, often weathered at top to red brown to white clay - decreasing with depth, hard.
Total Depth:		**2088m (driller) reached at 2330 hrs on 31st May, 1995.**

APPENDIX 5

GFE RESOURCES LTD

APPENDIX 5

SIDEWALL CORE DESCRIPTIONS

DIGBY-1

DIGBY-1 SIDEWALL CORE DESCRIPTION

GFE Resources Ltd

WELL NAME:	Digby-1	**DATE:**	**5 June 1995**
GEOLOGIST:	Dave Horner	**PAGE:**	1

Cut 48 Recovered 44 2 Misfire 2 No recovery

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION
1	2076.2	26	Basalt?: weathered, medium to dark green, finely crystalline, composed of green, off white and black minerals, very calcareous, firm.
2	2069.2	26	Basalt?: weathered, medium green, finely crystalline, composed of green, off white and black minerals, very calcareous, firm.
3	2048.2	25	Claystone: medium brown grey, very silty, trace dispersed very fine to fine quartz grains, non-calcareous, firm, non-fissile.
4	2028.2	25	Claystone: dark brown grey, moderately silty, non-calcareous, firm, non-fissile.
5	2017.2	23	Siltstone: dark brown, occasionally brown black and very carbonaceous, very finely arenaceous, trace black coaly detritus, firm, fissile, interbedded with Sandstone; light brown, very fine to dominantly fine, angular, moderately sorted, moderate silica cement, common white to light brown argillaceous matrix, trace black coaly detritus, friable, very poor visual porosity, common dull orange mineral fluorescence, no oil fluorescence.
6	2002.0	26	Siltstone: dark brown grey, very argillaceous, moderately carbonaceous, non-calcareous, firm, subfissile.
7	1779.2	0	No recovery.
8	1954.7	0	Misfire.
9	1949.3	18	Silty Sandstone: medium brown, very fine, angular to subangular, moderately to well sorted, weak silica cement, abundant medium to dark brown grey argillaceous and silt matrix, trace to common black carbonaceous laminae, detritus and flecks, firm, no visual porosity, common dull orange mineral fluorescence, no oil fluorescence.
10	1948.1	20	Claystone: medium to dark brown grey to grey black, very carbonaceous in part, non-calcareous, common dispersed very fine quartz sand gains in part, common black coal laminae in part, trace micromica, firm, non-fissile with minor laminated Sandstone: light brown, very fine, angular to subangular, moderately to well sorted, weak silica cement, common off white to light brown argillaceous matrix, friable, no visual porosity, common dull orange mineral fluorescence, no oil fluorescence.
11	1946.3	20	Sandstone: medium brown, very fine to coarse, dominantly fine to medium, weak silica cement, common light brown argillaceous matrix, in part abundant medium brown to black argillaceous and carbonaceous matrix, common black carbonaceous detritus in part, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has trace patchy bright yellow fluorescence giving bright slow to moderately fast streaming pale yellow cut fluorescence, thick ring residue, 100% dull orange mineral fluorescence.

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION PAGE: 2
12	1945.9	28	Sandstone: light brown, very fine to coarse, dominantly fine to medium, angular, poorly sorted, moderate silica cement, common to abundant off white to light brown argillaceous matrix, intermixed with 50% large black coaly inclusions, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has 70% dull orange mineral fluorescence and trace pinpoint bright yellow fluorescence giving weak light yellow crush cut, trace residue.
13	1944.2	27	Coal: black, earthy to slightly subvitreous texture, platy fracture, slightly argillaceous in part, moderately hard, brittle.
14	1940.8	28	Sandstone: off white to light grey, very fine to grit, dominantly coarse, angular, poorly sorted, weak silica cement, trace to abundant white argillaceous matrix, trace green lithics, trace black carbonaceous detritus, friable, poor visual porosity. ***Fluorescence***; the sandstone has 70% dull to bright patchy to solid yellow fluorescence giving dull to bright slow streaming to crush pale yellow cut fluorescence, trace to thick ring residue.
15	1938.7	22	Sandstone: very fine to grit, dominantly fine and very coarse - bimodal, angular, poorly sorted, weak silica cement, trace to common white to light brown argillaceous matrix, trace black coaly detritus, friable, very poor visual porosity. The sandstone has 80% dull orange mineral fluorescence, no oil fluorescence, no cut.
16	1936.4	27	Claystone: very dark brown grey to brown black, very carbonaceous grading to argillaceous coal, trace micromica, firm to hard, slightly subfissile.
17	1931.3	24	Sandstone: very fine to grit, dominantly fine and very coarse (bimodal), angular, poorly sorted, weak silica cement, trace to common white to light brown argillaceous matrix, trace black coaly detritus, friable, very poor visual porosity. ***Fluorescence***; the sandstone has 80% dull orange mineral fluorescence, no oil fluorescence, no cut. Laminated with Coal: black, earthy to slightly subvitreous texture, platy fracture, slightly argillaceous in part, moderately hard, brittle, laminated with Sandstone: dark brown grey, very fine to grit, dominantly fine to medium, poorly sorted, angular, weak to moderate silica cement, common dark grey argillaceous coaly matrix and detrital coal, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has 5 to 10% bright patchy yellow white fluorescence giving moderately bright white crush cut, thin to moderate ring residue.
18	1926.4	15	Sandstone: mottled off white to black, very fine to grit, dominantly coarse, angular, very poorly sorted, weak silica cement, trace altered feldspar grains, trace to abundant black coaly detritus, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has 50% dull orange mineral fluorescence, trace dull pinpoint medium yellow fluorescence giving weak dull to moderately bright pale yellow crush cut, thin ring residue.
19	1923.9	15	Sandstone: medium brown, very fine to coarse, dominantly medium, angular, poorly sorted, moderate to strong silica cement, common medium brown argillaceous matrix, trace black coaly detritus, hard, very poor visual porosity, no oil fluorescence but trace dull white crush cut, trace residue, 10% dull orange mineral fluorescence.
20	1920.2	0	Misfire.
21	1914.2	26	Claystone: dark brown black, non-silty, non-calcareous, very carbonaceous grading to argillaceous coal, common micromica, moderately hard, subfissile.
22	1903.2	28	Claystone: very dark brown grey to brown black, very carbonaceous, slightly silty, non-calcareous, very carbonaceous, common micromica, firm to moderately hard, subfissile.
23	1872.7	21	Sandstone: off white, very fine to dominantly fine, angular to subangular, moderately to well sorted, weak silica cement, common to abundant white argillaceous and silt matrix, trace garnet, trace grey and green lithics, trace black coaly detritus, friable, very poor visual porosity, no oil fluorescence, but trace dull orange mineral fluorescence.

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION PAGE: 3
24	1837.2	28	Silty Sandstone: medium grey, very fine, angular to subangular, moderately sorted, weak silica cement, abundant medium grey argillaceous and silt matrix (matrix supported), common black coaly laminae, trace very fine partially altered feldspars, friable, no visual porosity, no fluorescence.
25	1739.7	0	No recovery.
26	1608.2	25	Sandstone: light grey, fine to coarse, dominantly medium, angular to subangular, moderately sorted, weak silica cement, abundant white argillaceous matrix (matrix supported), trace brown and black lithics, friable and sticky, no visual porosity, no fluorescence.
27	1591.0	19	Claystone: medium green grey, non-silty, very slightly calcareous, trace black carbonaceous flecks, trace micromica, firm, slightly subfissile.
28	1564.0	24	Siltstone: light grey, common very fine quartz sand grains, very argillaceous, non-calcareous, trace to common black to brown carbonaceous flecks, firm, non-fissile.
29	1536.4	22	Claystone: medium grey, moderately silty, non-calcareous, trace black carbonaceous flecks, trace micromica, firm, slightly subfissile.
30	1506.2	26	Claystone: medium grey, moderately to very silty, slightly calcareous, trace black carbonaceous flecks, trace very fine dispersed quartz sand grains, trace micromica, firm, slightly subfissile.
31	1496.2	20	Sandstone: light green grey, very fine to dominantly fine, angular to subangular, moderately to well sorted, weak silica cement, trace weak calcareous cement, common to abundant off white argillaceous matrix, trace garnet, trace brown lithics, trace very fine black carbonaceous detritus, friable, no visual porosity, no fluorescence.
32	1473.7	21	Sandstone: light green grey, very fine to dominantly fine, angular to subangular, moderately to well sorted, weak silica cement, trace weak calcareous cement, common to abundant off white argillaceous matrix, trace garnet, trace brown lithics, trace very fine black carbonaceous detritus, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has 100% dull to bright patchy light yellow fluorescence giving dull to moderately bright milky white crush cut, thin ring residue.
33	1468.2	33	Sandstone: off white to very light brown, very fine to coarse, dominantly fine to medium, poor to moderate sorting, very weak silica cement, trace white argillaceous matrix, trace grey green lithics, friable, fair visual porosity. ***Fluorescence;*** the sandstone has trace patchy moderately bright light yellow fluorescence giving dull milky white crush cut, trace residue.
34	1465.7	24	Sandstone: light grey, very fine to medium, dominantly fine, angular to subangular, moderately to well sorted, weak silica cement, trace weak calcareous cement, common light brown argillaceous matrix, common black coaly detritus, common partly altered feldspars, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has trace dull patchy yellow fluorescence giving weak dull milky white crush cut, trace residue.
35	1464.4	26	Sandstone: light grey, very fine to medium, dominantly medium, angular to subangular, moderately sorted, weak silica and trace weak calcareous cements, common off white argillaceous matrix, trace grey green and brown lithics, trace black carbonaceous flecks and detritus, friable, very poor visual porosity. ***Fluorescence;*** the sandstone has trace bright pinpoint yellow fluorescence giving trace dull milky white crush cut, trace residue.
36	1457.5	25	Claystone: medium grey, slightly silty, non-calcareous, trace micromica, firm, slightly subfissile.
37	1445.2	27	Siltstone: medium grey, very argillaceous, non-calcareous, common black coaly laminae, trace black carbonaceous flecks, trace dispersed very fine quartz and partially altered feldspar grains, trace black carbonaceous flecks, trace micromica, firm to hard, slightly subfissile.

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION PAGE: 4
38	1414.6	32	Claystone: medium grey, non-silty, non-calcareous, trace black carbonaceous flecks, trace micromica, firm, non-fissile.
39	1364.4	41	Claystone: medium to dark grey, slightly silty, non-calcareous, trace micromica, firm to moderately hard, slightly subfissile.
40	1338.2	22	Sandstone: very light grey, very fine, angular, well sorted, weak calcareous cement, abundant white argillaceous and silt matrix, trace black carbonaceous flecks, trace green grey and red lithics, friable, very poor visual porosity, no fluorescence.
41	1318.1	20	Claystone: medium grey, slightly silty, non-calcareous, rare black carbonaceous flecks, trace micromica, firm, slightly subfissile.
42	1220.8	22	Claystone: medium brown grey, moderately silty, non-calcareous, trace very fine partially altered feldspars, trace black carbonaceous flecks, firm, non-fissile.
43	1096.8	26	Claystone: medium grey, moderately silty, very slightly calcareous, trace black carbonaceous flecks, trace micromica, rare very fine partially altered feldspar grains, firm, non-fissile.
44	1025.5	13	Sandstone: light grey, very fine, subangular, well sorted, moderate calcareous cement, abundant white argillaceous matrix, trace grey green and brown lithics, trace very fine black carbonaceous grains, friable, no visual porosity, no fluorescence.
45	983.8	15	Sandstone: off white to very light brown, very fine, subangular, well sorted, weak to moderate calcareous cement, abundant white argillaceous matrix, common partially altered feldspar grains, trace very fine black carbonaceous grains, friable to moderately hard, no visual porosity, no fluorescence.
46	849.0	20	Sandstone: off white to very light brown, very fine, subangular, well sorted, strong calcareous cement, abundant white argillaceous matrix, common partially altered feldspar grains, trace very fine black carbonaceous grains, moderately hard, no visual porosity, no fluorescence.
47	735.6	28	Claystone: medium grey, slightly silty, non-calcareous, trace black carbonaceous flecks, trace micromica, firm, slightly subfissile.
48	229.2	41	Claystone: medium green grey, slightly silty, non-calcareous, common brown to black carbonaceous detritus, firm, non-fissile.

BPB WIRELINE SERVICES

SCG - CORE GUN SHOT REPORT

(EQUIPMENT TYPE: - CGR.B PLUS CBA.C PLUS CBA.B)

CLIENT: GFE RESOURCES		DATE:	02-JUN-95
FIELD:		UNIT:	......
WELL:	DIGBY-1	ENGINEER	....
LOCATION:		EQUIP.SERIAL NOS:	....

CORE NO.	CORE DEPTHS M.	DEPTH CORRNS M.	SHOOTING DEPTHS M.	ROCK TYPE	TRANSIT TIME	BULLET TYPE	CUTTER RING	POWDER LOAD	PULL (POUNDS)	RECOVERY (~~INCHES~~ cm)	SOLD	FIRING STATUS F	FIRING STATUS M	REMARKS
1	2076.2	6.0	2070.2	✓					200	2.5				
2	2069.2	5.9	2063.3	✓					50	2.5				
3	2048.2	5.9	2042.3	✓					—	2.5				
4	2028.2	5.8	2022.4	✗					50	2.5				
5	2017.2	5.7	2011.5	✗					250	2.5				
6	2002.0	5.7	1996.3	✓					200	2.5				
7	1979.2	5.6	1973.6	✓					50	~~[illegible]~~	N			
8	1954.7	5.6	1949.1	✗					—	—	N			MISFIRE
9	1949.3	5.5	1943.8	✓					—	1.5				
10	1948.1	5.4	1942.7	✓					50	2.0				
11	1946.3	5.4	1940.9	✓					—	2.0				
12	1945.9	5.3	1940.6	✓					—	3.0				
13	1944.2	5.2	1939.0	✗					100	3.0				
14	1940.8	5.2	1935.6	✗					50	2.5				
15	1938.7	5.1	1933.6	✓					50	2.5				
16	1936.4	5.0	1931.4	✓					—	3.0				
17	1931.3	5.0	1926.3	✓					—	2.5				
18	1926.4	4.9	1921.5	✗					—	1.5				
19	1923.9	4.9	1919.0	✗					20	1.0				
20	1920.2	4.8	1915.4	✗					20	—	N			MISFIRE
21	1914.2	4.7	1909.5	✓					700	3.0				
22	1903.2	4.7	1898.5	✓					800	3.0				
23	1872.7	4.6	1868.1	✗					—	2.0				
24	1837.2	4.5	1832.7	✓					50	2.5				

ATTEMPTED	RECOVERED	SOLD
24 ~~[illegible]~~	21 ~~[illegible]~~	~~[illegible]~~ 21

NOTES: (A) DEPTH CORRECTIONS ASSUME TOOL IS ZEROED ON THE GAMMA RAY MEASURE POINT AND THE CORRELATION LOG IS RUN AT 5 M/MIN.

(B) ROCK TYPE AND POROSITY ESTIMATED FROM LOGS.

BPB WIRELINE SERVICES
SCG - CORE GUN SHOT REPORT

CLIENT: GFE RESOURCES		DATE:	02-JUN-95
FIELD:		UNIT:	......
WELL: DIGBY-1		ENGINEER	....
LOCATION:		EQUIP. SERIAL NOS:	....

(EQUIPMENT TYPE: - CGR.B PLUS CBA.C PLUS CBA.B)

	CORE NO.	CORE DEPTHS M.	DEPTH CORRNS M.	SHOOTING DEPTHS M.	ROCK TYPE	TRANSIT TIME	BULLET TYPE	CUTTER RING	POWDER LOAD	PULL (POUNDS)	RECOVERY (~~INCHES~~ cm)	SOLD	FIRING STATUS F	FIRING STATUS M	REMARKS
1	25	1739.7	3.1	1736.6	X					50	—	N			
2	26	1608.2	3.0	1605.2	X					50	2.5				
3	27	1591.0	3.0	1588.0	X					—	2.0				
4	28	1564.0	2.9	1561.1	✓					—	2.5				
5	29	1536.4	2.8	1533.6	X					50	2.5				
6	30	1506.2	2.8	1503.4	X					20	3.0				
7	31	1496.2	2.7	1493.5	✓					—	1.5				
8	32	1473.7	2.6	1471.1	✓					20	1.5				
9	33	1468.2	2.6	1465.6	✓					—	3.5				
10	34	1465.7	2.5	1463.2	✓					—	2.5				
11	35	1464.4	2.4	1462.0	✓					50	2.5				
12	36	1457.5	2.4	1455.1	✓					100	3.0				
13	37	1445.2	2.3	1442.9	X					20	3.0				
14	38	1414.6	2.3	1412.3	✓					20	3.0				
15	39	1364.4	2.2	1362.2	✓					20	4.0				
16	40	1338.2	2.1	1336.1	X					20	1.5				
17	41	1318.1	2.1	1316.0	✓					20	2.0				
18	42	1220.8	2.0	1218.8	X					20	2.5				
19	43	1096.8	1.9	1094.9	X					20	3.0				
20	44	1025.5	1.9	1023.6	✓					20	1.0				
21	45	983.8	1.8	982.0	✓					20	1.0				
22	46	849.0	1.7	847.3	X					—	2.0				
23	47	735.6	1.7	733.9	X					—					
24	48	449.2	1.6	447.6						50					
		24 ATTEMPTED									23 RECOVERED	23 SOLD			

NOTES: (A) DEPTH CORRECTIONS ASSUME TOOL IS ZEROED ON THE GAMMA RAY MEASURE POINT AND THE CORRELATION LOG IS RUN AT 5 M/MIN.
(B) ROCK TYPE AND POROSITY ESTIMATED FROM LOGS

APPENDIX 6

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APPENDIX 6

DRILL STEM TEST DATA

6A. DST-1

6B. DST-2

DIGBY-1

APPENDIX 6A

DST-1

DIGBY-1

GFE Resources Ltd

DST REPORT

Well: DIGBY-1	Permit: DIGBY JV	DST No.: ONE	Date: 22/ 5 / 95
Formation: Pretty Hill	Total Depth: 1467.9 mKB	Interval: 1460-1467.9mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

FLUID PROPERTIES		TIMES		NUMBER OF SAMPLES TAKEN	
SOURCE	RESISTIVITY	FIRST FLOW	5 mins.	GAS	-
MAKE-UP WATER		FIRST SHUT-IN	60 mins.	OIL	-
MUD		SECOND FLOW	180 mins.	WATER	11
RECOVERY		SECOND SHUT-IN	180 mins.	MUD	
Bottom sample	2.0 ohm m at 18.9°C	TOTAL FLOW	185 mins.	GAS SPECIFIC GRAVITY	-
Sample chamber	1.2 ohm m at 18.9°C			OIL GRAVITY (°API)	-
		FORM. TEMP.	82.2°C	MUD WEIGHT	9.5 ppg
		FORM. DEPTH	1463 m	MUD VISCOSITY (Sec./qt.)	50

DOWNHOLE PRESSURE DATA (psig)		
GAUGE POSITION	Outside	Inside
TYPE & SERIAL No.	Mech. 21149	Panex 1588
DEPTH (mKB)	1462.44	1451.92
INITIAL HYDROSTATIC	2361	2381
START FIRST FLOW	1642	954
END FIRST FLOW	N.A.	999
FIRST SHUT-IN	1959	2008
START SECOND FLOW	1295	1135
END SECOND FLOW	1857	1898
SECOND SHUT-IN	1934	1947
FINAL HYDROSTATIC	2361	2363

FIRST OPENING BLOW DESCRIPTION: Shut in at floor manifold.

SECOND OPENING BLOW DESCRIPTION: Shut in at floor manifold for 1 minute, then medium blow diminishing over duration of flow period.

SURFACE FLOW DATA — FINAL FLOW: Very weak blow (<1 psig)

BOTTOM CHOKE SIZE (inches):	MANIFOLD CHOKE SIZE & PRESSURE		ORIFICE PLATE SIZE & PRESSURE	FLOWING TIME (minutes)	FINAL FLOW PERIOD DATA TIME (mins.)	PRESSURE(psig)	
END FIRST FLOW	closed	0.5 psig	n/a	5 mins.	1	1.0	(closed)
FINAL FLOW - START	closed	1.0 psig	n/a	1 min.	5	3.0	(closed)
	¼"	3.5 psig	n/a	10 mins.	6	3.25	(¼"choke)
FINAL FLOW - MIDDLE	½"	1.0 psig	n/a	60 mins.	10	3.5	(¼"choke)
FINAL FLOW - END	½"	<1.0 psig	n/a	180 mins.	15	1.0	(½"choke)
RECOVERY: 54 bbls of formation water and slightly oil cut rathole mud.					30	1.0	(½"choke)
					90	<1.0	(½"choke)
REMARKS:					120	<1.0	(½"choke)
					180	<1.0	(½"choke)

GFE Resources Ltd

DST OPERATIONS SHEET

Well: DIGBY-1	Permit: DIGBY JV	DST No.: ONE	Date: 22/5/95
Formation: Pretty Hill	Total Depth: 1467.9 mKB	Interval: 1460 - 1467.9mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

TIME	EVENT	FLOOR MANIFOLD			PROVER		
		CHOKE (inches)	PRESSURE (psig)	TEMPERATURE (°C)	PLATE (inches)	PRESSURE (psig)	TEMPERATURE (°C)
1747	Open Tool	Shut-in at Floor Manifold					
1747 15	Initial Flow	0 psig (shut-in at floor manifold)					
1747 30	Initial Flow	0 psig (shut-in at floor manifold)					
1747 45	Initial Flow	0 psig (shut-in at floor manifold)					
1748	Initial Flow	0 psig (shut-in at floor manifold)					
1748 15	Initial Flow	0 psig (shut-in at floor manifold)					
1748 30	Initial Flow	0 psig (shut-in at floor manifold)					
1748 45	Initial Flow	0 psig (shut-in at floor manifold)					
1749	Initial Flow	0 psig (shut-in at floor manifold)					
1749 15	Initial Flow	0 psig (shut-in at floor manifold)					
1749 30	Initial Flow	0 psig (shut-in at floor manifold)					
1749 45	Initial Flow	0 psig (shut-in at floor manifold)					
1750	Initial Flow	0 psig (shut-in at floor manifold)					
1750 15	Initial Flow	0 psig (shut-in at floor manifold)					
1750 30	Initial Flow	0 psig (shut-in at floor manifold)					
1750 45	Initial Flow	0 psig (shut-in at floor manifold)					
1751	Initial Flow	0 psig (shut-in at floor manifold)					
1751 15	Initial Flow	0.5 psig (shut-in at floor manifold)					
1751 30	Initial Flow	0.5 psig (shut-in at floor manifold)					
1751 45	Initial Flow	0.5 psig (shut-in at floor manifold)					
1752	Shut Tool	1.0 psig (shut-in at floor manifold)					
1753	Initial Shut-In	1.5 psig (shut-in at floor manifold)					
1754	Initial Shut-In	1.5 psig (shut-in at floor manifold)					
1755	Initial Shut-In	1.5 psig (shut-in at floor manifold)					
1756	Initial Shut-In	1.5 psig (shut-in at floor manifold)					

GFE Resources Ltd

DST OPERATIONS SHEET

Well: DIGBY-1	Permit: DIGBY JV	DST No.: ONE	Date: 22/5/95
Formation: Pretty Hill	Total Depth: 1467.9 mKB	Interval: 1460-1467.9mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

TIME	EVENT	FLOOR MANIFOLD			PROVER		
		CHOKE (inches)	PRESSURE (psig)	TEMPERATURE (°C)	PLATE (inches)	PRESSURE (psig)	TEMPERATURE (°C)
1757	Initial Shut-In	1.5 psig Open manifold to bubble hose. Strong blow.					
1850	Initial Shut-In	Open manifold to flare-line to blow down.					
1851	Open Tool	Shut-In at floor manifold					
1852	Final Flow	1.0 psig Shut-In at Floor Manifold					
1853	Final Flow	1 psig Shut-In at Floor Manifold					
1854	Final Flow	2 psig Shut-In at Floor Manifold					
1855	Final Flow	2.5 psig Shut-In at Floor Manifold					
1856	Final Flow	3.0 psig Shut-In at Floor Manifold					
1857	Final Flow	3.25 psig Open to ¼" choke					
1858	Final Flow	3.0 psig Open to ¼" choke					
1859	Final Flow	3.5 psig Open to ¼" choke					
1900	Final Flow	3.5 psig Open to ¼" choke					
1901	Final Flow	3.5 psig Open to ¼" choke					
1903	Final Flow	1.75 psig Open Manifold to flare-line					
1906	Final Flow	1.0 psig Open to ½" choke					
1911	Final Flow	1.0 psig Open to ½" choke					
1916	Final Flow	1.0 psig Medium blow, weakening - elevate hose to monitor strength of blow					
1921	Final Flow	1.0 psig					
1926	Final Flow	1.0 psig Weakening blow ½" choke					
1931	Final Flow	1.0 psig Weakening blow ½" choke					
1936	Final Flow	1.0 psig Weakening blow ½" choke					
1941	Final Flow	1.0 psig Weakening blow ½" choke					
1946	Final Flow	1.0 psig Weakening blow ½" choke					
1951	Final Flow	1.0 psig Weakening blow ½" choke					
2006	Final Flow	1.0 psig Weakening blow ½" choke					

GFE Resources Ltd

DST OPERATIONS SHEET

Well: DIGBY-1	Permit: DIGBY JV	DST No.: ONE	Date: 22/5/95
Formation: Pretty Hill	Total Depth: 1467.9 mKB	Interval: 1460-1467.9mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

TIME	EVENT	FLOOR MANIFOLD CHOKE (inches)	FLOOR MANIFOLD PRESSURE (psig)	FLOOR MANIFOLD TEMPERATURE (°C)	PROVER PLATE (inches)	PROVER PRESSURE (psig)	PROVER TEMPERATURE (°C)
2016	Final Flow	1.0 psig Blow weakening - elevate hose to monitor strength of blow					
2021	Final Flow	<1.0 psig					
2036	Final Flow	<1.0 psig Bubbles stopped - elevate hose to monitor strength of blow					
2051	Final Flow	<1.0 psig					
2106	Final Flow	<1.0 psig Weakening blow ½" choke					
2121	Final Flow	<1.0 psig Weakening blow ½" choke					
2136	Final Flow	<1.0 psig Weakening blow ½" choke					
2151	Final Flow	<1.0 psig Very veak blow from just below water surface in bubble bucket					

amdel

AMDEL LABORATORIES LTD
(ACN 009 076 555)

RECEIVED
2864

508 City Road
South Melbourne Vic. 3205
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Facsimile: (03) 9699 9695

kL

DATE: 26 May 1995

REPORT NUMBER: M952620
Your Reference: 4116

CLIENT: **GFE Resources**
Level 6, 6 Riverside Quay,
SOUTH MELBOURNE, VICTORIA, 3070.

Attention: Mr K Lanigan

SAMPLING: One water sample was received for analysis.

DATE RECEIVED: 24 May 1995

DATE COMMENCED: 26 May 1995

PARAMETER	**METHOD**
1. Water analysis	WA-10-01
2. Conductivity	WA-11-08

RESULTS:
All samples were analysed as received.
Please refer to attached page(s) for results.

Report by:

S R-dell

Stephen Rasdell
Chemist

Authorised by:

J.F. Leed

Mr John F Leeder
Manger - Environmental Services

amdel

DIGBY-1 DST #1
sample chamber

Water Analysis Report   Job No. M952620   Method WAT 2
Page 1

Sample ID. WATER SAMPLE

Chemical Composition		mg/L	me/L
Cations			
Calcium	(Ca)	2800.0	139.72
Magnesium	(Mg)	64.0	5.27
Sodium	(Na)	9500.0	413.22
Potassium	(K)	440.0	11.25
Anions			
Hydroxide	(OH)		
Carbonate	(CO3)		
Bi-Carbonate	(HCO3	88.5	1.45
Sulphate	(SO4)	32.0	0.67
Chloride	(Cl)	20966	590.59
Nitrate	(NO3)	<0.1	

Other Analyses :

Reaction - pH	6.5
Conductivity (E.C) (micro -S/cm at 25°C)	45900
Resistivity Ohm.M at 25°C	0.22

Derived Data	mg/L
Total Dissolved Solids	
A. Based on E.C.	29376
B. Calculated (HCO3=CO3)	33846
Total Hardness	7255
Carbonate Hardness	71
Non-Carbonate Hardness	7184
Total Alkalinity	71
(Each as CaCO3)	

Totals and Balance

Cations (me/L)	569.5	Diff=	23.24
Anions (me/L)	592.7	Sum =	1162.2

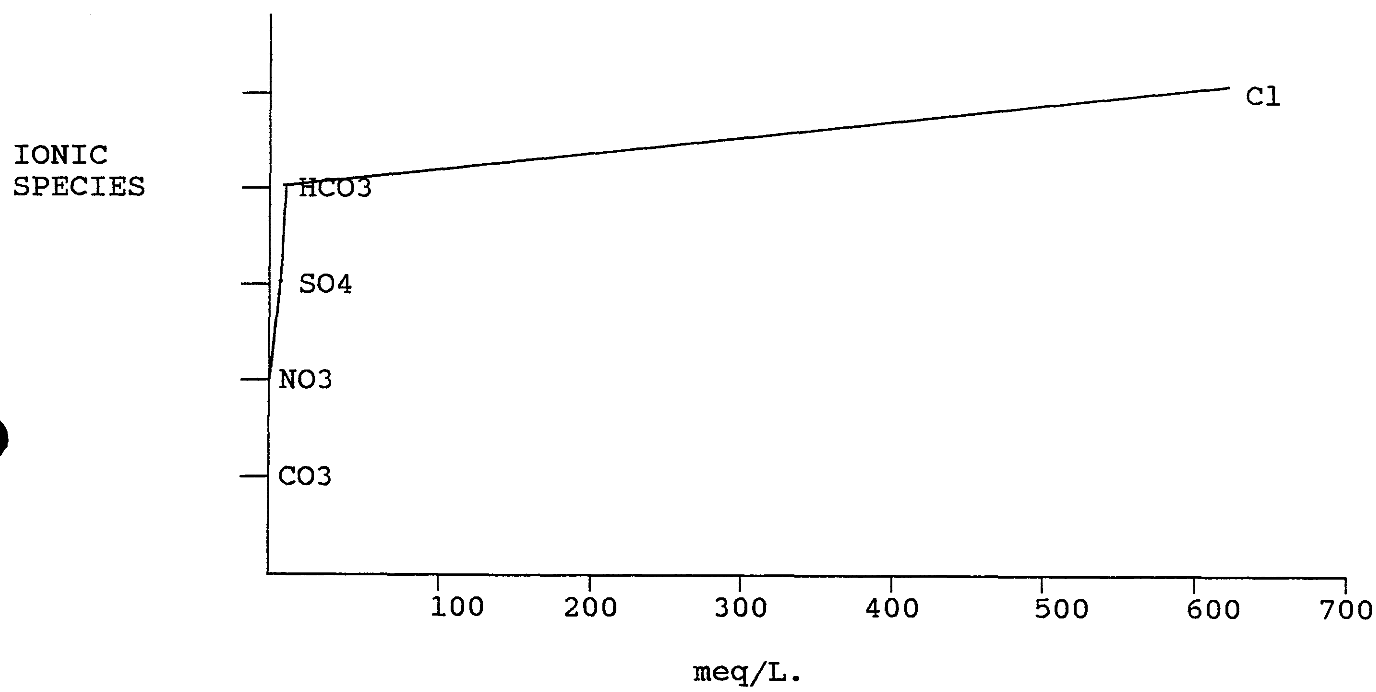
ION BALANCE (Diff*100/Sum) = 2.00%

Sodium / Total Cation Ratio 72.6%

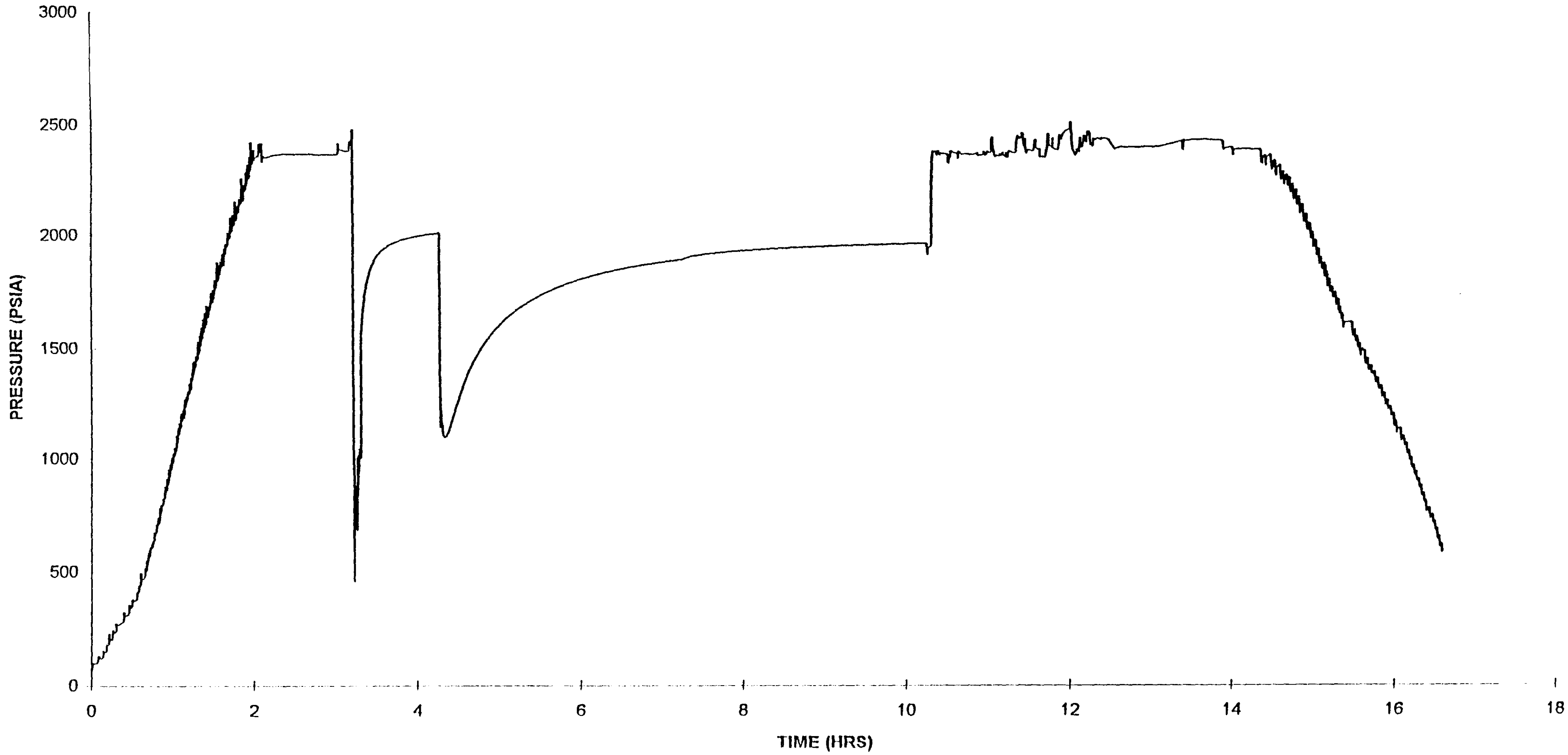
mg/L = Milligrams per litre
me/L = MilliEqivs.per litre

STIFF DIAGRAM

JOB No.M952620
SAMPLE ID. WATER SAMPLE
PAGE 2



DIGBY NO. 1 DST NO. 1 1460-1467.9 mKB
PANEX GAUGE @ 1451.92 mKB



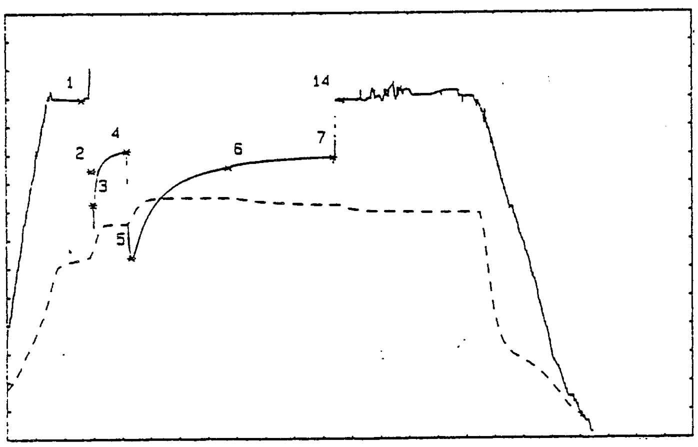
ORIGINAL

G.F.E. RESOURCES
DST #: 1
DIGBY # 1
4790.2 ft - 4816.1 ft

Location: PEP134 & PEP126
Test Type: DUAL CONVENTIONAL BOTTOM HOLE
Formation: PRETTY HILLS

Recorder Number: 1783
Recorder Depth: 4798 ft

Test Date: 22/05/95



	PRESSURE psia
1)Initial Hydrostatic:	2383.7
2)Start of 1st Flow :	1885.0
3)End of 1st Flow :	1648.7
4)End of 1st Shut-in :	2025.0
5)Start of 2nd Flow :	1273.7
6)End of 2nd Flow :	1906.2
7)End of 2nd Shut-in :	1980.0
14)Final Hydrostatic :	2382.5

TEST TIMES (MIN)		
1st	FLOW :	3.00
	SHUTIN:	59.00
2nd	FLOW :	171.00
	SHUTIN:	181.00

BLOW DESCRIPTION:

PRE-FLOW: - THE TOOL WAS OPENED AT 17:47 HRS WITH A CLOSED CHOKE. AFTER 4 MINS 1 PSIG ON SURFACE GAUGE. CLOSED TOOL AT 17:53. OPENED CHOKE DURING SHUT-IN.
FINAL FLOW: - THE TOOL WAS RE-OPENED AT 18:53 HRS WITH A STRONG AIR BLOW AND CLOSED CHOKES. A 0.25 INCH CHOKE WAS OPENED AFTER 6 MINS (3 PSIG) AFTER A FURTHER 6 MINS OPENED TO A 0.5 INCH CHOKE (1.75 PSIG). THE BLOW DECREASED TO WEAK. TOOL WAS CLOSED AT 21:53 HRS. (TIMES ARE TAKEN FROM THE CHART ENVELOPE).

LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 50 BBLS OF FORMATION WATER.
THE RECOVERY DATA WAS OBTAINED DURING REVERSE CIRCULATION.
THE DOWNHOLE SAMPLER CONTAINED WATER. THE SAMPLE VENTED ON RIG FLOOR.

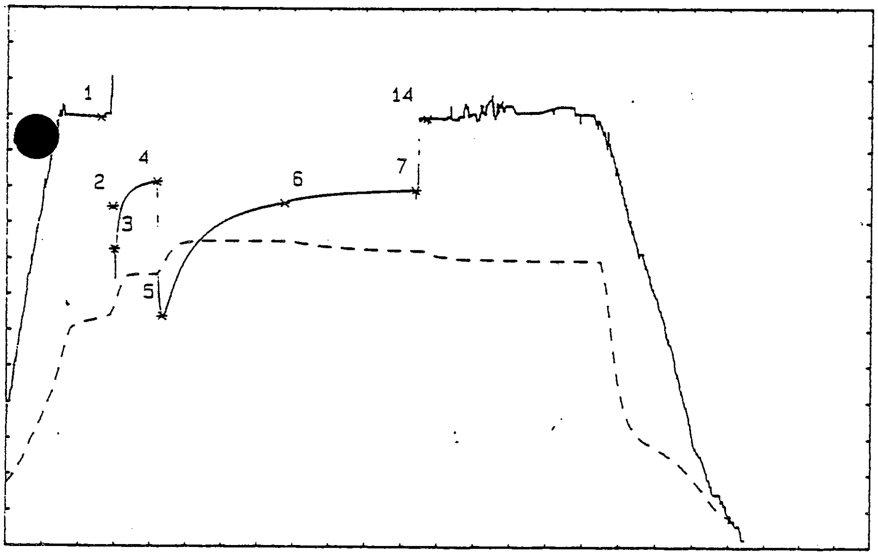
REMARKS AND TEST SUMMARY:

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 PANEX GAUGE WAS RUN AT DIFFERENT INTERVALS AS REQUESTED BY G.F.E. THEREFORE NO PLOTS FOR THIS GAUGE ARE INCLUDED. THE DMR AND PANEX TIMES DIFFER SLIGHTLY. THE PACKER SETTING DEPTHS WERE CALCULATED USING THE DRILLER'S TALLY.

G.F.E. RESOURCES
DST #: 1
DIGBY # 1
4790.2 ft - 4816.1 ft

PRESSURE RECORDER NUMBER: 1783
-------- -------- ------

DEPTH : 4798.10 ft   LOCATION : OUTSIDE
TYPE : DMR   CAPACITY : 5000.00 psia
***** TEMPERATURE AT RECORDER DEPTH = 184.0 F



	PRESSURE psia
1)Initial Hydrostatic:	2383.7
2)Start of 1st Flow :	1885.0
3)End of 1st Flow :	1648.7
4)End of 1st Shut-in :	2025.0
5)Start of 2nd Flow :	1273.7
6)End of 2nd Flow :	1906.2
7)End of 2nd Shut-in :	1980.0
14)Final Hydrostatic :	2382.5

TEST TIMES (MIN)

1st	FLOW :	3.00
	SHUTIN:	59.00
2nd	FLOW :	171.00
	SHUTIN:	181.00

PRESSURE RECORDER NUMBER: 1588
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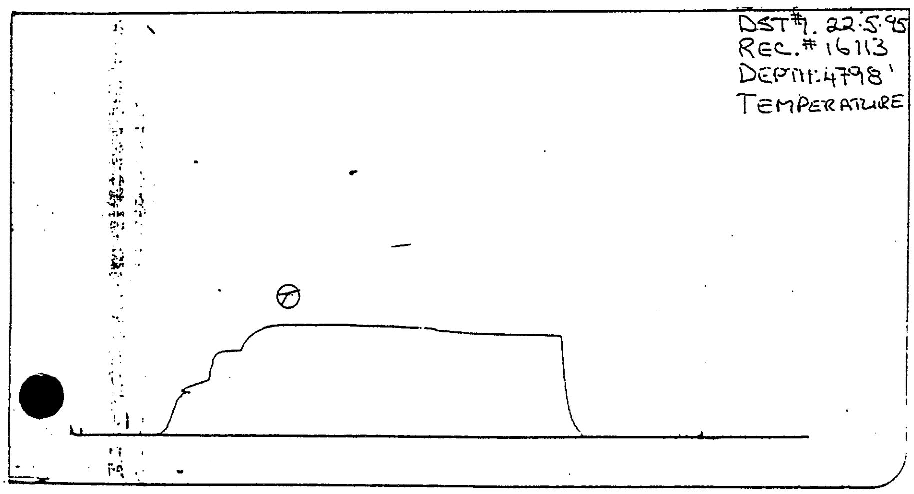
DEPTH : 4763.60 ft   LOCATION : INSIDE
TYPE : PANEX   CAPACITY : 10000.00 psig
***** TEMPERATURE AT RECORDER DEPTH = 186.0 F



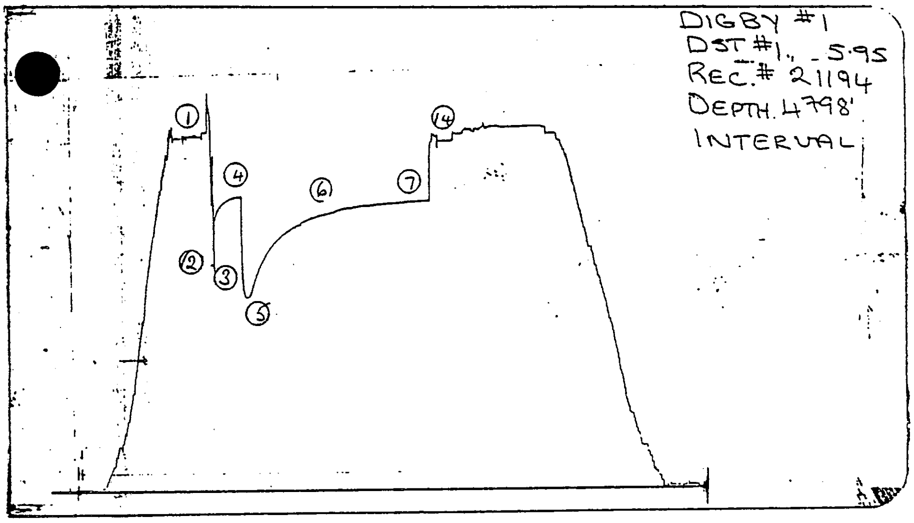
	PRESSURE psia
1)Initial Hydrostatic:	2381.0
2)Start of 1st Flow :	954.0
3)End of 1st Flow :	999.0
4)End of 1st Shut-in :	2008.0
5)Start of 2nd Flow :	1135.0
6)End of 2nd Flow :	1898.0
7)End of 2nd Shut-in :	1947.0
14)Final Hydrostatic :	2363.0

G.F.E. RESOURCES
DST #: 1
DIGBY # 1
4790.2 ft - 4816.1 ft

PRESSURE RECORDER NUMBER: 21149

DEPTH : 4798.10 ft LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 3000.00 psig

	PRESSURE psia
1)Initial Hydrostatic:	2372.1
2)Start of 1st Flow :	1641.2
3)End of 1st Flow :	1641.2
4)End of 1st Shut-in :	1971.7
5)Start of 2nd Flow :	1300.2
6)End of 2nd Flow :	1861.3
7)End of 2nd Shut-in :	1929.9
14)Final Hydrostatic :	2370.7

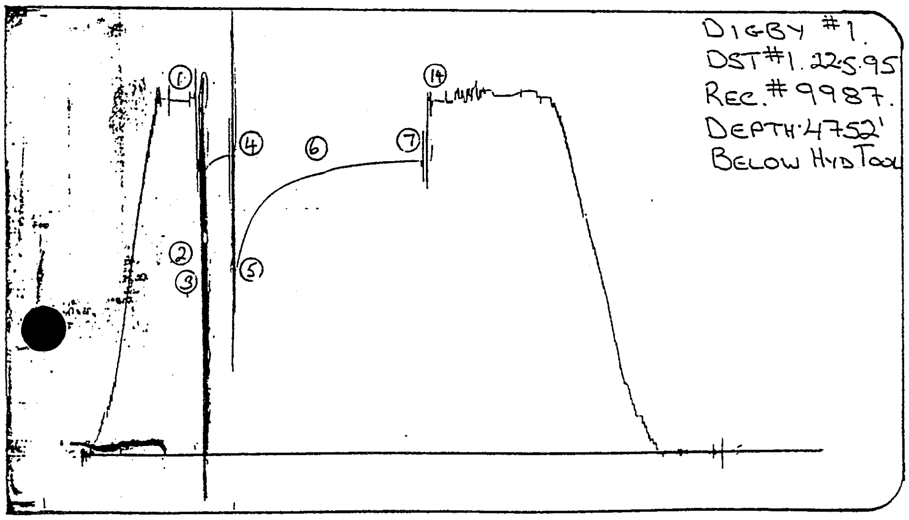


TEST TIMES (MIN)	
1st FLOW :	3.00
SHUTIN:	59.00
2nd FLOW :	171.00
SHUTIN:	181.00

PRESSURE RECORDER NUMBER: 9987

DEPTH : 4752.80 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 3000.00 psig

	PRESSURE psia
1)Initial Hydrostatic:	2356.8
2)Start of 1st Flow :	1531.2
3)End of 1st Flow :	1533.1
4)End of 1st Shut-in :	1996.9
5)Start of 2nd Flow :	1217.0
6)End of 2nd Flow :	1884.2
7)End of 2nd Shut-in :	1955.9
14)Final Hydrostatic :	2357.8

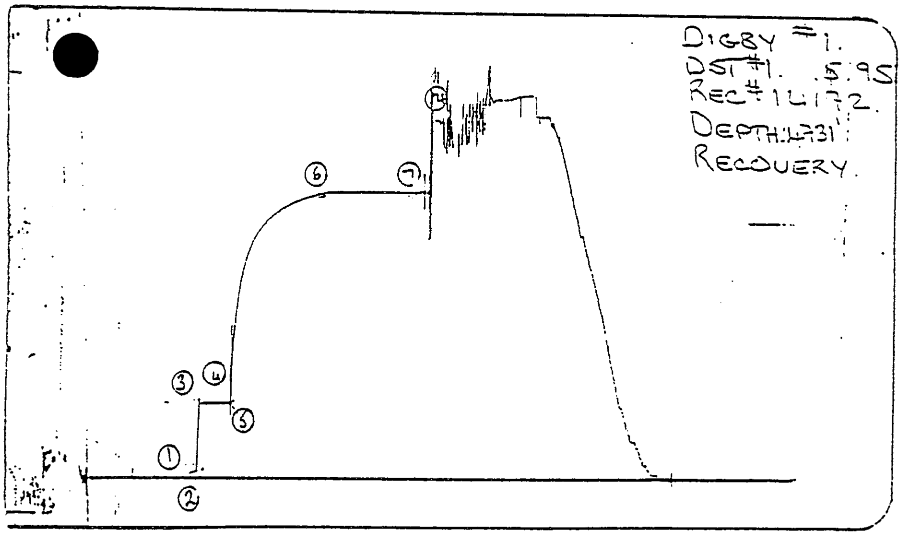


G.F.E. RESOURCES

DST #: 1
DIGBY # 1
4790.2 ft - 4816.1 ft

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4731.20 ft   LOCATION : INSIDE
TYPE : K-3   CAPACITY : 3000.00 psig



	PRESSURE psia
1) Initial Hydrostatic:	14.7
2) Start of 1st Flow :	14.7
3) End of 1st Flow :	485.6
4) End of 1st Shut-in :	485.6
5) Start of 2nd Flow :	485.6
6) End of 2nd Flow :	1862.3
7) End of 2nd Shut-in :	1867.8
14) Final Hydrostatic :	2332.7

TEST TIMES (MIN)

1st	FLOW :	3.00
	SHUTIN:	59.00
2nd	FLOW :	171.00
	SHUTIN:	181.00

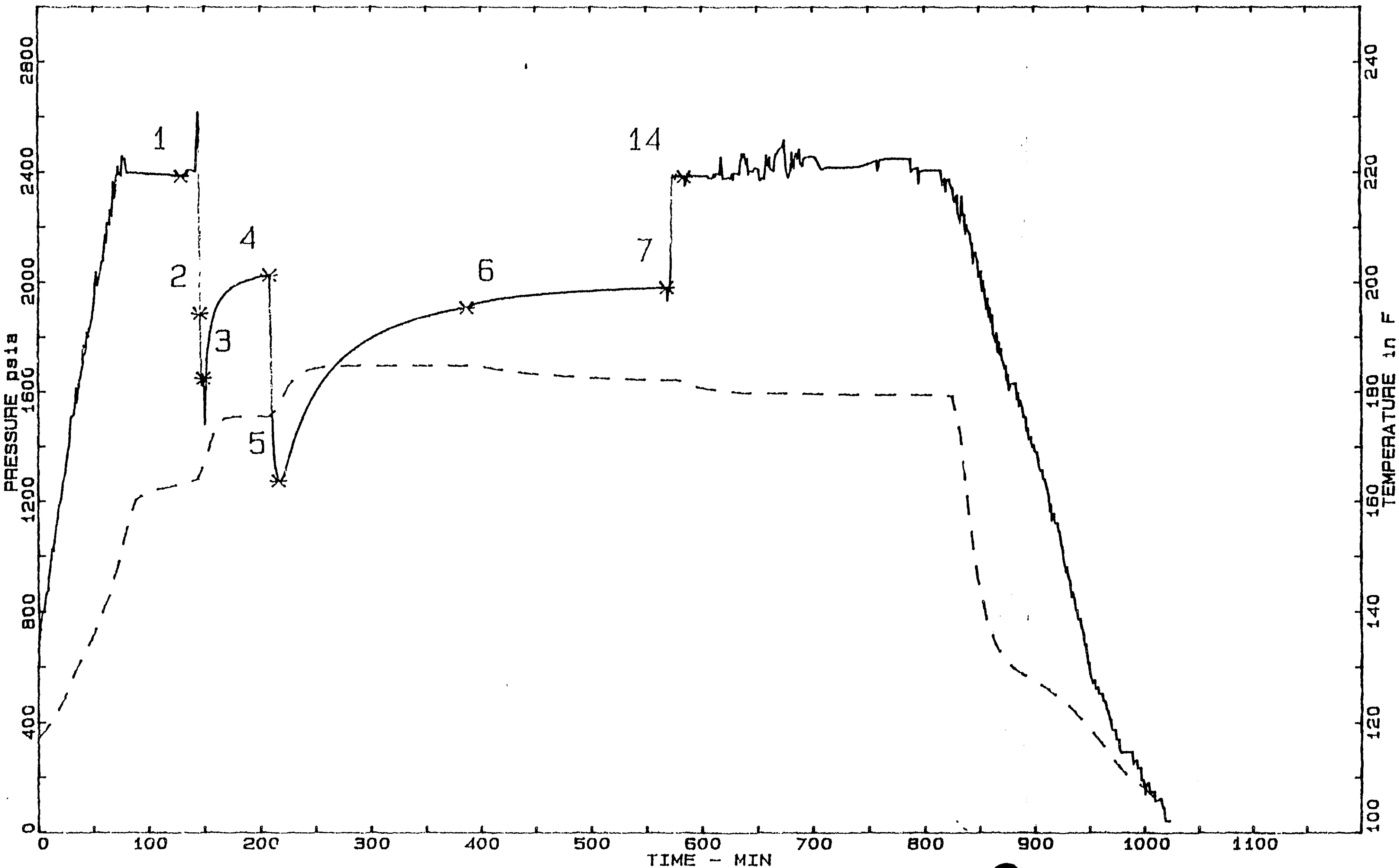
G.F.E. RESOURCES

WELL NAME: DIGBY # 1
LOCATION: PEP134 & PEP126
DST #: 1

PRESSURE :
TEMPERATURE: — — — — —

RECORDER: 1783

LEGEND: * 1 = 2383 psia
2 1885
3 1648
4 2025
5 1273
6 1900
7 1980
14 2382

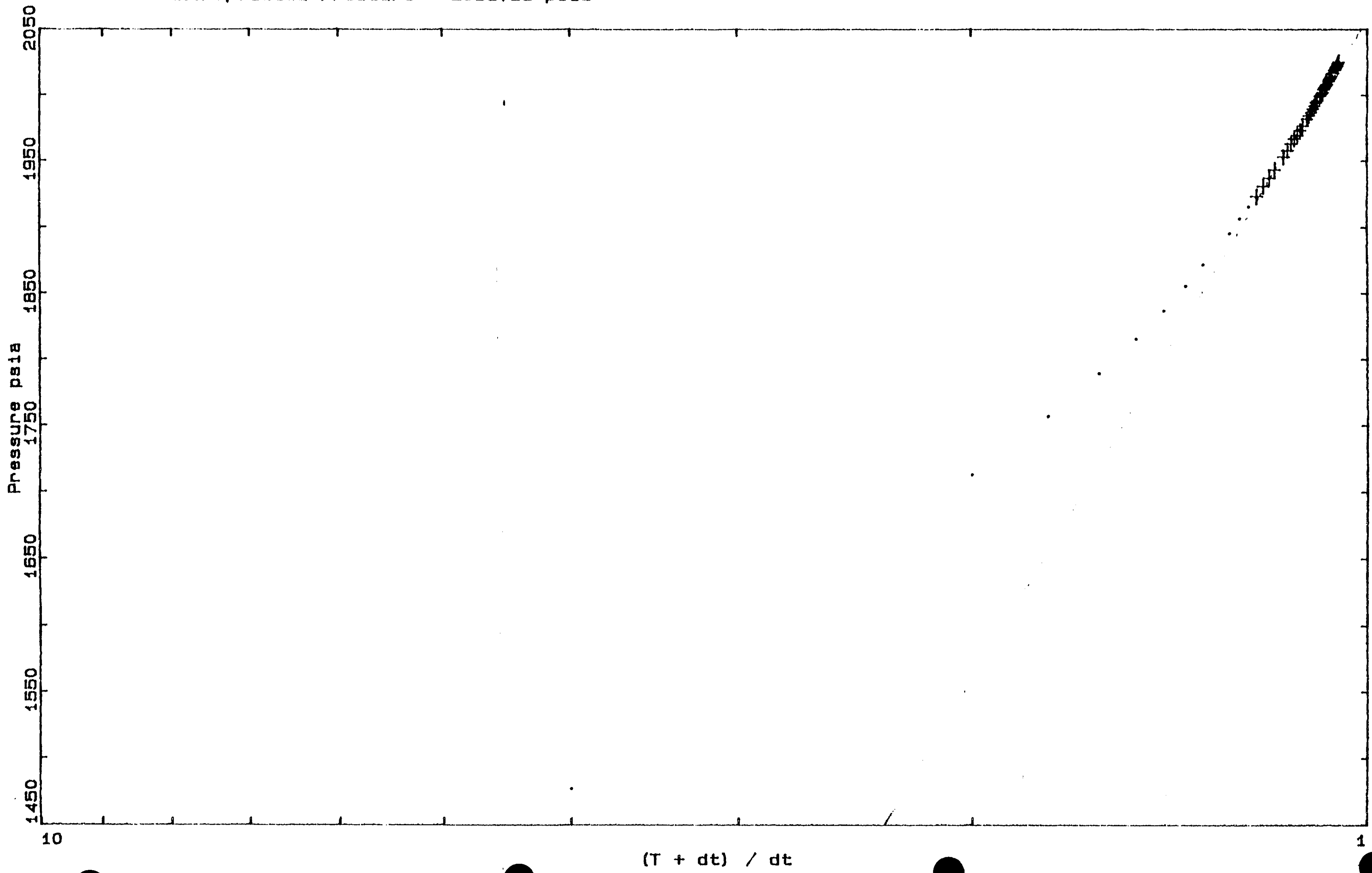


G.F.E. RESOURCES

SHUT-IN #1

WELL NAME: DIGBY # 1
LOCATION: PEP134 & PEP126
DST #: 1
Slope = 1653.84 psia / cycle
Extrapolated Pressure = 2058.58 psia

RECORDER: 1783



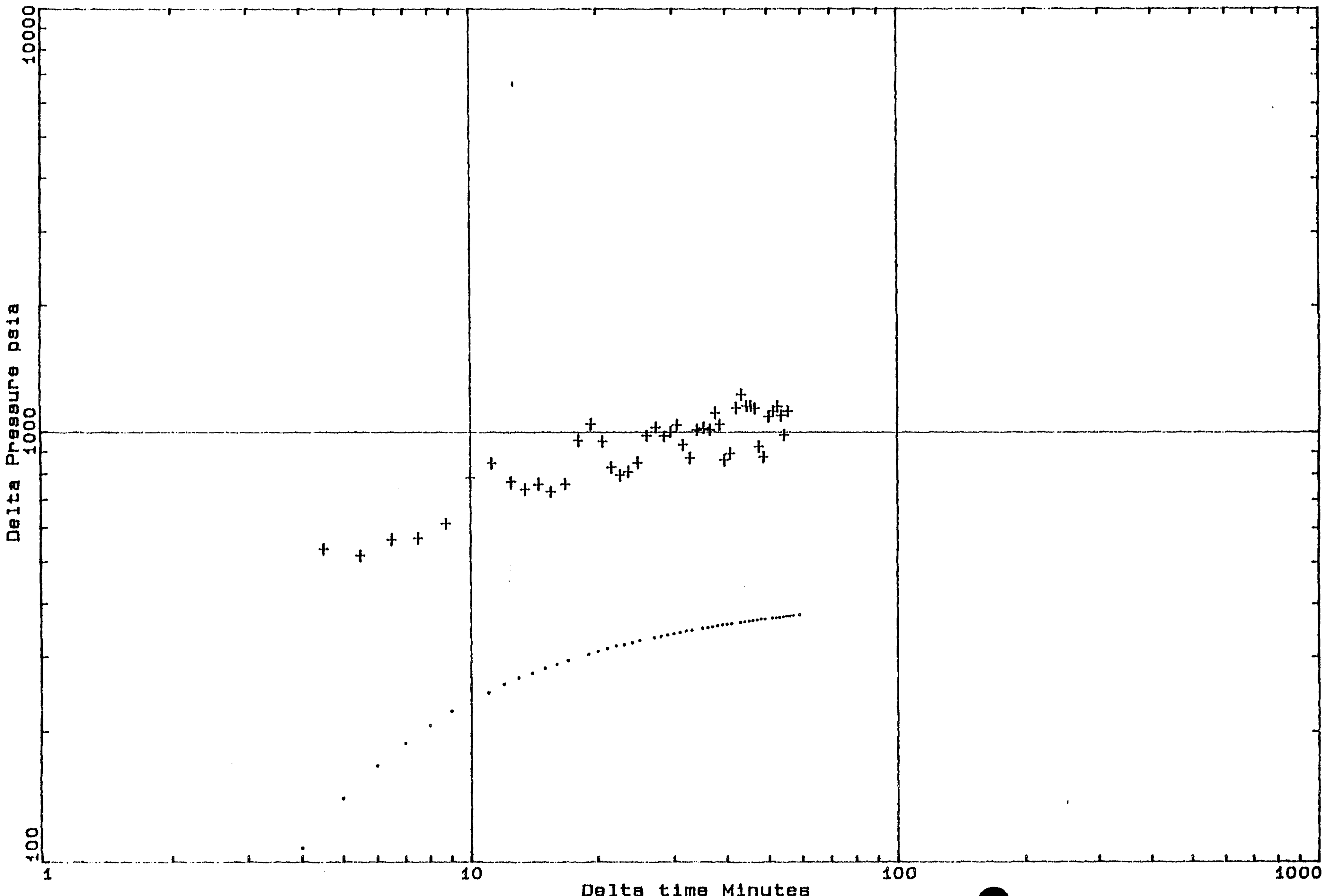
G.F.E. RESOURCES

SHUT-IN #1 (Liquid)

WELL NAME: DIGBY # 1
LOCATION: PEP134 & PEP126
DST #: 1

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT

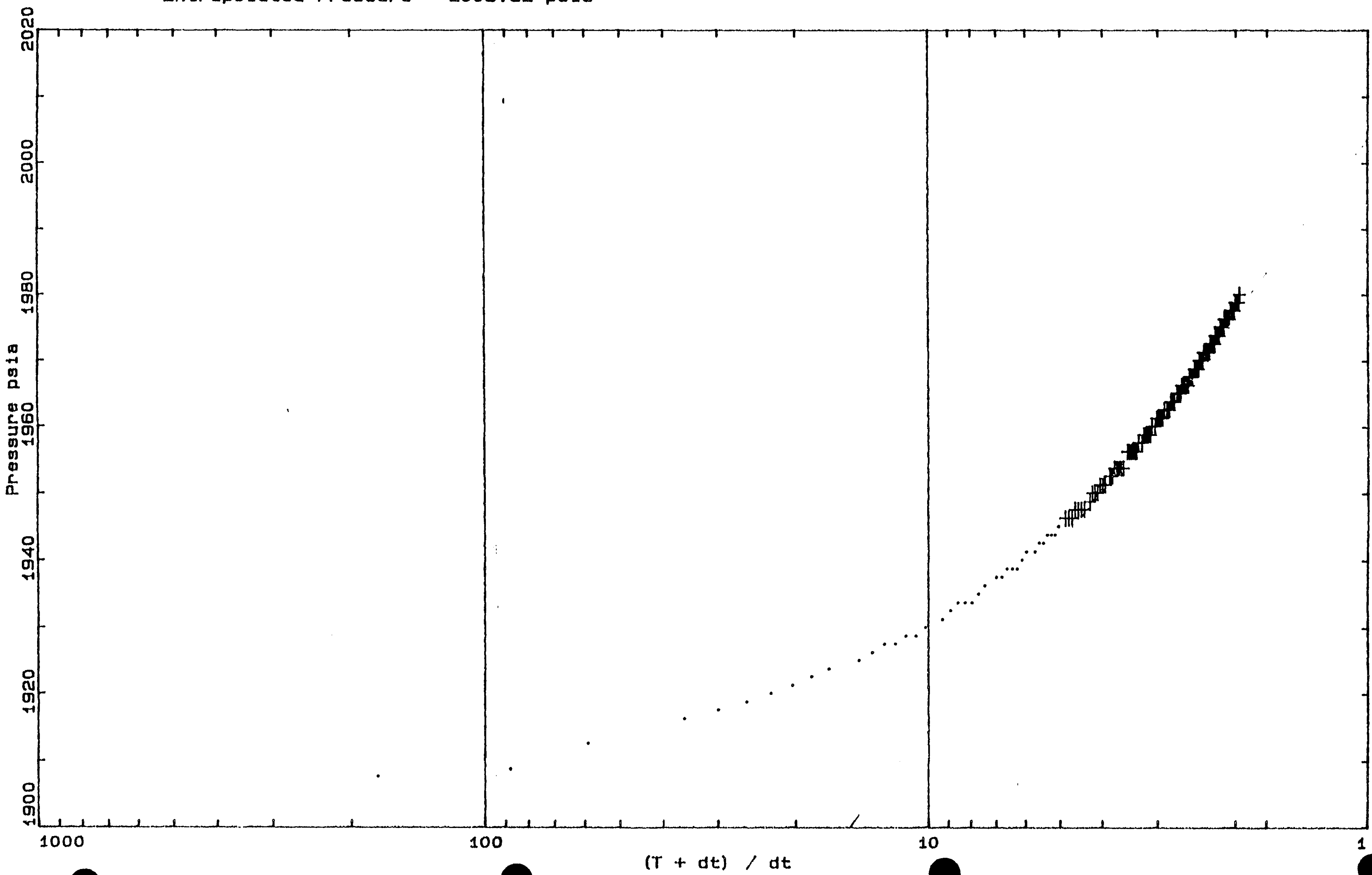


G.F.E. RESOURCES

SHUT-IN #2

WELL NAME: DIGBY # 1
LOCATION: PEP134 & PEP126
DST #: 1
Slope = 88.12 psia / cycle
Extrapolated Pressure = 2003.82 psia

RECORDER: 1783



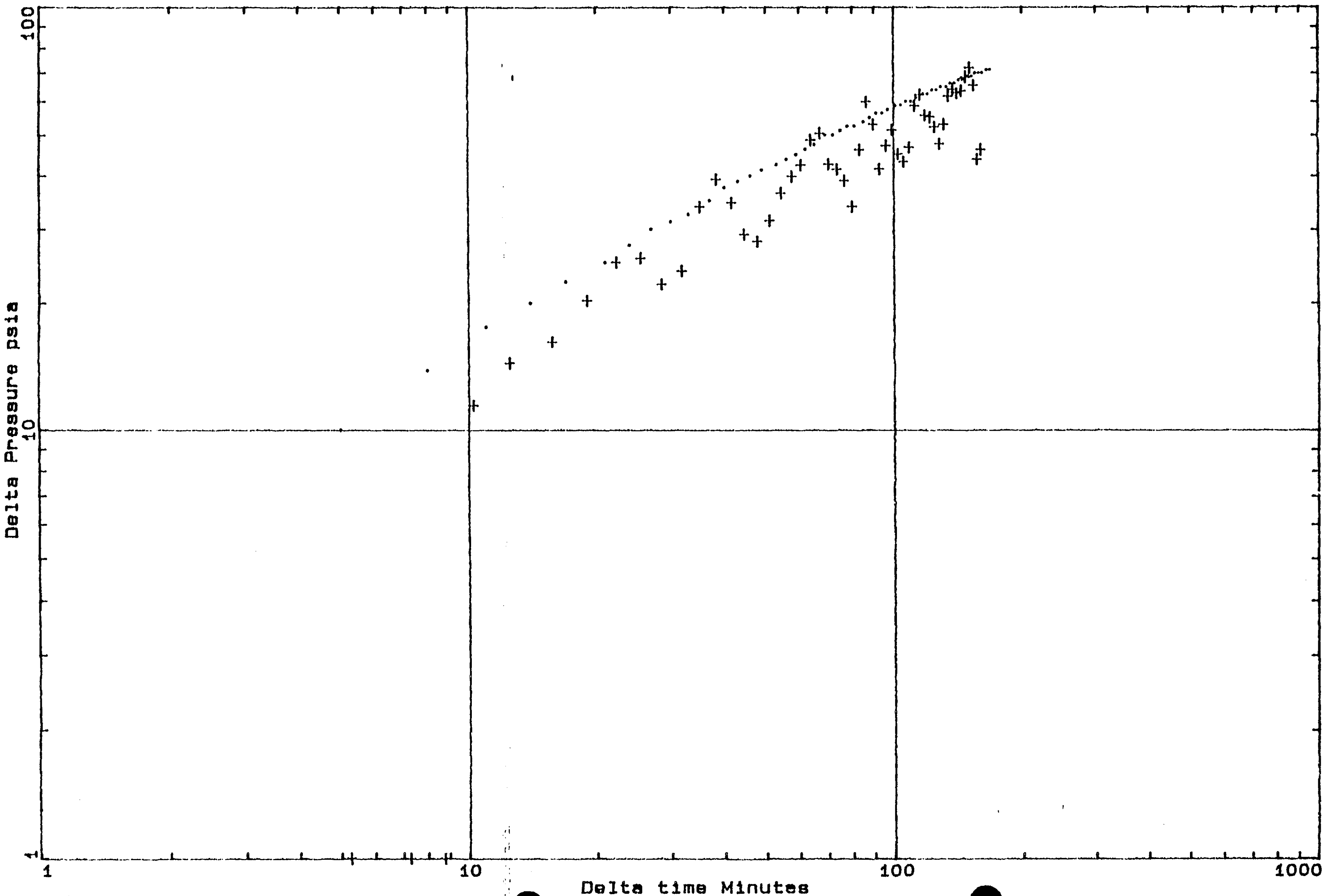
G.F.E. RESOURCES

SHUT-IN #2 (Liquid)

WELL NAME: DIGBY # 1
LOCATION: PEP134 & PEP126
DST #: 1

RECORDER: 1783

TYPE CURVE AND PRESSURE DERIVATIVE PLOT



BAKER OIL TOOLS
A Baker Hughes company

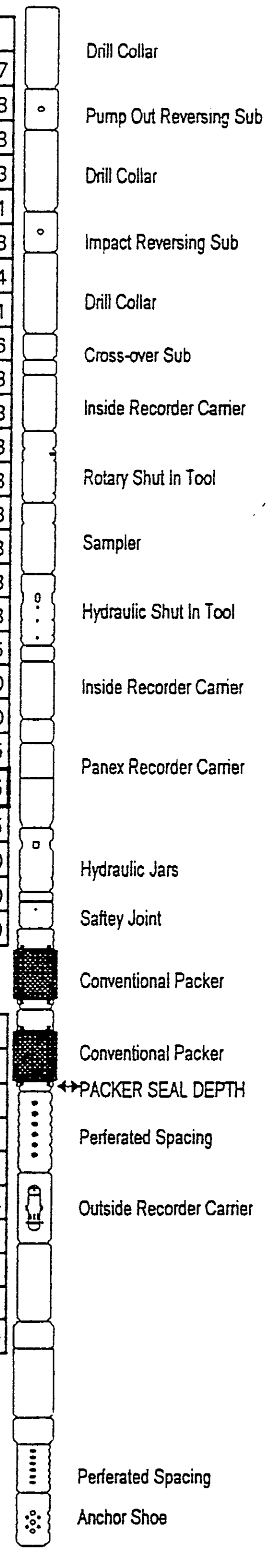
TEST TOOL & PIPE RECORD				
Well Name & No.	Digby # 1			
Date	22/05/95			
Ticket No.	1021			
Interval Tested	From:	4790	To:	4816
Total Depth.	4816	Total Interval		26
Test No.	One			

DESCRIPTION	I.D. No.	I.D.	O.D	Length	Depth
Stick Up					-14.67
Drill Pipe				4023.35	4008.68
Pup Joint				4.60	4013.28
Hevi-wate Drill Pipe				180.75	4194.03
Drill Collars				468.38	4662.41
Pump Out Reversing Sub	832	3 1/16	6 9/32	1.37	4663.78
Drill Collars				31.56	4695.34
Impact Reversing Sub	833	2 7/8	6 .	1.37	4696.71
Drill Collars				29.15	4725.86
Cross Over Sub	857	2 17/32	6 1/8	0.87	4726.73
Inside Recorder Carrier	911		4 7/8	4.50	4731.23
Rotary Shut In Tool	353		5	8.45	4739.68
Positive Control Sampler	405		5	3.40	4743.08
Hydraulic Shut in Valve	304		4 7/8	4.90	4747.98
Inside Recorder Carrier	912		4 7/8	4.50	4752.48
Panex Recorder				11.00	4763.48
Hydraulic Jars	202		5	6.60	4770.08
Safety Joint	931	2 7/16	4 3/4	2.27	4772.35
Packer Stick Up			5	8.25	4780.60
Packer Stick Down			5	1.20	4781.80
Packer Stick UP			5 5/8	8.25	4790.05
Packer Seal Depth					4790.05
Packer Stick Down				1.20	4791.25
Outside Recorder Carrier				6.75	4798.00
Perforated Spacing				15.00	4813.00
Anchor Shoe (Total Depth)	970		4 3/4	3.00	4816.00

Pipe Tally	Length	Description	Depth
Below Packer Seal	25.95		
Jars etc	0.00		
Drill Pipe	4023.35		
Pup Joint	4.60	P.O.S.	4662.41
Hevi-wate Pipe	180.75	D.B.S.	4695.34
Drill Collars Above Interval	529.09	Rec. Recorder	4731.23
Tools above Interval	66.93	Inside Recorder	4752.48
TOTAL STRING	4830.67	Panex Recorder	4763.48
TOTAL DEPTH	4816.00	Outside Recorder	4798.00
Top Single Above Table	14.67		

Service Engineer Grant Foyster

Oil Co. Rep. Ken Smith



BAKER OIL TOOLS

A Baker Hughes company

TEST TOOL & PIPE RECORD				
Well Name& No.	Digby # 1			
Date	22/05/95			
Ticket No.	1021			
Interval Tested	From:	4790	To:	4816
Total Depth.	4816			
Test No.	One			

Drill Collars		Drill Collars		Hevi-wate Pipe		Drill Pipe		Drill Pipe	
Joint	Length	Joint	Length	Joint	Length	Stand	Length	Stand	Length
1	29.15	11	27.82	1	180.75	1		11	
2	31.56	12	30.27	2		2		12	
3	29.26	13	29.83	3		3		13	
4	30.53	14	28.17	4		4		14	
5	30.62	15	28.25	5		5		15	
6	29.61	16	28.17	6		6		16	
7	31.23	17	29.85	7		7		17	
8	28.37	18	28.00	8		8		18	
9	30.28	19		9		9		19	
10	28.12	20		10		10		20	
1st Total	298.73	2nd Total	230.36	3rd Total	180.75	4th Total	0.00	5th Total	0.00

Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe	
Stand	Length	Stand	Length	Stand	Length	Stand	Length	Stand	Length
21		31		41		51		61	
22		32		42		52		62	
23		33		43		53		63	
24		34		44		54		64	
25		35		45		55		65	
26		36		46		56		66	
27		37		47		57		67	
28		38		48		58		68	
29		39		49		59		69	
30		40		50		60		70	
6th Total	0.00	7th Total	0.00	8th Total	0.00	9th Total	0.00	10th Total	0.00

Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe	
Stand	Length	Stand	Length	Stand	Length	Stand	Length	Stand	Length
71		81		91		101		111	
72		82		92		102		112	
73		83		93		103		113	
74		84		94		104		114	
75		85		95		105		115	
76		86		96		106		116	
77		87		97		107		117	
78		88		98		108		118	
79		89		99		109		119	
80		90		100		110		120	
11th Total	0.00	12th Total	0.00	13th Total	0.00	14th Total	0.00	15th Total	0.00

Before Test In Derrick			Total
Drill Collars			18
Drill Pipe			128
While Testing	In	Out	Total
Drill Collars	18	-	18
Drill Pipe	128		128

D.C. in the Interval	
No.	Length
Total	0.00

Drill Clrs	No.	Length
Interval		0.00
Blw DBS		29.15
Blw POS		31.56
Abv POS		468.38
Abv Jars		
Abv Intvl		**529.09**
Total		529.09

Conventional Pipe Tally	Length
Jars	
Pup Joint, etc.	4.60
Below Bottom Packer Seal	25.95
Between Packer Seals	
Tool Above Packer Seal	66.93
Drill Collars Above Packer Seal	529.09
Hevi-wate Pipe Above Packer Seal	180.75
Drill Pipe Above Packer Seal	4023.35
Total String	4830.67
Total Depth	4816.00
Top Single Above Table	**14.67**

Inflate Pipe Tally	Length
Jars, etc.	
Pup Joint	
Tool Above Interval	
Drill Collars Above Interval	
Hevi-wate Pipe Above Interval	
Drill Pipe Above Interval	
Total Strings Above Interval	
Top Of Interval	
Top Single Above Table	

TEST DATA

TEST No. ONE LUS. TEST No. ONE

FORMATION TESTED Pretty Hills T.D. 8614' / 1467.9m

INTERVAL TESTED: From 4790' (1460 m) to 1467.9 m 4816'

TOTAL INTERVAL TESTED 26' 7.9m NET PAY 5 m

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 @ 14:30 HRS. OPENED TOOL 17:47 HRS.

TEST TIMES:

PRE-FLOW 5 MIN. INITIAL SHUT-IN 60 MIN.

SECOND FLOW ..... MIN. 2nd SHUT-IN ..... MIN.

FINAL FLOW 180 MIN. FINAL SHUT-IN 180 MIN.

PRE-FLOW BLOW DESCRIPTION: T.O @ 17:47 w/ CHOKES CLOSED. AFTER 4 MINUTES 1 PSI ON SURFACE GAUGE. C.T @ 17:53 w/ 1PSI CHOKES OPENED DURING SHUT IN.

FINAL FLOW BLOW DESCRIPTION: T.O @ 18:53 w/ S.A.B. w/ CHOKES CLOSED. OPENED TO 1/4" AFTER 6 MIN. W/ 3 PSI. 12 MINS. OPEN TO 1/2" W/ 1.75 PSI. BLOW DECREASED TO WEAK. C.T @ 21:53

GAS MEASUREMENTS

MEASURED WITH:

CRITICAL FLOW PROVER ☐

ORIFICE WELL TESTER ☐

RISER SIZE: .... SIDE STATIC ☐

PITOT TUBE ☐

OTHER

TIME	SURFACE CHOKE	READING	
17:47	CLOSED	0 PSI T.O.	
17:51	"	1 PSI	
17:53	"	1 PSI T.C.	
18:53	"	0 " T.O.	
18:59	1/4"	3 PSI	
19:05	1/2"	1.75 PSI	
19:30	1/2"	M.A.B.	
20:00		W.A.B	
21:00		"	
21:53		" T.C.	

GENERAL INFORMATION

COMPANY GFE RESOURCES

ADDRESS LEVEL 6, 6 RIVERSIDE QUAY, SOUTH MELBOURNE. VICT. 3205

WELL NAME DIGBY #1

LOCATION PEP 134 & PEP 126

K.B. 143.7 m. GROUND ELEV. 138 m.

AREA OTWAY BASIN PROVINCE VICTORIA

COMPANY REP. KEN SMITH

TESTER: GRANT FOYSTER

UNIT # SKID BOX PUMP No.: –

CONTRACTOR CENTURY DRILLING RIG No.: 11

TICKET No. 1021 DATE: Yr. 95 Mo. 5 Day 22

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 KCL PHPA POLYMER

WEIGHT 9.5 VISCOSITY 54 WATER LOSS 5.4

FILTER CAKE 1/32 LOG TEMPERATURE –

DRILL PIPE SIZE: O.D. 4 1/2" I.D. 3.826" WEIGHT 16.62 lb/FT

DRILL COLLARS: O.D. 6 1/4" I.D. 2 7/8" RUN 529.05'

MAIN HOLE OR CASING SIZE 8 1/2"

RATHOLE OR LINER SIZE – No. OF

BOTTOM HOLE OR CHOKE SIZE PERFORATED PIPE

SURFACE CHOKE SIZE 1/2"

PACKER RUBBER SIZE: DIAM. IN 7 1/2" LENGTH IN 36"

REMARKS

- DRILL PIPE STRAPPED ON TRIP OUT OF HOLE 1.43' SHORTER
- DRILLERS TALLY USED TO CALCULATE PACKER SETTING DEPTHS
- SAFETY MEETING HELD PRIOR TO TEST
- BOTH PACKERS RECOVERED F/ HOLE IN GOOD CONDITION.
- SAMPLE CHAMBER CONTAINED WATER SAMPLE VENTED ON RIG FLOOR
- BAKER SURFACE EQUIPMENT WAS PRESSURE TESTED TO 2000 PSI PRIOR TO CONDUCTING TEST.

NAME OF CUSTOMER CONTACT

Phone No.

RECOVERY

RECOVERY VERIFICATION SIGNATURE: (Oil Co. Representative)

TOTAL FLUID RECOVERED CONSISTING OF:

50 BBLS OF FORMATION WATER

OF

RESISTIVITY OF SAMPLE CHAMBER RECV.

OF 1.2 Ωm @ 66°F.

TEST WAS REVERSED OUT: YES ☑ NO ☐ SALINITY

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

GAS BOMB. # .... SENT TO:

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

Foyster

	CLOCK # PANEX	CLOCK # BATT	CLOCK # 18422	CLOCK # 21042	CLOCK # 18169
No.	1588 OUTSIDE ☑	DMR 1783 OUTSIDE ☑	21149 OUTSIDE ☑	9987 INSIDE ☑	14172 INSIDE ☑
CAP.	10,000	5000 PSI	3000 PSI	3000 PSI	3000 PSI
DEPTH	4763.68	4798.13	4798.13	4752.85	4731.2
1	2381	2383.7	2372.1	2356.8	14.7
2a	954	1885.0	1641.2	1531.2	14.7
2b	999	1648.7	1641.2	1533.1	57.4
3	2008	2025.0	1971.7	1996.9	485.6
4a					
4b	186°F	184°F			
4c					
5	1135	1273.7	1300.2	1217.0	485.6
6	1898	1906.2	1861.3	1884.2	1862.3
7	1947	1980.0	1929.9	1955.9	1867.8
8	2363	2382.5	2370.7	2357.8	2332.7

O.

PRESSURE

3' 1451.9m

36°F.

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

MAIL TO: .... COMPLETE ANALYSIS:

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.

APPENDIX 6B

DST-2

DIGBY-1

GFE Resources Ltd

DST REPORT

Well: DIGBY-1	Permit: DIGBY JV	DST No.: TWO	Date: 29/ 5 / 95
Formation: Pretty Hill	Total Depth: 1951 mKB	Interval: 1920-1951 mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

FLUID PROPERTIES		TIMES		NUMBER OF SAMPLES TAKEN	
SOURCE	RESISTIVITY	FIRST FLOW	7 mins.	GAS	-
MAKE-UP WATER		FIRST SHUT-IN	45mins.	OIL	-
MUD	0.23 ohm.m at 20 °C	SECOND FLOW	60mins.	WATER	
RECOVERY		SECOND SHUT-IN	30 mins.	MUD	6
Bottom sample	0.28 ohm m at 20 °C	TOTAL FLOW	65 mins.	GAS SPECIFIC GRAVITY	-
				OIL GRAVITY (°API)	-
		FORM. TEMP.	90.5 °C	MUD WEIGHT	9.1
		FORM. DEPTH	1922 m	MUD VISCOSITY (Sec./qt.)	41

DOWNHOLE PRESSURE DATA (psig)		
GAUGE POSITION	Outside	Inside
TYPE & SERIAL No.	Mech. 21665	Panex 1588
DEPTH (mKB)	1922.3	1911.78
INITIAL HYDROSTATIC	3034	3035
START FIRST FLOW	61	35
END FIRST FLOW	49	51
FIRST SHUT-IN	2576	2566
START SECOND FLOW	85	54
END SECOND FLOW	122	118
SECOND SHUT-IN	1907	1901
FINAL HYDROSTATIC	3034	3036

FIRST OPENING BLOW DESCRIPTION: No blow.

SECOND OPENING BLOW DESCRIPTION: No blow.

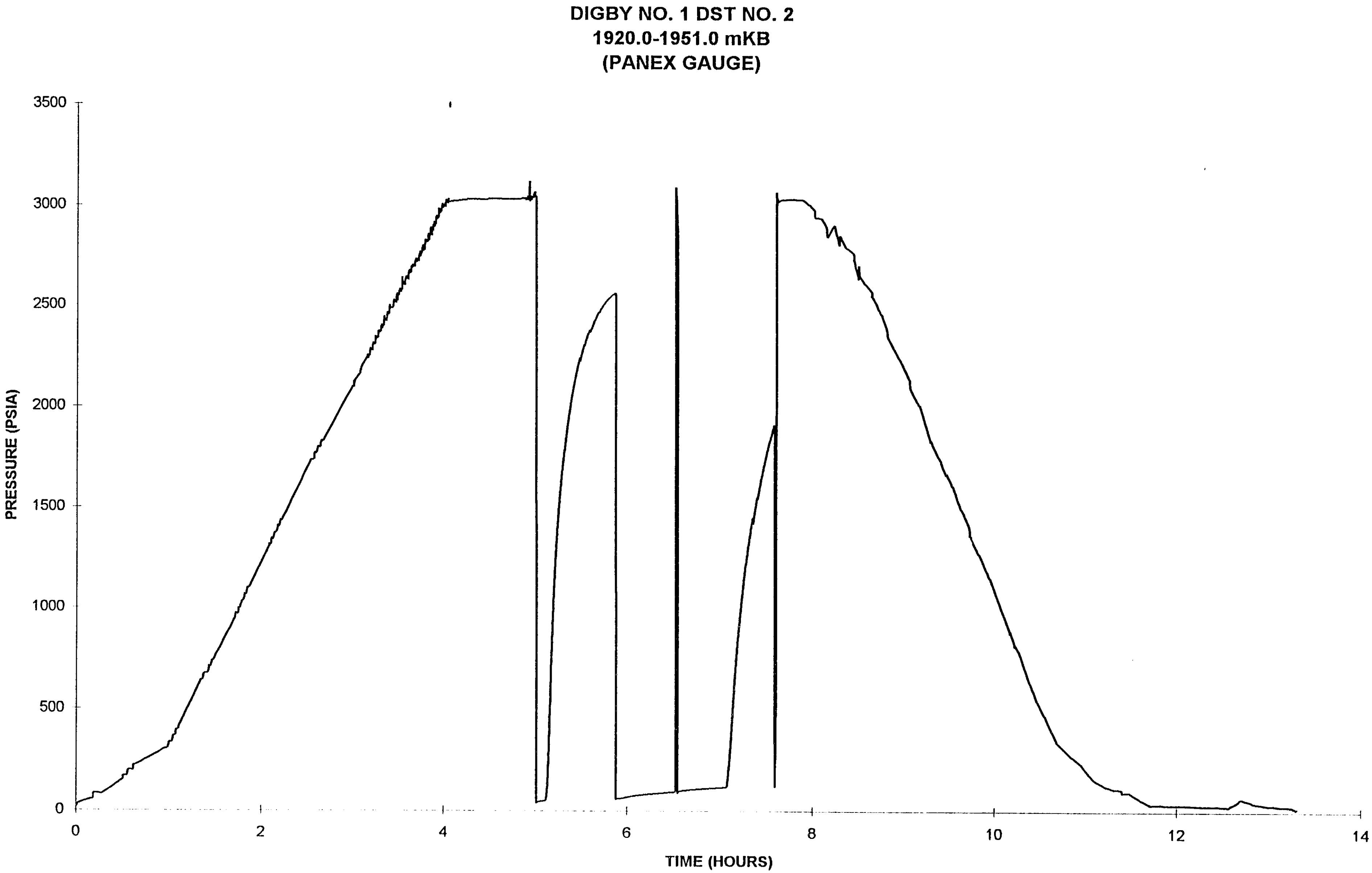
SURFACE FLOW DATA	FINAL FLOW: Nil					
BOTTOM CHOKE SIZE (inches):	MANIFOLD CHOKE SIZE & PRESSURE		ORIFICE PLATE SIZE & PRESSURE	FLOWING TIME (minutes)	FINAL FLOW PERIOD DATA	
					TIME (mins.)	PRESSURE(psig)
END FIRST FLOW	closed	nil	n/a		1	0 (closed)
FINAL FLOW-START	closed	nil	n/a		5	0 (closed)
FINAL FLOW-MIDDLE	closed	nil	n/a		10	0 (closed)
FINAL FLOW-END	closed	nil	n/a		20	0 (closed)
RECOVERY: 1.28 bbls slightly oil-cut mud.					30	0 (closed)
					40	0 (closed)
REMARKS: Tool did not appear to be open from surface indications, but charts confirmed valid test.					50	0 (closed)
					60	0 (closed)

GFE Resources Ltd

DST OPERATIONS SHEET

Well: DIGBY-1	Permit: DIGBY JV	DST No.: TWO	Date: 29/ 5 / 95
Formation: Pretty Hill	Total Depth: 1951 mKB	Interval: 1920-1951 mKB	
TEST Co.: Baker Oil Tools	Test Type: Conventional Bottom Hole		

TIME	EVENT	FLOOR MANIFOLD			PROVER		
		CHOKE (inches)	PRESSURE (psig)	TEMPERATURE (°C)	PLATE (inches)	PRESSURE (psig)	TEMPERATURE (°C)
0822	Open Tool	Closed at floor manifold - open to bubble hose					
0822 15	Initial Flow	0 psig - no bubble					
0822 30	Initial Flow	0 psig - no bubble					
0822 45	Initial Flow	0 psig - no bubble			-		
0823	Initial Flow	0 psig - no bubble					
0823 15	Initial Flow	0 psig - no bubble					
0823 30	Initial Flow	0 psig - no bubble					
0823 45	Initial Flow	0 psig - no bubble					
0824	Initial Flow	0 psig - no bubble					
0824 15	Initial Flow	0 psig - no bubble					
0824 30	Initial Flow	0 psig - no bubble					
0824 45	Initial Flow	0 psig - no bubble					
0825	Initial Flow	0 psig - no bubble					
0826	Initial Flow	0 psig - no bubble					
0827	Initial Flow	0 psig - no bubble - tool does not appear to be open					
0829	Close Tool	Start Initial Shut-In					
0914	Open Tool	Start Final Flow					
0949	Pick-up and re-set tool	Pull string weight, then pull 50k over and un-seat.					
0954	2nd Final Flow	Closed to manifold, open to bubble hose - better opening reaction.					
1026	Close Tool	0 psig - no bubble - End Flow period					
1055	Final Shut-In	0 psig - no bubble					
1056	Pull Free						


DIGBY NO. 1 DST NO. 2
1920.0-1951.0 mKB
(PANEX GAUGE)
PRESSURE (PSIA)
3500
3000
2500
2000
1500
1000
500
0
0
2
4
6
8
10
12
14
TIME (HOURS)

G.F.E. RESOURCES
DST #: 2
DIGBY # 1
6299.5 ft - 6401.2 ft

Location: PEP134 & PEP126
Test Type: DUAL CONVENTIONAL BOTTOM HOLE
Formation: PRETTY HILLS

Recorder Number: 1588
Recorder Depth: 6272 ft

Test Date: 29/05/95

PRESSURE
psia

TEST TIMES (MIN)

BLOW DESCRIPTION:

PRE FLOW: TOOL WAS OPENED AT 08:24 HRS WITH NO BLOW, CLOSED MANIFOLD. 0 PSIG ON SURFACE GAUGE. CLOSED TOOL AFTER 6 MINS WITH NO CHANGE.
FINAL FLOW: THE TOOL WAS RE-OPENED AT 09:55 WITH CLOSED CHOKE. NO BLOW THROUGHOUT THE FLOW. PART WAY INTO THE SECOND FLOW, THE TOOL WAS PULLED FREE (EQUALIZED) AND RE-OPENED TO CONFIRM TOOL WAS OPEN. THE DOWNHOLE PRESSURE RECORDERS SHOW TOOL OPEN AND NO PLUGGING WAS APPARENT.

LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 1.28 BBLS OF SLIGHTLY OIL CUT MUD.
THE SAMPLE CHAMBER VENTED ON RIG FLOOR. THE SAMPLE CHAMBER CONTAINED MUD.

REMARKS AND TEST SUMMARY:

A MECHANICALLY SUCCESSFUL TEST WAS CONDUCTED.
THERE ARE NO PLOTS INCLUDED IN THIS REPORT DUE TO THE PANEX GAUGE BEING RUN AT DIFFERENT INTERVALS AS REQUESTED BY G.F.E. AND THE FAILURE OF THE DMR.
THE PACKER SETTING DEPTHS WERE CALCULATED USING THE DRILLER'S TALLY.
BOTH PACKERS RECOVERED FROM HOLE IN GOOD CONDITION.
FOR THE REPORTING OF THE KUSTER CHARTS THE START OF THE SECOND FLOW HAS BEEN READ AFTER THE EQUALISING OF THE TOOL.

G.F.E. RESOURCES
DST #: 2
DIGBY # 1
6299.5 ft - 6401.2 ft

PRESSURE RECORDER NUMBER: 1588

DEPTH : 6272.50 ft LOCATION : INSIDE
TYPE : PANEX CAPACITY : 10000.00 psig
***** TEMPERATURE AT RECORDER DEPTH = 195.0 F

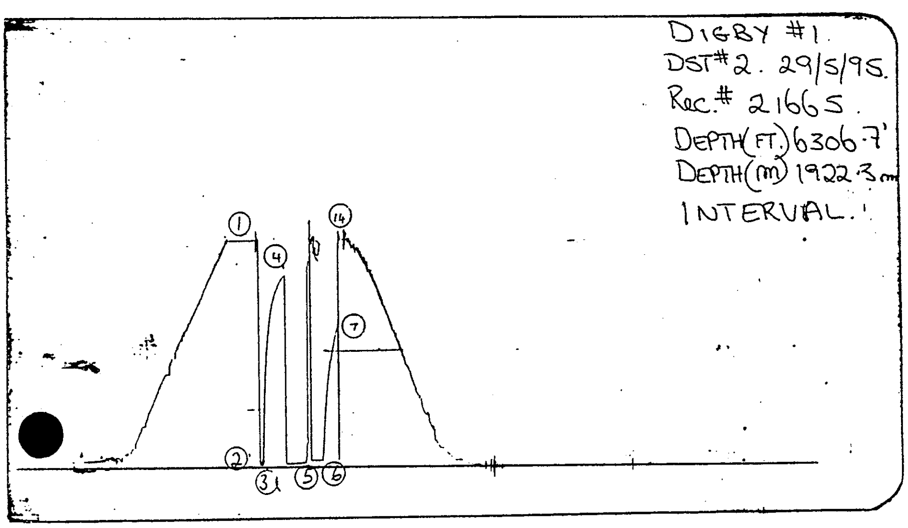
	PRESSURE psia
1)Initial Hydrostatic:	3035.0
2)Start of 1st Flow :	35.0
3)End of 1st Flow :	51.0
4)End of 1st Shut-in :	2566.0
5)Start of 2nd Flow :	86.0
6)End of 2nd Flow :	118.0
7)End of 2nd Shut-in :	1901.0
14)Final Hydrostatic :	3036.0

TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 21665

DEPTH : 6307.00 ft LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 6000.00 psig

	PRESSURE psia
1)Initial Hydrostatic:	3040.2
2)Start of 1st Flow :	75.7
3)End of 1st Flow :	71.3
4)End of 1st Shut-in :	2562.5
5)Start of 2nd Flow :	126.9
6)End of 2nd Flow :	131.1
7)End of 2nd Shut-in :	1902.9
14)Final Hydrostatic :	3044.9

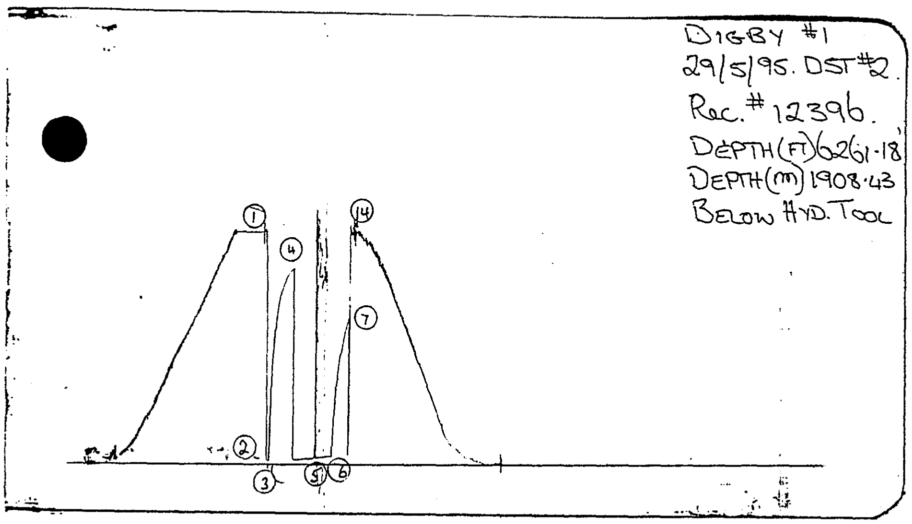


G.F.E. RESOURCES
DST #: 2
DIGBY # 1
6299.5 ft - 6401.2 ft

PRESSURE RECORDER NUMBER: 12396

DEPTH : 6261.40 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 6000.00 psig

	PRESSURE psia
1)Initial Hydrostatic:	3053.6
2)Start of 1st Flow :	57.7
3)End of 1st Flow :	48.7
4)End of 1st Shut-in :	2571.3
5)Start of 2nd Flow :	94.2
6)End of 2nd Flow :	112.7
7)End of 2nd Shut-in :	1923.6
14)Final Hydrostatic :	3051.9

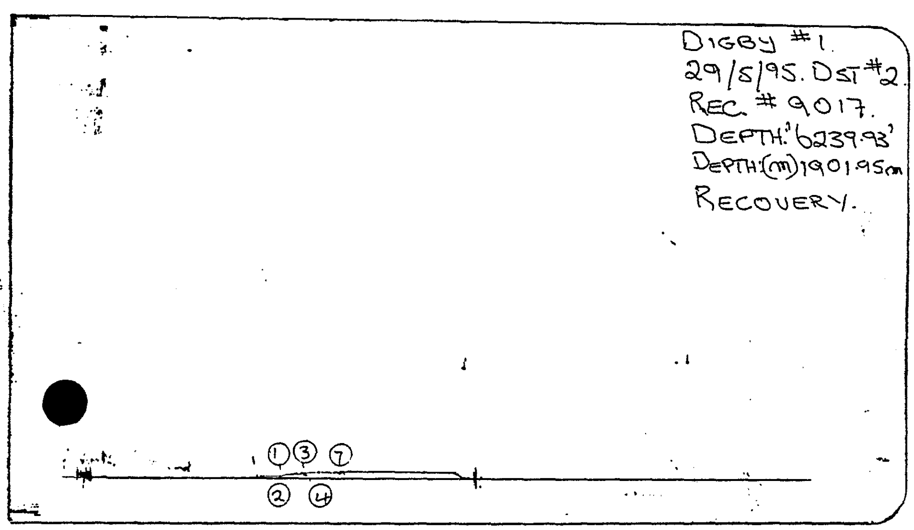


TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 9017

DEPTH : 6240.10 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 6000.00 psig

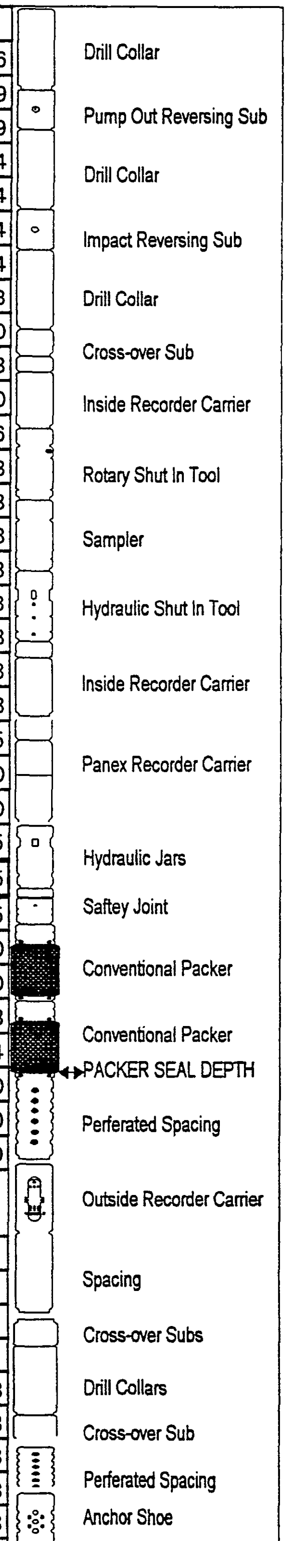
	PRESSURE psia
1)Initial Hydrostatic:	14.7
2)Start of 1st Flow :	14.7
3)End of 1st Flow :	109.1
4)End of 1st Shut-in :	109.1
5)Start of 2nd Flow :	109.1
6)End of 2nd Flow :	109.1
7)End of 2nd Shut-in :	109.1
14)Final Hydrostatic :	14.7



BAKER OIL TOOLS
A Baker Hughes company

TEST TOOL & PIPE RECORD				
Well Name & No.	Digby # 1			
Date	29/05/95			
Ticket No.	1022			
Interval Tested	From:	6299	To:	6400
Total Depth.	6400	Total Interval		101
Test No.	Two			

DESCRIPTION	I.D. No.	I.D.	O.D	Length	Depth
Stick Up					-13.66
Drill Pipe				5596.35	5582.69
Pup Joint				0.00	5582.69
Hevi-wate Drill Pipe				180.75	5763.44
X/O 4 IF P x 4.5 IF B					5763.44
Drill Collars				0.00	5763.44
Drilling Jars				0.00	5763.44
Drill Collars				408.59	6172.03
Pump Out Reversing Sub	832	3 1/16	6 9/32	1.37	6173.40
Drill Collars				30.53	6203.93
Impact Reversing Sub	833	2 7/8	6	1.37	6205.30
Drill Collars				29.26	6234.56
Cross Over Sub	857	2 17/32	6 1/8	0.87	6235.43
Inside Recorder Carrier	911		4 7/8	4.50	6239.93
Rotary Shut In Tool	353		5	8.45	6248.38
Positive Control Sampler	405		5	3.40	6251.78
Hydraulic Shut in Valve	304		4 7/8	4.90	6256.68
Inside Recorder Carrier	912		4 7/8	4.50	6261.18
Panex Recorder				11.00	6272.18
Hydraulic Jars	202		5	6.60	6278.78
Safety Joint	931	2 7/16	4 3/4	2.27	6281.05
Packer Stick Up			5	8.25	6289.30
Packer Stick Down			5	1.20	6290.50
Packer Stick UP			5 5/8	8.25	6298.75
Packer Seal Depth					6298.75
Packer Stick Down				1.20	6299.95
Outside Recorder Carrier				6.75	6306.70
Spacing				13.00	6319.70
X/O 3 1/2FH Box 4 IF Pin	859	2 7/16	6 1/32	0.73	6320.43
Drill Collars				60.71	6381.14
X/O 4 IF Box 3 1/2 FH pin	858	2 1/2	6 1/16	0.86	6382.00
Perferated Spacing				15.00	6397.00
Anchor Shoe (Total Depth)	970		4 3/4	3.00	6400.00



Pipe Tally	Length	Description	Depth
Below Packer Seal	101.25		
Jars etc	0.00		
Drill Pipe	5596.35		
Pup Joint	0.00	P.O.S.	6172.03
Hevi-wate Pipe	180.75	D.B.S.	6203.93
Drill Collars Above Interval	468.38	Rec. Recorder	6239.93
Tools above Interval	66.93	Inside Recorder	6261.18
TOTAL STRING	6413.66	Panex Recorder	6272.18
TOTAL DEPTH	6400.00	Outside Recorder	6306.70
Top Single Above Table	**13.66**		

Service Engineer Grant Foyster

Oil Co. Rep. Ken Smith

BAKER OIL TOOLS

A Baker Hughes company

TEST TOOL & PIPE RECORD

Well Name& No.	Digby # 1			
Date	29/05/95			
Ticket No.	1022			
Interval Tested	From:	6299	To:	6400
Total Depth.	6400			
Test No.	Two			

Drill Collars		Drill Collars		Hevi-wate Pipe		Drill Pipe		Drill Pipe	
Joint	Length	Joint	Length	Joint	Length	Stand	Length	Stand	Length
1	29.15	11	27.82	1	180.75	1		11	
2	31.56	12	30.27	2		2		12	
3	29.26	13	29.83	3		3		13	
4	30.53	14	28.17	4		4		14	
5	30.62	15	28.25	5		5		15	
6	29.61	16	28.17	6		6		16	
7	31.23	17	29.85	7		7		17	
8	28.37	18	28.00	8		8		18	
9	30.28	19		9		9		19	
10	28.12	20		10		10		20	
1st Total	298.73	2nd Total	230.36	3rd Total	180.75	4th Total	0.00	5th Total	0.00

Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe	
Stand	Length	Stand	Length	Stand	Length	Stand	Length	Stand	Length
21		31		41		51		61	
22		32		42		52		62	
23		33		43		53		63	
24		34		44		54		64	
25		35		45		55		65	
26		36		46		56		66	
27		37		47		57		67	
28		38		48		58		68	
29		39		49		59		69	
30		40		50		60		70	
6th Total	0.00	7th Total	0.00	8th Total	0.00	9th Total	0.00	10th Total	0.00

Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe		Drill Pipe	
Stand	Length	Stand	Length	Stand	Length	Stand	Length	Stand	Length
71		81		91		101		111	
72		82		92		102		112	
73		83		93		103		113	
74		84		94		104		114	
75		85		95		105		115	
76		86		96		106		116	
77		87		97		107		117	
78		88		98		108		118	
79		89		99		109		119	
80		90		100		110		120	
11th Total	0.00	12th Total	0.00	13th Total	0.00	14th Total	0.00	15th Total	0.00

Before Test In Derrick			Total
Drill Collars			0.18
Drill Pipe			1.88
While Testing	**In**	**Out**	**Total**
Drill Collars	18	-	18
Drill Pipe	188		188

D.C. in the Interval	
No.	Length
1	29.51
2	31.56
Total	61.07

Drill Clrs	No.	Length
Interval		61.07
Blw DBS		29.26
Blw POS		30.53
Abv POS		408.59
Abv Jars		
Abv Intvl		**468.38**
Total		529.45

Conventional Pipe Tally	Length
Jars	
Pup Joint, etc.	
Below Bottom Packer Seal	101.25
Between Packer Seals	
Tool Above Packer Seal	66.93
Drill Collars Above Packer Seal	468.38
Hevi-wate Pipe Above Packer Seal	180.75
Drill Pipe Above Packer Seal	5596.35
Total String	6413.66
Total Depth	6400.00
Top Single Above Table	**13.66**

Inflate Pipe Tally	Length
Jars, etc.	
Pup Joint	
Tool Above Interval	
Drill Collars Above Interval	
Hevi-wate Pipe Above Interval	
Drill Pipe Above Interval	
Total Strings Above Interval	
Top Of Interval	
Top Single Above Table	

TEST DATA

TEST No. TWO LUS. TEST No. TWO

FORMATION TESTED PRETTY HILLS S.S. T.D. 1951m/6400'

INTERVAL TESTED: From 1920m / 6299' to 1951m / 6400'

TOTAL INTERVAL TESTED 30.7 m / 101' 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 @ 03:00 HRS. OPENED TOOL 08:24 HRS.

TEST TIMES:

PRE-FLOW 6 MIN. INITIAL SHUT-IN 45 MIN.

SECOND FLOW ..... MIN. 2nd SHUT-IN ..... MIN.

FINAL FLOW 31 MIN. FINAL SHUT-IN 34 MIN.

PRE-FLOW BLOW DESCRIPTION: T.O. @ 08:24 w/ NO BLOW. MANIFOLD CLOSED IN. 0 PSI ON SURFACE GAUGE. CLOSE TOOL AFTER 6 min. W/ NO CHANGE.

FINAL FLOW BLOW DESCRIPTION: T.O. @ 09:55 - CHOKE CLOSED. 0 PSI. NO BLOW THROUGHOUT FLOW. T.C. @ 10:26

GAS MEASUREMENTS

MEASURED WITH:

CRITICAL FLOW PROVER
ORIFICE WELL TESTER
SIDE STATIC
PITOT TUBE
OTHER

RISER SIZE:

TIME	SURFACE CHOKE	READING	

NAME OF CUSTOMER CONTACT

Phone No.

RECOVERY

RECOVERY VERIFICATION SIGNATURE: (Oil Co. Representative)

TOTAL FLUID RECOVERED .... CONSISTING OF:

1.28 BBLS OF SLIGHTLY OIL CUT MUD.

OF

RESISTIVITY OF MUD RECOVERED

OF Rm 0.23 @ 68°F

OF

TEST WAS REVERSED OUT: YES NO ✓ SALINITY

GENERAL INFORMATION

COMPANY GFE RESOURCES

ADDRESS LEVEL 6, 6 RIVERSIDE QUAYS SOUTH MELBOURNE. VIC. 3205

WELL NAME DIGBY #1

LOCATION PEP 134 & PEP 126

K.B. 143.7m GROUND ELEV. 138m

AREA OTWAY BASIN PROVINCE VICTORIA

COMPANY REP. KEN SMITH

TESTER: GRANT FOYSTER

UNIT # SKID BOX PUMP No.: -

CONTRACTOR CENTURY DRILLING RIG No.: 11

TICKET No. 1022 DATE: Yr. 95 Mo. 5 Day 29

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 KCL PHPA POLYMER

WEIGHT 9.1 VISCOSITY 40 WATER LOSS 4.0

FILTER CAKE 1/32 LOG TEMPERATURE -

DRILL PIPE SIZE: O.D. 4 1/2" I.D. 3.826" WEIGHT 16.6#

DRILL COLLARS: O.D. 6 1/4" I.D. 2 7/8" RUN 529.09'

MAIN HOLE OR CASING SIZE 8 1/2"

RATHOLE OR LINER SIZE .... No. OF

BOTTOM HOLE OR CHOKE SIZE PERFERATED PIPE

SURFACE CHOKE SIZE 1/2"

PACKER RUBBER SIZE: DIAM. IN 7 1/2" LENGTH IN 36"

REMARKS

- DRILLERS TALLY USED TO CALCULATE PACKER SETTING DEPTHS.
- BOTH PACKERS RECOVERED F/HOLE IN GOOD CONDITION.
- SAMPLE CHAMBER VENTED ON RIG FLOOR. CONTAINED MUD.
- AFTER FIRST MAIN FLOW TEST STRING WAS RAISED, CLOSING DOWNHOLE VALVE AND THEN REOPENED TO CONFIRM TOOL WAS OPEN & NO PLUGGING.
- BAKER SURFACE EQUIPMENT WAS SUCCESSFULLY PRESSURE TESTED TO 2000 PSI DURING PRESSURE TEST PRIOR TO CONDUCTING TEST.

BTM. H. SAMPLER # SENT TO:

GAS BOMB. # SENT TO:

No. OF FLUID SAMPLES TAKEN SENT TO:

TESTER: Grant Foyster

FIELD READINGS, REC. NO.

DEFLECTION	PRESSURE		CLOCK # BATT DMR No. 1783 CAP. 5000 PSI	CLOCK # 18422 No. 21665 OUTSIDE ✓ CAP. 6000 PSI	CLOCK # 21042 No. 12396 INSIDE ✓ CAP. 6000 PSI	CLOCK # 18169 No. 9017 INSIDE ✓ CAP. 6000 PSI
PANEX #1588	6272 1911.78m		DEPTH 6307.0	DEPTH 6307.0	DEPTH 6261.4	DEPTH 6240.1
3035		1		3040.2	3053.6	14.7
35		2a		75.7	57.7	14.7
51		2b		71.3	48.7	109.1
2566		3	DMR	2562.5	2571.3	109.1
54		4a	FAILED			
94		4b				
TEMP	195°F	4c				
86		5		126.9	94.2	
118		6		131.1	112.7	
1901		7		1902.9	1923.6	109.1
3036		8		3044.9	3051.9	14.7

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:

APPENDIX 7

GFE RESOURCES LTD

APPENDIX 7

TABULATED MUD GAS DATA

DIGBY-1

DIGBY-1

Total Gas and Chromatography

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
604.0	1.0	1				
605.0	1.0	21				
610.0	1.0	14				
615.0	1.0	21				
620.0	1.0	21				
625.0	1.0	21				
630.0	1.0	51				
635.0	1.0	87				
640.0	1.0	140				
645.0	1.0	100				
647.0	1.0	74				
650.0	1.0	154				
652.0	1.0	120				
653.0	1.0	140				
654.0	1.5	301				
655.0	1.0	144				
656.0	1.0	79				
660.0	1.0	61				
665.0	1.0	54				
670.0	1.0	42				
675.0	1.0	79				
680.0	1.0	80				
685.0	1.0	82				
690.0	1.0	154				
695.0	1.0	73				
700.0	1.0	96				
705.0	1.0	103				
710.0	1.0	130				
715.0	1.0	82				
720.0	1.0	61				
735.0	1.0	68				
740.0	1.0	130				
745.0	1.0	44				
750.0	1.0	54				
755.0	1.0	86				
760.0	1.0	89				
765.0	1.0	123				
770.0	1.0	89				
775.0	1.0	115				
780.0	1.0	144				
785.0	1.0	115				
790.0	1.0	175				
795.0	1.0	147				
800.0	1.0	112				
805.0	1.0	189				
810.0	1.0	133				
815.0	1.0	84				

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
820.0	1.0	133				
825.0	1.0	80				
830.0	1.0	77				
835.0	1.0	21				
840.0	1.0	63				
845.0	1.0	63				
846.0	1.0	98				
848.0	1.6	329				
849.0	1.2	298				
850.0	1.0	77				
854.0	1.0	77				
855.0	1.0	77				
856.0	1.5	298				
857.0	1.0	70				
860.0	1.0	80				
861.5	1.0	70				
862.0	1.2	224				
862.5	1.0	70				
863.5	1.0	70				
864.0	1.0	175				
864.5	1.0	77				
865.5	1.0	77				
866.0	1.5	280				
866.5	1.0	140				
867.0	1.0	140				
868.0	1.0	84				
870.0	1.0	84				
875.0	1.0	27				
880.0	1.0	109				
885.0	1.0	82				
890.0	1.0	96				
895.0	1.0	94				
896.0	1.0	115				
900.0	1.0	168				
905.0	1.0	130				
910.0	1.0	124				
915.0	1.0	130				
916.0	2.2	434				
917.0	1.2	240				
918.0	1.2	240				
919.0	1.5	308				
920.0	1.0	168				
921.0	1.0	132				
922.0	1.0	110				
925.0	1.0	103				
930.0	1.0	96				
935.0	1.0	206				
940.0	1.0	140				
945.0	1.0	100				
950.0	1.0	154				
955.0	1.0	144				
958.5	1.0	144	1	1		

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
959.0	7.0	1300	29	14		
959.5	1.1	233	1	1		
960.0	9.0	1646	53	15		
960.5	1.2	233	1	1		
963.5	1.2	233	1	1		
964.0	8.0	1463	47	14		
964.5	1.5	288	5	1		
966.0	1.0	178	1	1		
970.0	1.0	196				
975.0	1.2	224				
980.0	1.0	164	1	1		
982.0	1.0	164	1	1		
983.5	26.0	4884	103	37		
984.0	1.1	219	8	1		
986.0	1.1	210	1			
990.0	1.1	210	1			
995.0	1.0	182				
1000.0	1.0	179				
1004.5	1.0	185	1			
1005.0	5.0	953	24			
1005.5	4.0	762	19	1		
1006.0	6.0	1143	29	7		
1006.5	1.0	200	1	1		
1009.5	1.0	200	1	1		
1010.0	5.0	953	24			
1010.5	2.0	300	9	1		
1011.0	2.0	300	9	1		
1011.5	5.0	929	46	9		
1012.0	1.0	199	1	1		
1015.0	1.0	197	1			
1025.5	1.0	187	1	1	1	
1026.0	34.0	4695	713	252	1	
1027.5	2.0	353	1	1	1	
1030.0	1.7	340	1	1	1	
1030.5	5.0	833	22	19	1	
1031.5	1.0	197	1	1	1	
1034.0	1.0	187	1	1	1	
1035.0	3.0	547	12	8		
1037.0	4.0	702	25	16		
1040.0	1.1	240	8	4		
1045.0	1.0	224	5	4		
1046.0	4.0	738	38	24	1	
1047.0	3.0	481	11	7	1	
1049.0	2.0	250	5	3	1	
1050.0	9.0	1613	82	52	1	
1051.0	3.0	487	10	5		
1054.0	3.0	487	10	5		
1055.0	3.0	487	10	5		
1057.0	3.0	450	11	6		
1058.0	3.0	450	11	6		
1058.5	17.0	3112	91	35		
1059.0	3.0	469	10	7		

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1064.0	3.0	472	11	6		
1064.8	8.0	1485	34	15		
1065.0	4.0	705	15	7		
1070.0	3.2	627	12	8		
1072.0	3.2	627	12	8		
1073.0	8.0	1476	75	48		
1074.0	3.0	580	15	9		
1075.0	3.0	580	15	9		
1080.0	3.0	551	17	10		
1085.0	1.0	70	1	1		
1090.0	1.0	70				
1095.0	1.0	82				
1099.5	1.0	88				
1100.5	3.0	600				
1101.5	1.0	95				
1105.0	1.0	89				
1110.0	1.0	95				
1115.0	1.0	60				
1120.0	1.0	82				
1125.0	1.0	63				
1130.0	1.0	95				
1135.0	1.0	95				
1140.0	1.0	40				
1145.0	1.0	71				
1150.0	1.0	44				
1155.0	1.0	44				
1160.0	1.0	69				
1164.0	1.0	88				
1165.0	1.6	171				
1166.0	1.0	108				
1170.0	1.0	113				
1177.0	1.0	108				
1178.0	1.2	162				
1179.0	1.0	138				
1180.0	1.0	100				
1184.0	1.0	100				
1185.0	1.0	151				
1186.0	1.0	56				
1190.0	1.0	38				
1195.0	1.0	31				
1204.0	1.0	22				
1205.0	1.0	84				
1206.0	1.0	44				
1215.0	1.0	56				
1219.0	1.0	78	1			
1220.0	4.0	532	5			
1221.0	1.0	57	1			
1225.0	1.0	91				
1230.0	1.0	108				
1235.0	1.0	63				
1237.0	1.0	63	1			
1238.0	5.0	985	22			

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1239.0	1.0	63	1			
1240.0	1.0	63				
1243.0	1.0	63				
1250.0	1.0	37				
1255.0	1.0	44				
1260.0	1.0	44				
1265.0	1.0	32				
1270.0	1.0	60				
1275.0	1.0	57				
1280.0	1.0	70				
1285.0	1.0	73				
1290.0	1.0	76				
1295.0	1.0	89				
1300.0	1.0	70				
1303.0	1.0	70				
1304.0	2.5	500				
1305.0	1.0	82				
1309.0	1.0	82	1	1		
1310.0	2.0	209	5	2		
1311.0	1.0	108	1	1		
1315.0	1.0	108	1	1		
1319.0	1.0	84	1	1		
1320.0	3.5	609	15	13		
1321.0	1.5	108	1	1		
1325.0	1.0	120	1	1		
1326.0	1.0	72				
1329.0	1.0	75	1	1		
1330.0	1.5	111	3	1		
1331.0	1.0	84	1	1		
1335.0	1.0	84	1	1		
1337.0	1.0	95	1	1		
1338.0	4.0	665	50	12		
1339.0	2.0	132	5	2		
1341.0	1.2	132	1	1		
1345.0	1.2	128	1	1		
1350.0	1.0	54	1	1		
1352.0	1.0	78	1	1		
1353.0	1.5	141	15	1		
1354.0	1.0	84	1	1		
1355.0	1.0	84	1	1		
1360.0	1.0	64	1	1		
1365.0	1.0	65	1	1		
1370.0	1.0	52	1	1		
1374.0	1.0	52	1	1		
1375.0	1.0	100	6	4		
1376.0	1.0	82	2	1		
1385.0	1.0	63	2	1		
1390.0	1.0	38	1	1		
1395.0	1.0	89	2	1		
1400.0	1.0	86	2	1		
1405.0	1.0	101	2	1		
1410.0	1.0	76	2	1		

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1415.0	1.0	63	1	1		
1420.0	1.0	72				
1425.0	1.0	41	1	1		
1430.0	1.0	66	1	1		
1435.0	1.0	38	1	1		
1440.0	1.0	25	1	1		
1445.0	1.0	44	1	1		
1450.0						
1455.0	1.0	60	1	1		
1460.0	1.0	82	1	1		
1462.0	1.0	82	1	1		
1463.0	1.0	114	5	3		
1465.0	1.0	114	5	3		
1468.0	1.0	100	4	2		
1470.0	1.0	37	1	1		
1475.0	1.0	48	1	1		
1480.0	1.0	10	1	1		
1485.0	1.0	8	1			
1490.0	1.0	9	1			
1494.0	1.0	9	1	1		
1495.0	1.2	72	1	1		
1496.0	1.0	12	1	1		
1500.0	1.0	18	1	1		
1503.5	1.0	15	1	1		
1504.0	2.0	343	17	7		
1504.4	1.0	15	1	1		
1506.7	1.0	14	1	1		
1507.0	1.8	327	15	2		
1507.2	1.0	13	1	1		
1510.0	1.0	18	1	1		
1515.0	1.0	21	1	1		
1520.0	1.0	24	1	1		
1525.0	1.0	18	1	1		
1530.0	1.0	31				
1535.0	1.0	33				
1540.0	1.0	10	1	1		
1542.5	1.0	10	1	1		
1543.0	2.0	279	26	23		
1543.5	1.0	30	1	1		
1545.0	1.0	30	1	1		
1549.0	1.0	30	1	1		
1549.5	2.0	279	26	23		
1550.0	1.0	24	1	1		
1555.0	1.0	24	1	1		
1559.0	1.0	24	1	1		
1560.0	1.0	92				
1561.0	1.0	13				
1565.0	1.0	13				
1574.0	1.0	18				
1575.0	1.0	38				
1576.0	1.0	13				
1585.0	1.0	13				

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1590.0	1.0	11				
1595.0	1.0	13				
1600.0	1.0	16	1	1		
1605.0	1.0	18	1	1		
1610.0	1.0	20	1	1		
1615.0	1.0	9	1	1		
1620.0	1.0	10	1	1		
1625.0	1.0	9				
1630.0	1.0	8				
1635.0	1.0	10				
1640.0	1.0	6				
1645.0	1.0	7				
1650.0	1.0	6				
1655.0	1.0	5				
1660.0	1.0	15				
1665.0	1.0	6				
1670.0	1.0	10				
1675.0	1.0	12				
1680.0	1.0	15				
1685.0	1.0	13				
1690.0	1.0	15				
1695.0	1.0	24				
1700.0	1.0	13				
1705.0	1.0	18				
1710.0	1.0	15				
1715.0	1.0	10				
1720.0	1.0	12				
1725.0	1.0	10				
1730.0	1.0	10				
1735.0	1.0	12				
1739.0	1.0	12				
1740.0	1.0	129				
1741.0	1.0	18				
1745.0	1.0	18				
1750.0	1.0	20				
1755.0	1.0	18				
1757.0	1.0	1				
1762.0	1.0	1				
1765.0	1.0	10				
1770.0	1.0	12				
1775.0	1.0	18				
1780.0	1.0	20				
1785.0	1.0	24				
1790.0	1.0	20				
1795.0	1.0	24				
1800.0	1.0	30				
1805.0	1.0	32				
1810.0	1.0	61				
1815.0	1.0	34				
1820.0	1.0	24				
1825.0	1.0	24				
1830.0	1.0	25				

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1835.0	1.0	92				
1840.0	1.0	37				
1845.0	1.0	34	1	1	1	1
1850.0	1.0	22	1	1	1	1
1855.0	1.0	35	1	1	1	1
1860.0	1.0	32	1	1	1	1
1865.0	1.0	15	1	1	1	1
1870.0	1.0	21	1	1	1	1
1875.0	1.0	18	1	1	1	1
1880.0	1.0	40	1	1	1	1
1885.0	1.0	61	1	1	1	1
1890.0	1.0	40	1	1	1	1
1895.0	1.0	31	1	1	1	1
1900.0	0.2	31	1	1	1	1
1905.0	1.0	37	10	20	18	3
1910.0	2.4	62	20	47	51	6
1912.0	5.3	159	61	120	88	15
1915.0	4.9	111	46	93	104	17
1919.0	4.9	111	46	93	104	17
1919.5	4.9	111	46	93	104	17
1920.0	2.8	62	25	67	52	6
1922.5	2.8	62	25	67	52	6
1923.0	2.8	62	25	67	52	6
1923.5	8.9	264	106	207	140	23
1924.0	2.8	62	25	67	52	6
1924.5	2.8	62	25	67	52	6
1925.5	10.0	295	106	213	176	30
1926.0	3.5	117	46	87	52	6
1927.5	3.5	117	46	87	52	6
1928.0	7.1	228	91	167	104	17
1928.5	4.4	123	51	100	72	12
1929.5	4.4	123	51	100	72	12
1930.5	11.2	406	142	254	160	28
1931.0	3.3	129	43	80	44	4
1932.0	3.3	129	43	80	44	4
1932.5	13.6	503	197	321	193	17
1933.0	3.3	129	43	80	44	4
1935.0	3.3	129	43	80	44	4
1935.5	8.7	326	182	247	72	5
1936.0	3.3	129	43	80	44	4
1939.5	3.3	129	43	80	44	4
1940.0	12.5	419	140	292	214	15
1940.5	3.3	129	43	80	44	4
1943.0	3.3	129	43	80	44	4
1943.5	36.7	2734	290	651	477	33
1944.0	3.3	129	43	80	44	4
1945.5	6.6	240	106	180	76	5
1947.5	6.6	240	106	180	76	5
1948.0	13.2	498	197	334	167	15
1948.5	3.3	129	43	80	44	4
1949.5	3.3	129	43	80	44	4
1950.0	3.3	129	43	80	44	4

Depth (m)	TOTAL GAS (unit)	C1 (ppm)	C2 (ppm)	C3 (ppm)	C4 (ppm)	C5 (ppm)
1951.0	3.3	129	43	80	44	4
1955.0	11.0	337	207	240	127	13
1960.0	8.0	265	114	236	109	14
1965.0	7.0	184	81	187	105	10
1970.0	8.0	256	107	224	122	13
1975.0	8.0	215	116	193	104	18
1980.0	8.0	296	102	240	120	18
1985.0	8.0	216	122	266	152	13
1990.0	10.0	318	138	288	127	22
1995.0	6.0	147	60	159	90	12
2000.0	9.0	247	113	270	144	18
2005.0	8.0	257	93	267	89	10
2010.0	11.0	291	120	275	189	18
2014.0	11.0	291	120	275	189	18
2015.0	14.0	393	164	332	227	27
2016.0	10.0	264	116	260	187	16
2020.0	10.0	211	101	240	187	13
2025.0	8.0	160	70	200	152	13
2028.0	8.0	160	70	200	152	13
2029.0	12.0	303	125	282	211	18
2030.0	10.0	270	112	240	208	13
2035.0	6.0	196	66	159	85	10
2040.0	6.0	200	61	163	98	8
2045.0	4.0	188	62	92	55	1
2050.0	1.0	55	10	20	1	1
2055.0	1.0	25	5	7	1	
2060.0	1.0	21	4	5		
2065.0	1.0	60	3	3		
2070.0	1.0	21	3	3		
2075.0	1.0	15	3	3		
2080.0	1.0	15	1	1	1	
2085.0	1.0	9				
2088.0	1.0	9				

APPENDIX 8

GFE RESOURCES LTD

APPENDIX 8

PETROGRAPHY REPORT

DIGBY-1

WESTERN AUSTRALIAN SEDIMENTARY CONSULTANTS

DIGBY-1

PETROGRAPHIC ANALYSIS OF
16 SAMPLES FROM DIGBY-1

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INTRODUCTION

Methods

A total of ~~fourteen~~ fifteen samples, all side wall cores, have been petrographically analysed within this report. All samples have been petrographically examined. Detailed descriptions have been carried out on five of the samples, while basic descriptions were carried out on the remaining nine samples.

All samples were impregnated with blue coloured resin and then ground to a thickness of 35 microns. After sectioning the samples were stained with Alizarin Red S and Potassium ferricyanide according to the Dickson (1966) method. This stain is used to distinguish between calcite (red), ferroan calcite (blue), dolomite (no stain), and ferroan dolomite (turquoise). Mineral percentages where obtained through visual estimate in the basic descriptions and through point counting four hundred points on the detailed descriptions (Table 1). Two photomicrographs per sample have been taken so as to highlight the main petrographic features within the thin sections.

DEPTH	Mineral Percentage Analysis Type	Sample Condition
1338.2m	Visual Estimate	Poor
1464.4m	Visual Estimate	Good
1465.7m	Point Count - 400 points	Poor
1468.2m	Visual Estimate	Poor
1496.2m	Point Count - 400 points	Poor
1608.2m	Visual Estimate	Poor
1872.7m	Visual Estimate	Poor
1923.9m	Visual Estimate	Poor
1931.3m	Point Count - 400 points	Poor
1938.7m	Point Count - 400 points	Poor
1945.9m	Point Count - 400 points	Good
1946.3m	Visual Estimate	Good
1949.3m	Visual Estimate	Good
2069.2m	Visual Estimate	Good
2076.2m	Visual Estimate	Good

Table 1. Sample condition and type of mineral percentage measurement analysis carried out

RESULTS AND INTERPRETATIONS

Rock Types

The samples have been named according to the compositional classification of sandstones according to Dott modified by Pettijohn et al (1973) (figure I).

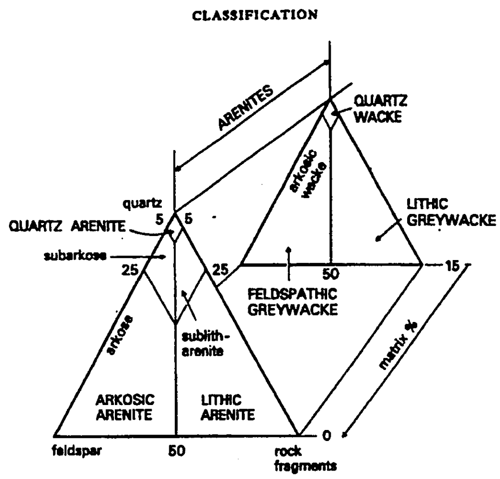

Figure I. Classification of sandstones (Pettijohn et al, 1973).

The samples can be divided into three main groups, the upper group extending from 1338.2m to 1608.2m, the second group from 1872.7m to 1949.3m and the lowest group from 2069.2m to 2076.2m.

The upper group is composed of quartz wackes, quartz arenites and litharenites. This zone is distinguished by high percentages of feldspar and volcanic fragments, and predominantly massive structure. This section is also rich in authigenic kaolinite, this is interpreted as having formed predominantly from the alteration of volcanic fragments.

The second group is defined by high percentages of bituminous material and authigenic dolomite and extends from 1872.7m to 1949.3m. The samples also display a variable intense lineation, defined by elongate stringers of bituminous material and a preferred orientation of the elongate axis of the detrital grains.

The lower group is composed of feldspathic volcanics and extends from 2069.2m to 2076.2m. The samples display a moderate to strong flow texture and are composed dominantly of feldspar, quartz and chlorite. The chlorite is interpreted as having formed from the in situ alteration of pyroxenes.

Diagenesis

The diagenetic history of the upper group consists of the alteration of detrital micas to form chlorite and kaolinite and the formation of authigenic sericite from the alteration of detrital grains. The final phase of diagenesis was a minor phase of ferroan calcite emplacement. The ferroan calcite has probably formed within secondary porosity. The secondary porosity has formed due to partial leaching of the detrital feldspar grains.

Within the second group the diagenetic history is similar to that of the first group, with the addition of a phase of dolomitisation. The relative timing of the dolomite emplacement is difficult to determine, however it appears to post date the formation of kaolinite and chlorite.

Environmental Indicators

The only sample with any environmental indicators is 1496.2m which contained a trace of glauconite. This would tend to indicate a marine origin for this sample.

REFERENCES

Dickson, J.A.D. (1966): Carbonate identification and genesis as revealed by staining. J. Sed. Petrol.36/2, 491-505.

Pettijohn, F.J., Potter, P.E., & Siever, R. (1973): Sand and sandstone, p. 617. Springer-Verlag, Berlin.

Sample: Digby-1 SWC 40 1338.2m

Mineralogy:

Detrital	Quartz	50%
	Feldspar	10%
	Chert	5%
	Muscovite	2%
	Volcanic Fragments	20%
	Bituminous Material	5%
	Biotite	6%
	Zircon	Trace
	Garnet	Trace
	Tourmaline	Trace
Authigenic	Ferroan Calcite	1%
	Chlorite	1%

NB: The sample is in a poor condition. It is completely disaggregated, making an accurate identification of the structure and fabric impossible.

Description:

The sample appears to be a massive litharenite. It displays a weak lineation, defined by an alignment of the elongate axis of detrital framework grains. The sample is grain supported, with grain boundaries displaying weakly sutured contacts. Cementation appears to be moderate.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.02mm) to fine/medium sand (0.25mm), with an average of approximately fine sand (0.15mm). Sorting appears to be moderate to good. The grain shape varies from very angular to sub-rounded, with an average of sub-angular. No authigenic silica overgrowths are evident. The grains predominantly display a weakly undulose extinction.

Feldspar within the sample displays similar grain size and shape distribution as that of the quartz grains. Albite twinned, untwinned and polysynthetic twinned grains are evident, with albite twinned being dominant. A twin extinction angle of approximately 15° to 20° degrees has been measured, indicating an oligoclase composition.

Both chert and volcanic rock fragments are present, with volcanic fragments dominant. All rock fragments display similar average size and shape as that of the detrital quartz grains. The volcanic rock fragments are feldspathic. Sericitic and kaolinitic alteration of the feldspathic rock fragments is evident. A portion of the matrix material present may be the result of the disaggregation of partially altered and completely altered feldspathic volcanic fragments.

Ferroan calcite is present in a massive sparry form. The ferroan calcite is present infilling secondary porosity within feldspar grains. This is generally preferentially associated with the twin planes. Some completely replaced grains are also evident.

Both biotite and muscovite are present in the form of elongate laths, which are generally bent and broken. The biotite is commonly highly chloritised.

Dark bituminous material is present as staining on clays. The dark colour of the staining makes identification of the clays impossible. Authigenic pyrite is commonly associated with the organic material.

No porosity is present.

Sample: Digby-1 SWC 40 1338.2m continued

Diagenesis:

1. Seritisation of detrital grains
2. Chloritisation of biotite
3. Emplacement of ferroan calcite.

PE905895

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DATE_RECEIVED =	
W_NO =	W1130
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CONTRACTOR =	GFE RESOURCES LTD
CLIENT_OP_CO =	GFE RESOURCES

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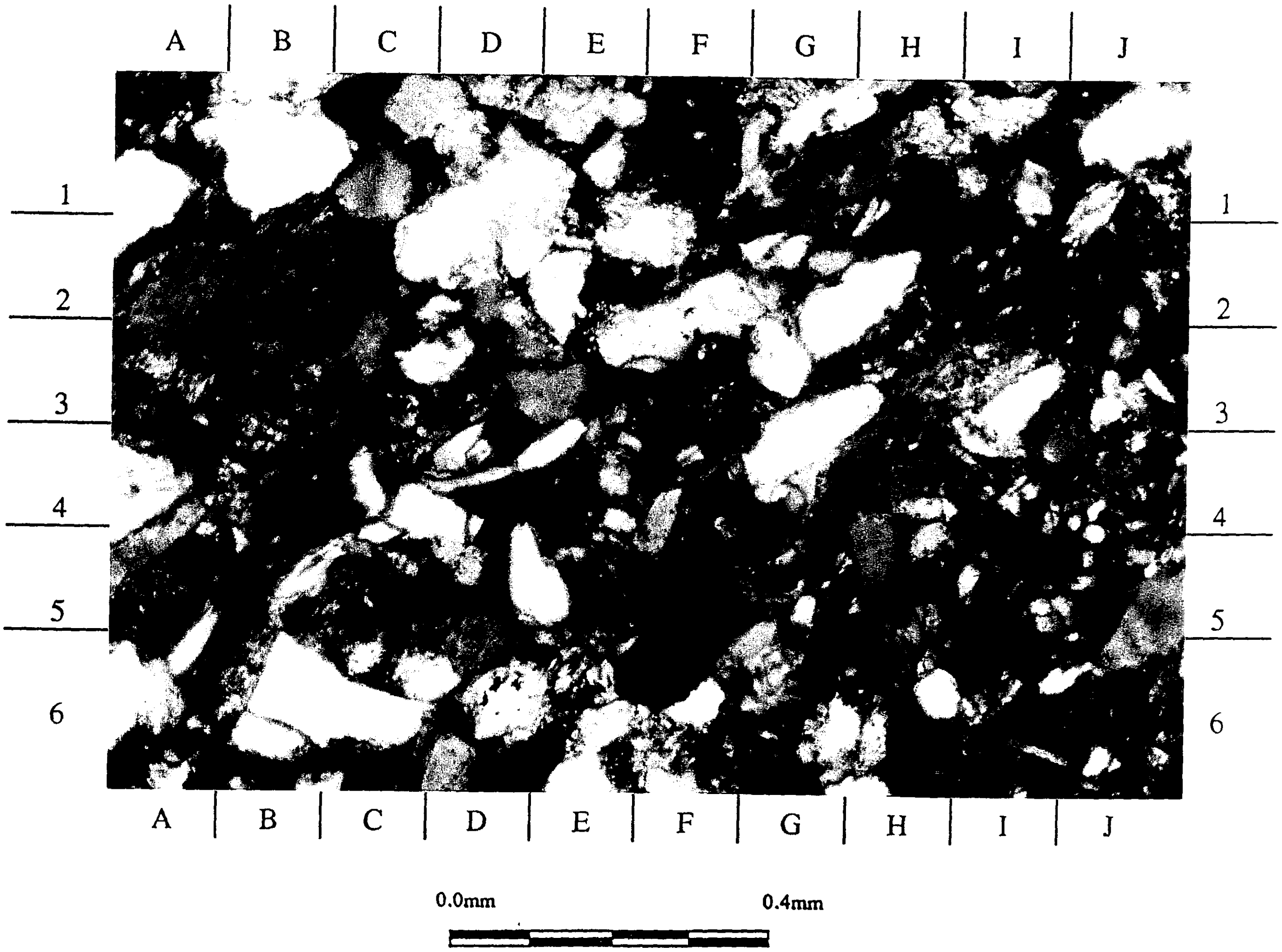

Figure 1. SWC 40 1338.2m x75.6 XPL
Massive lithic arenite.

PE905896

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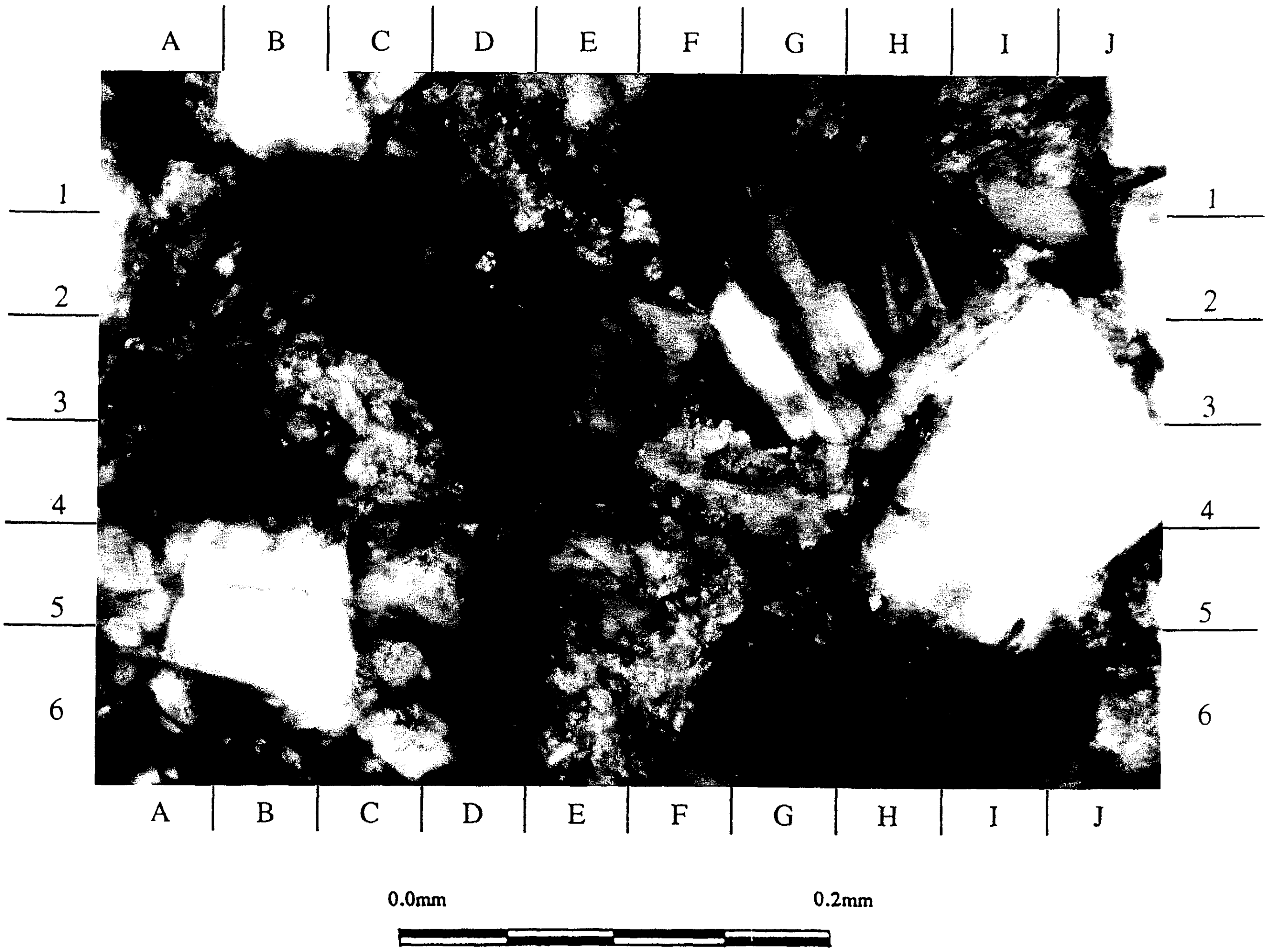

Figure 2. SWC 40 1338.2m x192 XPL
Massive lithic arenite.

Sample: Digby-1 SWC 35 1464.4m

Mineralogy:

Detrital	Quartz	41%
	Feldspar	5%
	Chert	Trace
	Muscovite	5%
	Volcanic Fragments	15%
	Biotite	Trace
	Tourmaline	Trace
	Garnet	Trace
	Zircon	Trace
Authigenic	Kaolinite	25%
	Chlorite	8%
	Ferroan Calcite	1%
	Sericite	Trace
	Silica	Trace
	Pyrite	Trace

Description:

The sample is a massive litharenite. It appears to be predominantly grain supported, with grain contacts displaying concave/convex to sutured contacts. Cementation appears to be moderate to poor with compaction, clays and authigenic silica providing the main binding forces.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very coarse silt (0.04mm) to coarse sand (0.70mm), with an average of approximately medium sand (0.40mm). Sorting appears to be moderate to good. The grain shape varies from angular to rounded, with an average of sub-angular. A trace of authigenic silica overgrowths are present. The overgrowths are generally thin and discontinuous. The grains predominantly display a weakly undulose extinction.

The feldspar present displays similar grain size and shapes as the detrital quartz grains. Albite twinned, untwinned and polysynthetic twinned grains are evident, with albite twinned being dominant. A twin extinction angle of 10° to 15° degrees has been measured indicating an albite to oligoclase composition. Minor leaching of the albite twinned grains is common.

Both chert and volcanic rock fragments are present. All rock fragments display a similar average size and shape as that of the detrital quartz grains. The volcanic rock fragments are both feldspathic and chloritic. The chloritic grains are interpreted as having formed as a result of the in situ alteration of the rock fragment. Sericitic and kaolinitic alteration of the feldspathic rock fragments is also evident.

Detrital muscovite is present as partially kaolinised laths and as granular traces within the kaolinite accumulations. The unaltered laths are generally bent and broken with some exfoliation on the ends of the grains. A trace of chloritised mica (biotite) are also evident.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica and feldspars are still evident within the kaolinite accumulations.

Ferroan calcite is present in a massive sparry form within the kaolinite accumulations and within partially leached feldspars. The ferroan calcite displays highly corrosive contacts with the detrital feldspars.

Sample: Digby-1 SWC 35 1464.4m continued

No porosity is present.

Diagenesis:

1. Chloritisation of the biotite and volcanic fragments
2. Seritisation of detrital grains
3. Kaolinisation of the micas and feldspars
4. Emplacement of ferroan calcite.

PE905897

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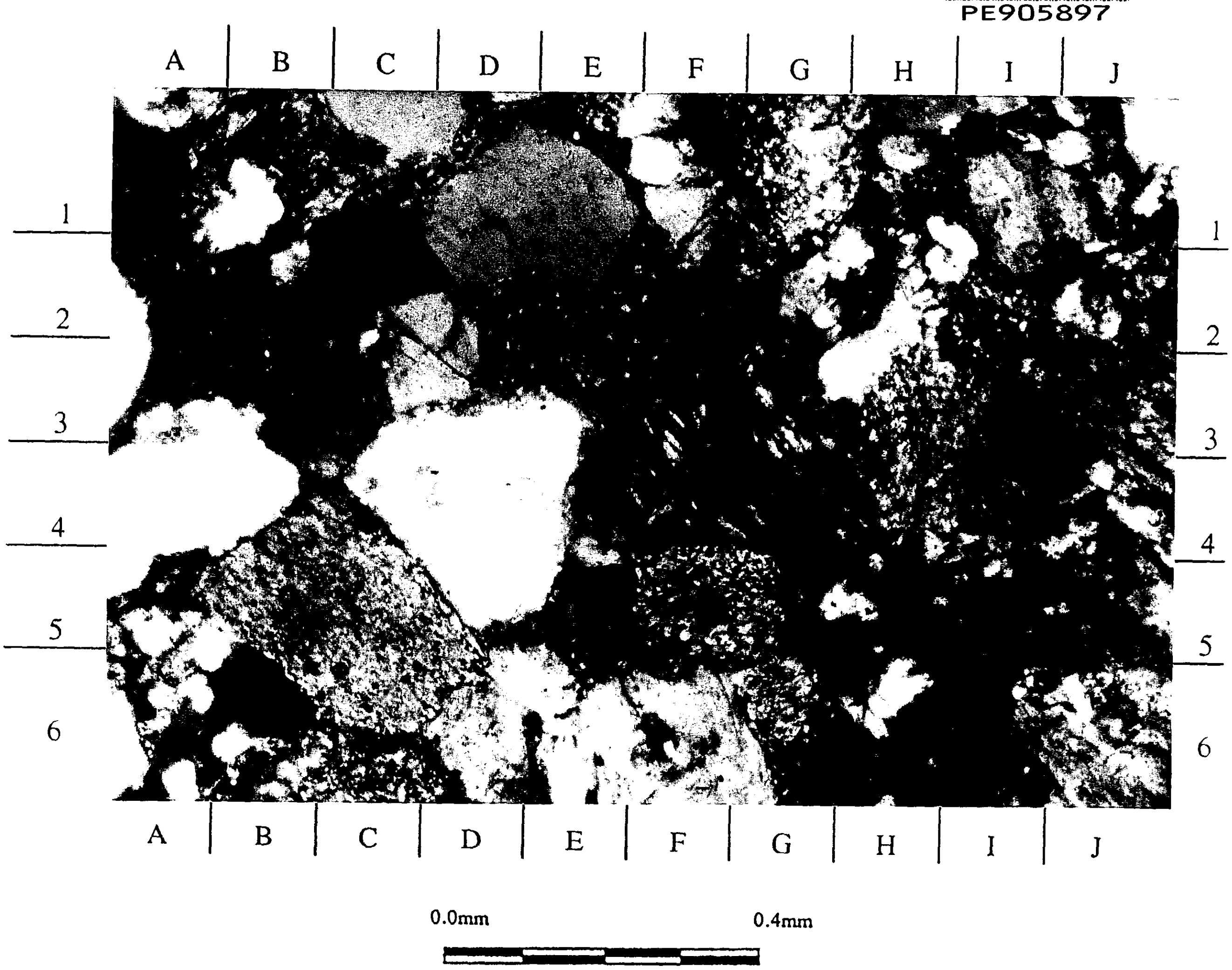

Figure 3. SWC 35 1464.4m x75.6 XPL
Massive litharenite. Feldspathic volcanic fragments are evident at F3.

PE905898

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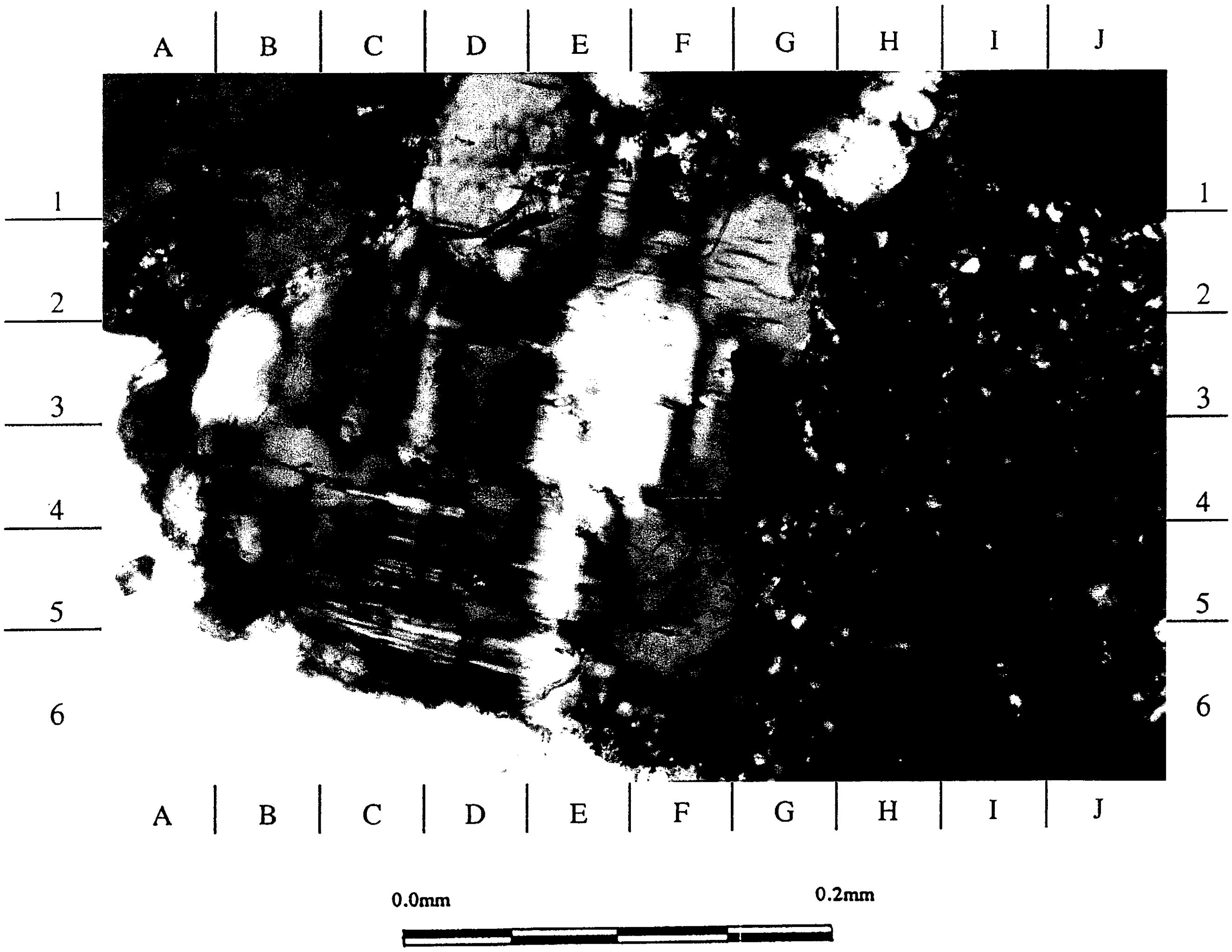

Figure 4. SWC 35 1464.4m x192 XPL
Detrital feldspar with authigenic kaolinite compacted into pore space (H5).

Sample: Digby-1 SWC 34 1465.7m

Mineralogy:

Detrital	Quartz	45.00%
	Feldspar	4.25%
	Chert	Trace
	Muscovite	1.00%
	Volcanic Fragments	10.00%
	Bituminous Material	3.25%
	Biotite	0.50%
	Garnet	Trace
	Zircon	Trace
Authigenic	Kaolinite	35.50%
	Sericite	0.50%
	Chlorite	Trace
	Ferroan Calcite	Trace

NB: The sample is a in poor condition. It is completely disaggregated making an accurate identification of the structure and fabric impossible.

Description:

The sample appears to be a massive sub-lithic quartz wacke. The sample appears to be matrix supported. However, it is not possible to ascertain if the sample is truly matrix supported or an artefact of the side wall coring process. The matrix is supplied by authigenic kaolinite and muscovite fragments. The matrix material is interpreted as having formed from the mixing of authigenic kaolinite, sericite and detrital muscovite during the side wall coring process. Cementation appears to be poor.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very coarse silt (0.05mm) to very coarse sand (1.20mm), with an average of approximately medium/coarse sand (0.50mm). Sorting appears to be moderate. The grain shape varies from angular to well rounded, with an average of sub-rounded. No authigenic silica overgrowths are evident. The grains predominantly display a weakly undulose extinction.

Feldspar grains within the sample have an average grain size of medium sand (0.35mm) and a generally tabular grain shape. Albite twinned, untwinned and polysynthetic twinned grains are evident, with albite twinned being dominant. A twin extinction angle of approximately 10° to 15° degrees has been measured indicating an albite to oligoclase composition. The feldspars are commonly partially leached and or altered to sericite. Ferroan calcite is present infilling the secondary pore space produced within the leached feldspars.

Both chert and volcanic rock fragments are present. All rock fragments display similar average size and shapes as that of the detrital quartz grains. The volcanic rock fragments are feldspathic. Sericitic and kaolinitic alteration of the feldspathic rock fragments is evident. A portion of the matrix material present may be the result of the disaggregation of partially altered and completely altered feldspathic volcanic fragments.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica and feldspars are still evident within the kaolinite accumulations.

Bituminous material is present in the form of elongate, discontinuous stringers.

Ferroan calcite is present in a massive sparry form within kaolinite accumulations and within partially leached feldspars. The ferroan calcite displays highly corrosive contacts with the detrital feldspars.

Sample: Digby-1 SWC 34 1465.7m continued

No porosity is present.

Diagenesis:

1. Seritisation of detrital grains
2. Kaolinisation of the micas and feldspars
3. Emplacement of ferroan calcite.

PE905899

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CLIENT_OP_CO =	GFE RESOURCES

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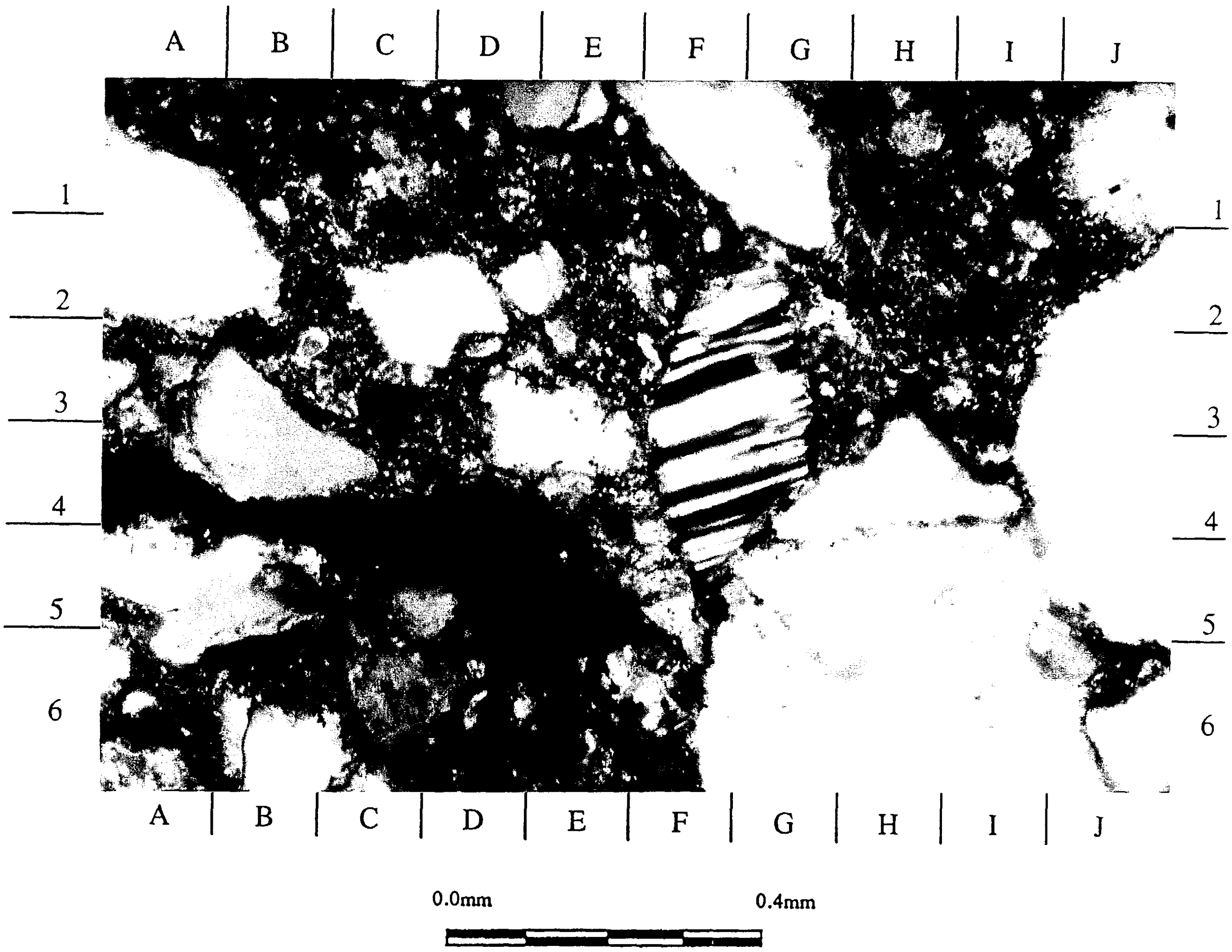

Figure 5. SWC 34 1465.7m x75.6 XPL
Massive quartz wacke. The disaggregated nature of the sample is clearly evident. Bituminous material is present at C4.

PE905900

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The enclosure PE905900 is enclosed within the container PE900874 at this location in this document.

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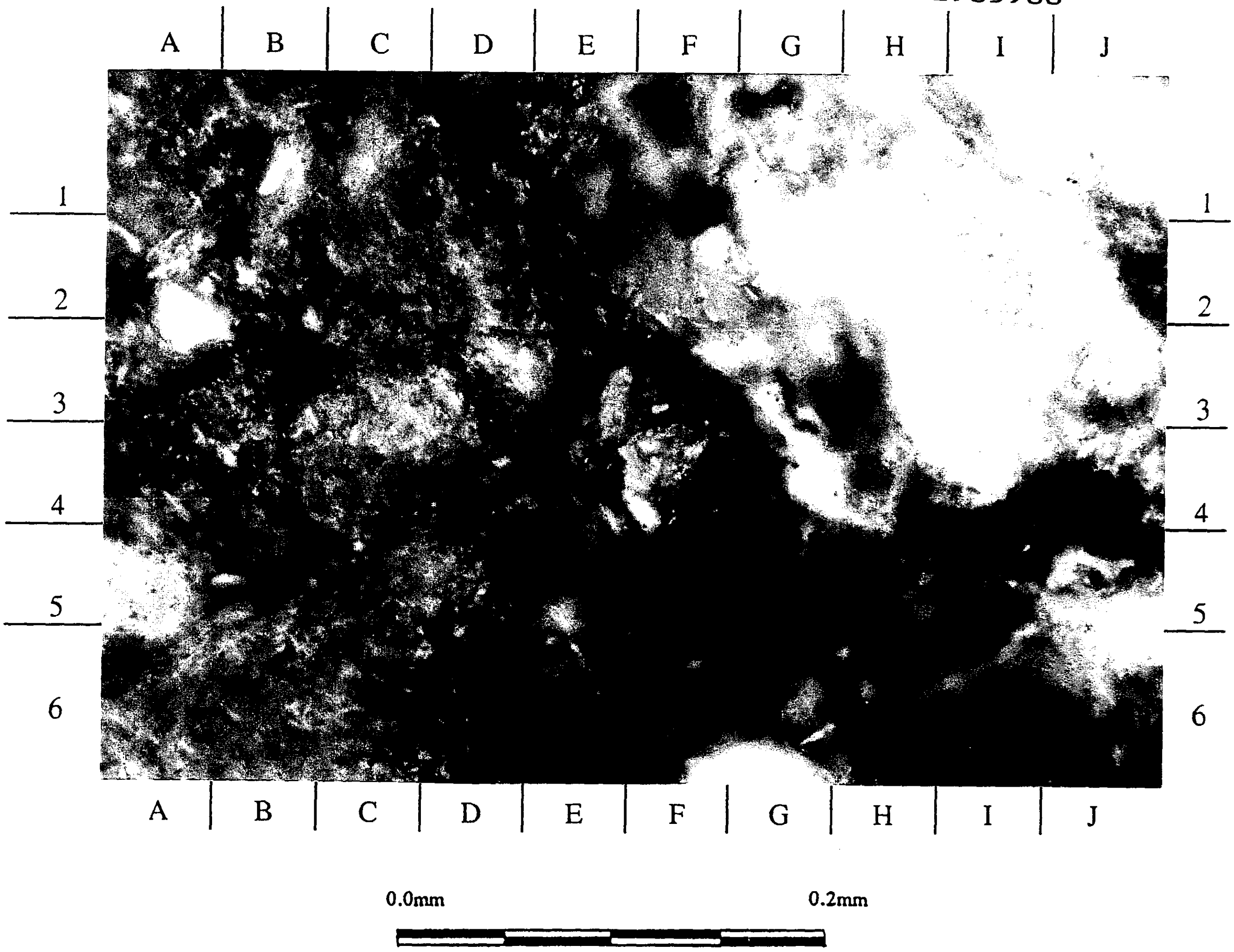

Figure 6. SWC 34 1465.7m x192 XPL
Matrix material. The matrix appears to be composed of kaolinite, sericite and shattered volcanic fragments.

Sample: Digby-1 SWC 33 1468.2m

Mineralogy:

Detrital	Quartz	60%
	Feldspar	10%
	Chert	5%
	Muscovite	2%
	Rock Fragments	10%
	Biotite	Trace
	Garnet	1%
	Rutile	Trace
Authigenic	Kaolinite	10%
	Sericite	2%
	Chlorite	Trace

NB: The sample is in a poor condition. It is completely disaggregated making an accurate identification of the structure and fabric impossible.

Description:

The sample appears to be a quartz arenite. No indication of the structure, fabric or cementation is evident.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.02mm) to coarse sand (0.95mm), with an average of approximately medium sand (0.38mm). Inaccuracies in the grain size may have occurred due to the shattered nature of the grains. Sorting appears to be moderate. The grain shape varies from very angular to rounded, with an average of sub-angular. No authigenic silica overgrowths are evident. The grains predominantly display a weakly undulose extinction.

Feldspar grains within the sample have an average grain size of medium sand (0.38mm) and a generally tabular grain shape. Albite twinned and polysynthetic twinned grains are evident, with albite twinning being dominant. A twin extinction angle of approximately 15° degrees has been measured, indicating an oligoclase composition. The feldspars are commonly partially leached and or altered to sericite.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica and feldspars are still evident within the kaolinite accumulations.

Minor rock fragments are also present. These are general partially or completely altered to authigenic sericite, kaolinite and chlorite.

No porosity is present.

Diagenesis:

1. Seritisation of detrital grains
2. Kaolinisation of the micas, feldspars and rock fragments.

PE905901

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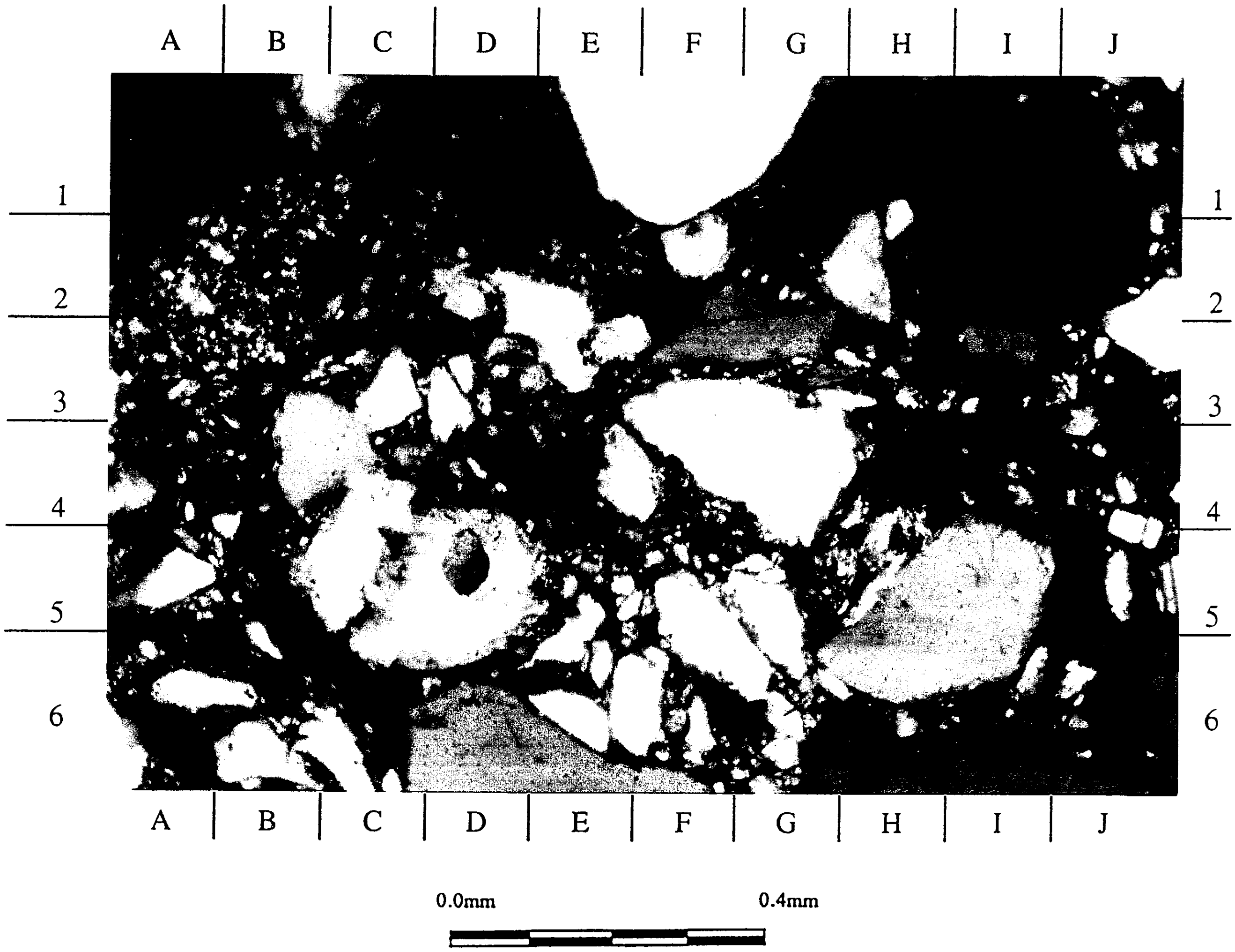

Figure 7. SWC 33 1468.2m x75.6 XPL
Quartz arenite. The disaggregated and shattered nature of the sample is clearly evident. Authigenic kaolinite is present, compacted into the intergranular pore space.

PE905902

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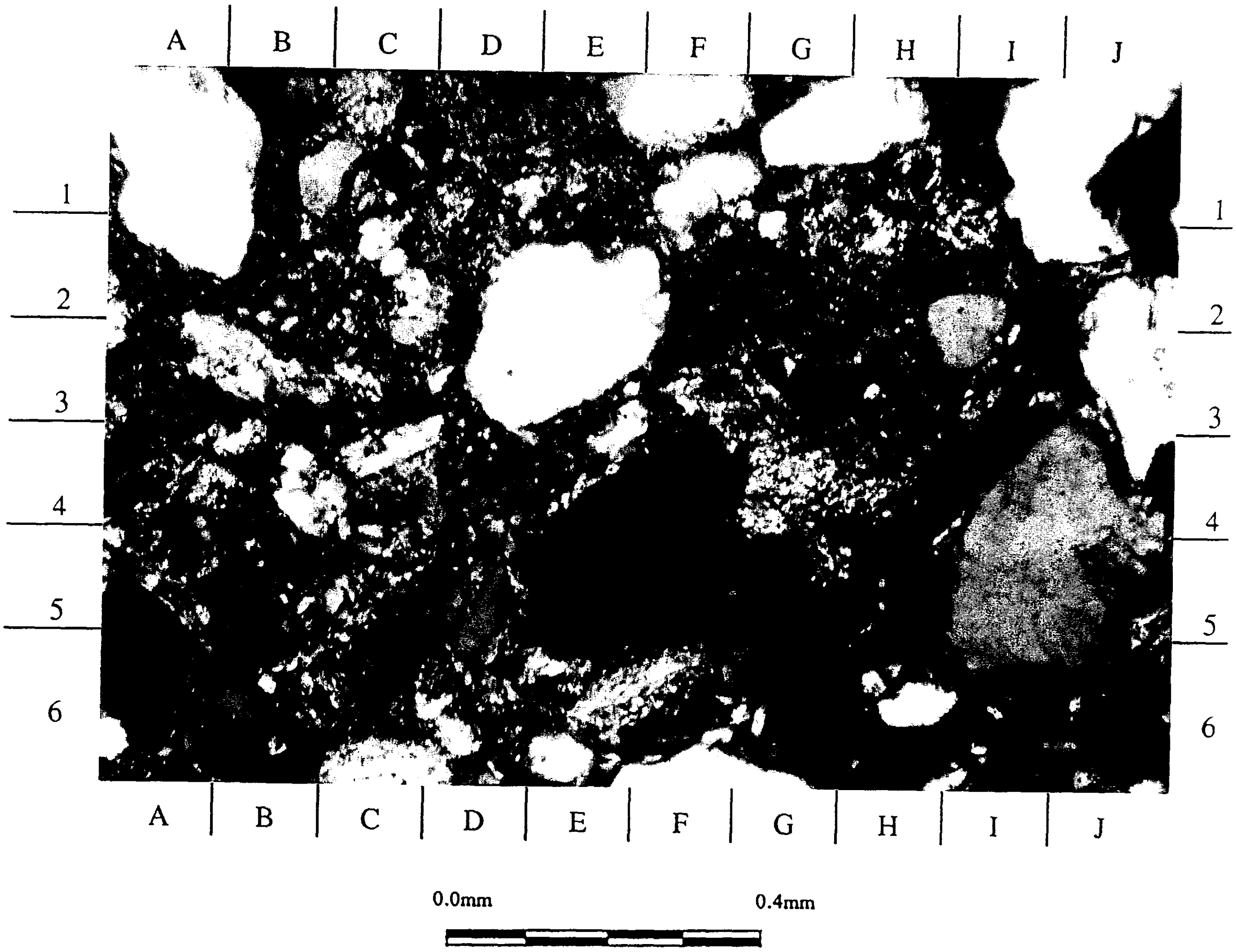

Figure 8. SWC 33 1468.2m x75.6 XPL
Quartz arenite. The disaggregated and shattered nature of the sample is clearly evident. Authigenic kaolinite is present, compacted into the intergranular pore space.

Sample: Digby-1 SWC 31 1496.2m

Mineralogy:

Detrital	Quartz	59.00%
	Feldspar	3.25%
	Muscovite	2.50%
	Volcanic Fragments	25.5%
	Biotite	0.25%
	Glauconite	Trace
	Garnet	Trace
	Zircon	Trace
Authigenic	Kaolinite	6.25%
	Sericite	1.25%
	Dolomite	Trace
	Ferroan Calcite	Trace
	Pyrite	2%

NB: The sample is in a poor condition. It is completely disaggregated making an accurate identification of the structure and fabric impossible. A matrix material composed of shattered grains and clays is also present

Description:

The sample appears to be a massive lithic quartz wacke. It is not possible to determine whether it is matrix or grain supported due to the poor condition of the sample. Cementation appears to be to poor, with clays providing the cement.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.03mm) to coarse sand (1.00mm), with an average of approximately medium sand (0.30mm). The apparent grain size may be misleading due to the shattered nature of the grains. Sorting appears to be poor. The grain shape varies from very angular to rounded, with an average of angular. No authigenic silica overgrowths are evident. The grains predominantly display a weakly undulose extinction.

Feldspar is also present in the form of a framework grain. It has a size range of coarse silt (0.02mm) to coarse sand (0.58mm), with an average of approximately medium sand (0.40mm) and a generally tabular grain shape. Albite twinned, untwinned and polysynthetic twinned grains are evident, with albite twinning being dominant. A twin extinction angle of approximately 10° degrees has been measured, indicating an albite/oligoclase composition. The feldspars are commonly partially leached and/or altered to sericite. Ferroan calcite is present infilling secondary pore space within leached feldspars.

Both chert and volcanic rock fragments are present. All rock fragments display similar average sizes and shapes as that of detrital quartz grains. The volcanic rock fragments are feldspathic. Sericitic and kaolinitic alteration of the feldspathic rock fragments is evident. A portion of the matrix material present may be the result of the disaggregation of the partially altered and completely altered feldspathic volcanic fragments.

Authigenic kaolinite in the form of massive matrix material is also present. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica and feldspars are still evident within the kaolinite accumulations.

Ferroan calcite is present in a massive sparry form within both kaolinite accumulations and partially leached feldspars. The ferroan calcite displays highly corrosive contacts with the detrital feldspars.

No porosity is present.

Sample: Digby-1 SWC 31 1496.2m continued

Diagenesis:

1. Seritisation of detrital grains
2. Kaolinisation of the micas and feldspars and volcanic fragments
3. Emplacement of ferroan calcite.

PE905903

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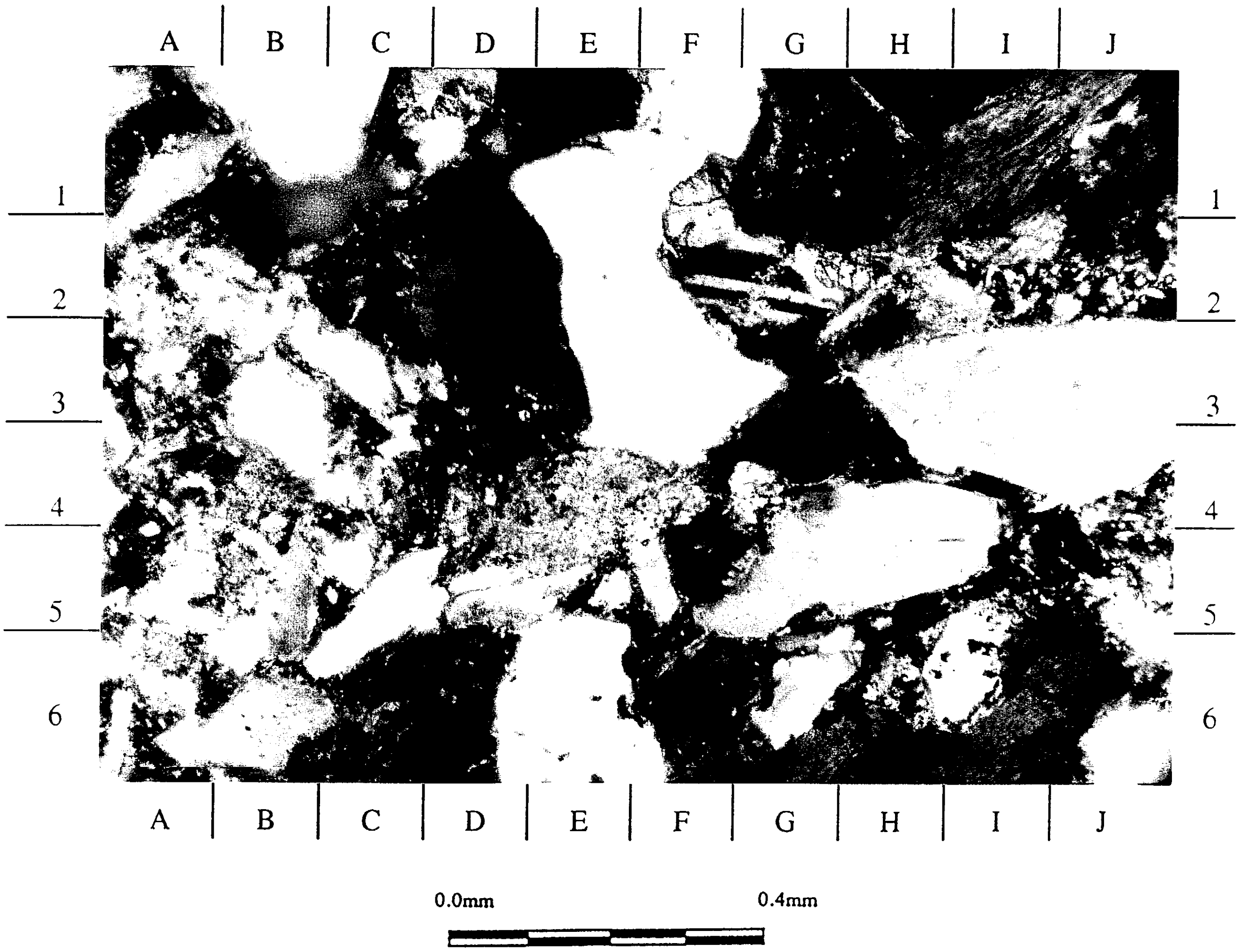

Figure 9. SWC 31 1496.2m x75.6 XPL
Massive quartz arenite. Volcanic rock fragments are evident at B5. Ferroan calcite displays corrosive contacts with detrital quartz and feldspar grains at F1.

PE905904

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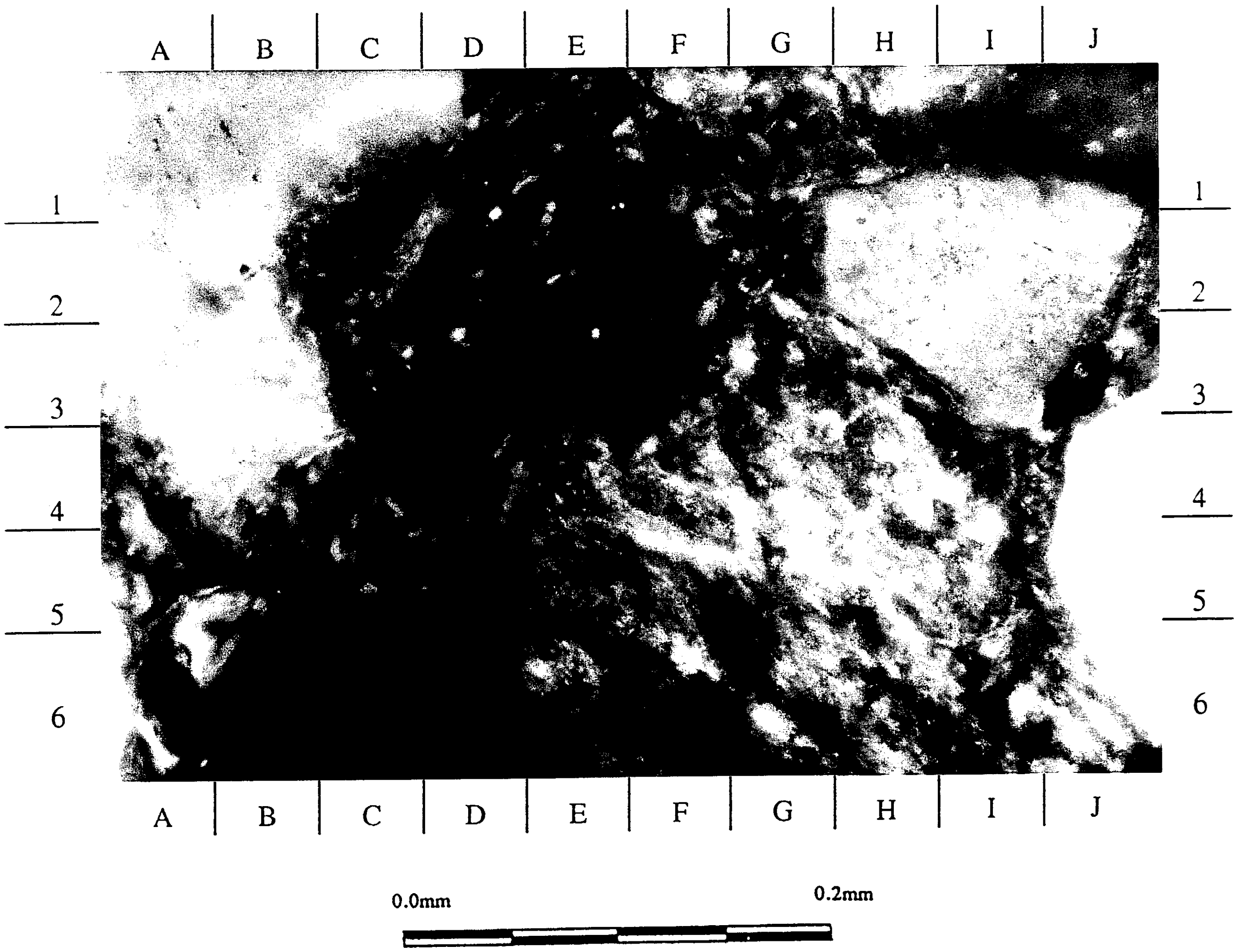

Figure 10. SWC 31 1496.2m x192 XPL
Authigenic kaolinite infilling intergranular pore space. A volcanic rock fragment is evident at H5.

Sample: Digby-1 SWC 26 1608.2m

Mineralogy:

Detrital	Quartz	59%
	Feldspar	2%
	Chert	1%
	Muscovite	1%
	Volcanic Fragments	1%
	Biotite	Trace
	Rock Fragments	3%
Authigenic	Kaolinite	30%
	Chlorite	3%
	Sericite	Trace
	Ferroan Calcite	Trace
	Pyrite	Trace

NB: The sample is in a generally poor condition. The sampling process has resulted in most of the sample being disaggregated and many grains being shattered.

Description:

The sample is a massive quartz wacke. It appears to be predominantly matrix supported, with authigenic kaolinite providing the matrix. It is unclear whether the sample is truly matrix supported rather than a result of sample deformation. Cementation appears to be very poor with compaction and clays providing the main binding forces.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very coarse silt (0.06mm) to coarse sand (0.90mm), with an average of approximately coarse sand (0.55mm). The minimum grain size may be misleading due to the shattered nature of the sample. Sorting appears to be moderate to good. The grain shape varies from angular to well rounded, with an average of rounded. No authigenic silica overgrowths are evident. The grains predominantly display weakly undulose extinctions.

Feldspar within the sample displays similar grain sizes as detrital quartz grains. The grains tend to be sub-angular in shape. Polysynthetic twinned and albite twinned varieties are evident. No accurate twin extinction angle could be obtained from the albite twinned grains. Leaching of the albite twinned grains is common.

Detrital muscovite is present as partially kaolinised laths and as granular traces within the kaolinite accumulations. The unaltered laths are generally bent and broken with some exfoliation on the ends of the grains. A trace of chloritised micas are also evident.

Both chert and volcanic rock fragments are evident. The volcanic fragments are commonly heavily altered and are interpreted as having formed the majority of the kaolinitic matrix. Authigenic sericite is also associated with both the chert and volcanic rock fragments.

Authigenic chlorite is present as in situ alteration of detrital micas (biotite) and as very thin fibrous coatings on the rims of quartz grains. This fibrous rim coating may have formed as a result of the in situ alteration of detrital clays, which may have accumulated on the outside of detrital grains prior to deposition. Some of the authigenic chlorite is also due to the alteration of volcanic fragments.

Authigenic kaolinite is also present, in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars, rock fragments and micas. Traces of mica and feldspars are still evident within the kaolinite accumulations. Compaction and disruption during the side wall coring process has led to the kaolinite forming the matrix material.

Sample: Digby-1 SWC 26 1608.2m continued

Ferroan calcite is present in a massive sparry form within the kaolinite accumulations and within partially leached feldspars. The ferroan calcite displays highly corrosive contacts with the detrital feldspars.

No porosity is present.

Diagenesis:

1. Chloritisation of the biotite
2. Seritisation of detrital grains
3. Kaolinisation of the micas and feldspars
4. Emplacement of ferroan calcite.

PE905905

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CONTRACTOR =	GFE RESOURCES LTD
CLIENT_OP_CO =	GFE RESOURCES

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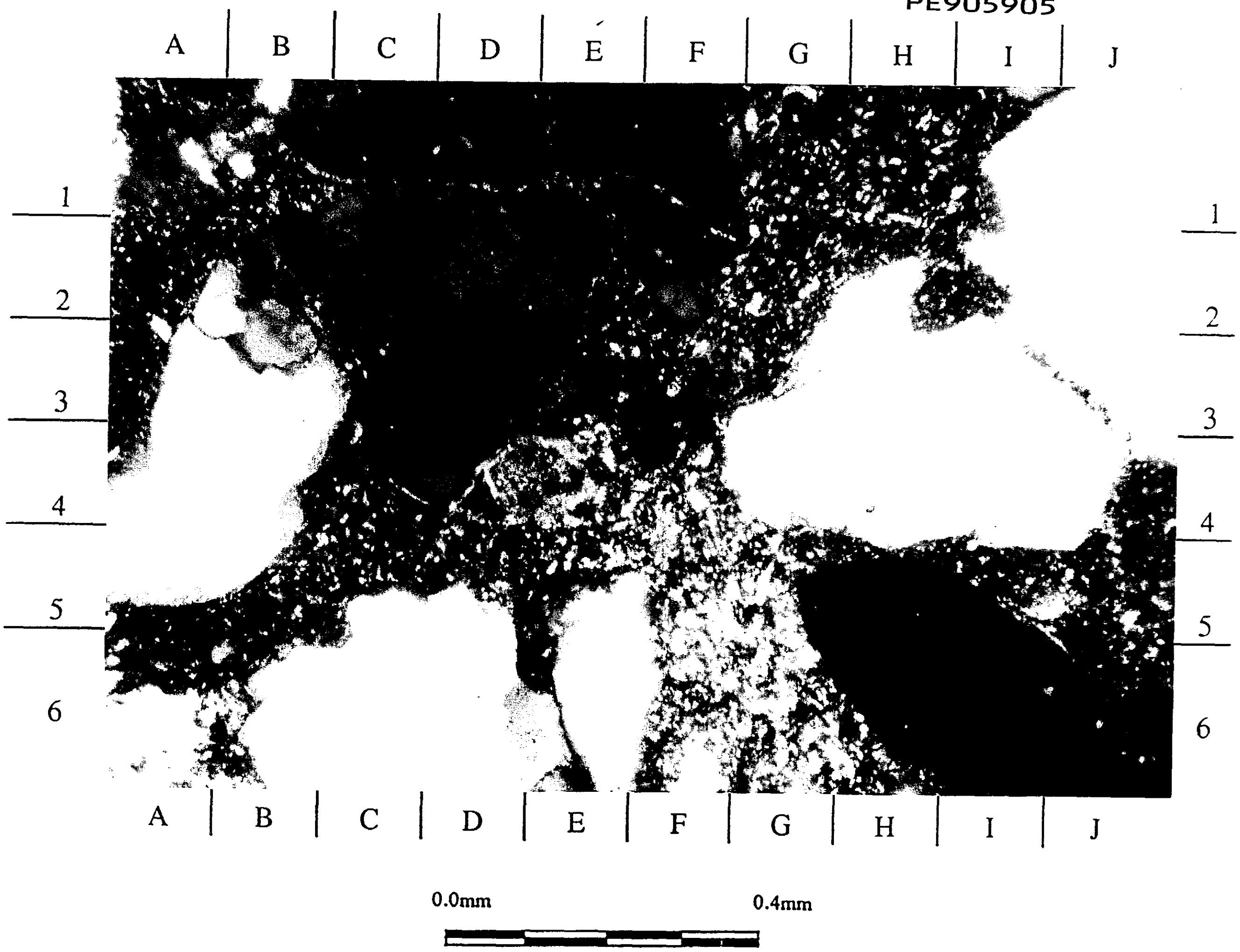

Figure 11. SWC 26 1608.2m 75.6 XPL
Massive quartz wacke. Detrital quartz grains within an authigenic kaolinite matrix. A partially kaolinised muscovite grains is present at G6.

PE905906

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(Inserted by DNRE - Vic Govt Mines Dept)

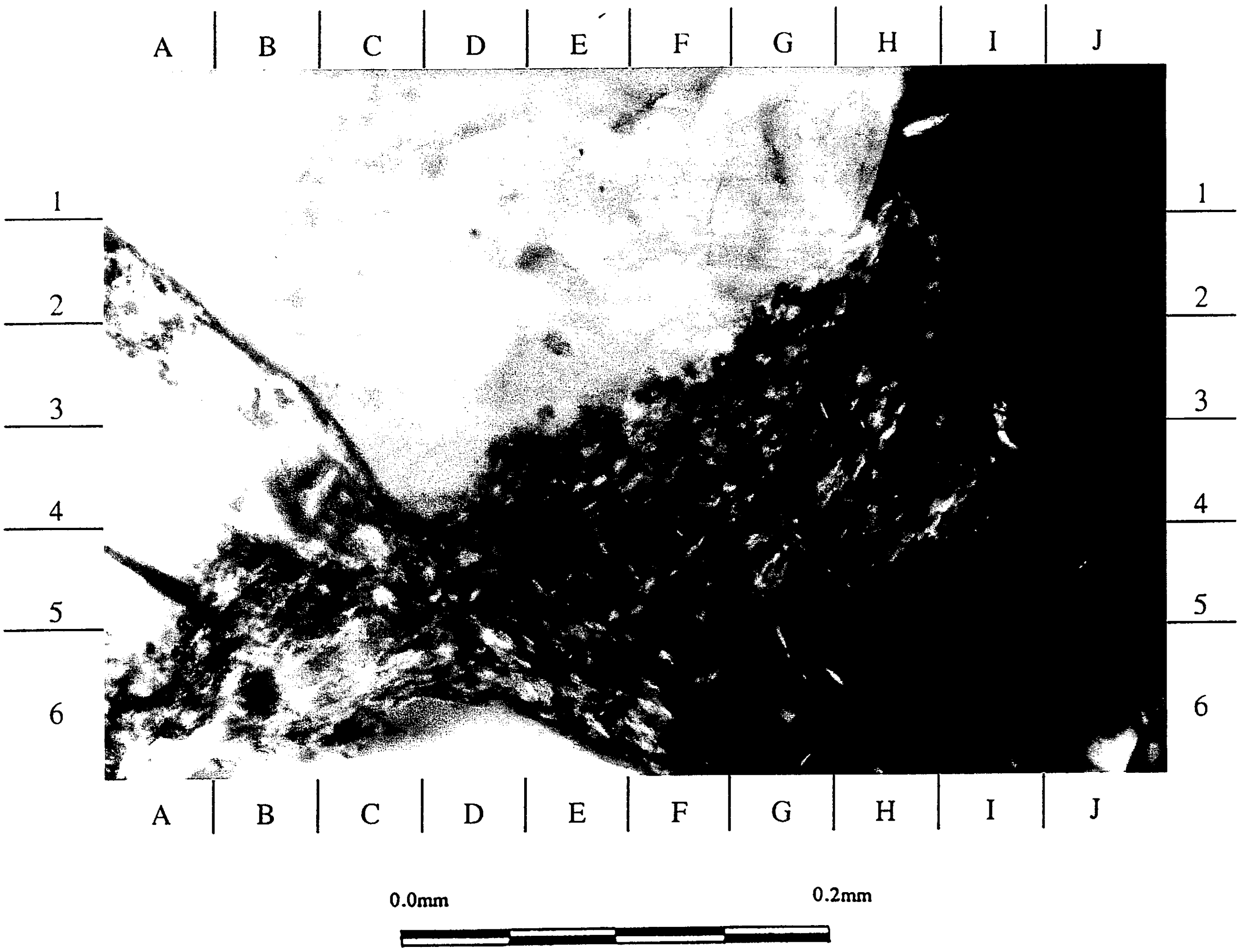

Figure 12. SWC 26 1608.2m 192 XPL
Authigenic kaolinite replacing a detrital muscovite grains (B5). The kaolinite has been compacted into the intergranular pore space.

Sample: Digby-1 SWC 23 1872.7m

Mineralogy:

Detrital	Quartz	64%
	Feldspar	2%
	Chert	2%
	Muscovite	15%
	Rock Fragments	4%
	Biotite	Trace
	Rutile	Trace
	Garnet	Trace
	Zircon	Trace
Authigenic	Kaolinite	10%
	Chlorite	2%
	Sericite	5%
	Pyrite	Trace

NB: The sample is in a generally poor condition. Large portions of the sample are disaggregated and heavily shattered.

Description:

The sample is a quartz wacke. It displays a weak lineation, defined by the alignment of the elongate axis of detrital grains. The sample is predominantly grain supported, with grain boundaries displaying concave/convex contacts. Cementation appears to be moderate with authigenic silica providing the dominant visible cement.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.03mm) to medium sand (0.50mm), with an average of approximately medium sand (0.35mm). Sorting appears to be moderate to good. The grain shape varies from angular to rounded, with an average of sub-angular. A trace of authigenic silica overgrowths are present. The overgrowths are generally thin and discontinuous. The grains predominantly display a weakly undulose extinction.

The feldspar grains are present as minor framework grains. They display similar grain sizes as the detrital quartz grains, and are generally tabular in shape. Albite twinned and untwinned grains are evident, with untwinned grains being dominant. An accurate measurement of the twin extinction angle is not possible. Minor leaching of the albite twinned grains is common.

Detrital muscovite is present as partially kaolinised laths and as granular traces within the kaolinite accumulations. The unaltered laths are generally bent and broken with some exfoliation on the ends of the grains. A trace of chloritised mica (biotite) is also evident.

Both chert and volcanic rock fragments are present. All rock fragments display a similar average size and shape as that of the detrital quartz grains. The volcanic rock fragments are predominantly feldspathic. Sericitic and kaolinitic alteration of the feldspathic rock fragments is common.

A matrix of kaolinite and micaceous material is present within some portions of the sample. This is interpreted as having formed as a result of deformation of the sample during the side wall coring process.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars, volcanic rock fragments and micas. Traces of mica and feldspars are still evident within the kaolinite accumulations. Authigenic chlorite and sericite are also present, these are interpreted as having formed from the alteration of detrital volcanic fragments. The authigenic minerals have commonly pseudomorphed the rock fragments.

Sample: Digby-1 SWC 23 1872.7m continued

An unusually high percentage of heavy minerals, particularly rutile, is evident within this sample.

A trace of secondary porosity has been produced from the leaching of detrital feldspar. An accurate assessment of the percentage of this porosity is impossible due to the shattered nature of the sample. However, it is interpreted as being in trace amounts. No primary porosity is evident.

Diagenesis:

1. Silica cementation
2. Pyritisation ?
3. Chloritisation of the biotite and volcanic fragments
4. Seritisation of detrital grains
5. Kaolinisation of the micas and feldspars

PE905907

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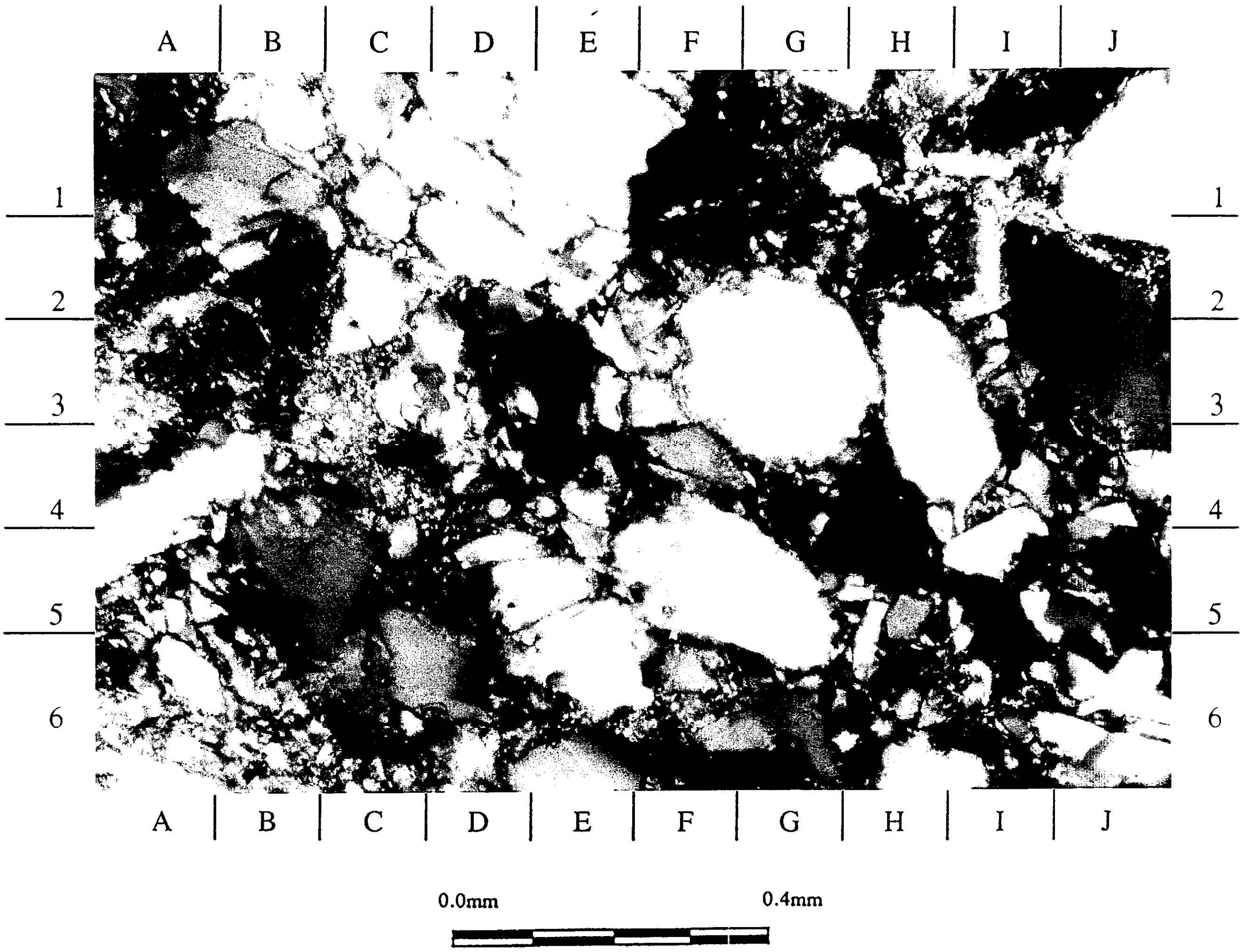

Figure 13. SWC 23 1872.7m x75.6 XPL
Quartz wacke. The shattered and predominantly disaggregated nature of the sample is evident.

PE905908

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(Inserted by DNRE - Vic Govt Mines Dept)

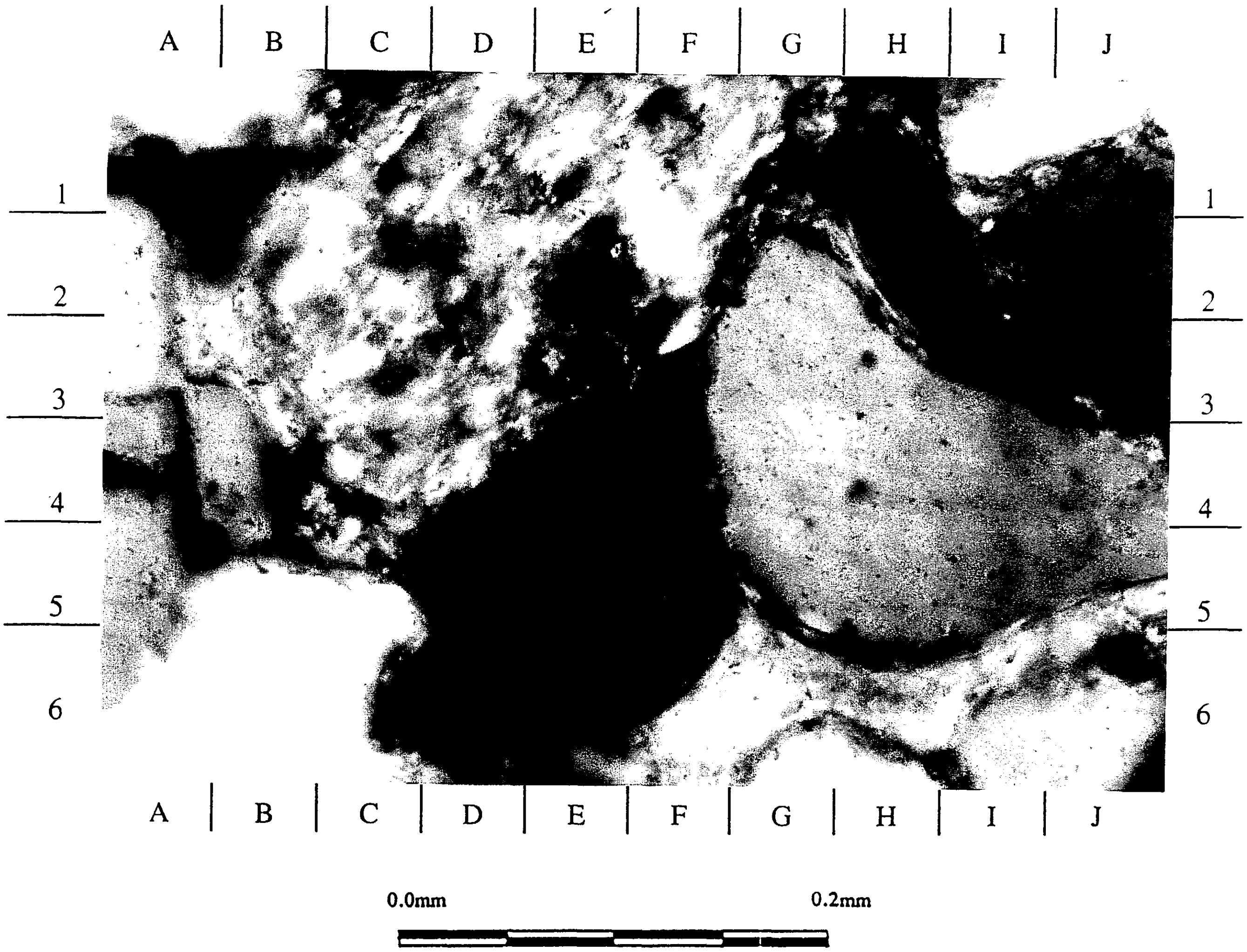

Figure 14. SWC 23 1872.7m x192 XPL
Detrital quartz with sericitic and kaolinitic clays compacted along the margins of the detrital grains.

Sample: Digby-1 SWC 19 1923.9m

Mineralogy:

Detrital	Quartz	46%
	Feldspar	8%
	Chert	2%
	Muscovite	1%
	Bituminous Material	8%
	Tourmaline	Trace
	Garnet	Trace
Authigenic	Dolomite	10%
	Ferroan Calcite	25%

NB: The sample is in a poor condition. It is completely disaggregated making an accurate identification of the structure and fabric impossible.

Description:

The sample appears to be a dolomitic quartz arenite. It displays a strong lineation, defined by elongate dolomite accumulations and a weak alignment of the elongate axes of detrital grains. The sample is predominantly grain supported, with grain boundaries displaying concave/convex contacts. Cementation appears to be moderately good, with authigenic dolomite and ferroan calcite providing the cements.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very coarse silt (0.04mm) to very coarse sand (1.55mm), with an average of approximately coarse sand (0.75mm). Sorting appears to be moderate. The grain shape varies from very angular to well rounded, with an average of sub-angular. No authigenic silica overgrowths are evident. The grains predominantly display a weakly undulose extinction.

Two coaly fragments are present. These display a strong cell structure. Dark, organic, probably bituminous, material is also present. The bituminous material occurs as elongate stringers aligned with the sample lineation.

Detrital muscovite laths are present bent and broken between the framework grains. The muscovite is generally partially kaolinised. Completely kaolinised muscovite is also present.

Authigenic dolomite is present in a micritic granular form, and appears to be replacing detrital muscovite. The dolomite has also completely replaced other detrital grains, no evidence as to the original grains remain. However, the shape of the accumulations tend to indicate the replacement of detrital clays. The dolomite also displays corrosive contacts with the quartz grains.

Ferroan calcite is present in a massive sparry form. It has completely replaced detrital grains. No evidence as to the original grain type remains. The ferroan calcite has also infilled all porosity within the partially dolomitised grains. Porosity within the coaly material has also been infilled by ferroan calcite.

No porosity is present.

Diagenesis:

1. Dolomitisation of micas and ?clays
2. Kaolinisation of the micas
3. Emplacement of ferroan calcite.

PE905909

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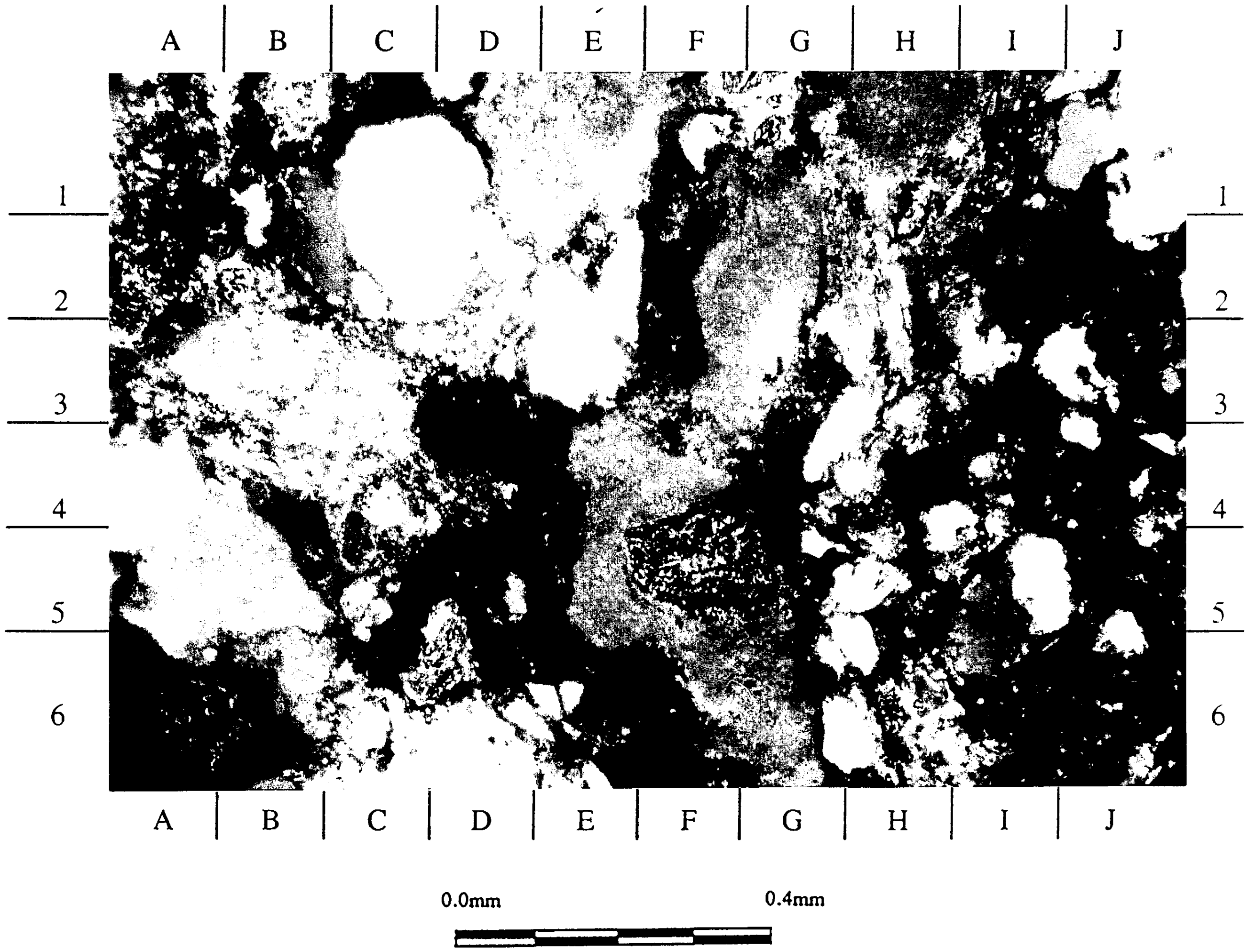

Figure 15. SWC 19 1923.9m x75.6 XPL
Dolomitic quartz sandstone. Authigenic dolomite in a fine micritic form (eg. F2). Ferroan calcite (stained blue) occurs as a sparry replacement of detrital grains (eg. F4). Bituminous material is evident, running along the margin of the dolomite.

PE905910

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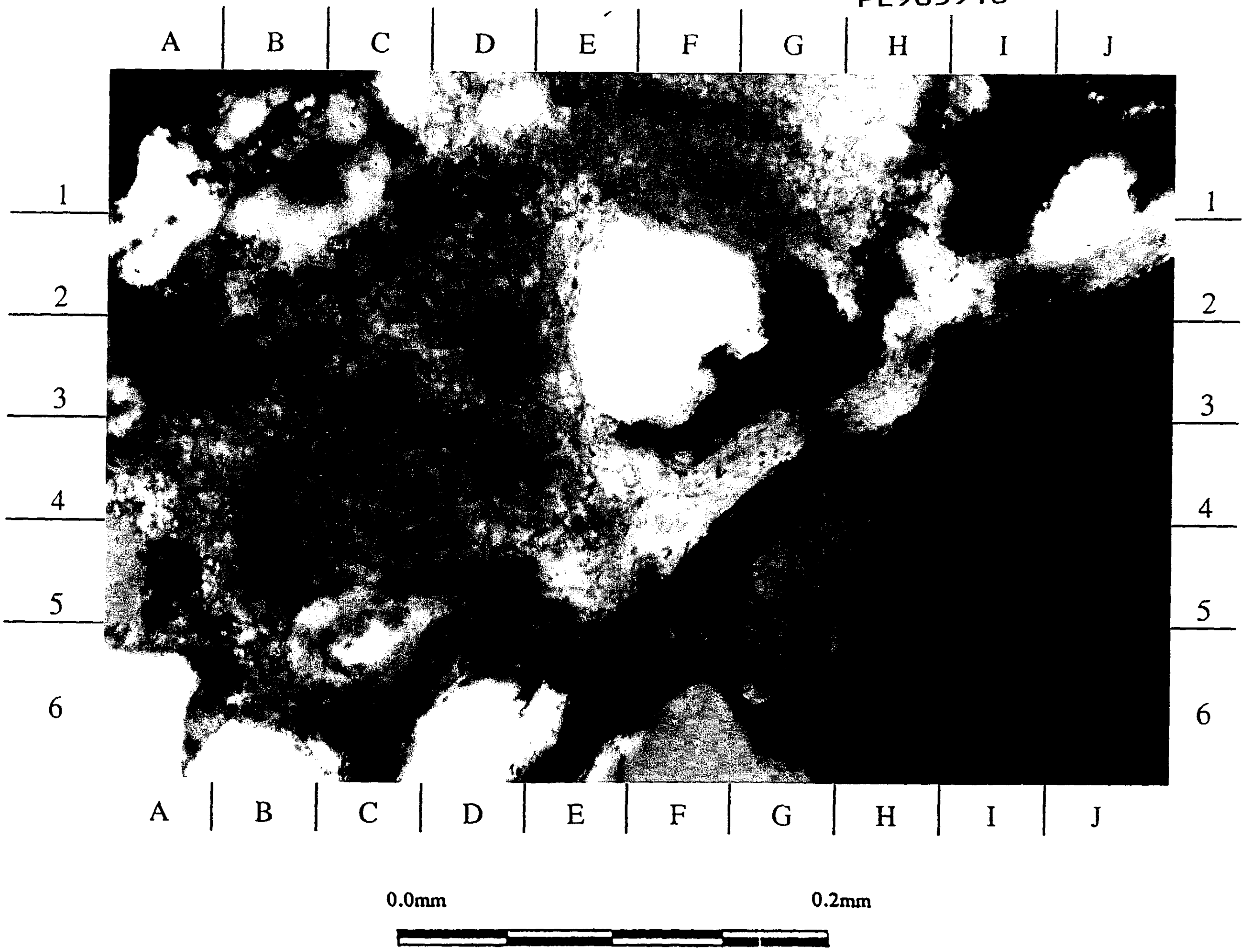

Figure 16. SWC 19 1923.9m x192 XPL
Micritic dolomite, with bituminous material (F3) and a detrital muscovite grain. The dolomite displays corrosive contacts with the detrital quartz grains (eg. E2).

Sample: Digby-1 SWC 17 1931.3m

Mineralogy:

Detrital	Quartz	58.00%
	Muscovite	2.25%
	Bitumen	25.00%
	Biotite	1.00%
	Rock Fragments	0.75%
	Tourmaline	Trace
Authigenic	Dolomite	8.50%
	Kaolinite	1.00%
	Sericite	3.50%
	Chlorite	Trace

NB: The sample is in a very poor condition. The sampling process has resulted in the majority of the sample being disaggregated and many of the grains shattered.

Description:

The sample is a dolomitic quartz arenite. It displays a strong lineation, defined by elongate bituminous stringers and dolomitised micas. The sample is predominantly grain supported, with grain boundaries displaying point to sutured contacts. The sutured contacts are preferentially associated with boundaries which have a bituminous coating. Cementation appears to be moderate, with bitumen providing the dominant cement.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very fine sand (0.09mm) to granules (4.20mm), with an average of approximately coarse sand (0.90mm). Sorting is poor. The grain shape varies from very angular to rounded, with an average of sub-angular. No authigenic silica overgrowths are evident. The grains predominantly display weakly undulose extinctions.

Both muscovite and biotite laths are evident. The biotite laths display brown pleochroism. Chloritisation of the biotite is common and in many cases the laths have been completely chloritised. The majority of the micas have generally been partially or, more commonly, completely dolomitised. No conclusive evidence for the relative timing of the dolomitisation and chloritisation exists, however it is interpreted that the chlorite pre-dates the dolomite. The dolomite is present in a micritic granular form. Minor staining from the bituminous material is evident on the dolomite accumulations.

Authigenic dolomite is present in a micritic granular form, and appears to be replacing detrital muscovite. The dolomite has also completely replaced other detrital grains, no evidence as to the original grains remain. However, the shape of the accumulations tend to indicate the replacement of detrital clays. The dolomite also displays corrosive contacts with the quartz grains.

Authigenic sericite is present as completely replaced detrital grains.

Bituminous material is present in the form of discontinuous, elongate stringers. These display corrosive contacts with the detrital quartz grains.

No porosity is present.

Diagenesis:

1. Chloritisation of the biotite
2. Seritisation of detrital grains
3. Kaolinisation of the micas and feldspars
4. Dolomitisation of the micas and ?detrital clays

PE905911

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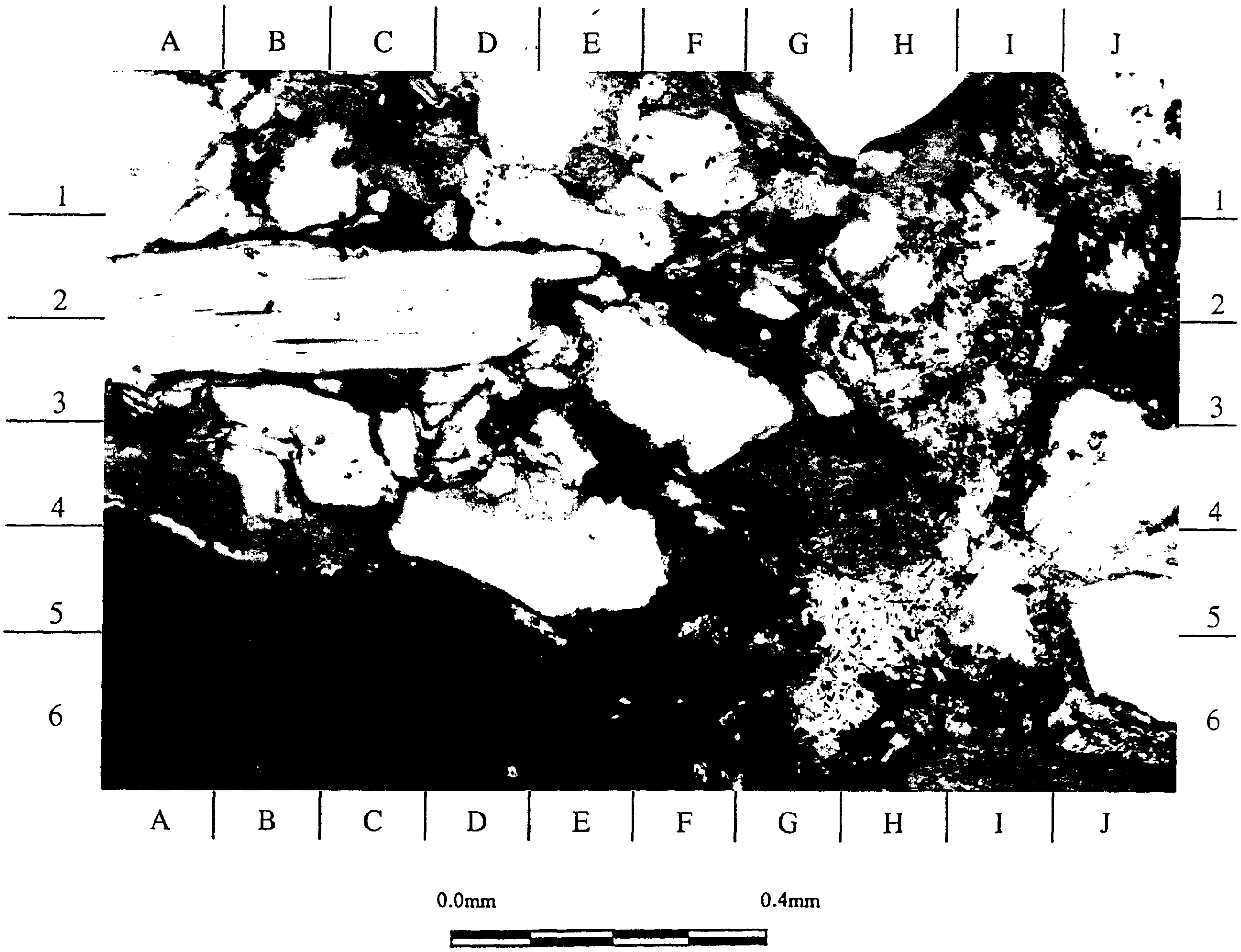

Figure 17. SWC 17 1931.3m x75.6 PPL
Dolomitic quartz arenite. Authigenic dolomite is present as a replacement of detrital material and is in the form of elongate, micritic detrital stringers. The bituminous material occurs as elongate stringers wrapping around the detrital grains and authigenic dolomite accumulations.

PE905912

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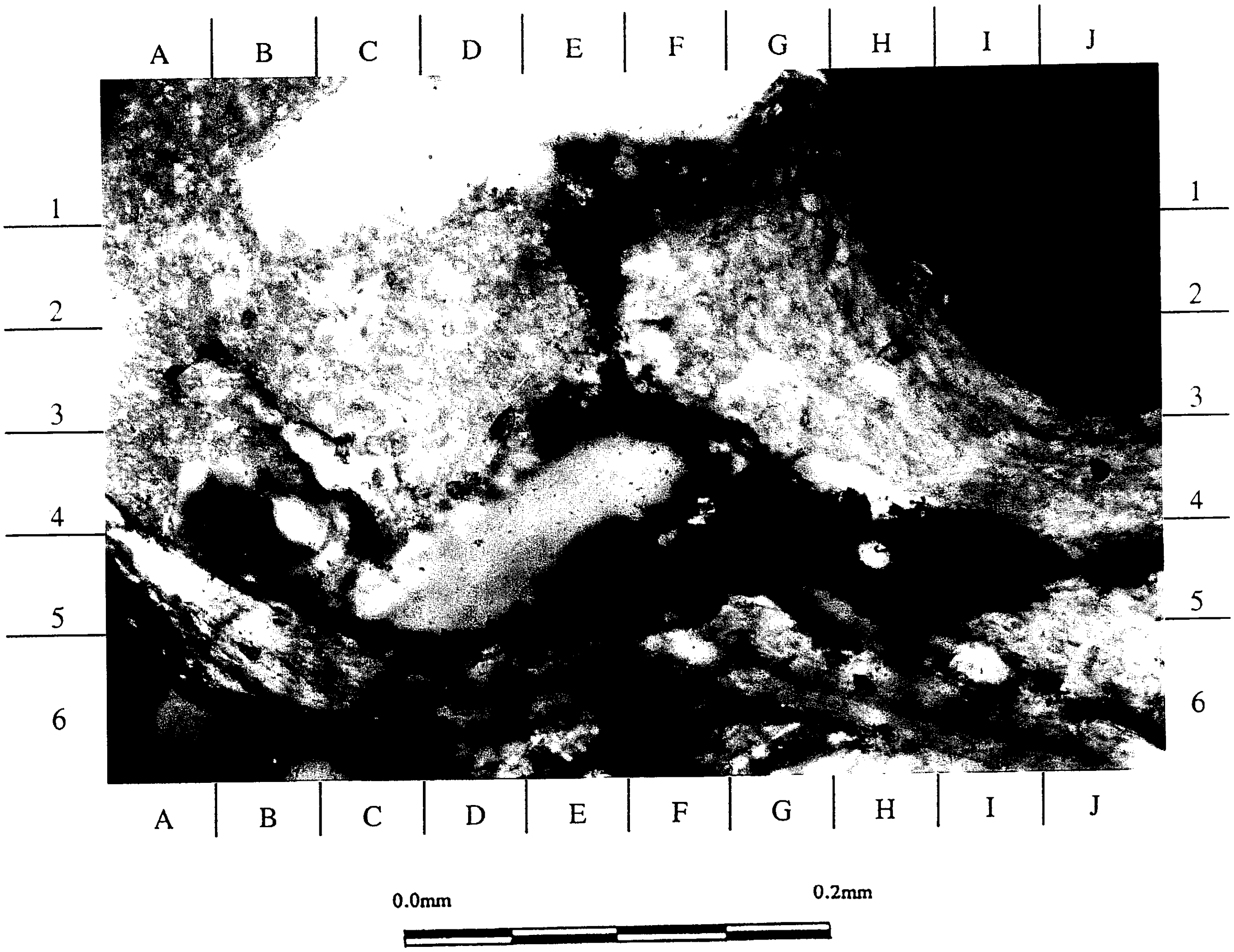

Figure 18. SWC 17 1931.3m x192 XPL
Micritic authigenic dolomite (eg. F2) and black bituminous material. The dolomite is replacing a detrital muscovite grain at A5.

Sample: Digby-1 SWC 15 1938.7m

Mineralogy:

Detrital	Quartz	61.25%
	Muscovite	3.50%
	Biotite	0.50%
	Rock Fragments	0.50%
	Feldspar	0.25%
Authigenic	Dolomite	11.00%
	Kaolinite	9.75%
	Sericite	7.75%
	Chlorite	1.75%
	Ferroan Calcite	3.75%
	Silica	Trace

NB: The sample is in a generally poor condition. The sampling process has resulted in most of the sample being disaggregated and many of the grains shattered.

Description:

The sample is a massive quartz wacke. It appears to be predominantly matrix supported, with detrital and authigenic clays providing the matrix. Cementation appears to be very poor with compaction and clays providing the main binding forces.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.02)mm to coarse sand (1.00mm), with an average of approximately medium sand (0.40mm). The minimum grain size may be misleading due to the shattered nature of the sample. Sorting appears to be moderate to poor. The grain shape varies from very angular to rounded, with an average of sub-angular. No authigenic silica overgrowths are evident. Authigenic silica is present in the form of euhedral grains, which have grown in situ within an open pore spaces. The grains predominantly display weakly undulose extinctions.

Both muscovite and biotite laths are evident. The biotite laths display brown pleochroism. Chloritisation of the biotite is common and in many cases the laths have been completely chloritised. The muscovite laths are generally partially or completely altered to authigenic kaolinite. Dolomite replacement of both micas is evident.

Authigenic dolomite is present in a micritic granular form. The dolomite has partially or completely replaced many of the detrital micas and authigenic chlorite. Some of the completely dolomitised grains may have also been detrital clay accumulations. This is indicated by the shape of the dolomite accumulations.

Ferroan calcite is present in a massive sparry form and appears to be infilling both primary and secondary porosity. The primary porosity is in the form of a single cavity. The cavity is partially lined by euhedral quartz grains, which appear to have grown insitu. The authigenic silica crystals have also completely infilled one cavity. The ferroan calcite has completely infilled the pore space. No indication as to the original detrital mineral that has been removed to form the secondary pore space which has been infilled by the ferroan calcite.

Authigenic sericite is present and is associated with the matrix material. This is interpreted as having formed from the alteration of detrital minerals and then being distributed throughout the matrix by the disruption caused by the side wall coring process.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas. Traces of mica are still evident within the kaolinite. Compaction and disruption during the side wall coring process has led to the kaolinite forming the matrix material.

Sample: Digby-1 SWC15 1938.7m continued

No porosity is present. Traces of primary and secondary porosity was present, however, this has been completely filled by authigenic ferroan calcite.

Diagenesis:

1. Chloritisation of the biotite
2. Seritisation of detrital grains
3. Kaolinisation of the micas and feldspars
4. Dolomitisation of the micas and ?detrital clays
5. Formation of secondary porosity due to grain leaching
6. Emplacement of ferroan calcite.

PE905913

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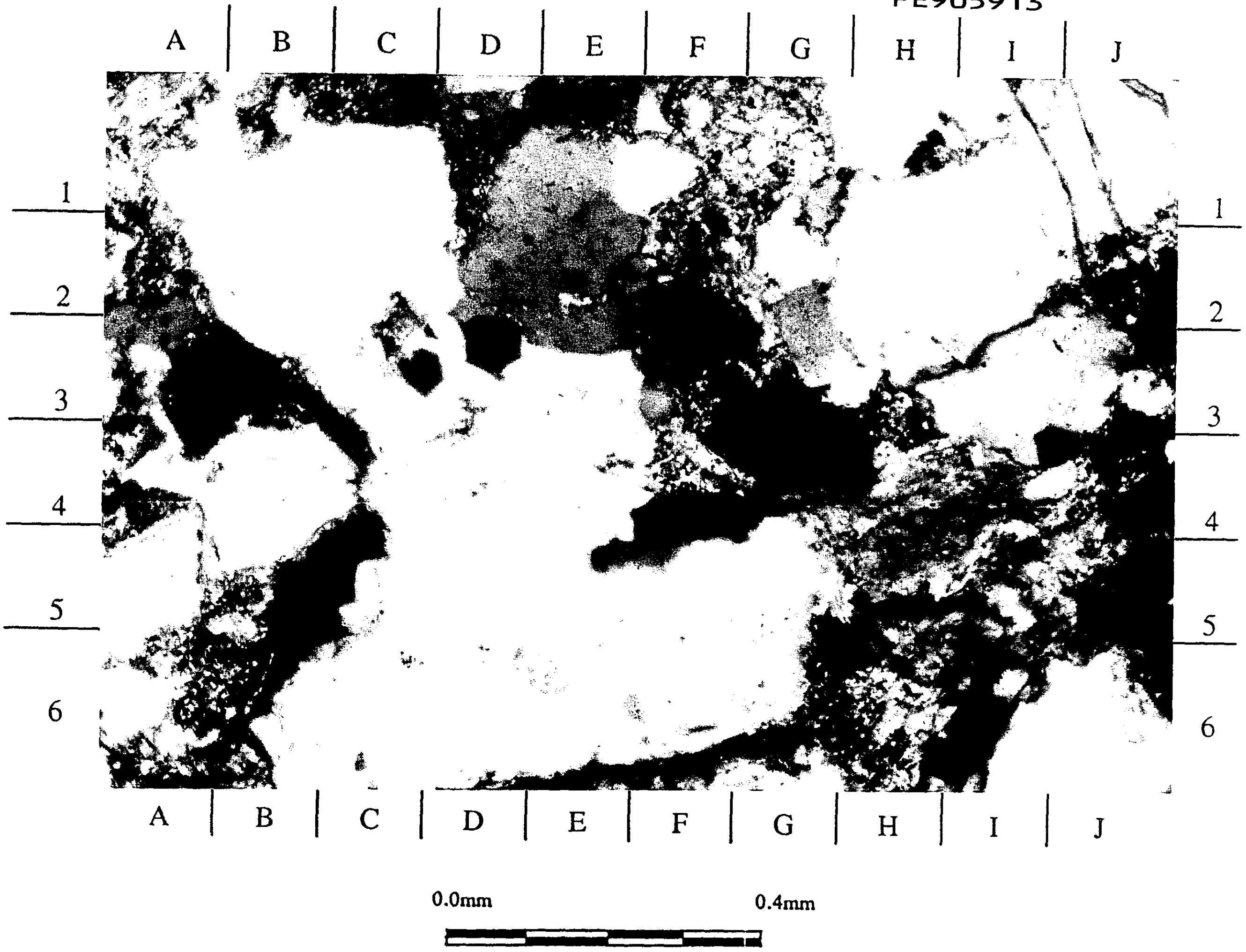

Figure 19. SWC 15 1938.7m x75.6 XPL
Massive quartz wacke. Authigenic kaolinite and detrital micas are infilling the intergranular pore space (eg. G1).

PE905914

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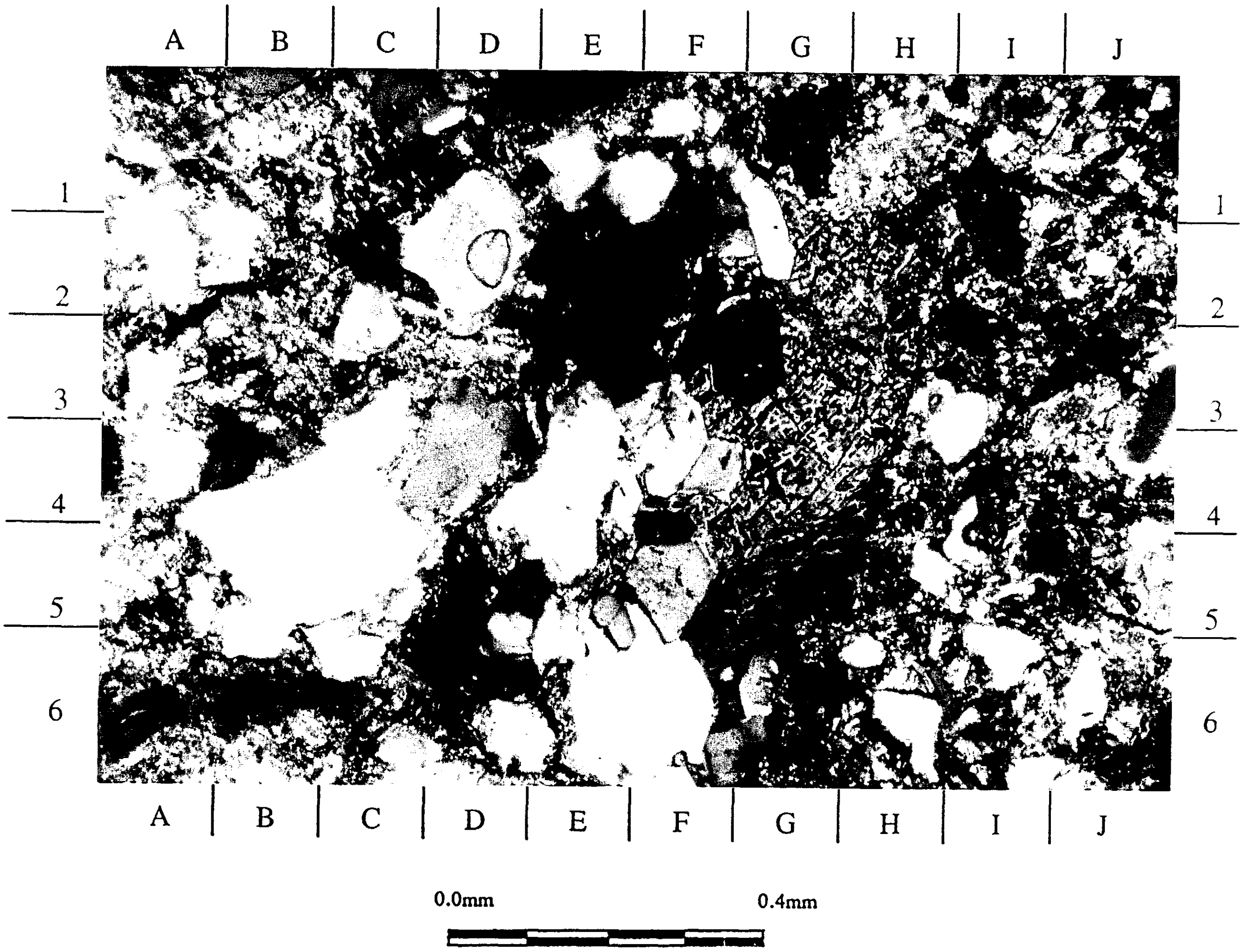

Figure 20. SWC 15 1938.7m x75.6 XPL
Quartz wacke with ferroan calcite (stained blue) (G3) infilling cavity pore space. Euhedral quartz grains line one side of the cavity (eg. F4).

Sample: Digby-1 SWC 12 1945.9m

Mineralogy:

Detrital	Quartz	47.17%
	Feldspar	0.73%
	Chert	Trace
	Muscovite	2.46%
	Bituminous Material	27.27%
	Clay ?	6.14%
	Biotite	1.47%
	Rock Fragments	3.44%
	Zircon	Trace
Authigenic	Kaolinite	4.91%
	Dolomite	4.67%
	Chlorite	0.27%
	Sericite	1.47%

Description:

The sample is a dolomitic and micaceous quartz wacke. A strong lineation is evident, defined by the presence of continuous and discontinuous bituminous laminations. An alignment of the elongate axis of the detrital grains is also evident. The sample is predominantly grain supported, with concave/convex and sutured contacts being present. The samples appear to be more heavily sutured where micas or bitumens are located along the grain boundaries. Cementation appears to be moderate to poor.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from very coarse silt (0.05mm) to very coarse sand (1.80mm), with an average of approximately coarse sand (0.52mm). Sorting appears to be moderate to poor. The grain shape varies from very angular to rounded, with an average of angular. No authigenic silica overgrowths are evident. The grains predominantly display weakly undulose extinctions.

Detrital muscovite and biotite are present as bent and broken laths compacted between the framework grains and within bituminous laminations. Kaolinisation of the muscovite is common. Dolomite replacement of the micas is evident.

The dolomite is present in a granular micritic form. It has completely and partially replaced detrital micas. Some of the completely dolomitised grains do not display a tabular form, as may be expected from a micas, indicating another possible source. The material replaced may have been a detrital clay.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica are evident within the kaolinite accumulations.

Bituminous material is present in the form of continuous and discontinuous laminations. Dolomite, quartz and micas are interstitial to the bituminous material. The bitumen also displays highly corrosive contacts with the detrital material. Dark bituminous staining appears to have occurred in partially altered micas. Within the bituminous laminations are several lithic fragments which are composed of a biotite quartzite and a micaceous siltstone. Minor possible detrital clays are also associated with the bituminous material.

No porosity is present.

Sample: Digby-1 SWC 12 1945.9m continued

Diagenesis:

1. Bitumen emplacement
2. Kaolinisation of the micas and feldspars.
3. Dolimitisation of the micas and ?clays

PE905885

This is an enclosure indicator page.
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DESCRIPTION =	Core Thinsection Photograph of Dolomitic Quartz Wacke , figure 21, (from WCR vol. 1) for Digby-1
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CONTRACTOR =	GFE RESOURCES LTD
CLIENT_OP_CO =	GFE RESOURCES

(Inserted by DNRE - Vic Govt Mines Dept)

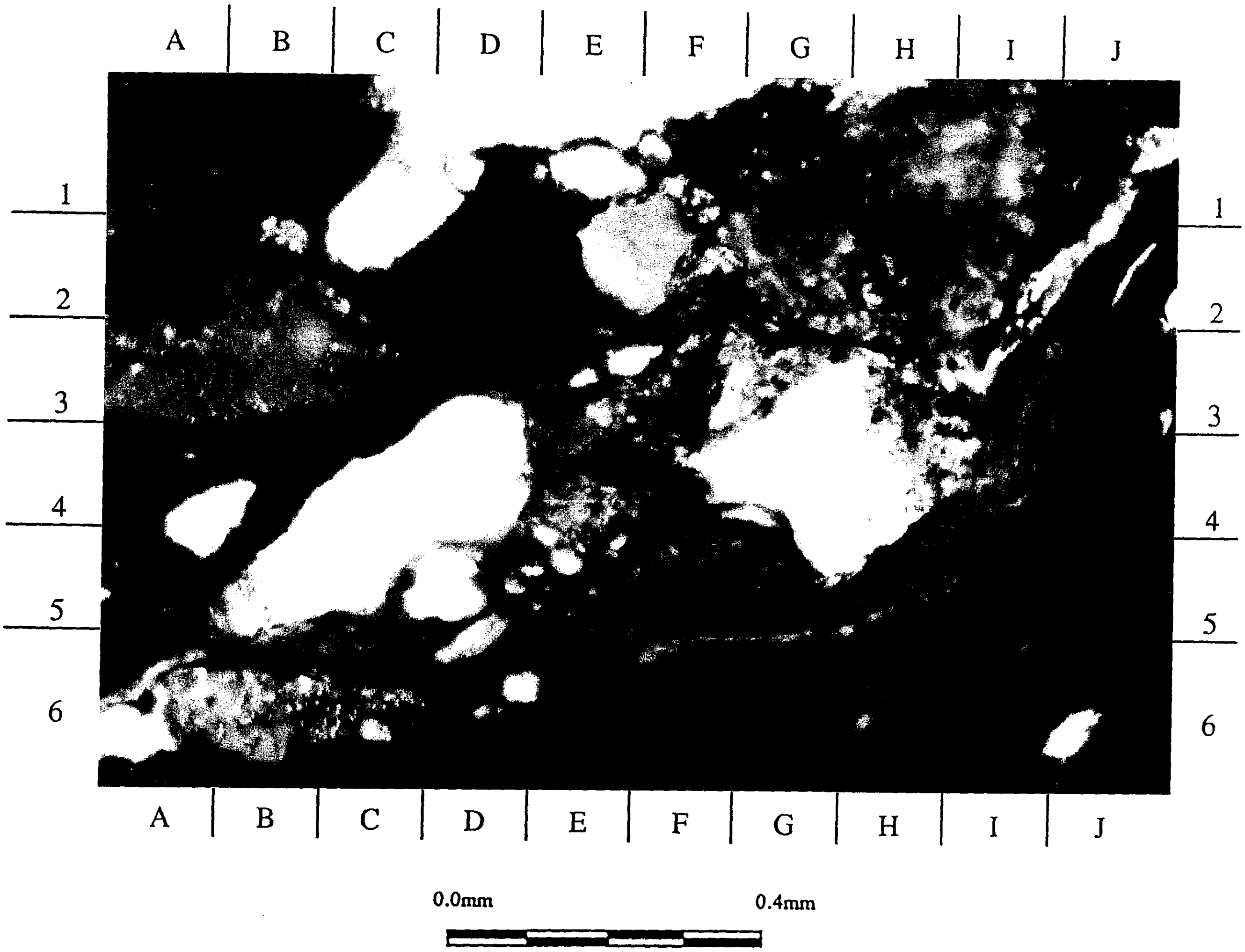

Figure 21. SWC 12 1945.9m x75.6m XPL
Dolomitic quartz wacke. Authigenic dolomite and bituminous material is present as elongate stringers. The dolomite is in a micritic granular form (eg. F5) and displays corrosive contacts with the quartz grains.

PE905886

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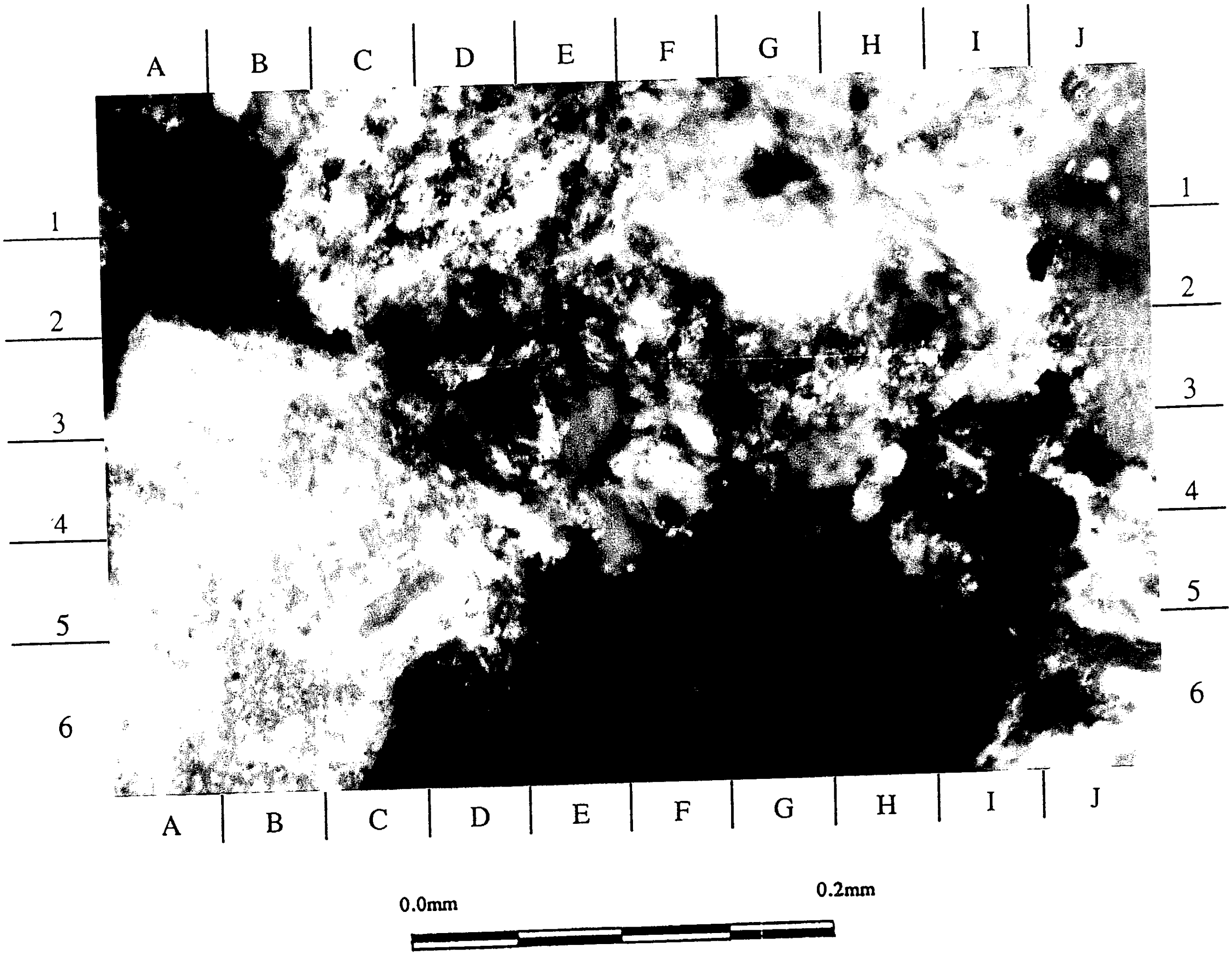

Figure 22. SWC 12 1945.9m x192 XPL
Bituminous material has stained the detrital micas (E3) and authigenic clays (G5).

Sample: Digby-1 SWC 11 1946.3m

Mineralogy:

Detrital	Quartz	43%
	Feldspar	2%
	Chert	Trace
	Muscovite	10%
	Bituminous Material	10%
	Biotite	5%
	Zircon	Trace
Authigenic	Kaolinite	15%
	Dolomite	15%

Description:

The sample is a dolomitic quartz wacke. A strong lineation is evident, defined by the presence of continuous and discontinuous bituminous laminations. An alignment of the elongate axis of the detrital grains is also evident. The sample is predominantly grain supported, with concave/convex and sutured contacts being present. Cementation appears to be moderate to poor.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from medium silt (0.01mm) to very coarse sand (1.51mm), with an average of approximately coarse sand (0.60mm). The finer grained fraction is preferentially associated with the bituminous laminations. Sorting appears to be moderate to poor. The grain shape varies from very angular to rounded, with an average of sub-rounded/sub-angular. Traces of authigenic silica are present. The grains predominantly display weakly undulose extinctions.

Detrital muscovite and biotite are present. They occur as bent and broken laths compacted between the framework grains and within the bituminous laminations. Kaolinisation of the muscovite is common. Dolomite replacement of the micas is evident.

The dolomite is present in a granular micritic form and has completely and partially replaced detrital micas. Some of the completely dolomitised grains do not display a tabular form, as may be expected from a micas, indicating another possible source. The detrital material replaced may have been a detrital clay.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas and volcanic rock fragments. Traces of mica are evident within the kaolinite accumulations.

Bituminous material is present in the form of continuous and discontinuous laminations. The laminations are generally <0.1mm thick. Dolomite, quartz and micas are interstitial to the bituminous material. The bitumen also displays highly corrosive contacts with the detrital material. The bitumen is also preferentially associated with the fine grained portion of the sample.

No porosity is present.

Diagenesis:

1. Bitumen emplacement
2. Kaolinisation of the micas and feldspars
3. Dolimitisation of the micas and ?clays.

PE905887

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DESCRIPTION = Core Thinsection Photograph of Dolomitic Quartz Wacke, figure 23, (from WCR vol. 1) for Digby-1
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CLIENT_OP_CO = GFE RESOURCES

(Inserted by DNRE - Vic Govt Mines Dept)

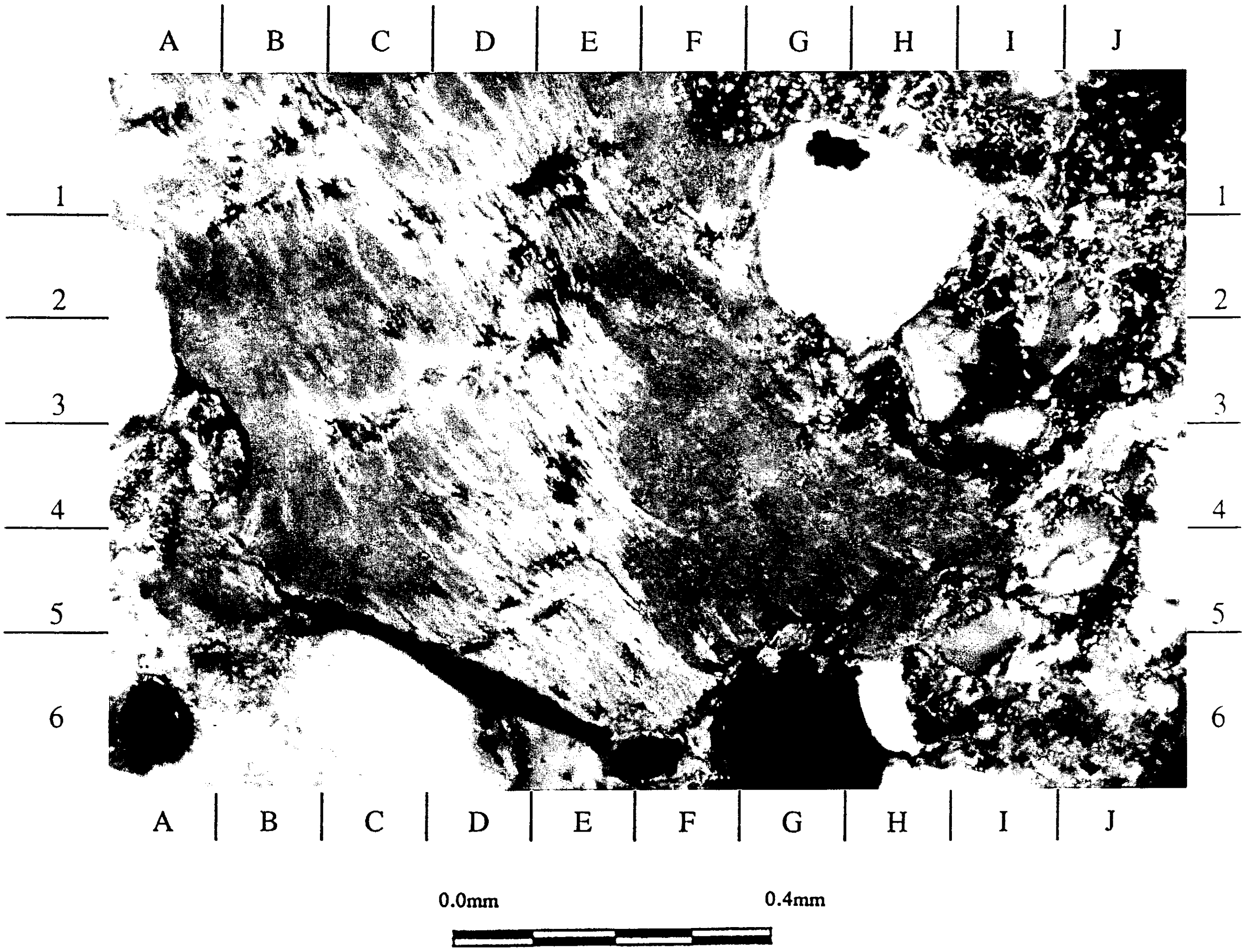

Figure 23. SWC 11 1946.3m x75.6 XPL
Dolomitic quartz wacke. Micritic, authigenic dolomite has partially replaced a detrital muscovite grain (D4). Authigenic kaolinitic replacement of detrital micas has also occurred (H1).

PE905888

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CLIENT_OP_CO =	GFE RESOURCES

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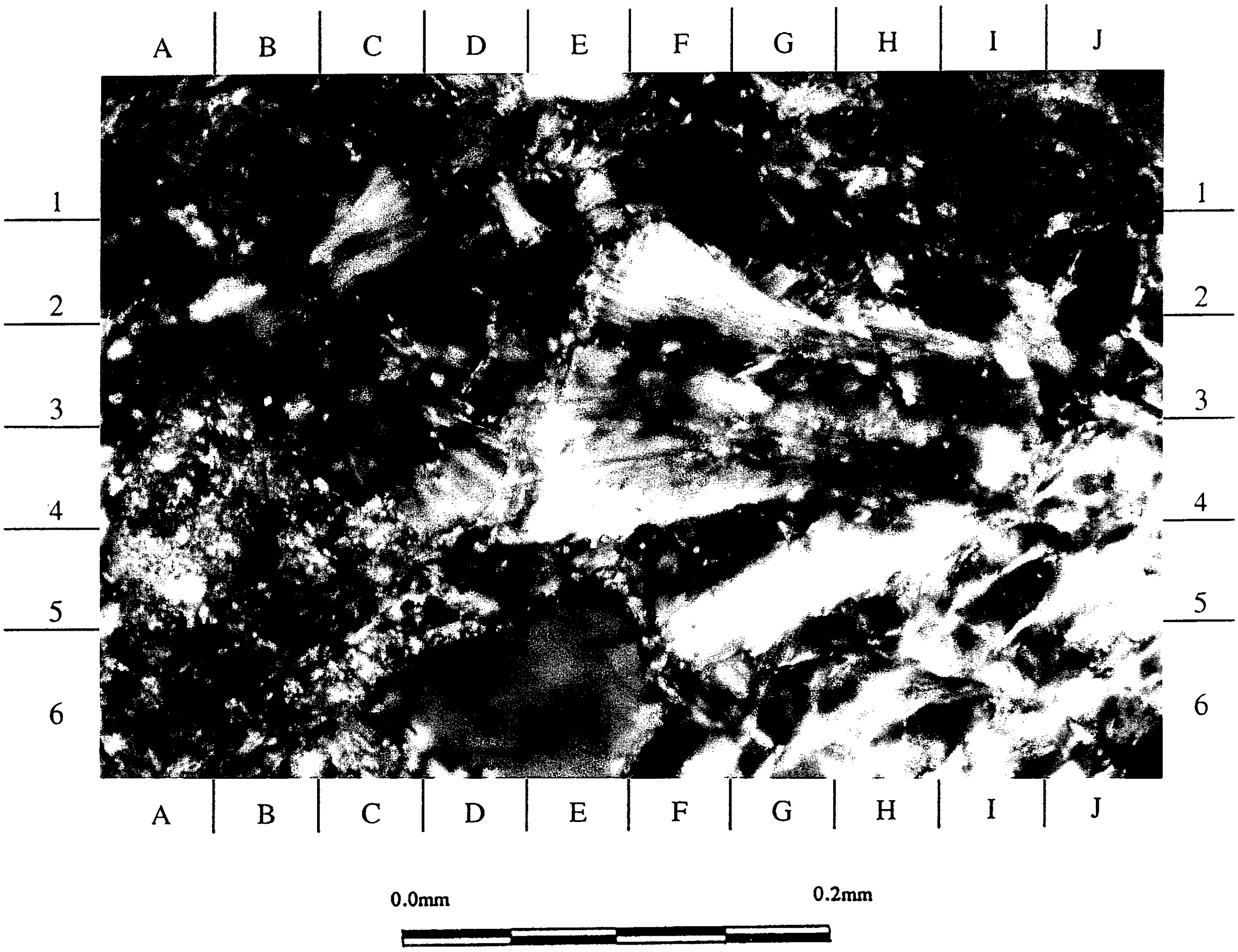

Figure 24. SWC 11 1946.3m x192 XPL
Authigenic kaolinite replacing a detrital muscovite grain. A trace of dolomite replacement has also occurred (E3).

Sample: Digby-1 SWC 9 1949.3m

Mineralogy:

Detrital	Quartz	60%
	Muscovite	5%
	Biotite	2%
	Chert	4%
	Bitumen	5%
	Tourmaline	Trace
	Volcanic Fragments	Trace
Authigenic	Dolomite	21%
	Kaolinite	2%
	Pyrite	1%
	Sericite	Trace
	Chlorite	Trace

Description:

The sample is a dolomitic quartz arenite. It displays a strong lineation, defined by bituminous stringers, elongate dolomite accumulations, and a preferred orientation of the elongate axis of the detrital grains. The sample is predominantly grain supported, with grain boundaries displaying weakly sutured contacts. Cementation appears to be moderate, with authigenic dolomite providing the dominant cement.

The dominant framework mineral is detrital quartz. Visual grain size estimates range from coarse silt (0.02mm) to coarse sand (0.60mm), with an average of approximately fine sand (0.17mm). Sorting is good. The grain shape varies from very angular to rounded, with an average of sub-angular. A trace of authigenic silica overgrowths are evident. The grains predominantly display weakly undulose extinctions.

Both muscovite and biotite laths are evident. They generally occur as thin, bent and broken laths with approximately the same size distribution as that of the detrital quartz grains. Micas are also present as shattered grains compacted between the framework grains. Chloritisation of the biotite is common, in many cases the laths have been completely chloritised. The muscovite laths are generally partially or completely altered to authigenic kaolinite. Dolomite replacement of both micas is evident.

Authigenic dolomite is present in a micritic granular form and has partially or completely replaced the majority of detrital micas and authigenic chlorite. Bitumen staining of the dolomite is commonly present.

Authigenic kaolinite is present in the form of massive matrix material. The kaolinite is interpreted as having formed as a result of the complete alteration of detrital grains, such as feldspars and micas. Traces of mica are still evident within the kaolinite.

Bituminous material is present as thin (generally less than <0.06mm), discontinuous stringers. Some pyritisation of the bituminous material is apparent. The bitumen also displays corrosive contacts with the quartz grains.

No porosity is present.

Diagenesis:

1. Chloritisation of the biotite
2. Seritisation of detrital grains
3. Kaolinisation of the micas
4. Dolomitisation of the micas

PE905889

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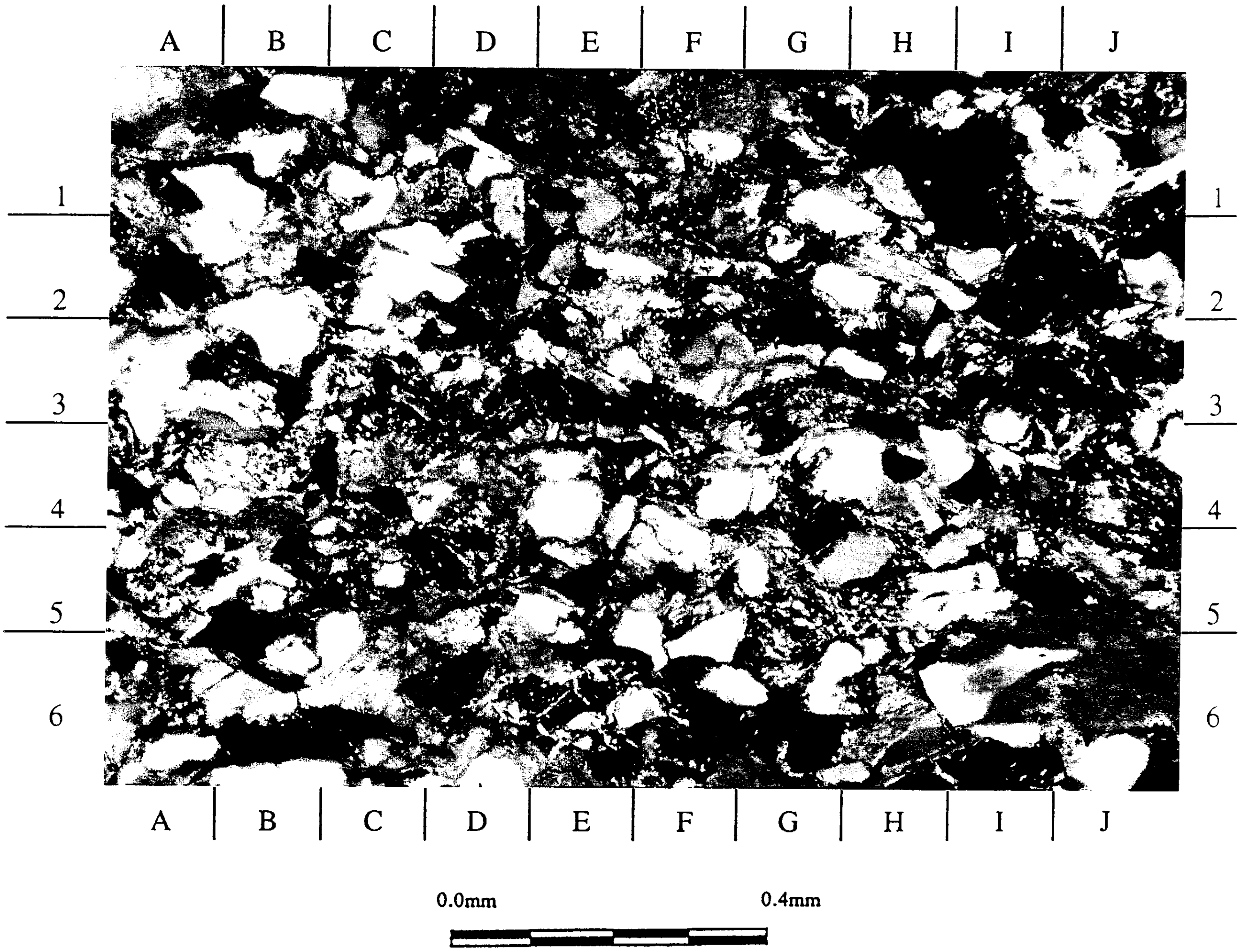

Figure 25. SWC 9 1949.3m x75.6 XPL
Dolomitic arenite. Authigenic, micritic dolomite has replaced detrital micas. The dolomite displays highly corrosive contacts with the quartz grains.

PE905890

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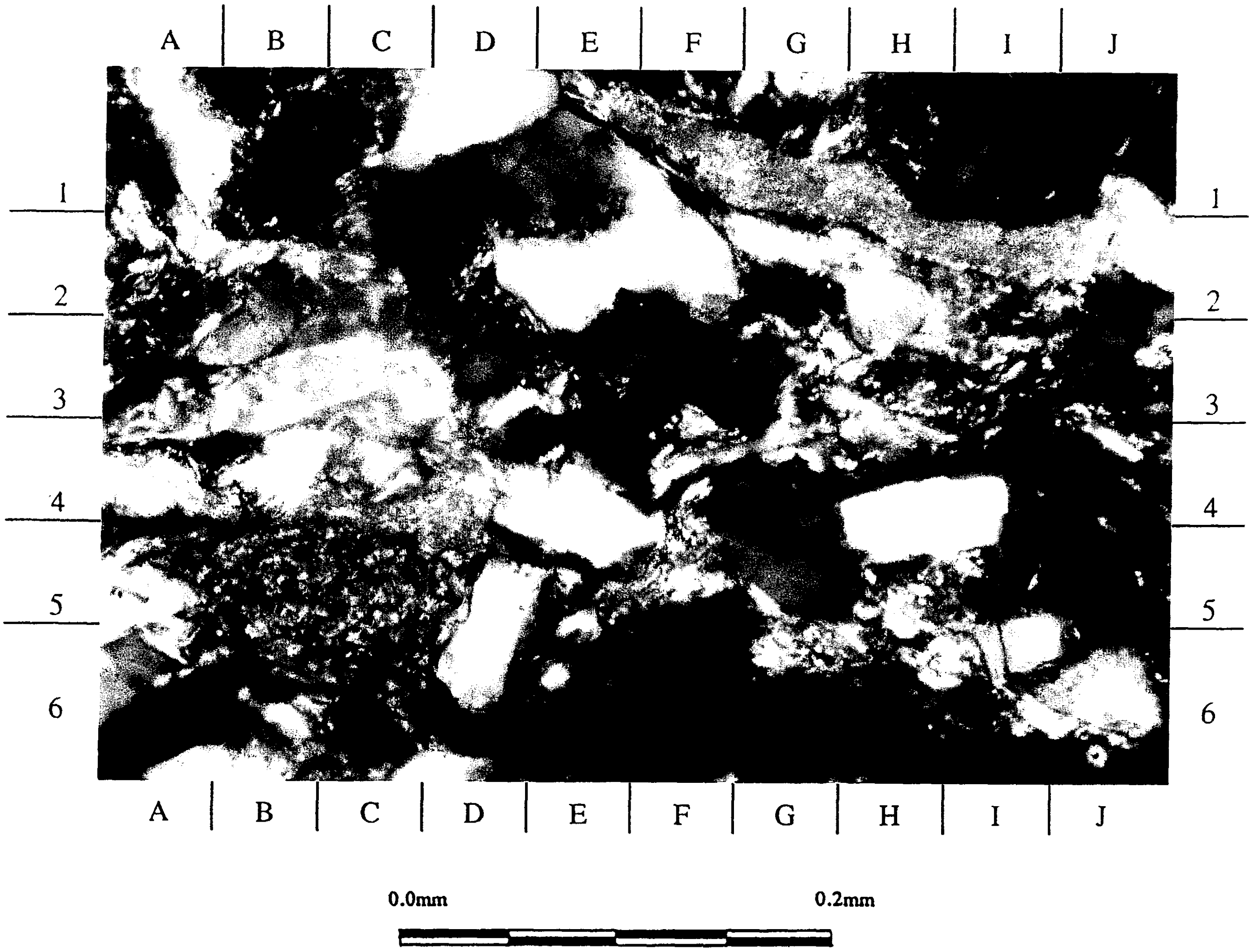

Figure 26. SWC 9 1949.3m x192 XPL
Authigenic dolomite replacement of detrital micas (eg. G2). Some kaolinisation of the detrital micas has also occurred (eg. D3).

Sample: Digby-1 SWC 2 2069.2m

Mineralogy:

Detrital	Quartz	33%
	Feldspar	40%
Authigenic	Chlorite	20%
	Pyrite	5%
	Ferroan Calcite	2%

Description:

The sample is a feldspathic volcanic trachyte. It displays a moderate flow texture, defined by the tabular feldspar grains.

The dominant mineral appears to be feldspar. It occurs as elongate tabular laths, visual size estimates range from 0.10mm to 0.60mm, with an average of approximately 0.20mm. Both untwinned and albite twinned grains are evident. A twin extinction angle of approximately 10° to 15° indicates an oligoclase composition.

Quartz is present in the form of a fine grained groundmass. The quartz is commonly partially obscured due to the feldspars and chlorite.

Chlorite comprises the groundmass and occurs in both massive and fibrous forms. The chlorite is interpreted as having formed as a result of the in situ alteration of biotite and amphiboles.

Authigenic pyrite is present in the form of fine disseminated cubes within the chlorite. The pyrite is interpreted as having formed during the chloritisation of the mafic minerals.

Ferroan calcite is present in a massive sparry form. It appears to infill secondary pore space. No evidence as to what mineral has been leached out to form the secondary porosity is evident.

No porosity is present or inferred.

Diagenesis

1. Chloritisation of mafic minerals and formation of pyrite
2. Formation of secondary porosity through the leaching of unknown mineral
3. Emplacement of ferroan calcite.

PE905891

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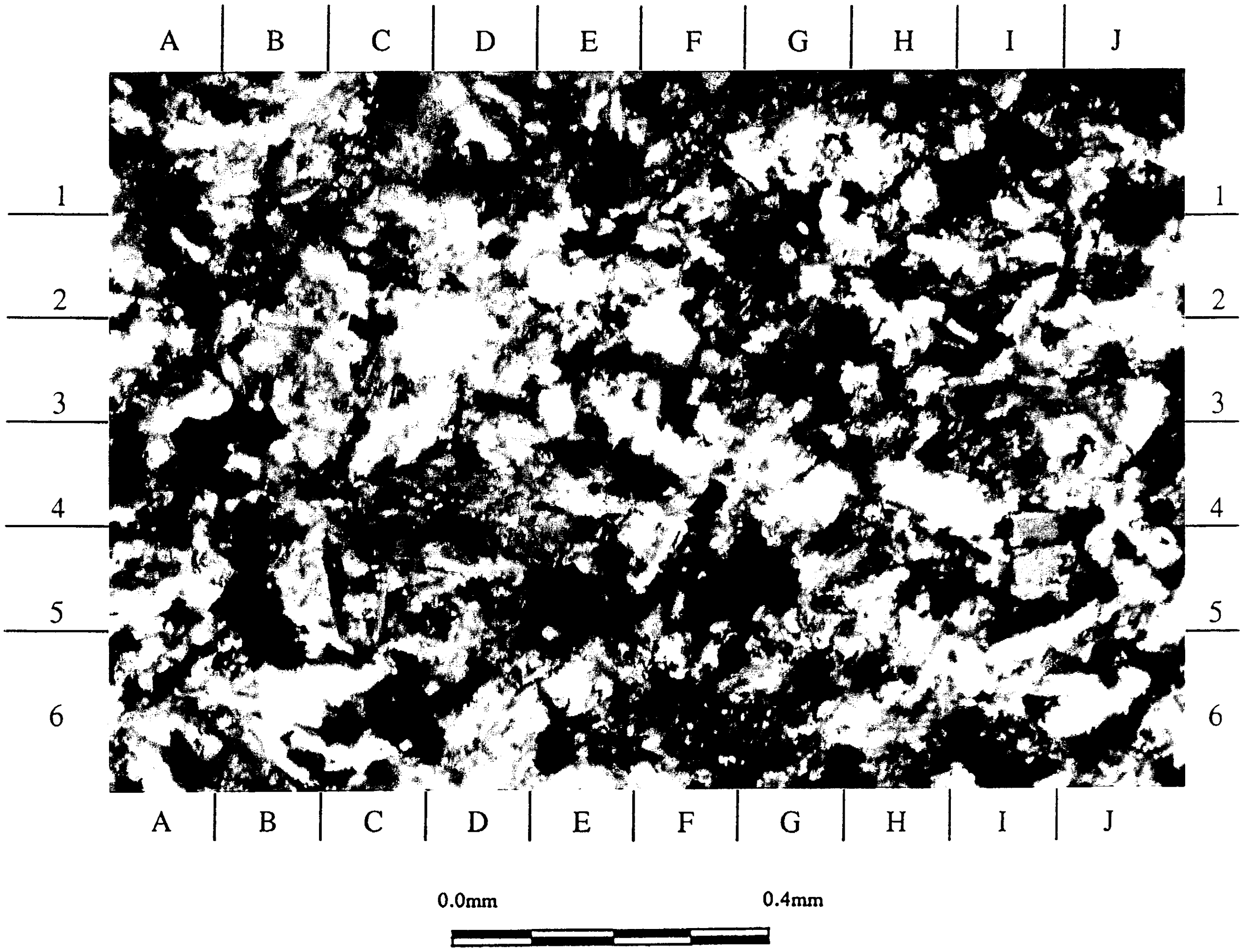

Figure 27 SWC 2 2069.2m x75.6 XPL
Feldspathic volcanic rock. An alignment of the feldspar is present running east-west.

PE905892

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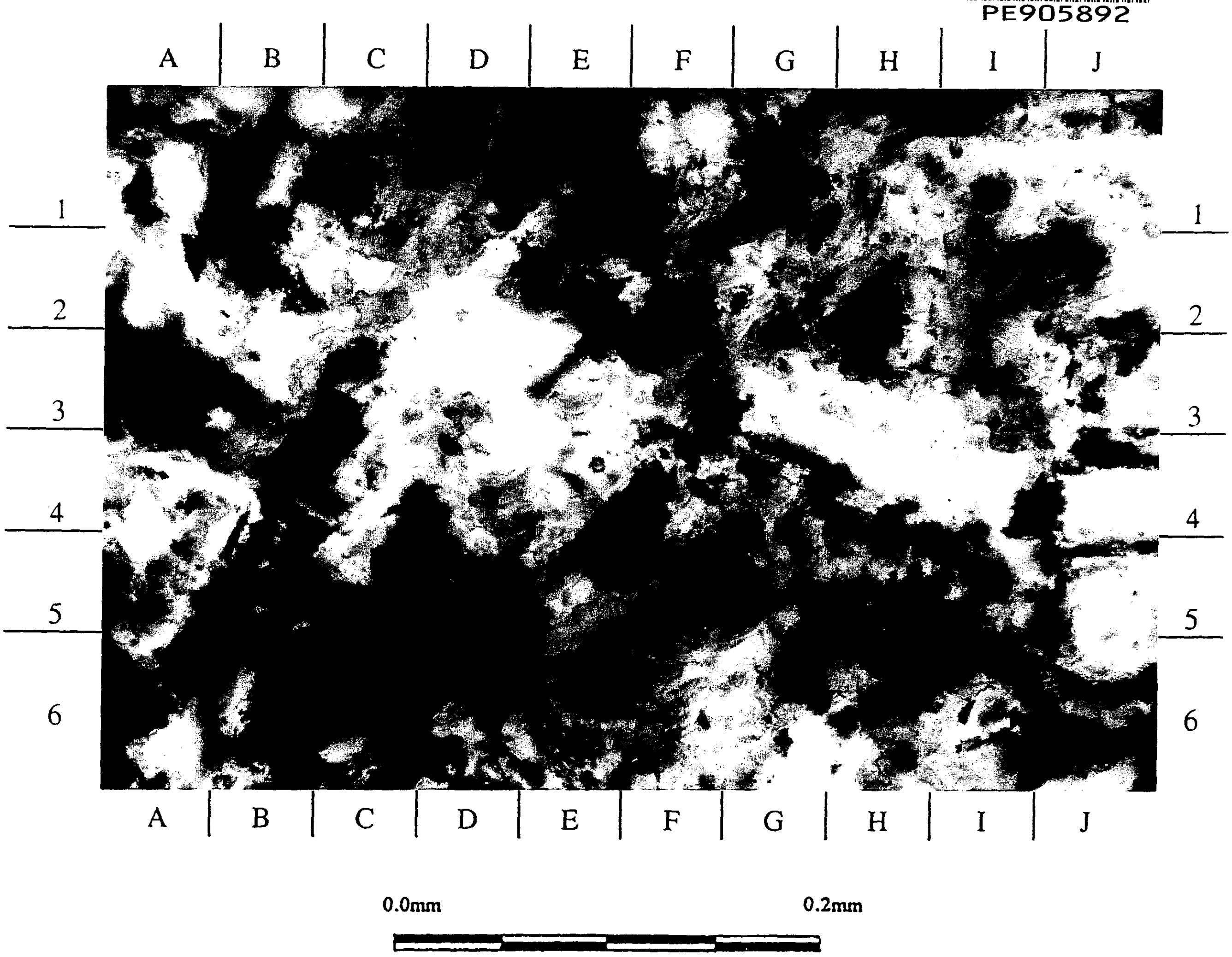

Figure 28 SWC 2 2069.2m x192 PPL
Authigenic chlorite and pyrite. Minor authigenic ferroan calcite (stained blue) is also present (E5).

Sample: Digby-1 SWC 1 2076.2m

Mineralogy:

	Quartz	15%
	Feldspar	44%
Authigenic	Chlorite	30%
	Pyrite	10%
	Ferroan Calcite	1%

Description:

The sample is a feldspathic volcanic trachyte. It displays a strong flow texture, defined by the tabular feldspar grains.

The dominant mineral appears to be feldspar. It occurs as elongate tabular laths, visual size estimates range from 0.10mm to 0.60mm, with an average of approximately 0.20mm. Both untwinned and albite twinned grains are evident. A twin extinction angle of approximately 10° to 15° indicate an oligoclase composition.

Quartz is present in the form of a fine grained groundmass, and is commonly partially obscured due to the feldspars and chlorite.

Chlorite is present as a groundmass and occurs in both massive and fibrous forms. The chlorite is interpreted as having formed as a result of the in situ alteration of biotite and amphiboles.

Authigenic pyrite is present in the form of fine disseminated cubes within the chlorite. The pyrite is interpreted as having formed during the chloritisation of the mafic minerals.

Ferroan calcite is present in a massive sparry form and appears to infill secondary pore space. No evidence as to what mineral has been leached out to form the secondary porosity is evident.

No porosity is present or inferred.

Diagenesis:

1. Chloritisation of mafic minerals and formation of pyrite
2. Formation of secondary porosity through the leaching of unknown material
3. Emplacement of ferroan calcite.

PE905893

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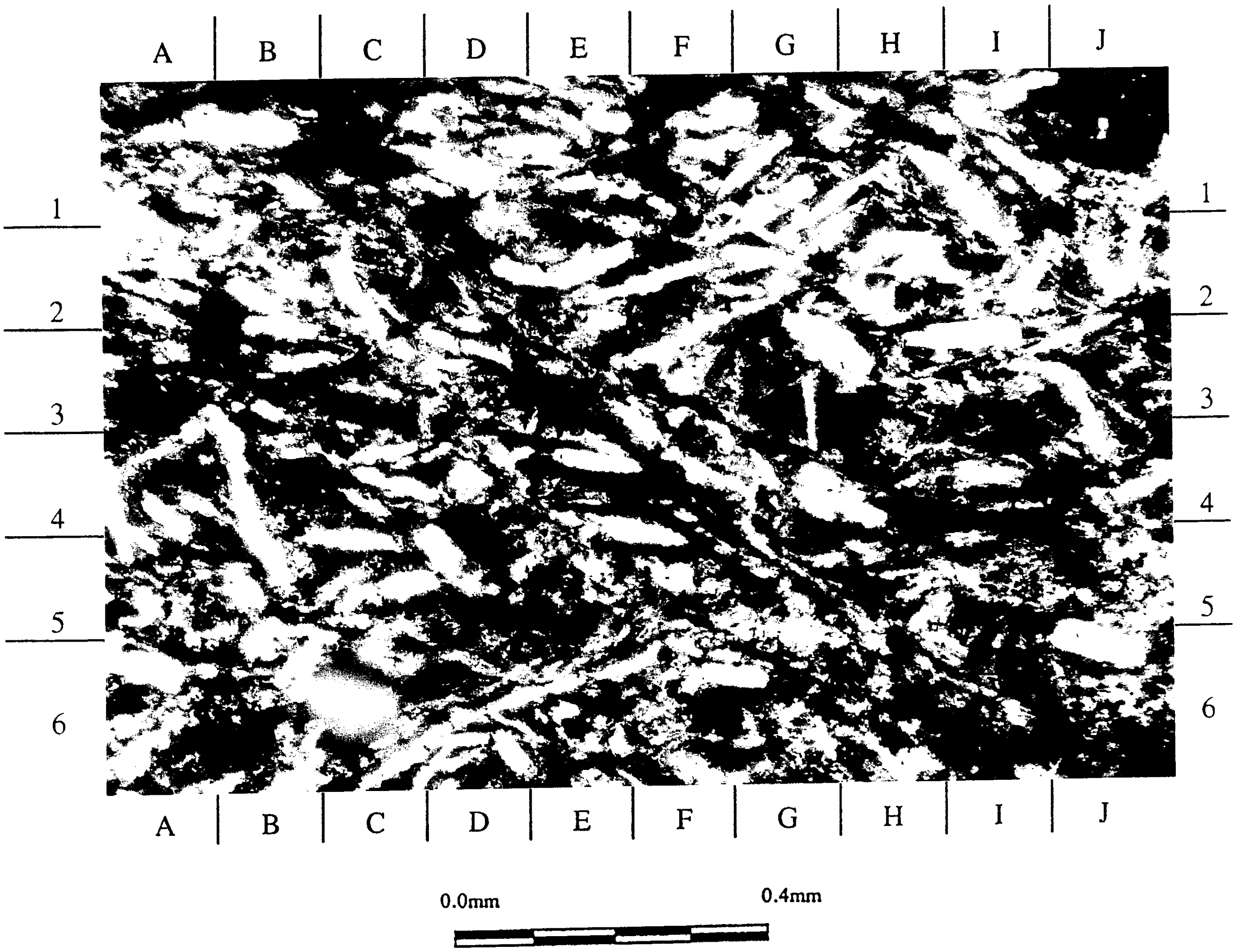

Figure 29. SWC 1 2076.2m x75.6 PPL
Feldspathic volcanic rock displaying a strong flow texture and a chloritic groundmass.

PE905894

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CLIENT_OP_CO =	GFE RESOURCES

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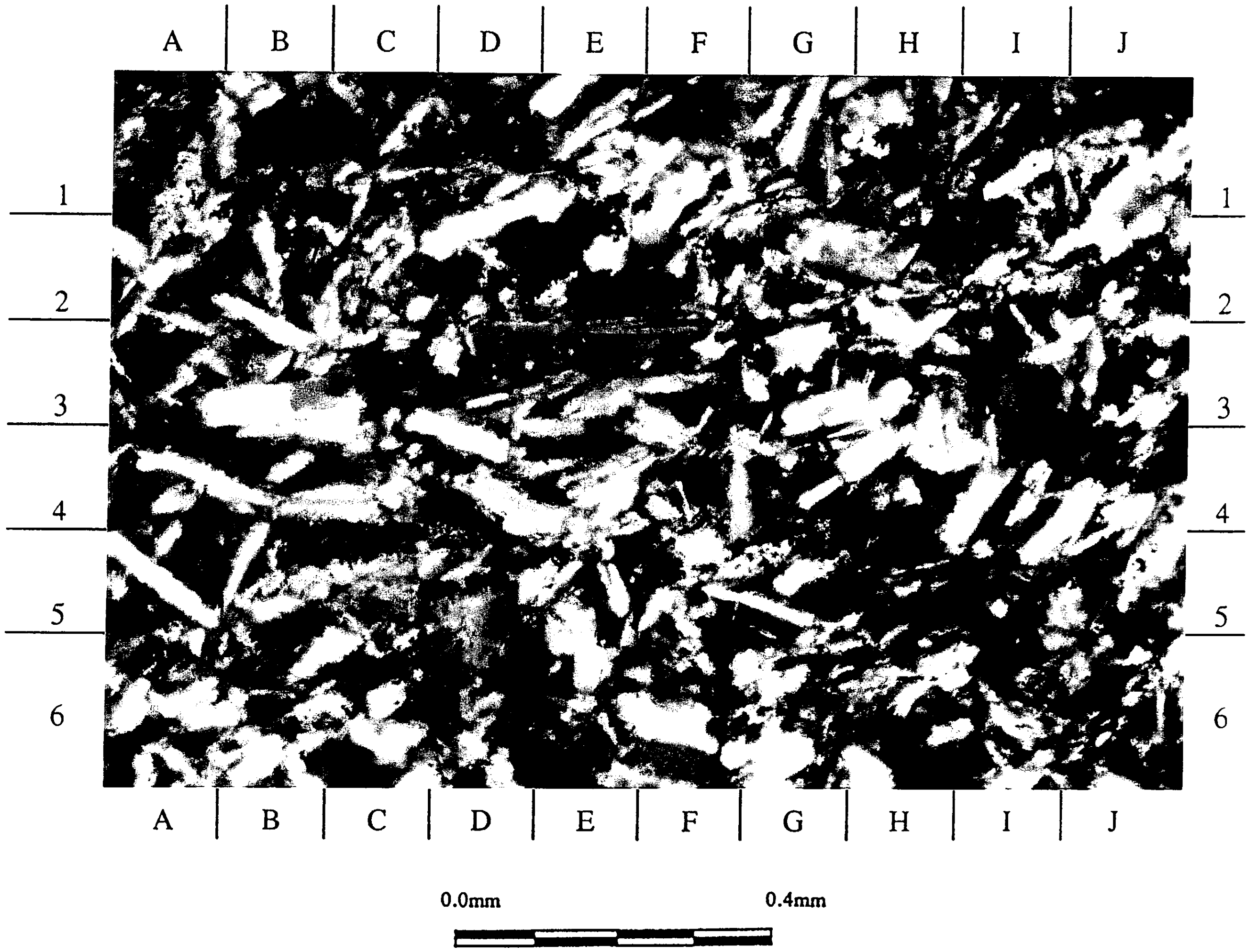

Figure 30. SWC 1 2076.2m x75.6 XPL
Feldspathic volcanic rock displaying a strong flow texture and a chloritic groundmass.