GFE Resources Ltd

WELL COMPLETION REPORT

DUNBAR-1

PPL1

OTWAY BASIN, VICTORIA

TEXT, APPENDICES & ENCLOSURES

January, 1996

GFE RESOURCES LTD

PPL1

OTWAY BASIN, VICTORIA

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WELL COMPLETION REPORT

submitted

January, 1996

KPL/mn:n0112

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1. INTRODUCTION

1.1 Reasons For Drilling

Dunbar-1 is an exploration well located in the northwest of PPL1 Otway Basin, Victoria, approximately 1.6 kilometres from Port Campbell-3 and 2.5 kilometres north of the commercial gas discovery Wallaby Creek-1 (Figure 1).

The well is situated at the northwestern end of a west-northwest trending tilted horst block in the Port Campbell Embayment, which has fault-dependant closure with the crest situated adjacent to the major north-bounding fault.

The primary objective in Dunbar-1 was the Waarre Formation (Figure 2), which was interpreted to be over 100m thick at the well location.

Lateral seal was the dominant risk associated with the prospect since the throw at the crest could have been sufficient to place the top of the reservoir against the Nullawarre Greensand equivalent. To the south and southeast of Dunbar-1 the Nullawarre Greensand equivalent dominantly comprises silty claystones with only occasional very fine sandstone interbeds up to four metres thick, but to the east and north it is thicker and coarser, and thus less likely to be an effective seal.

Hydrocarbon charge was considered low risk due to the numerous hydrocarbon intersections in the region. It was proposed to continue the well about 200 metres below the target horizon to investigate the interpreted spill-point depth into adjacent structures.

1.2 Main Results

Dunbar-1 spudded on 9 March, 1995 and was drilled to a total depth of 1758.0 mKB in 10 days.

Log analysis evaluation and RFT pressure measurements indicate a gas zone in the Waarre Formation at the top of Unit 'C'. The gross hydrocarbon column comprises the interval 1481.8-1485.0 (1399.1-1402.3 mSS) mKB and is 3.2 m thick. Water saturations increase below 1485.0 mKB suggesting a transition zone down to 1488.5 mKB (1405.8 mSS) The zone was not tested. Deep resistivity values drop considerably below 1488.5 mKB and are indicative of a water zone underneath the gas.

A second gas zone is present in the Waarre Formation, Unit 'A', between 1533.0-1543.0 mKB (mSS). Below this depth the section comprises predominantly non-net claystones and, therefore, a GWC could not be identified. Gas is indicated by DST results, logs, high mud gas readings and RFT pressure data.

Two Drill Stem Tests were conducted over the same interval, 1526.0 - 1557.0 mKB, within the lower interpreted hydrocarbon zone. DST-1 failed due to plugging. DST-2 also partially failed due to plugging, but flowed gas at an unstabilised rate of 750 MCFD and recovered 40 m of viscous mud with condensate/oil.

It is thought that the Unit 'A' sand is in a separate system to the unit 'C' sand above.

An attempt was made to run 7" casing down to the Waarre gas zones, but the casing became stuck and Dunbar-1 had to be suspended with casing cemented down to 1209.83 mKB. The rig was released on 1 April, 1995.

Surface Casing

Size:	$9^5/_8$"
Weight & Grade:	18 Joints 36 lb/ft Buttress K55 7 Joints 43.5 lb/ft Buttress K55
Centralisers:	308m, 287m, 276m and 264m
Float Collar:	299.77m
Shoe:	311.93m
Hole Depth:	317.0m

Cement: 393 sacks Class "A" neat cement

Method: Single plug displacement (top plug only)

Equipment: Dowell/Schlumberger

Production Casing

Size:	7"
Weight & Grade:	12 Joints 23 lb/ft STC J55 75 Joints 26 lb/ft LTC N80 15 Joints 26 lb/ft LTC K55
Centralisers:	1207m, 1162m, 1127m, 1093m, 1081m, 1070m, 1058m, 1046m, 1034m, 1022m, 1010m, 998m, 973m, 937m, 901m, 865m, 829m, 793m and 721m.
Float Collar:	1196.98m
Shoe:	1209.83m
Hole Depth:	1758.0m
Cement:	447 bbls 2% Gel class "G" cement and 31.4 bbls Class "G" neat cement
Method:	Top and bottom plug displacement method
Equipment:	Dowell/Schlumberger

2. WELL HISTORY

2.1 Location

Surface Location:	Latitude:	38° 32' 53.791"S
	Longitude:	142° 54' 23.113"E
	AMG:	666133.3mE
		5731612.3mN
Seismic:	Line:	Inline 6515
		Crossline 2665

2.2. General Data

Well Name:	Dunbar-1
Permit:	PPL1 Otway Basin, Victoria
Operator:	GFE Resources Ltd Level 6, 6 Riverside Quay South Melbourne Victoria 3205
Participants:	GFE Resources Ltd 100%
Elevation:	Ground Level (GL): 76.4m AHD Kelly Bushing (KB): 82.1m AHD *(datum)* *(All depths are Drilled Depths relative to KB unless otherwise stated).*
Total Depth:	Logger: 1754.0mKB Driller: 1758.0mKB
Drilling Commenced:	1700 hours, 9 March, 1995
Total Depth Reached:	2100 hours, 19 March, 1995
Rig Released:	2400 hours, 1 April, 1995
Well Status:	Suspended

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.

Cement plugs

Plug No.1	Interval:	1610-1440m
	Cement:	240 sacks class "G" cement
	Method:	Balanced
	Tested:	Tagged at 1437m
Plug No.2	Interval:	1240-1180m
	Method:	Balanced
	Tested:	Tagged at 1178m
	Pressure tested to 500 PSI	
Surface Plug	Top flange and bull plug installed on 7" casing	

2.3.4 Drilling Fluid

The drilling fluid program used was that designed and recommended by M-I Australia Pty. Ltd. after consultation with GFE representatives. The well was spudded with drill water and relied on native clays for viscosity. Excessive rheology from the Gellibrand Marl caused mud ring problems on three occasions whilst drilling. After running the surface casing the shoe track was drilled out with water and whilst drilling 5 metres of new hole prior to running the FIT the hole was displaced to a PHPA mud. Drilling of the $8^1/_2$" hole section proceeded with a Drill water/PHPA/PAC R mud system which was maintained to total depth. On every wiper and bit trip, tight hole necessitated considerable time to be spent reaming. Excessive filter cake build up also appeared primarily to cause the plugging of the DST tool on both drill stem test attempts. On running the 7" production casing this became irretrievably stuck and was cemented in place at 1209 metres. 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

Three new drilling bits and two re-runs were used during the drilling of Dunbar-1, and a record is shown in Table 1.

2.3.6 Water Supply

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

2.3.7 *Drilling History*

The following summary of operations and the drilling progress chart (Figure 3) for Dunbar-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 5 metres (GL) prior to rig up. Dunbar-1 was spudded at 1700 hours on March 9, 1995 with a $12^1/_4$" bit. Drilling $12^1/_4$" hole continued with surveys until 317m ($9^5/_8$" casing depth) without problems except for mud rings occurring at 263m, 291m, 310m, and after a wiper trip at 317 metres. The $9^5/_8$" casing was run to 311.93 metres but during cementing the cement unit was unable to mix continuously and maintain slurry weight so after 1 hour and only 35bbls of slurry pumped the cement was circulated to surface and dumped. The cement unit was repaired and the $9^5/_8$" casing was cemented in place without problems. After waiting on the cement to set, the BOP's were installed and pressure tested. An $8^1/_2$" bit and drilling assembly was used to drill 5m of new hole whereupon a formation integrity test was conducted (equivalent mud weight of 22.89ppg).

Drilling of $8^1/_2$" hole then continued with surveys to 856m with the only drilling problems encountered being from balling clays causing an inability of the shakers to cope with the mud flow. At 856m a wiper trip was run which encountered severe tight hole problems. After reaming all tight hole sections drilling of $8^1/_2$" hole with surveys continued to 1287m where another wiper trip was conducted. This wiper trip also encountered tight hole which was subsequently reamed on the way back to bottom. Drilling $8^1/_2$" hole with surveys then continued to 1507m where the bit was tripped due to high torque. On the trip out severe tight hole was again encountered. The bit was found to be $^1/_2$" undergauge. After changing bits and picking up a junk-sub the $8^1/_2$" drilling assembly was run back in hole reaming all tight hole sections on the way in. Drilling $8^1/_2$" hole then continued to 1557m where drilling ceased to conduct a drill stem test. After conditioning the hole and working all tight hole sections Drill Stem Test-1 was run over the interval 1526 to 1557m. However on retrieving the test tool it was found to be plugged. The hole was then conditioned and Drill Stem Test-2 was run over the same interval (1526 to 1557m). Drilling of $8^1/_2$" hole with surveys then continued to 1758m (Total Depth).

After conditioning the hole and reaming all tight hole sections BPB were rigged up and the wireline logging suite run. After completion of the wireline logging suite with clean-out trips as necessary, 7" production casing was run but at a depth of 1245m this became stuck - after freeing the 7" casing it again hung up and was unable to pass 1253m. At this point an attempt was made to retrieve the casing to surface however at 1210m the casing became irretrievable stuck. The 7" casing was then cemented in place at 1210m. After changing the 7" casing rams to $3^1/_2$" pipe rams, a $3^1/_2$" drill string was picked up with a 6" BHA. The cement shoe track was drilled with the 6" assembly and was then used to run to total depth (1758m) and the hole circulated clean. The 6" assembly was subsequently tripped out and the drill string run back open ended to set cement plugs. Plug-1 was tagged and plug-2 in the bottom of the 7" casing tagged and pressure tested. The $3^1/_2$" drill string was layed out, the BOP's removed and a new top flange and bull plug installed. The rig was released at 2400 hrs on April 1, 1995.

TABLE 1

BIT RECORD

Well: Dunbar-1 **GFE Rep.:** Ken Smith **Rig:** Century Rig 11
Permit: PPL1 **Spud:** 1700hrs 9/3/95 **Reached T.D.:** 2100hrs 19/3/95

No.	*Size (inch)*	*Make*	*Type*	*Jets*	*Serial*	*Depth Out (m)*	*Mtrs Drld*	*Hours*	*Ave Rate (m/hr)*	*Accum Drlg Hours*	*Wt. on bit (000lbs)*	*RPM*	*Vert Dev. (°)*	*Pump Press. (psi)*	*GPM*	*Mud*			*IADC Dull Grade*							
																WT	*VIS*	*PV/YP*	*I*	*O*		*L*	*B*	*G*	*O*	*Remaks*
1RR	12½	Varel	L-114	2x20 1x16	22776	317	307	12½	24.5	12½	5/20	90/120	1/8	900	450	9.1	45	13/20	1	1			2	1/16		T/D
2	8½	HTC	ATJ05	3x11	L03WY	1507	1190	60	20	72.5	20/25	95/110	1°	1200	275	93	46	25/24								
	Lead Cone: All gauge row broken, 1 inner row insert broken Brg loose seal N/E																		2	8	All		7	½	BT	Torq
	2nd Cone: All gauge row, 7 inner row, and 1 nose row broken - brg loose seal - non effective																									
	3rd Cone: All gauge row, all inner row bearing loose & seal non-effective (stab 3/8 under gauge - 7/8 under gauge)																		(Stab 3/8 under gauge 7/8 under gauge)							
3	8½	HTC	ATJ.05	3x11	V79BV	1557	50	4	12.5	76.5	25	90/110	1°	1200	275	9.3	52	26/36	1	1			1	In		Test
	2nd cone: 1 chipped in Middle Row, 2nd cone: 2 broken insert in Middle Row																									
3RR	8½	HTC	ATJ.05	3x11	V79BV	1758	201 (251)	15 (19)	13.4	91.5	25	110	1°	1200	275	9.3	42	16/14	1	1			2	1/16		T/D
	Lead Cone: 1 insert chipped in 2nd row																									
	2nd Cone: 1 insert chipped in Nose Row																									
	3rd Cone: 1 insert chipped in Gauge row and 1 insert broken in Middle Row.																									
				Average Penetration:			1748	91.5	20.2																	
4	6	SEC	6S4	W/C	813724		200 (Cement)	8½																		

2.4 Formation Sampling And Testing

2.4.1 Cuttings

Cuttings samples were collected at five-metre intervals from 6 metres to 1758 metres (T.D.) and subdivided into sets as follows;

1 set of unwashed and air-dried samples in calico bags 6 - 1758 metres
3 sets of washed and dried samples in plastic bags 6 - 1758 metres
1 set of washed and dried samples in Samplex trays 6 - 1758 metres

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

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

2.4.2 Cores

2.4.2.1 Conventional Core

No conventional cores were cut in Dunbar-1.

2.4.2.2 Sidewall Cores

A total of 24 sidewall cores were attempted (Appendix 5), of which 20 were recovered.

All recovered sidewall core samples were checked for lithology and hydrocarbon shows.

2.4.3 Testing

2.4.3.1 Drill Stem Testing

Two Drill Stem Tests (DST's) were conducted in Dunbar-1, as outlined below.

DST-1 was a conventional dual-packer, bottom-hole test conducted on 17 March 1995 over the interval 1526.0-1557.0 metres (driller's depth) to evaluate the top of the Waarre Formation Unit A sandstone. The Drill Stem Test failed due to plugging and recovered 3 m of rathole mud.

After drilling through a predominantly shaly interval (Waarre Formation Unit B) with Total Gas readings ranging 10-11 units, a peak of 821 units was recorded at 1523 metres followed by 510 units down to 1545 metres then decreasing to 35 units by 1557 metres. This gas increase coincided with a lithology change from a shale to a dominantly fine grained sandstone and a rate of penetration (ROP) increase from 10-15 metres/hour to 30-60 metres/hour. These observations suggested probable gas saturation associated with probable good porosity, so the decision to conduct a DST was made.

The tool was opened at 0801 hours for a six-minute Pre-Flow, with both the manifold and the bubble hose closed. During this period no visible pressure increase occurred. After the test tool was closed in at 0807 hours the bubble hose was opened with a very weak air blow. The tool was reopened at 0852 hours after a 45 minutes initial shut-in period with both the manifold and bubble hose closed. After five minutes into the final flow period and no surface pressure indications were present, the bubble hose was opened but was dead. To remove doubt about correct tool functioning the test tool was closed at 0909 hours after a final flow period of 17 minutes. The tool was re-opened at 0912 hours but the blow remained dead until the tool was closed at 0942 hours. The tool was then shut-in for 30 minutes before the test interval was equalised with the annulus and the tool pulled free.

Total fluid recovered was 3 metres of rathole mud. The test was deemed a failure due to plugging at perforations externally and in the hydraulic tool internally.

After the failure of DST-1 due to plugging, it was decided a second attempt at testing the Waarre Formation Unit A was warranted.

DST-2 was a conventional dual-packer, bottom-hole test conducted on 18 March 1995 over the interval 1526.0-1557.0 metres (driller's depth). The DST partially failed due to plugging. It flowed gas to surface at an unstabilised rate of 750 MCFD. It recovered 40 m viscous mud cut with condensate/oil.)

The tool was opened at 1128 hours for a five-minute Pre-Flow, with both the manifold and the bubble hose closed. During this period the pressure increased to 9 PSI. After the tool was closed in at 1133 hours the manifold was opened to allow the pressure to bleed off in preparation for the final flow period. The tool was reopened at 1233 hours after a 60 minute initial shut-in period with the manifold closed but the bubble hose open. A strong air blow was evident. The manifold was opened through a $^1/_2$" choke at 1234 hours and the pressure increased to 5 PSI by 1238 hours then began to gradually decrease. Gas reached surface at 1238 hours. The manifold was closed at 1244 hours to allow the pressure to build up for a gas sample. By 1313 hours with the manifold closed the pressure had built up 20 PSI when the manifold was opened. The pressure decreased to 6.5 PSI by 1318 hours when the manifold was again closed to allow pressure to build up for an alternative sample. By 1320 hours the pressure had built up to 20 PSI when the manifold was opened through a $^1/_2$" choke. The pressure began to build rapidly so at 1324 hours the manifold choke was changed to 1" to stimulate clean-up. The flowing pressure stabilised at 50 PSI by 1329 hours when the choke was changed back to a $^1/_2$". The flowing pressure then increased to its maximum of 105 PSI at 1333 hours but thereafter steadily decreased to 10 PSI by the time the test tool was closed at 1433 hours, after a total final flow time of 120 minutes. The tool was then shut-in for 90 minutes before the test interval was equalised with the annulus and the tool pulled free.

Total fluid recovered was 40 metres of highly viscous mud cut with condensate/light oil. The test was deemed a failure due to plugging at perforations externally and in the hydraulic tool internally similar to that which occurred in DST-1.

Due to positive identification of pore fluid type and good permeability due to referencing the build-up the decision was made not to repeat the test.

The Drill Stem Test report and results of analysis carried out on gas samples are found in Appendix 6.

2.4.3.2 Wireline Formation Testing

Repeat Formation Test (RFT) pressure readings were carried out in Dunbar-1 and the results listed in Appendix 7. The pressure vs depth plot is found in Figure 6. The interpretation of the plot is found under section 4. An attempt was made to take a sample at 1486.0 m but it failed due to seal failure.

2.5 Logging And Surveys

2.5.1 Mud Logging

A standard skid-mounted unit equipped for continuous recording of depth, rate of penetration (ROP), mud gas, pump rate and mud volume data, as well as intermittent mud and cuttings gas (blender) analysis was operative from spud until the well was plugged and suspended. The Formation Evaluation Log (i.e., "Mud Log") at 1:500 scale is provided in Enclosure 2, and a Gas Ratio Analysis Log at 1:1000 scale is provided in Enclosure 3.

2.5.2 Wireline Logging

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

Run	Tool String	Interval (mKB)	BHT (°C)	Hours since circulation stopped	Comments
1	Array Induction - Microlaterolog - Sonic-SP-GR-CALI	1754.0-312.0	58	6.5	GR to surface
2	Acoustic Imaging Tool	1737.0-1355.0	N/A	12.0	
3	Compensated Neutron - Photodensity - GR	1748.0-800.0	64	21.0	
4	Repeat Formation Sampler	1644.5-1482.2	N/A		39 tests attempted
5	Velocity Survey	T.D - Surface	N/A		Run by Velocity Data
6	Sidewall Cores		N/A		24 attempted, 20 recovered

Hole Size Logged: 8.5"

The mud properties during logging were as follows:

Mud Type	PHPA/PAC
Density (ppg)	9.3
Viscosity (sec)	4.0
pH	8.6
Fluid Loss (cc)	6.8
Rm @ Temp	2.71 @ 19.6 °C
Rmf @ Temp	2.56 @ 21.2 °C
Rmc @ Temp	3.33 @ 22.2 °C

2.5.3 Deviation Surveys

Totco deviation surveys were carried out periodically throughout the drilling of Dunbar-1, with results as shown in Table 2. Using this data a maximum radius of deviation was calculated by summing the products of the component of horizontal shift [*interval length* × sin(*deviation angle*)] for each interval. This indicates that the Waarre Formation primary objective was intersected within a 16 -metre radius of the surface location and the bottom hole location was within a 18-metre radius, which equates to an overall deviation of no more than one degree.

TABLE 2

DUNBAR-1 HOLE DEVIATION

Depth (m)	Interval (m)	Angle (m)	Sin(angle)	Horizontal distance (m)	Total horizontal (m)	cos(angle)	Vertical distance (m)	Total vertical distance (m)
0								
11	11	0	0.00	0.00	0.00	1.00	11.00	11.00
30	19	0	0.00	0.00	0.00	1.00	19.00	30.00
84	54	0	0.00	0.00	0.00	1.00	54.00	84.00
129	45	0.5	0.01	0.39	0.39	1.00	45.99	129.00
193	64	0	0.00	0.00	0.39	1.00	64.00	193.00
250	57	0.125	0.00	0.12	0.52	1.00	57.00	250.00
442	192	0	0.00	0.00	0.52	1.00	192.00	442.00
626	184	0.5	0.01	1.61	2.12	1.00	183.99	625.99
814	188	0	0.00	0.00	2.12	1.00	188.00	813.99
1015	201	0.25	0.00	0.88	3.00	1.00	201.00	1014.99
1217	202	1.25	0.02	4.41	7.14	1.00	201.95	1216.94
1417	200	1	0.02	3.49	10.90	1.00	199.97	1416.91
1619	202	1.5	0.03	5.29	16.18	1.00	201.93	1618.84
1744	125	1	0.02	2.18	18.37	1.00	124.98	1743.82
			Totals	18.37			1743.82	

2.5.4 Velocity Survey

A Velocity Survey (WST-Checkshot) was carried out by Velocity Data.
This report is found in Appendix 8.

3. GEOLOGY

3.1 Stratigraphy

The section penetrated in Dunbar-1 is interpreted to have formation tops as shown in Table 3 based on consideration of rate of penetration, cuttings descriptions, palynological analyses and wireline logs. Unless stated otherwise, depths mentioned in this report will be referenced on the well datum, the kelly bushing (KB).

TABLE 3

DUNBAR-1 FORMATION TOPS AND THICKNESSES

Stratigraphic Unit	Depth		Thickness
	(mKB)	(mSS)	(m)
Heytesbury Group	5.7	+77.0	420.3
Port Campbell Limestone	5.7	+77.0	118.3
Gellibrand Marl	124.0	-41.3	291.0
Clifton Formation	415.0	-332.3	11.0
Nirranda Group	426.0	-343.3	136.0
Narrawaturk Marl	426.0	-343.3	86.0
Mepunga Formation	512.0	-429.3	50.0
Wangerrip Group	562.0	-479.3	317.0
Dilwyn Formation	562.0	-479.3	200.0
Pember Mudstone	762.0	-679.3	60.0
Pebble Point Formation	822.0	-739.3	43.0
K-T Shale	865.0	-782.3	14.0
Sherbrook Group	879.0	-796.3	816.2
Paaratte Formation	879.0	-796.3	356.0
Skull Creek Mudstone	1235.0	-1152.3	114.0
Nullawarre Greensand (equiv.)	absent	-	0.0
Belfast Mudstone	1405.5	-1322.8	72.5
Waarre Formation	1478.0	-1395.3	217.3
Unit D †	1478.0	-1395.3	3.8
Unit C	1481.8	-1399.1	19.2
Unit B	1501.0	-1418.3	31.5
Unit A	1532.5	-1449.8	15.6
Otway Group	1548.1	-1465.4	209.9+
Eumeralla Formation	1548.1	-1465.4	209.9+
Total Depth (Driller)	1758.0	-1675.3	

† *Also known as the Flaxman Formation*

3.2 Lithological Description

The following is a summary of the lithological units observed in Dunbar-1 compiled from the descriptions by the wellsite geologist (Appendix 4), as well as the Mud Log (Enclosure 2), and sidewall core descriptions (Appendix 5).

3.2.1 Heytesbury Group (Surface - 426.0 metres)

3.2.1.1 Port Campbell Limestone (Surface - 124.0 metres)

Calcarenite: orange, very fine to fine grained, sucrosic texture, common shell fragments and foraminifer, common red brown iron oxide rich calcilutite, friable, good visual porosity. By 50m gradually becoming very light grey, fine grained, trace fossil fragments including bivalves, gastropods, foraminifer, sponge spicules and echinoid spines, slightly argillaceous, trace glauconite, trace medium grey marl, friable, poor visual porosity. With minor interbedded
Marl: medium grey, very calcareous grading to calcilutite, firm, non-fissile.

3.2.1.2 Gellibrand Marl (124.0 - 415.0 metres)

Marl: medium grey with increasing medium green grey below 205m, occasionally medium brown grey, in general becoming less calcareous with depth, abundant fossil fragments including bivalves, gastropods, foraminifer, bryozoa, sponge spicules and echinoid spines, rare glauconite, rare dispersed quartz sand grains, trace pyrite occasionally as fossil replacement, rare micromica in part, very soft, sticky, non-fissile.

3.2.1.3 Clifton Formation (415.0 - 426.0 metres)

Calcarenite: orange brown, very fine to very coarse grained, abundant dark brown iron oxide pellets, abundant light to medium orange brown iron oxide stained bryozoa, trace to common shell fragments, echinoid spines and sponge spicules, common brown iron oxide stained very fine to very coarse frosted subrounded to well rounded quartz grains, weak cryptocrystalline calcareous cement, friable to moderately hard, poor inferred porosity. Grading with depth to off white to light yellow to orange to brown, occasionally yellow green, often very lutitic, common bryozoa fragments, trace foraminifer, echinoid spines, sponge spicules and shell fragments, trace dark brown very fine to occasionally very coarse iron oxide pellets, trace brown very fine to occasionally very coarse iron oxide stained frosted subrounded to well rounded quartz grains, friable, very poor visual porosity. With minor interbedded
Marl: medium to dark brown, trace to common medium grey to medium green grey, common bryozoa, trace shell fragments, foraminifer, echinoid spines and sponge spicules, common pyrite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non-fissile.

3.2.2 Nirranda Group (426.0 - 562.0 metres)

3.2.2.1 Narrawaturk Marl (426.0 - 512.0 metres)

Marl: medium to dark brown, common medium grey, trace medium green grey, common bryozoa, trace shell fragments, foraminifer, echinoid spines and sponge spicules, common pyrite grading to marcasite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non-fissile.

3.2.2.2 Mepunga Formation (512.0 - 562.0 metres)

Sandstone: medium brown, very fine to grit, dominantly medium, very poorly sorted, subangular to rounded, weak calcareous cement, weak silica cement, abundant white calcilutite matrix in part, abundant medium to dark brown argillaceous and silt matrix, strong brown stain on quartz grains, common glauconite, friable, very poor inferred porosity. With depth grading to
Sandstone: medium brown, very fine to very coarse, dominantly fine to medium, angular to rounded, dominantly subrounded, poorly sorted, weak silica and calcareous cements, abundant medium brown to dark brown argillaceous and silt matrix (matrix supported grading to arenaceous claystone), weak to strong brown stain on quartz grains, trace dark brown iron oxide pellets, trace black lithics, friable, very poor visual porosity. Grading to
Claystone: medium to dark brown, non to occasionally very calcareous, very silty in part, abundant dispersed quartz grains in part grading to argillaceous sandstone, common glauconite, trace micromica, trace pyrite, soft, non-fissile.

3.2.3 Wangerrip Group (562.0 - 879.0 metres)

3.2.3.1 Dilwyn Formation (562.0 - 762.0 metres)

Sandstone: light brown grey, very fine to very coarse, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, occasional strong dolomite cement towards base, abundant medium to dark brown argillaceous and silt matrix, trace white calcilutite matrix in part, clear to light orange brown stained quartz grains, trace pyrite, trace muscovite flakes, trace green grey cherty lithics, trace glauconite, friable, poor visual porosity. Grading to and occasionally interbedded with
Claystone: medium to dark brown, very silty, trace to abundant dispersed very fine to very coarse light brown stained quartz grains, trace pyrite grading to marcasite, trace medium brown cryptocrystalline dolomite increasing towards base, occasionally black and very carbonaceous, trace micromica, trace muscovite flakes, soft, very dispersive, non-fissile.

3.2.3.2 Pember Mudstone (762.0 - 822.0 metres)

Claystone: medium to dark brown, very silty, common to abundant dispersed very fine to fine quartz sand grains, trace dispersed medium to grit sized quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non-fissile.

Occasionally grading to Sandstone: light brown, very fine to fine, occasional medium to grit sized grains, subangular to rounded, dominantly subrounded, poorly sorted, weak silica cement, rare brown dolomite and calcareous cements, abundant medium to dark brown argillaceous and silt matrix (matrix supported), rare green grey cherty lithics, trace muscovite flakes, friable, very poor visual porosity Below 810m the Pember becomes very sandy being:
Sandstone: medium brown, very fine to grit, dominantly very coarse, subangular to rounded, dominantly subrounded, very poorly sorted, occasional strong calcareous and medium brown cryptocrystalline dolomite cements, abundant medium brown argillaceous and silt matrix (matrix supported), trace brown stain on quartz grains, trace pyrite, friable, very poor visual porosity With minor interbedded and in part grading to
Claystone: medium brown, very silty, common to abundant dispersed very fine to grit quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non-fissile.

3.2.3.3 Pebble Point Formation (822.0 - 879.0 metres)

Sandstone: light brown, very fine to grit, dominantly very coarse, subangular to subrounded, very poorly sorted, weak silica cement, trace to common medium brown argillaceous and silt matrix, trace white argillaceous matrix, trace to common yellow to brown quartz grains, trace green clay lithics, friable, fair visual porosity. Grading in part to and occasionally interbedded with
Claystone: medium to dark brown, very silty, occasionally iron oxide rich, abundant dispersed very fine to grit quartz sand grains, common pyrite, trace glauconite, slightly calcareous in part, trace black carbonaceous material, soft, very dispersive, non-fissile.

3.2.3.4 K-T Shale (865.0 - 879.0 metres)

Claystone: medium to dark brown, silty, abundant quartz grains, soft, dispersive.

3.2.4 Sherbrook Group (879.0 - 1477.9 metres)

3.2.4.1 Paaratte Formation (879.0 - 1235.0 metres)

Sandstone: very light orange grey, very fine to pebble, dominantly coarse to very coarse in general gradually becoming finer grained with depth, subangular to subrounded, moderately to well sorted, weak silica cement, trace medium brown argillaceous and silt matrix, common yellow quartz grains, common grey green and trace red cherty lithics, trace pyrite, friable, fair to good visual porosity. With depth gradually grading to
Sandstone: light grey, very fine to grit, dominantly fine, subangular, poorly sorted, moderate silica cement, weak light brown dolomite cement in part, common to abundant white to light brown argillaceous matrix, abundant medium grey argillaceous and silt matrix in part, trace grey green and red lithics, trace black coal detritus, trace pyrite often associated with coal detritus, friable to moderately hard, poor visual porosity, grading to;

Sandstone: off white to light grey to light brown, very fine to dominantly fine, subangular, well sorted, strong dolomite cement in part, moderate silica cement, abundant white argillaceous matrix, common very fine partially altered feldspar grains, trace black carbonaceous flecks, rare pyrite, trace very fine muscovite flakes, moderately hard, very poor visual porosity grading to and interbedded with
Claystone: light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz and altered feldspar grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace medium brown cryptocrystalline dolomite, trace to common micromica, firm, very dispersive, slightly subfissile.

3.2.4.2 Skull Creek Mudstone (1235.0 - 1349.0 metres)

Claystone: medium to dark grey, occasionally medium to dark brown grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dispersive, slightly subfissile. With minor interlaminated
Sandstone: off white to very light grey, very fine to fine, occasional medium to very coarse grains, subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity. With from 1308 to 1309.5m. and 1316 to 1317.5m.
Sandstone: off white to light grey, very fine to fine, subangular, well sorted, strong silica and calcareous cements, common white argillaceous matrix in part, common light green lithics, trace biotite and muscovite, trace very fine black carbonaceous grains, very hard, no visual porosity.

3.2.4.3 Nullawarre Greensand (equivalent) (absent)

This unit is absent due to faulting

3.2.4.4 Belfast Mudstone (1405.5 - 1477.9m)

Claystone: dark grey, occasionally very dark grey and very carbonaceous, trace to common glauconite increasing with depth, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace to occasionally common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.

3.2.4.5 Waarre Formation (1478.0 - 1548.1 metres)

3.2.4.5.1 Unit D (1478.0 - 1481.8 metres)

Limestone: very light brown, lutitic to cryptocrystalline, trace glauconite, hard, no visual porosity. Intermixed with minor;

Claystone: medium to dark brown grey, dark grey, occasionally very dark grey and very carbonaceous, trace to common glauconite increasing with depth, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace to occasionally common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.

3.2.4.5.2 Unit C (1481.8 - 1501.0 metres)

Sandstone: light grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak silica cement, trace white argillaceous matrix, trace black coal detritus, trace pyrite, friable, good inferred porosity.

3.2.4.5.3 Unit B (1501.0 - 1532.5 metres)

Sandstone: light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant white argillaceous matrix, trace black carbonaceous detritus, trace pyrite, friable, good inferred porosity. Interbedded with

Claystone: medium to dark grey, moderately silty, moderately carbonaceous, trace black coal flecks, trace pyrite, trace very fine dispersed quartz and altered feldspar grains in part, trace to common micromica, firm, very dispersive, slightly subfissile.

3.2.4.5.4 Unit A (1532.5 - 1548.1 metres)

Sandstone: off white to very light grey, very fine to medium, occasional coarse to very coarse grains, dominantly fine, angular to subangular, poor to moderate sorting, weak silica cement, abundant white argillaceous matrix, in part matrix supported, trace to common grey, green, red and brown lithics, trace muscovite and brown mica flakes, trace black coal detritus, trace pyrite, friable, very poor to poor visual porosity. Grading with depth to

Sandstone: light green grey, very fine to coarse, trace very coarse to grit grains, dominantly fine to medium, subangular, moderately sorted, weak silica cement, trace to abundant white argillaceous matrix, common green and brown lithics, trace black carbonaceous detritus, friable, poor visual porosity.

Grading in part to

Claystone: (kaolinite) off white, abundant dispersed very fine to fine quartz and lithic sand grains in part, soft, sticky, non-fissile.

3.2.5 Otway Group (1548.1 - 1758.0 metres)

3.2.5.1 Eumeralla Formation (1548.1- 1758.0 metres)

Sandstone: light to medium green grey, very fine to coarse, dominantly medium, subangular, moderately sorted, weak silica cement, occasional moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity. Interbedded with and in part grading to

Claystone: light to medium grey, light to medium brown grey, light to medium green grey, slightly to occasionally very silty, common black carbonaceous flecks and black coal detritus, trace brown mica flakes, trace pyrite, nil to occasionally common very fine partially altered feldspar grains, trace micromica, firm, very dispersive, slightly subfissile.

3.3 Hydrocarbon Indications

3.3.1 Mud Gas

There was no gas recorded down to 1245 mKB. Between 1245 and 1350 mKB gas consisted of background methane only (C_1).
Between 1350 mKB and the top of the Waarre Formation at 1477.9 mKB gas was background C_1 and C_2, with total gas at around 0.1%.

Waarre Formation

A gas peak with up to 5% total gas and C_1 to C_3 was recorded between the top of this unit at 1478.0 and 1490.0 mKB.

Background gas predominated below 1490.0 mKB, but at 1532.0 mKB, conciding with the top of Unit 'A' gas reading increased very significantly to more than 10% total gas with gas composition of C_1 to C_3. The high gas readings persisted down to 1548.0 mKB (Top Eumeralla).

Eumeralla Formation

There were no significant gas peaks within the Eumeralla Formation, and gas was mostly background comprising C_1 to C_3.

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 the Waarre Unit C across the interval 1487.5 to 1489 metres with the sandstone having trace dull blue-white fluorescence associated only with the rock flour giving a weak blue-white crush cut and also in the Waarre Unit A at a depth of 1544 metres with a trace of the sandstone having a dull blue-white fluorescence giving a very dull blue crush cut. Apart from these two occurrences no other oil fluorescence was observed from cuttings during the drilling of Dunbar-1.

3.3.2.2 Sidewall Cores

No oil fluorescence was observed in any sidewall cores from Dunbar-1.

3.4 Geochemistry

A mud/oil sample from DST-2 was sent to Geotech in Perth for geochemical analysis. The worked performed comprised GC and branched/cyclic GC-MS analysis. Results of the analysis are contained in Appendix 9. The sample chamber sample was sent to Amdel for analysis and their report is contained in the same Appendix 9.

3.5 Palynology

Fourteen sidewall core samples were analysed in Dunbar-1 with the focus of the palynological investigation concentrated on the Waarre Formation and Belfast Mudstone.

The investigation was conducted by Alan Partridge of Biostrata Pty Ltd. The report is contained in Appendix 10.

3.6 Structure

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

Table 4

Predicted vs Actual Formation Tops

Stratigraphic Unit	Predicted Depth (mKB)	Actual Depth (mKB)	+/- (m)
Port Campbell Limestone/			
Gellibrand Marl	6	5.7	+0.3
Clifton Formation	401	415.0	-14.0
Mepunga Formation	484	512.0	-28.0
Dilwyn Formation	551	562.0	-11.0
Pebble Point Formation	812	822.0	-10.0
Paaratte Formation	887	879.0	+8.0
Skull Creek Mudstone	1246	1235.0	+11.0
Nullawarre Equiv.	ABS	ABS	-
Belfast Mudstone	1357	1405.5	+48.5
Waarre Fm. (Top Porosity)	1482	1478.0	+4.0
Eumeralla Formation	1583	1548.1	+34.9
T.D.	1728	1758.0	-30.0

Generally horizon tops came in close to prediction.

The Waarre Formation had a minor gas column in the Unit C sand with a definite water contact. The inference from this is that the northern fault leaks at just below the top of the Waarre in Dunbar across into the Nullawarre Greensand.

The Unit A sand in the lower Waarre Formation appeared to contain gas with no observed water contact. Although not conclusive it is thought that the Unit A sand is in a separate system to the Unit C sand above it and probably contains a commercial reserve of gas.

3.7 Log Analysis

Log analysis was performed only over the primary objective, the Waarre Formation and parts of the underlying Eumeralla Formation. All other formations lacked any hydrocarbon indications and were interpreted as water wet.

Log analysis was performed using Croker Data Processing PETROLOG software.

The Caliper log shows that over the analysed interval the hole is in good condition. All logs are also reading adequately.

Waarre Formation

The Waarre Formation Unit 'D' developed between 1477.9 - 1481.8 mKB is not a reservoir and consists of sandy claystone.

Unit 'C' and 'B' (1481.8 - 1532.5 mKB) comprise light grey, fine to grit, dominantly very coarse sandstones interbedded with claystone. The sandstones are angular to subangular, poorly sorted, with trace of argillaceous matrix and very good visual porosity.

Unit 'A' (1532.5 - 1548.1 mKB) comprises a reservoir sandstone described as light green grey, dominantly fine to medium, subangular, moderately sorted, with trace to abundant argillaceous matrix, common green and brown lithics and poor visual porosity. The logs response over this zone is atypical, and this sand might constitute a transition between the Eumeralla and the Waarre Formation. The sandstone displays high gamma ray values, PEF of around 3.2 and higher density than the sandstones above. Indeed, the log response of Unit 'A' is very similar to the underlying Eumeralla Sandstones.

A Drill Stem Test conducted over Unit 'A' flowed gas to surface at an unstabilised rate of 750 MCFD. A second gas zone was suspected at the top of Unit 'C' where there was high gas recorded while drilling.

Results of this log evaluation have indicated:

1. High gas saturations at the top of unit 'C' in good agreement with the high gas recorded while drilling.

2. Gas saturations of around 50% in Unit 'A'. The calculated gas saturations appear to be too low considering the flow of gas in DST-1. The reasons of why log analysis cannot calculate higher gas saturations are not readily apparent but it could be due to:
    * Uncertain a, m, n
    * Complex lithology
    * Conductive clays within the formation

Formation water resistivity was calculated from the Rwa method in the clean, water sand at around 1517.0 m. A value of 0.126 ohmm was obtained at formation temperature, which is around 31,000 ppm salinity. This salinity was applied to the entire Waarre Formation.

Results of the log analysis are presented in Table 5 and Enclosure 4.

* The Eumeralla Formation was found to be water wet with minor residual hydrocarbons (Enclosure 4).

Table 5

Log Analysis Results - Waarre Formation

Top Waarre = Top Unit 'D' 1477.9 mKB

Top Porosity = Top Unit 'C' 1481.8 mKB

1. UNITS 'C' and 'B'

Sand 1 1481.8 - 1501.0 mKB

	Total Interval (m)	Gross Sand (m)	Net Sand (m)	Net Pay (m)	$\emptyset_E$	Ave Sw	Ave V_{cL}	Comments
1481.8-1485	3.2	3.2	3.0	3.0	0.24	0.70	0.03	Gas Zone
1485.0-1485.7	0.7	-	-	-	-	-	-	Argillaceous
1485.7-1488.5	2.8	2.5	2.45	2.45?	0.22	0.45	0.03	Transition Zone
Summary	**6.7**	**5.7**	**5.45**	**5.45?**	**0.23**	**0.60**	**0.03**	
1488.5-1491.0	1.5	2.5	2.50		0.23	0.75	0.05	Water
1491.0-1501.0	10.0	8.55	5.15		0.24	0.93	0.16	Water

Sand 2 1507.0 - 1519.0 mKB

	12.0	12.0	12.0	-	0.23	0.94	0.07	Water - Minor Residual Hydrocarbons

2. UNIT 'A'

Sand 3 1533.0 - 1543.0 mKB

1533.0-1537.0	4.0	3.75	3.75	3.75	0.21	0.47	0.17	Tested Gas
1537.0-1538.0	1.0	1.00	0.05	0.05	0.19	0.49	0.27	Tested Gas
1538.0-1543.0	5.0	3.70	3.70	3.70	0.21	0.49	0.15	Tested Gas
Summary	**10.0**	**8.45**	**7.50**	**7.50**	**0.21**	**0.48**	**0.16**	

4. CONCLUSIONS

* The Waarre formation contains two gas accumulations.

* The first accumulation in Unit 'C' comprises a minimum 3.2 m gross interval between 1481.8-1485.0 mKB (1404.8-1408.0 mSS). Below 1485.0 mKB there appears to be a transition zone down to 1488.5 mKB. Water saturations are very high below 1488.5 mKB indicating a water zone.

* The second accumulation, in Unit 'A', comprises the interval 1533.0-1543.0 mKB (1456.0-1466.0 mSS) and is 10 m thick. A gas/water contact (GWC) could not be identified because the section becomes shaly below 1543.0 mKB.

* The accumulation in Unit 'A' highlights the good sealing potential of intra-Waarre claystone.

* The two gas accumulations are not in communication as suggested by the water zone separating them.

* The gas-water contact identified in Unit 'C' suggests cross-fault leakage into the Nullawarre Greensand.

5. IMPLICATIONS

The failed completion of Dunbar-1 as a result of the 7" production casing becoming irretrievably stuck at 1209.83 mKB provides a clear indication that future drilling in the area requires a more detailed assessment of the factors affecting borehole condition, such as design of mud systems and casing points.

FIGURES

PE907919

This is an enclosure indicator page.
The enclosure PE907919 is enclosed within the container PE900923 at this location in this document.

The enclosure PE907919 has the following characteristics:

ITEM_BARCODE	= PE907919
CONTAINER_BARCODE	= PE900923
NAME	= Well Location Map
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= MAP
DESCRIPTION	= Well Location Map (enclosure from Well Completion Report) for Dunbar-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 31/01/96
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	=
CLIENT_OP_CO	= GFE Resources

(Inserted by DNRE - Vic Govt Mines Dept)

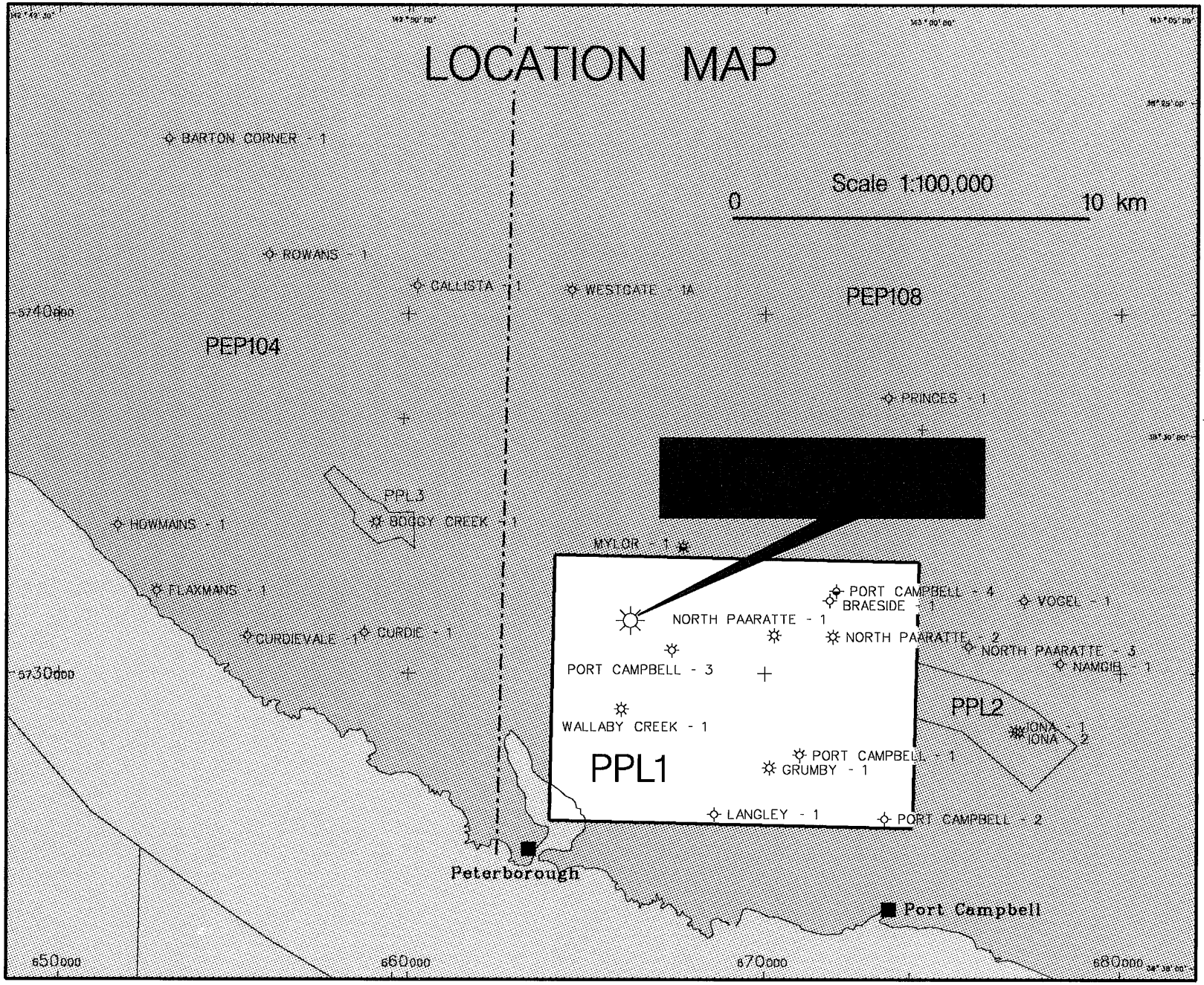


FIGURE 1

PE907920

This is an enclosure indicator page.
The enclosure PE907920 is enclosed within the container PE900923 at this location in this document.

The enclosure PE907920 has the following characteristics:

ITEM_BARCODE	= PE907920
CONTAINER_BARCODE	= PE900923
NAME	= Stratigraphic Table
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= STRAT_COLUMN
DESCRIPTION	= Onshore/Offshore Operational Stratigraphic Table (enclosure from Well Completion Report) for Dunbar-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	= 31/01/96
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	= Cultus Petroleum NL
CLIENT_OP_CO	= GFE Resources

(Inserted by DNRE - Vic Govt Mines Dept)

Cultus Petroleum NL

OTWAY BASIN

OFFSHORE-ONSHORE OPERATIONAL STRATIGRAPHIC TABLE

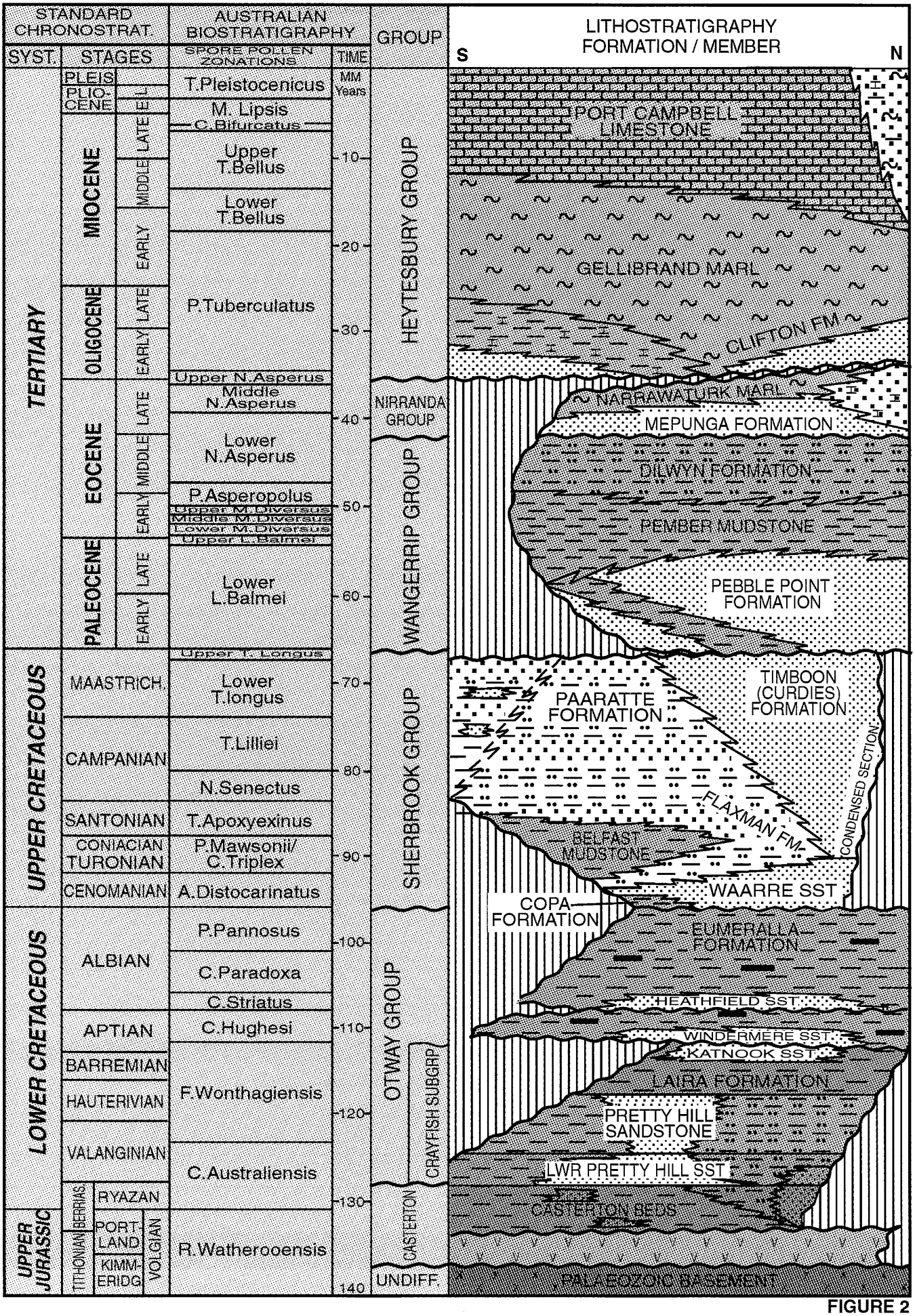


FIGURE 2

GFE Resources Ltd
DUNBAR-1
Drilling Progress Curve

PPL1 Otway Basin

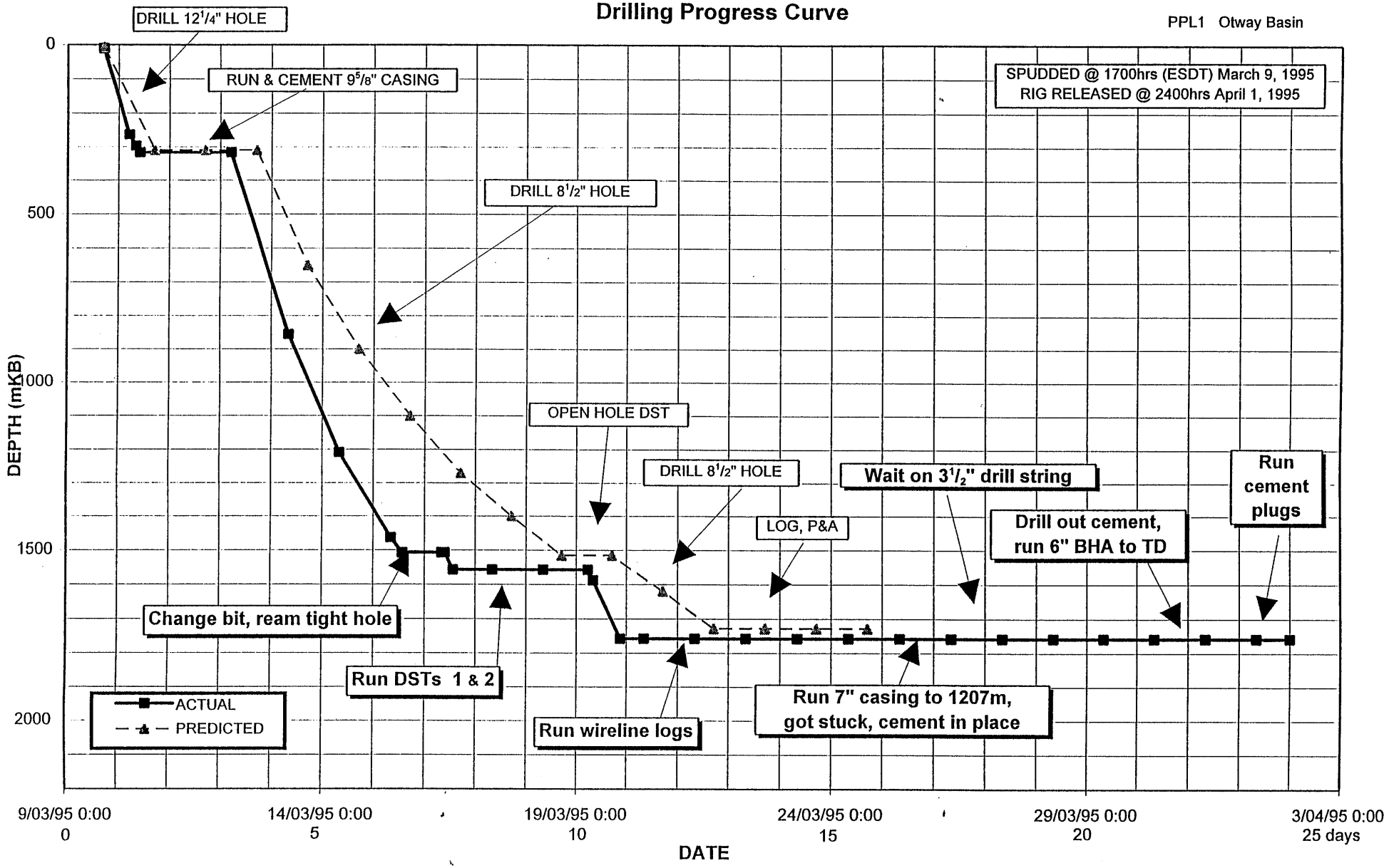
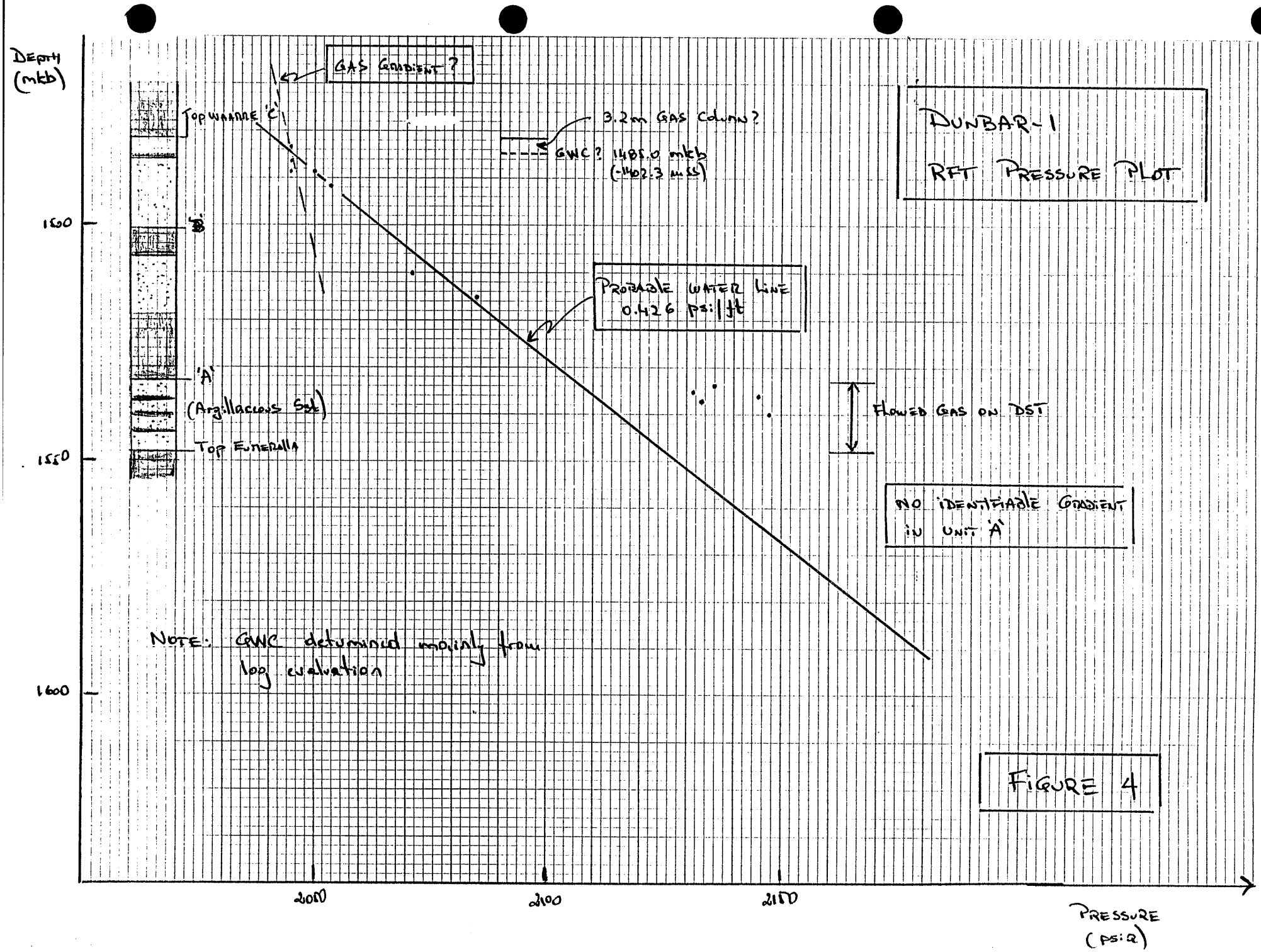


FIGURE 3


Depth (mkb)
1600
1550
1600
GAS GRADIENT ?
TOP WARRE 'C'
'B'
'A'
(Argillaceous Sst)
TOP ETNEDALA
3.2m GAS column?
GWC? 1485.0 mkb (-1462.3 mss)
PROBABLE WATER LINE 0.426 psi/ft
FLOWED GAS ON DST
NO IDENTIFIABLE GRADIENT IN UNIT 'A'
NOTE: GWC determined mainly from log evaluation
DUNBAR-1
RFT PRESSURE PLOT
FIGURE 4
2050
2100
2150
PRESSURE (psia)

APPENDIX 1

APPENDIX 1

RIG SPECIFICATIONS

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 Record-O-Graph Martin-Decker Weight Indicator Type F.S. Martin-Decker Mud Pressure Gauge Martin-Decker Rotary R.P.M. Indicator Martin-Decker Stroke Indicator (2 off) Martin-Decker Rota Torque Indicator Martin-Decker Tong Torque Indicator Martin-Decker Mud Flow Sensor Martin-Decker Mud Flow Fill System Martin-Decker Mud Volume Totaliser (M.V.T.)
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

APPENDIX 2

DRILLING FLUID RECAP

M-I Drilling Fluids L.L.C.

FDC4

DRILLING FLUIDS DATA MANAGEMENT SYSTEM

GFE RESOURCES
DUNBAR 1
PPL 1
OTWAY BASIN

M-I Drilling Fluids L.L.C.

F D C 4
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Field/Area : PPL 1
Description : EXPLORATION
Location : OTWAY BASIN
Warehouse : ADELAIDE
Contractor : CENTURY DRILLING 11

Spud Date : 03/09/95
TD Date : 04/01/95
Loc Code : VICTORIA
Dist Engr : BLAIR JACK
Sales Engr : PAUL MARSHALL
Sales Engr :
Well Number : G0003

Comments : ALL REPORTS TO 24:00 HRS AS PER THE IADC REPORT. WELL PLUGGED & SUSPENDED

Type	Size in	Depth m	TVD m	Hole in	MaxMW lb/gal	Mud 1	Mud 2	Drilling Problem	Days	Cost
Casing	9.625	312	312	12.250	9.3	FW NATIVE W/SWEEPS		NO PROBLEMS	3	403
Casing	7.000	1209	1209	8.500	9.4	FW POLYPLUS		RUNNING CSG TO BTM	19	14525
OpenH		1758	1758	6.000	9.3	FW POLYPLUS		NO PROBLEMS	2	2029

T Depth: 1758 m TVD : 1758 m Water Depth: m Drilling Days: 24 Total Mud Cost: 16957

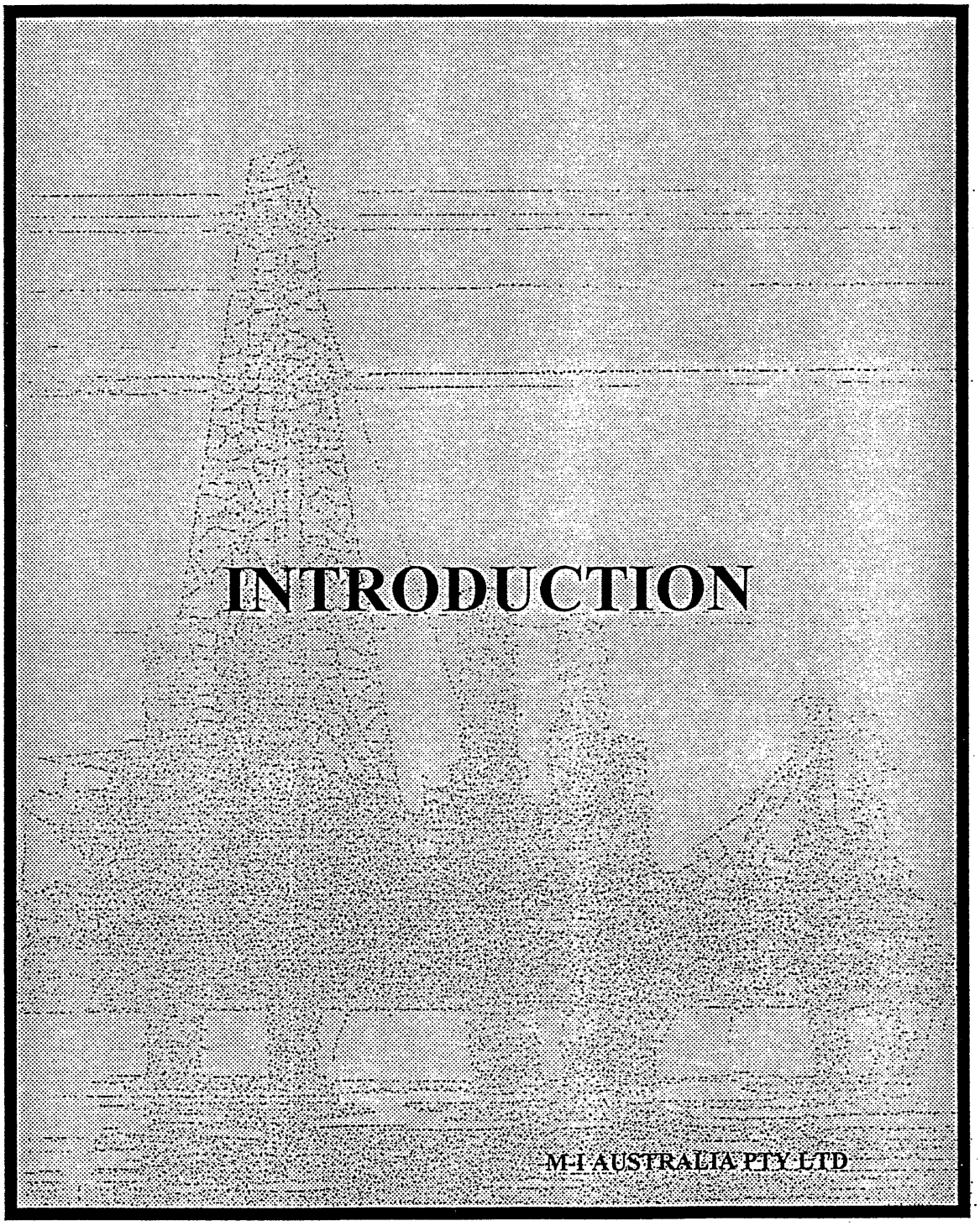
GFE RESOURCES

WELL : DUNBAR 1

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

M-I AUSTRALIA PTY LTD

SECTION 1


INTRODUCTION
M-I AUSTRALIA PTY LTD

M-I Australia Pty. Ltd.

INTRODUCTION:

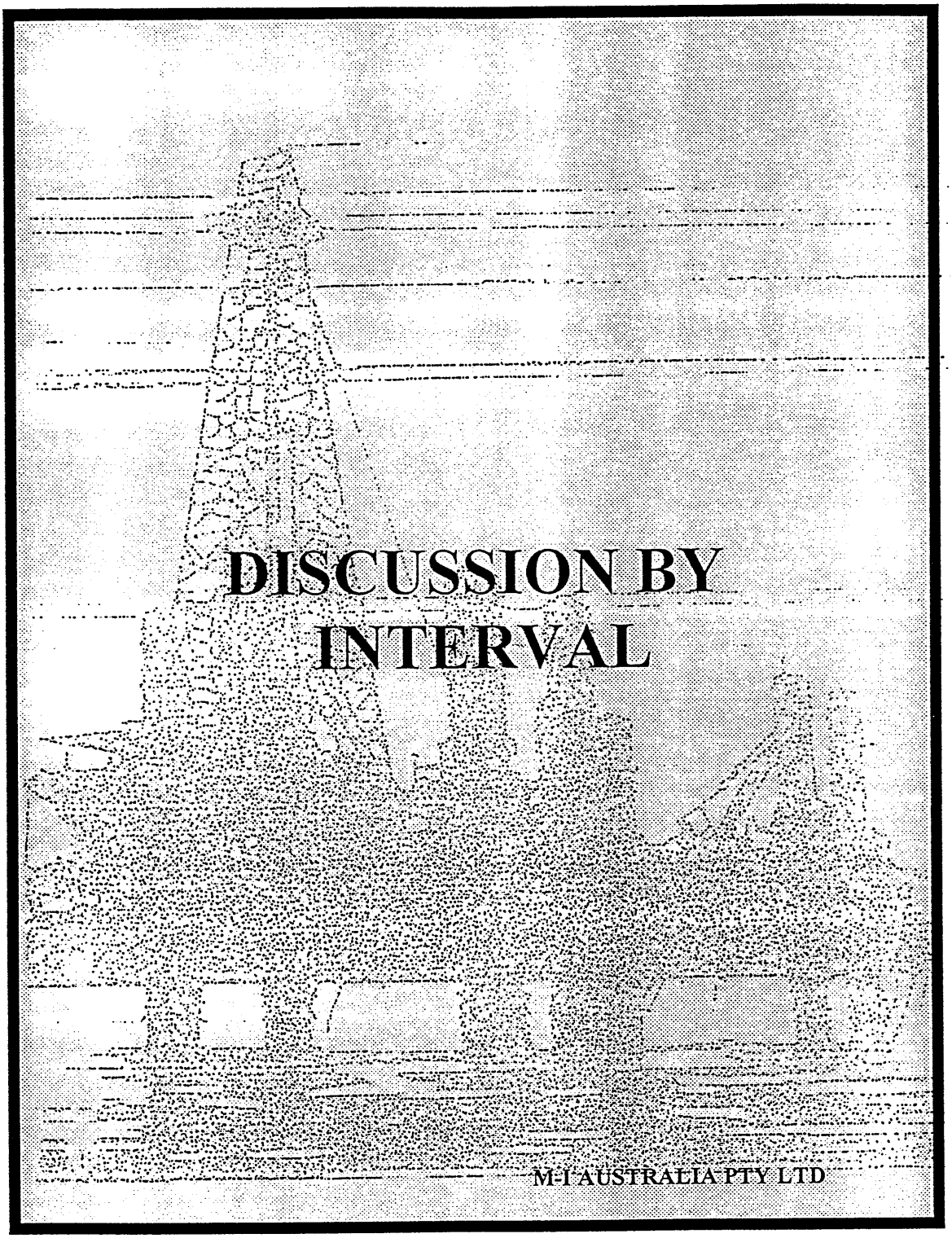
GFE Resources exploration well, Dunbar 1, was spudded by Century rig 11 at 1700 hours on 9 March 1995. The well was located in the Otway basin in permit PPL-1 onshore SW coast of Victoria. The primary objective was the Waarre sandstone at 1477 meters.

The well was drilled to a total depth of 1758 meters in 24 drilling days without significant drilling or mud problems. The 7" casing, however, was not able to pass 1209 meters and was cemented, some 540 meters high. Problems were also encountered with the first of two DSTs and the RFT log run. Observations and specific recommendations are made at the conclusion of this report. P & A operations commenced once 3.5" drill pipe was located and arrived on location. The rig was released on 1 April 1995, 24 days since spud date.

The geological formation tops as supplied by the wellsiite geologist were:

Age	Formation	Depth (meters)
Tertiary	Port Campbell	6
	Gellibrand Marl	124
	Clifton Calcarenite	415
	Narrawaturk Marl	426
	Mepunga - sandy claystone	512
	Dilwyn - Sandstone interbed claystone	562
Late Cretaceous	Pember Claystone	763
	Pebble Point	810
	Paaratte Sandstone	879
	Skull Creek Mudstone	1245
	Nullawarre Greensand	absent
	Belfast Mudstone	1352
	Warre Formation	1477
Early Cretaceous	Eumeralla Formation	1548

SECTION 2



DISCUSSION BY INTERVAL

M-I AUSTRALIA PTY LTD

M-I Australia Pty. Ltd.

Interval	0 - 317 Meters	12.1/4" Hole	9.5/8" Casing

MUD TYPE : DRILLWATER NATIVE CLAY

HOLE PROBLEMS : NONE

MUD PROPERTIES :

Mud Weight	:	9.1 - 9.3 ppg
Funnel Viscosity	:	45 - 55 sec/qt
Weight Loss	:	n/c

OPERATIONS:

The hole was spudded with a 12.1/4" bit and 6.1/4" and 8" DCs and drilled to an interval total depth of 317 meters in 20 hours drilling time. Deviation surveys were taken at approximately 50 meter intervals, with a maximum of 1° recorded. At total depth a wiper trip was made and revealed 1 meter fill. The hole was circulated clean and 9.5/8" casing run to 312 meters and cemented. Cement was displaced with drillwater.

MUD:

The well was spudded with drillwater and for hole cleaning, relied on the reactive clays particularly the Gellibr and Marl, to build sufficient viscosity. The need to flocculate the system with Lime never arose. Continued dumping and fresh water dilution (sump water was used when it became available) to control high rheology was necessary. Within 6 hours the native clay content of the system had risen to a level that would not allow the proposed addition of KCl without an unacceptable viscosity increase. High viscosity PHG sweeps were only deemed necessary on two occasions prior to surveys. The development of mud rings and their obstruction of the flowline interrupted drilling on three occasions between 263 meters and 317 meters. Failure to introduce KCl into the system at the outset of drilling may have been a factor in allowing the mud rings to develop to the extent that required physical of the flowline. However, since treatment of this system is solely by means of dump and dilute, continuous large scale additions of KCl would be required. The resultant unmanageable increase in viscosity might still not be avoided.

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Interval	317 - 1758 Meters	8.1/2" Hole	7" Casing

MUD TYPE : FRESHWATER/PHPA

HOLE PROBLEMS : UNABLE TO RUN 7" CASING TO BOTTOM

MUD PROPERTIES :

Mud Weight	:	8.6 - 9.4 ppg
Funnel Viscosity	:	38 - 47 sec/qt
PV	:	14 - 26 cp
Yield Point	:	9 - 26 lb/100 sq ft
MBT	:	7.5 - 12.5 ppb equivalent
PHPA	:	1.0 - 1.5 ppb

OPERATIONS:

An 8.1/2" drilling assembly (6.1/4" DC on 4.1/2" DP) was run to bottom and tagged cement at 294 meters. Cement, shoe track and rathole were drilled out with drill water and 5 meters new hole drilled while displacing to PHPA mud. A FIT was performed - 22.9 ppg mud weight equivalent- and drilling of reactive marls and sandy claystone commenced. Significant shaker losses resulted while drilling this top section even at controlled and moderate rates of penetration in the range of 20 - 25 meters/hour. Wiper trips at 856 meters and 1287 meters revealed a consistently tight hole that required extensive washing and working out and reaming back to bottom. There appeared to be no consistent tight zones. On each leg of each trip gauge and under gauge hole was recorded at differing depths, 18 meters and 7 meters of fill respectively were recorded. A bit trip at 1507 meters revealed a severely undergauge bit and stabilizer. On pulling out, tight hole from 1331 - 1082 meters required working and washing and again running back to bottom consistent reaming between 920 -1507 meters was necessary. Drilling proceeded to 1557 meters, exposing the Waare formation to DST #1. The zone was tested from between 1557 and 1526 meters. After a slight initial pressure abruptly stopped, the test tool was pulled to reveal most of the ports blocked by small Paaratte sandstone cutting. A bit was run to bottom and, but for 3 meters of fill, the hole was otherwise in good condition. A high vis sweep was circulated without noticeable increase in cuttings at the shaker. A second DST over the same interval, recorded an initial pressure build of 9 psi before a 1 hour shut in. Pressure built to 105 psi and gas flowed before once again partial blockage of the tool was indicated .

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Interval	317 - 1758 Meters	8.1/2" Hole	7" Casing

On surface the test tool again revealed the ports obstructed with wall coating and sandstone cuttings. A final wiper trip at total depth - 1758 meters, required only light reaming from 1533 - 1648 meters and washing 7 meters to bottom. The hole was circulated clean and was shown on the trip out to be free of any tight spots. A comprehensive suite of logs, including velocity, RFT and side wall cores, commenced requiring 7 runs and an RFT rerun, over four days. The failure of the RFT rerun was attributed to excessive borehole accumulation of mud and cuttings. On completion of logging 7" casing was run and after 30 hours working and washing eventually cemented at 1209 meters. It is assumed that centralisers and scratchers on the first joint of casing collapsed onto each other and prevented movement up or down by more than the length of a joint. Operations ceased for four days at this point while waiting for 3.1/2" drill pipe. On its arrival cement was drilled out and P & A procedures. The cement and shoe track were drilled out and cement plug #1 set over the Waarre sandstone from 1610 - 1440 meters. A second plug was set at the shoe and the hole displaced to inhibited mud. Operations ceased on 1 April.

MUD:

A drillwater/PHPA/PAC R system was prepared with additional filtrate control provided by CMC low viscosity. Initially it contained 1.6 ppb of each polymer with the intention of introducing 5 ppb PHG once drilling commenced. Native clays, however provided yield and gel strength sufficient for good hole cleaning and suspension and with no apparent reason to provide additional yield and the system remained basically a PHPA/PAC - native clay one. PHPA was maintained by means of whole mud premixes. The mud proved remarkably stable and responsive to dilution and treatment and exhibited excellent rheology, gel properties and filtrate control. After four days logging the system required only minor dilution to maintain programmed properties. Dilution of the system was reduced by 50% over the programmed estimate and total cost - excluding Barite - halved. Down hole losses and regular use of solids control equipment accounted for the unprogrammed use of Barite amounting to a cost of $ 4,131.00.

OBSERVATIONS AND RECOMMENDATIONS:

It was noted throughout the 8.1/2" section, that despite maintaining an adequate PHPA concentration, cuttings at the shaker did not exhibit the discrete, hard brittle preserved quality usually associated with a well maintained PHPA system. Rather they appeared as well sorted (fine grained up to 0.5 cm) poorly defined agglomerations bound in a PHPA matrix. This did, however, reveal a 'dry' quality once squeezed. This cuttings quality says more about the formation than the level of PHPA in the system. The formation is recognized as young or immature having not suffered the slow depositional de-watering which is evident in most other areas of familiarity and as such results in the lack of cuttings integrity described.

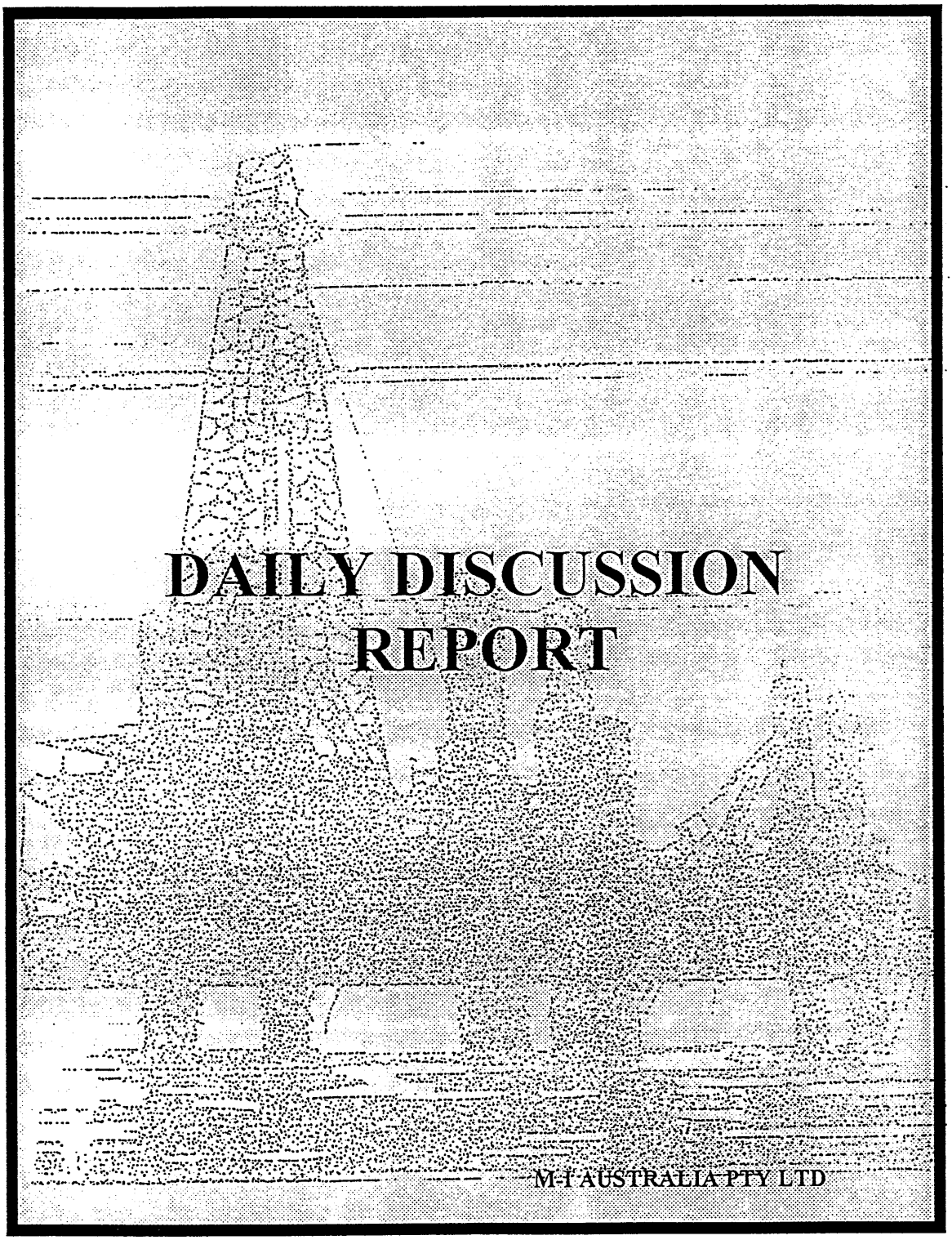
M-I Australia Pty. Ltd.

Interval	317 - 1758 Meters	8.1/2" Hole	7" Casing

The failure of DST #1 and the premature pulling of the test tool in DST #2 was at least in part due to a build up of mud and fine cuttings lining the wellbore This should be seen as something different to filter cake and was most likely due to the gentle hydraulics regime used throughout the 8.1/2" section. Typical pump output was in the order of 250 - 275 gpm. Only occasionally was it 300 gpm and never while drilling. Drill pipe/open hole annular velocities ranged from between 36 - 40 m/min. These rates, low by most standards, may not have been sufficient to scourer the borehole of polymer/cutting build up. The development of a wellbore coating was inferred from the caliper logs which showed a consistently under gauge wellbore exhibiting high energy absorption. The dense mud and cuttings that coated the DST tool and blocked the ports (the same is later inferred on the sidewall cores) was this wellbore coating with very fine - coarse ex situ cuttings from, amongst others, the Belfast and Paaratte formations. What was most obvious from examining the test tool was the individual Paaratte sandstone clasts (semi rounded chips) that neatly sat in the ports of the tool.

A revised hydraulics program may be necessary for future wells drilled in the region using a PHPA system.

SECTION 3


DAILY DISCUSSION
REPORT
M-I AUSTRALIA PTY LTD

Date : 09/03/95 Depth : 115.0 Day : 1

Continue to rig up. Spud Dunbar 1 at 1700 hrs on 9 March 1995 and drill 12.1/4" hole to 115m, sweeping hole with Hi Vis PHG on surveys.

Date : 10/03/95 Depth : 317.0 Day : 2

Drill 12.1/4" hole from 115-317m TD. Severe build up of mud rings at 263m, 291m and 310m required the flow line to be cleared of mud cake. Performed wiper trip with 1m fill on bottom. Circulate and clear flow line. POOH and rig up to run casing. Run casing and prepare to cement.

Date : 11/03/95 Depth : 317.0 Day : 3

Cement 9.5/8" casing and displace with drill water-WOC. Nipple BOP's function and pressure test. Pick up BHA and prepare to run in hole with 8.1/2" drilling assembly.

Date : 12/03/95 Depth : 693.0 Day : 4

RIH and tag cement at 294m. Drill out cement, float, shoetrack and 5m new hole. Perform FIT, mud wt equiv = 22.9 ppg. Drill 8.1/2" hole from 322m-349m. POOH and add stabilizer to BHA. RIH and drill from 349-387m. Clear shakers and clear header box of clay "boulders". Drill from 387m-406m. Clear header box and sand trap. Drill 406-693m with surveys. Max dev 0.5 deg.

Date : 13/03/95 Depth : 1047.0 Day : 5

Drill from 693m-856m. Circulate B/U and POOH for wiper trip. P/U kelly and circulate out tight hole from 579m-531m. Continue to POOH tight from 512m-378m. RIH and ream from 531m to bottom with 18m fill. Continue to drill from 856m-1047m.

Date : 14/03/95 Depth : 1382.0 Day : 6

Drill 8.5" hoel from 1047m-1230m & survey. Maximum deviation = 1.25 deg. Drill to 1287m and POOH for wiper trip to 576m. Work tight hole from 1095-847m, 790-770m & 713-675m. RIH and ream from 1255-1287m. 7m fill. Drill ahead to 1382m.

Date : 15/03/95 Depth : 1507.0 Day : 7

Drill 8.5" hole from 1382-1507m. Survey (1deg) and POOH for bit change. Work pipe from 1331-1082m. M/U junk sub and new bit and RIH. Precautionary ream under gauge hole from 660-683m, 756-780m & 813-875m.

Date : 16/03/95 Depth : 1557.0 Day : 8

Continue to RIH and ream under gauge hole. Ream from 920-971m, 1016-1061m, 1192-1248m and 1283-1507m. Circulate and pull back to 785m for wiper trip. Work tight hole from 1340-1168m. RIH-hole good 5m. Fill. Pull back 3 stands circulate bottoms up and RIH. Spot Hi Vis mud over 50m hole and POOH to run test tool.

Date : 17/03/95 Depth : 1557.0 Day : 9

Continue POOH. Make-up and RIH with test tool. DST #1 ? failure. POOH and lay out test tool-tool blocked. Make-up BHA and RIH-wash from 1533m to bottom-3m. fill. Circulate on bottom, pull 3 stands and continue to circulate and dilute mud. Maintain mud weight = 9.3 ppg with Barite. Run to bottom-no fill,pumpP Hi Vis pill and circulate out - no increase cuttings over shaker.

Date : 18/03/95 Depth : 1557.0 Day : 10

Perform wiper trip. POOH for DST. Conduct DST #2. Build to 9 psi. Close tool for 1 hr. Flow well. Pull free-hole good. Recover sample and lay out test tool. Test BOPs. Prepare to make up BHA and RIH.

Date : 19/03/95 Depth : 1758.0 Day : 11

RIH with BHA, break circulation at 1533m and wash and ream to bottom-1.5m. Fill drill 8.5" hole from 1557-1758m. Survey -1.5 deg. Circulate bottoms up and POOH for wiper trip.

Date : 20/03/95 Depth : 1758.0 Day : 12

RIH for wiper trip. Ream tight hole f/1533-1648m 7m fill. Circulate hole clean and POOH. Hole good. Rig up and log. Run log #1, 2 & 3.

Date : 21/03/95 Depth : 1758.0 Day : 13

Continue to run log #3. Rig down and RIH to 1741m. Wash to bottom-4m fill. Circulate hole clean-increased hole losses. POOH and rig up to run log #4 RFT/GR and log #5-VEL.

Date : 22/03/95 Depth : 1758.0 Day : 14

Continue log run #5. R/U and run log #6. Rig down BPB and pick up BHA. RIH-3m fill-circulate hole clean and POOH on wiper trip to 1176m. RIH-1.5m fill. Circulate bottoms up. Pump slug and POOH to continue logging. Rig up and run log #7-RFT/CR.

Date : 23/03/95 Depth : 1758.0 Day : 15

Continue to run log #7-RFT. Pull blocked RFT tool to surface. Re-run log #7. Rig down BPB. Pick up 8.5" drilling assembly and RIH to 1755.5-2.5m fill. Wash to bottom and circulate hole.

Date : 24/03/95 Depth : 1758.0 Day : 16
Continue to circulate hole clean, pump slug and POOH. Lay down DP and drilling assembly. Rig up and run 7" casing. Casing held up at 1130 m. Rig up and circulate hole. Circulates freely. Work and circulate casing from 1123-1130m.

Date : 25/03/95 Depth : 1758.0 Day : 17
Continue to run casing. Circulate and work stuck casing from 1148-1153m. LayAY out 4 joints and continue to wash and work. Pick up 1 joint and work 1097-1108m.

Date : 26/03/95 Depth : 1758.0 Day : 18
Rig up cement head and circulate 260 GPM at 1097m. Pump cement and displace with water and dump returns. Nipple down BOPs, cut casing, nipple up and test. Wait on 3.5" drill pipe to drill out and set cement plugs.

Date : 27/03/95 Depth : 1758.0 Day : 19
Wait on cement. Pressure test casing. Wait on 3.5" drill pipe.

Date : 28/03/95 Depth : 1758.0 Day : 20
Wait on 3.5" drill pipe. Service rig.

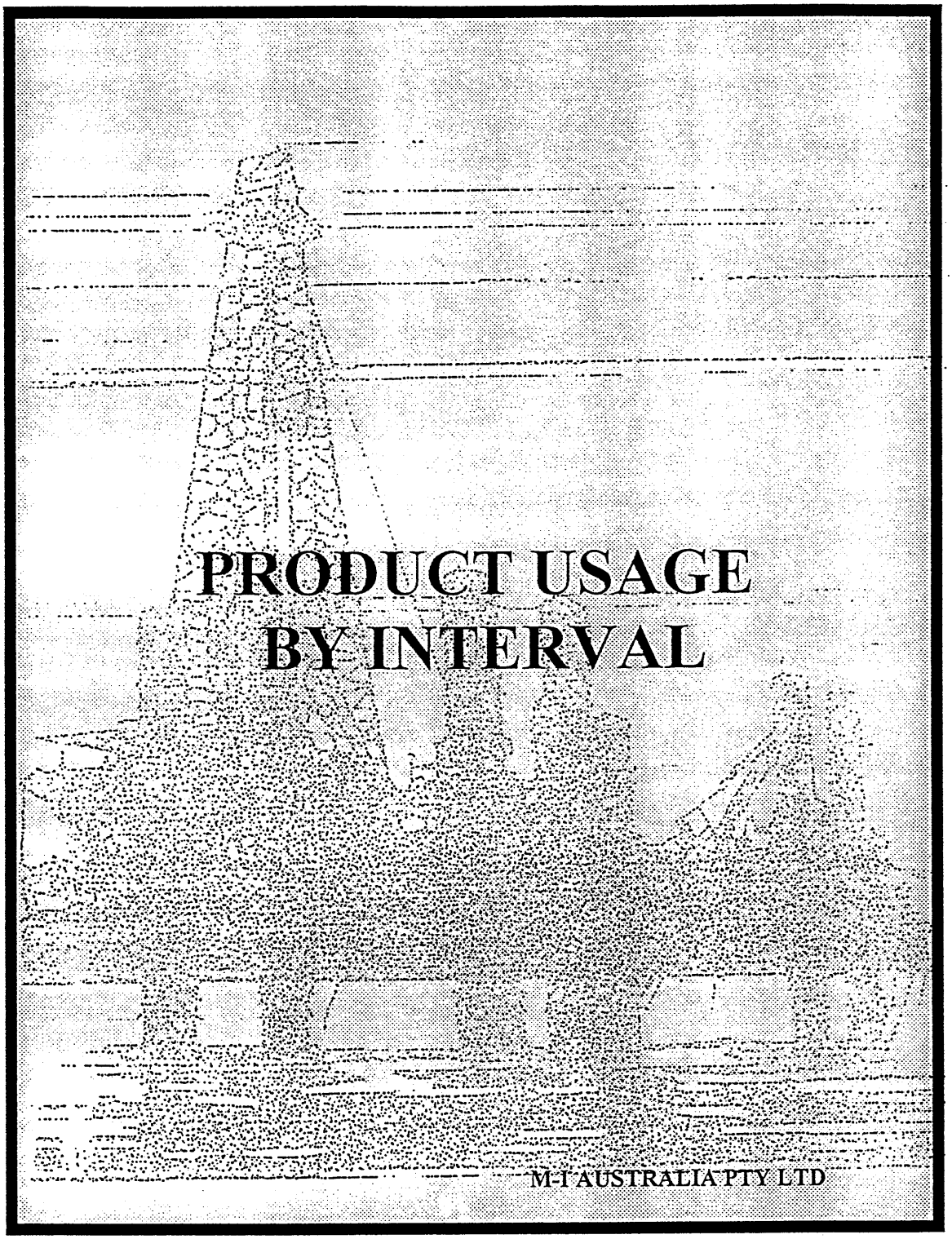
Date : 29/03/95 Depth : 1758.0 Day : 21
Wait on 3.5" drill pipe. Service rig.

Date : 30/03/95 Depth : 1758.0 Day : 22
Test BOPs. Pick up 4.75" DCs, make-up 6" bit and RIH with 3.5" DP. Tag cement at 1102m. Drill out cement and shoe track from 1102-1196m.

Date : 31/03/95 Depth : 1758.0 Day : 23
Continue to drill out shoe track. RIH to 1265m, 1302m & 1758m. Circulate and flow check each stage. POOH and lay out DC. RIH O/E to 1610m and pump cement plug #1 from 1610 -1440m. POOH 12 stands and WOC. RIH and tag cement at 1437m. Circulate and lay out DP.

Date : 01/04/95 Depth : 1758.0 Day : 24
Rig up and set cement plug #2 from 1240-1189m. Pull 5 stands and WOC. RIH and tag cement at 1178m. Circulate and pressure test plug to 500 psi. Minimize pit volume and circulate inhibited mud. POOH and lay out drill pipe. P & A complete. Rig down.

SECTION 4



PRODUCT USAGE BY INTERVAL

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 08/03/95 - 10/03/95, 0 - 317.0 m

12.1/4" Hole 9.5/8" Casing

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Calcium Chloride	25 KG SX	1	17.80	17.80
Caustic Soda	25 KG SX	1	22.35	22.35
Lime	40 KG SX	2	6.00	12.00
M-I Gel	25 KG SX	28	9.44	264.32
Potassm Chloride	25 KG SX	4	11.46	45.84
Spersene CF	50 LB SX	1	40.55	40.55

*** INTERVAL WATER-BASE MUD COST TOTAL = 402.86

*** TOTAL MUD COST FOR INTERVAL = 402.86

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM G0003 April 12, 1995

Total Meters Drilled	:	**317 Meters**
Cost per Meter	:	**$1.27**
Total Days on Interval	:	**3 Days**
Cost per Day	:	**$134.29**
Total Barrels Mixed	:	**690 bbls**
Cost per Barrel	:	**$0.58**
Dilution Rate	:	**2.17 bbl/mtr**

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

BREAKDOWN OF COST BY PRODUCT GROUP 08/03/95 - 10/03/95, 0 - 317.0 m

12.1/4" Hole 9.5/8" Casing

WATER BASE MUD PRODUCTS	Cost	% Total
1 - BENTONITE	264.32	65.6
2 - SALTS	63.64	15.8
3 - THINNERS	40.55	10.1
4 - ALKALIES	34.35	8.5
WATER BASE MUD TOTAL COST	402.86	100.0

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 11/03/95 - 29/03/95, 317.0 - 1758.0 m

8.1/2" Hole 7" Casing

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Bacban	6 LB JUG	1	109.34	109.34
CMC TG LV	25 KG SX	22	61.23	1347.06
Caustic Soda	25 KG SX	9	22.35	201.15
M-I Bar	25 KG SX	564	5.53	3118.92
M-I Gel	25 KG SX	38	9.44	358.72
OS-1	25 KG SX	13	50.95	662.35
Polypac R	25 KG SX	20	131.74	2634.80
Polyplus Powder	25 KG SX	35	173.25	6063.75
Soda Ash	40 KG SX	2	14.31	28.62

*** INTERVAL WATER-BASE MUD COST TOTAL = 14,524.71

*** TOTAL MUD COST FOR INTERVAL = 14,524.71

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM G0003 April 12, 1995

Total Meters Drilled	:	**1,441 Meters**
Cost per Meter	:	**$10.08**
Total Days on Interval	:	**19 Days**
Cost per Day	:	**$764.46**
Total Barrels Mixed	:	**2,001 bbls**
Cost per Barrel	:	**$7.26**
Dilution Rate	:	**1.39 bbl/mtr**

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

BREAKDOWN OF COST BY PRODUCT GROUP 11/03/95 - 29/03/95, 317.0 - 1758.0 m

8.1/2" Hole 7" Casing

WATER BASE MUD PRODUCTS	*Cost*	*% Total*
1 - WEIGHT MATERIAL	3,118.92	21.5
2 - BENTONITE	358.72	2.5
3 - VISCOSIFIERS	3,981.86	27.4
4 - ENCAPSULATORS	6,063.75	41.7
5 - ALKALIES	229.77	1.6
6 - MISC	771.69	5.3
WATER BASE MUD TOTAL COST	14,524.71	100.0

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 30/03/95 - 01/04/95, 1758.0 - 1758.0 m

Completion

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Bacban	6 LB JUG	1	109.34	109.34
Conqor 303	25 LT DM	10	51.27	512.70
M-I Bar	25 KG SX	183	5.53	1011.99
Polypac R	25 KG SX	3	131.74	395.22

*** INTERVAL WATER-BASE MUD COST TOTAL = 2,029.25

*** TOTAL MUD COST FOR INTERVAL = 2,029.25

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

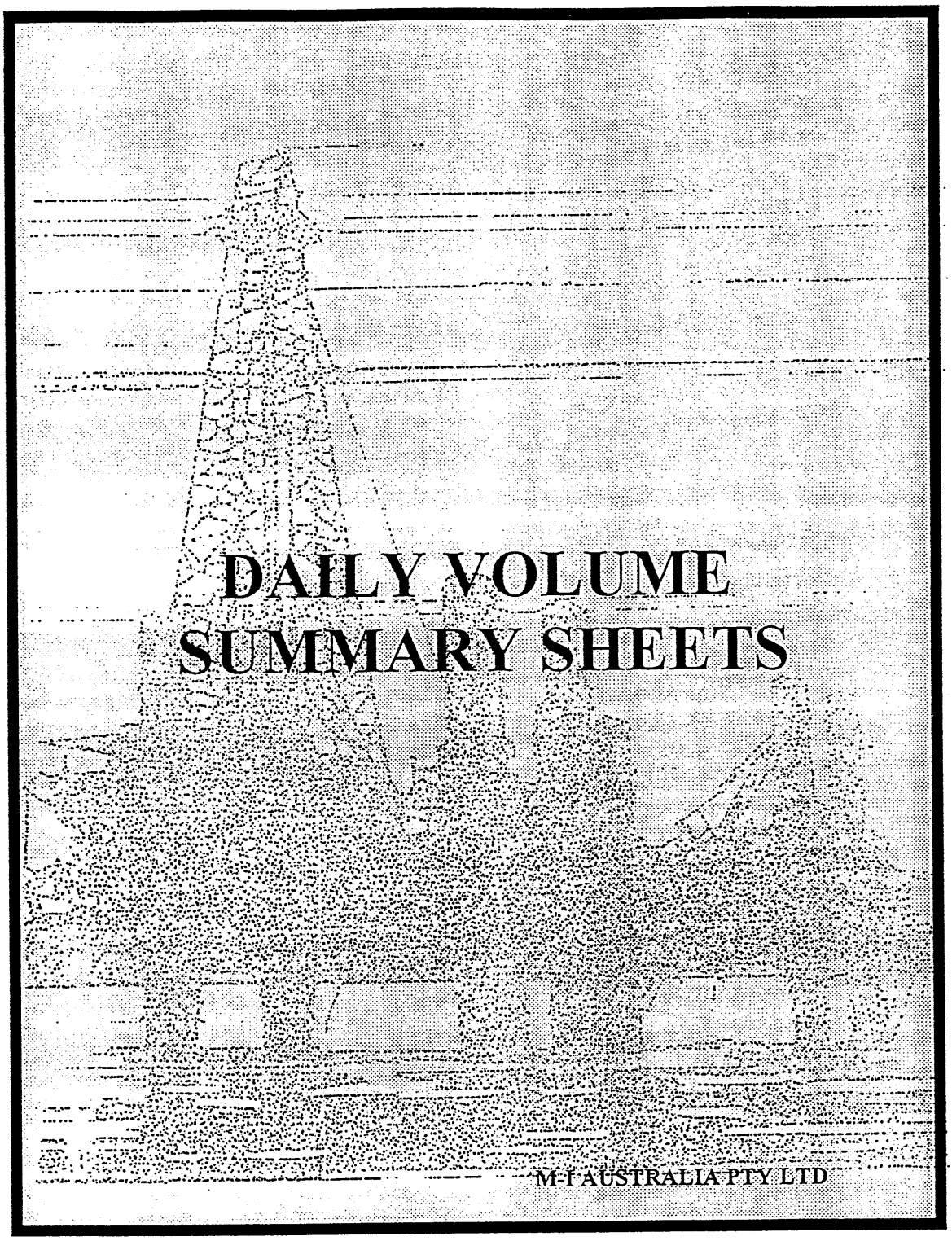
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

BREAKDOWN OF COST BY PRODUCT GROUP 30/03/95 - 01/04/95, 1758.0 - 1758.0 m

Completion

WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	1,011.99	49.9
2 - VISCOSIFIERS	395.22	19.5
3 - MISC	622.04	30.7
WATER BASE MUD TOTAL COST	2,029.25	100.0

SECTION 5



DAILY VOLUME SUMMARY SHEETS

M-I AUSTRALIA PTY LTD

Operator : GFE Resources

DAILY VOLUME SUMMARY SHEETS

Well : Dunbar 1

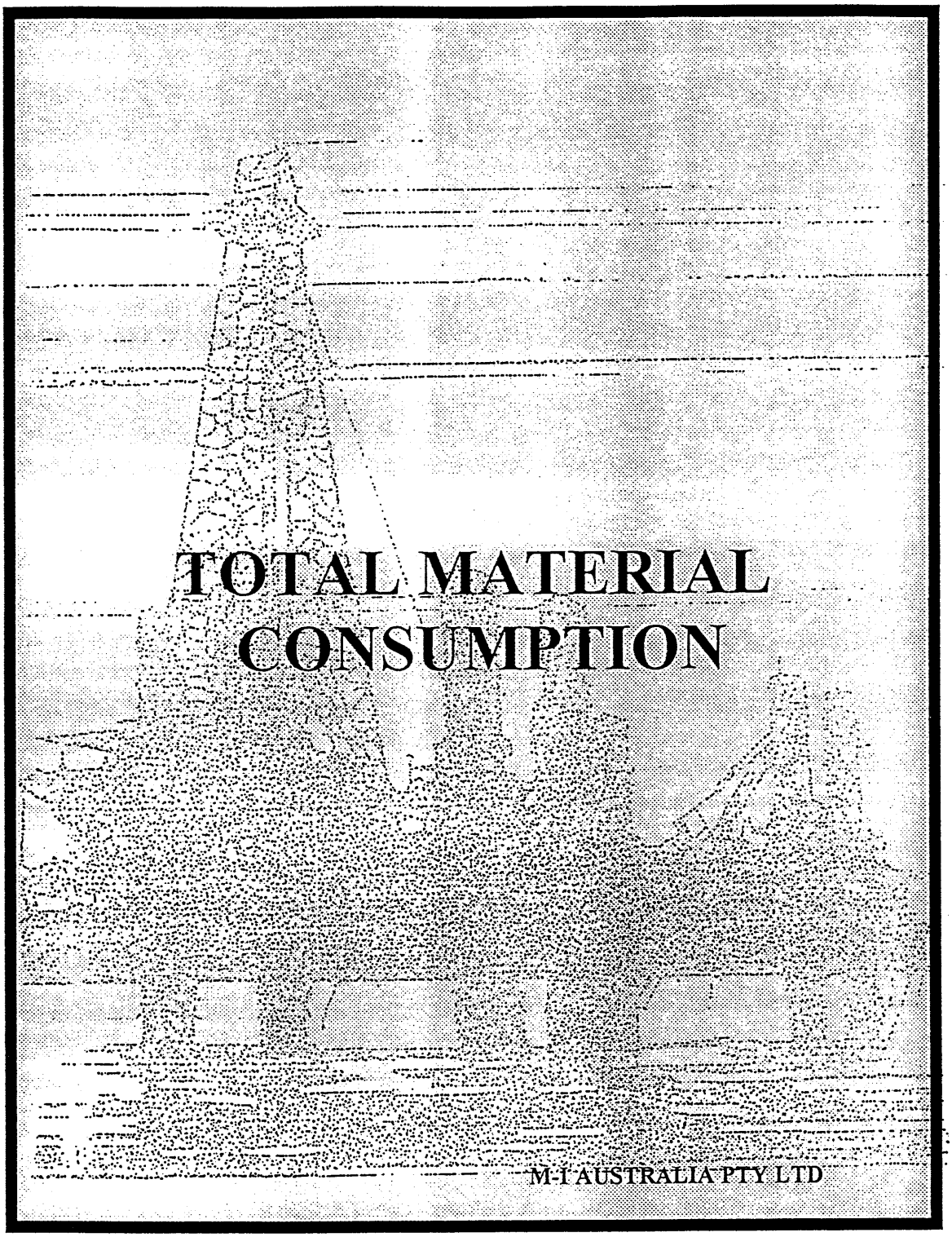
12.1/4" Hole

	Mud Volume Status					Mud Volume Built					Mud Volume Lost						
Date 1995	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Built	Inc from Barite	Daily Total	Cum Built	Solids Equip	Surf Losses	Mud Dumped	Hole	Casing Plugs	Daily Total	Cummul Lost
9-Mar	115	105	270	50	425	575	50		625	625		45	155			200	200
10-Mar	317	127	243	50	420	65			65	690		30	40			70	270
11-Mar	317				0				0	690			420			420	690

8.1/2" Hole

	Mud Volume Status					Mud Volume Built					Mud Volume Lost						
Date 1995	Depth	Hole	Surf Active	Res	Total Vol	Water	Mud Build	Inc from Barite	Daily Total	Cum Built	Solids Equip	Surf	Dump	Hole	Casing Plugs	Daily Total	Cummul Lost
11-Mar	317			305	305		305		305	305						0	0
12-Mar	693	136	226	120	482	140	400		540	845	60	180	123			363	363
13-Mar	1047	213	220	140	573		186		186	1031	15	30	25	25		95	458
14-Mar	1382	281	247	50	578		100		100	1131	25	15	25	30		95	553
15-Mar	1507	305	275	150	730		210		210	1341	20	20	18			58	611
16-Mar	1557	317	270	110	697				0	1341	12	5	16			33	644
17-Mar	1557	317	192	207	716	102		8	110	1451		31	60			91	735
18-Mar	1557	362	140	185	687				0	1451		17		12		29	764
19-Mar	1758	358	268	40	666	106		4	110	1561	41	30	60			131	895
20-Mar	1758	408	197		605				0	1561			31	30		61	956
21-Mar	1758	408	163		571		74	1	75	1636		10		99		109	1065
22-Mar	1758	408	140	120	668		135	5	140	1776		13		30		43	1108
23-Mar	1758	358	136	146	640	40			40	1816	15	17		36		68	1176
24-Mar	1758	371	138	116	625	40			40	1856	15	10		30		55	1231
25-Mar	1758	372	160	50	582	30			30	1886	31	6		36		73	1304
26-Mar	1758	152	163	130	445				0	1886			137			137	1441
27-Jan	1758	152	163	130	445				0	1886						0	1441
28-Mar	1758	152	163	130	445				0	1886						0	1441
29-Mar	1758	152	163	130	445				0	1886						0	1441
30-Mar	1758	244	166	50	460	15	36	4	55	1941		30	10			40	1481
31-Mar	1758	203	116	105	424		60		60	2001		30		31	35	96	1577
1-Apr	1758	148			148				0	2001			230		46	276	1853

SECTION 6



TOTAL MATERIAL CONSUMPTION

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 08/03/95 - 01/04/95, 0 - 1758.0 m

WATER-BASE PROD	SIZE	AMOUNT	UNIT COST	PROD COST
Bacban	6 LB JUG	2	109.34	218.68
CMC TG LV	25 KG SX	22	61.23	1347.06
Calcium Chloride	25 KG SX	1	17.80	17.80
Caustic Soda	25 KG SX	10	22.35	223.50
Conqor 303	25 LT DM	10	51.27	512.70
Lime	40 KG SX	2	6.00	12.00
M-I Bar	25 KG SX	747	5.53	4130.91
M-I Gel	25 KG SX	66	9.44	623.04
OS-1	25 KG SX	13	50.95	662.35
Polypac R	25 KG SX	23	131.74	3030.02
Polyplus Powder	25 KG SX	35	173.25	6063.75
Potassm Chloride	25 KG SX	4	11.46	45.84
Soda Ash	40 KG SX	2	14.31	28.62
Spersene CF	50 LB SX	1	40.55	40.55

*** INTERVAL WATER-BASE MUD COST TOTAL = 16,956.82

*** TOTAL MUD COST FOR INTERVAL = 16,956.82

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

BREAKDOWN OF COST BY PRODUCT GROUP 08/03/95 - 01/04/95, 0 - 1758.0 m

WATER BASE MUD PRODUCTS	*Cost*	*% Total*
1 - WEIGHT MATERIAL	4,130.91	24.4
2 - BENTONITE	623.04	3.7
3 - VISCOSIFIERS	4,377.08	25.8
4 - SALTS	63.64	0.4
5 - THINNERS	40.55	0.2
6 - ENCAPSULATORS	6,063.75	35.8
7 - ALKALIES	264.12	1.6
8 - MISC	1,393.73	8.2
WATER BASE MUD TOTAL COST	16,956.82	100.0

M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

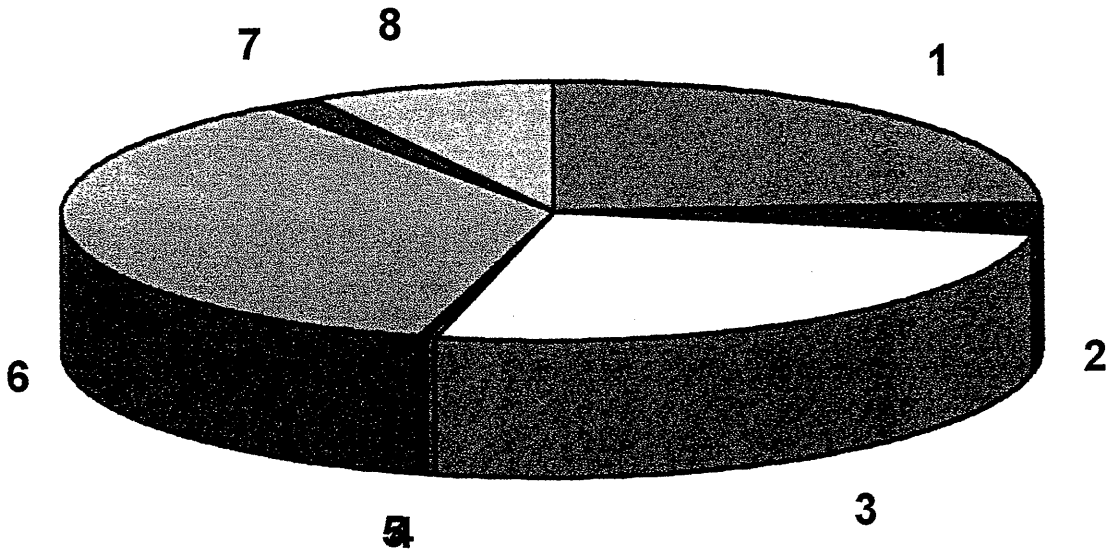
BREAKDOWN OF PRODUCT USAGE BY GROUP 08/03/95 - 01/04/95, 0 - 1758.0 m

WATER BASE MUD

PRODUCT CATEGORY	PRODUCTS USED		
WEIGHT MATERIAL	M-I Bar		
BENTONITE	M-I Gel		
VISCOSIFIERS	CMC TG LV	Polypac R	
SALTS	Calcium Chloride	Potassm Chloride	
THINNERS	Spersene CF		
ENCAPSULATORS	Polyplus Powder		
ALKALIES	Caustic Soda	Lime	Soda Ash
MISC	Bacban	Conqor 303	OS-1

	Operator : GFE RESOURCES Well Name : DUNBAR 1 Description : EXPLORATION Field/Area : PPL 1 Location : OTWAY BASIN	*COST* *ANALYSIS*

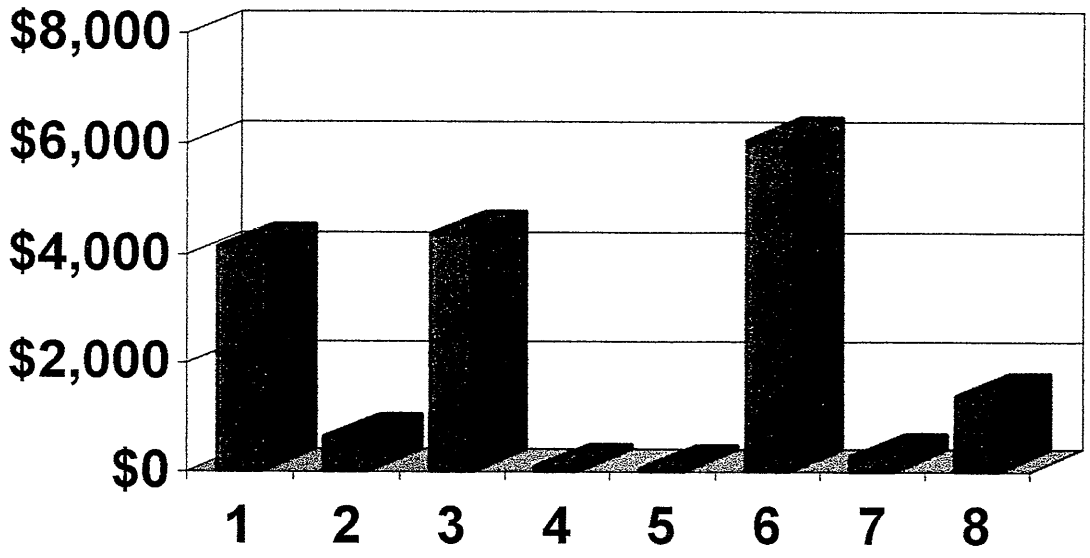
BREAKDOWN OF COST BY PRODUCT GROUP 08/03/95 - 01/04/95, 0 - 1758.0 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	*4,130.91*	*24.4*
2 - BENTONITE	*623.04*	*3.7*
3 - VISCOSIFIERS	*4,377.08*	*25.8*
4 - SALTS	*63.64*	*0.4*
5 - THINNERS	*40.55*	*0.2*
6 - ENCAPSULATORS	*6,063.75*	*35.8*
7 - ALKALIES	*264.12*	*1.6*
8 - MISC	*1,393.73*	*8.2*
WATER BASE MUD TOTAL COST	*16,956.82*	*100.0*

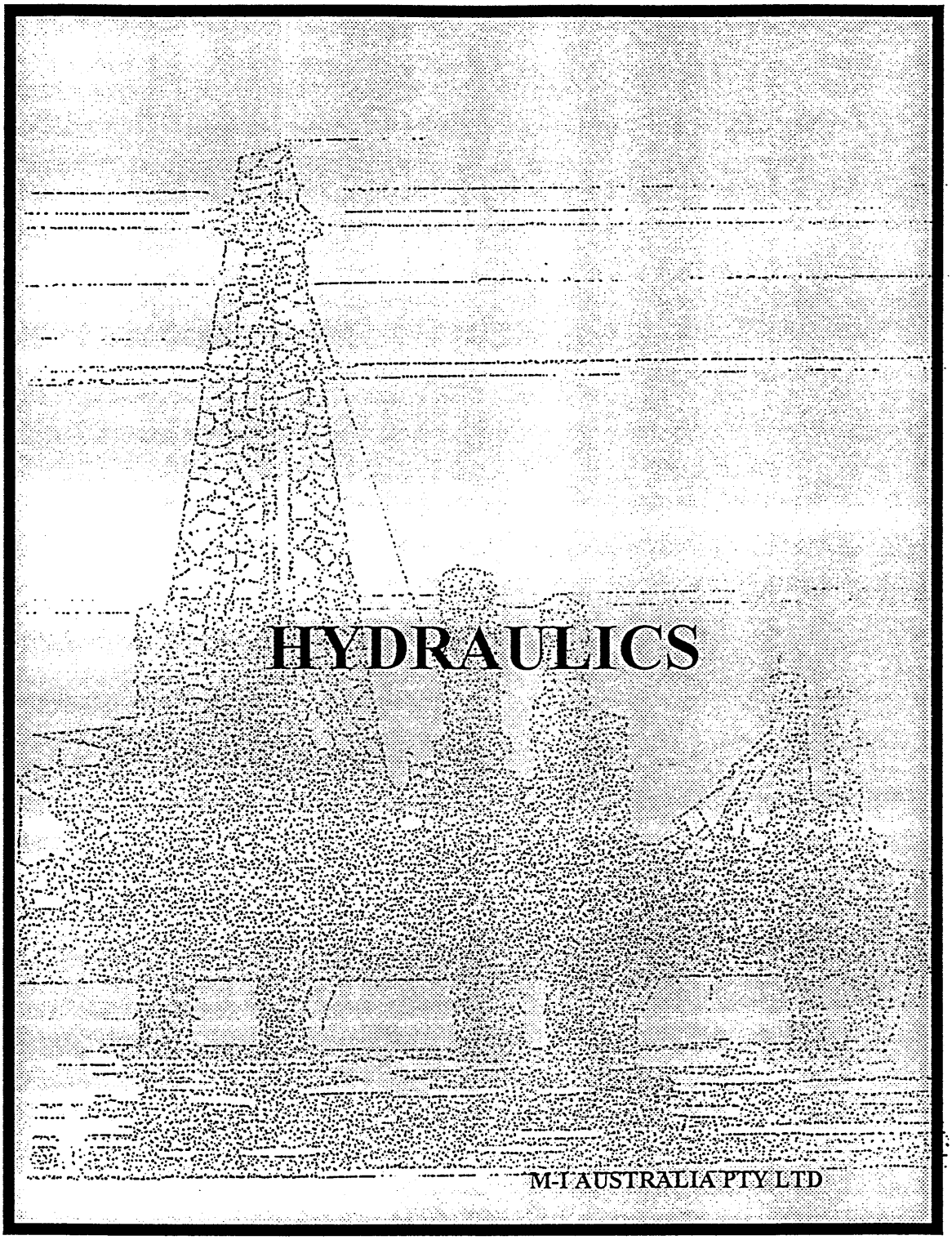
	Operator : GFE RESOURCES Well Name : DUNBAR 1 Description : EXPLORATION Field/Area : PPL 1 Location : OTWAY BASIN	*COST* *ANALYSIS*

BREAKDOWN OF COST BY PRODUCT GROUP 08/03/95 - 01/04/95, 0 - 1758.0 m



WATER BASE MUD PRODUCTS	Cost	% Total
1 - WEIGHT MATERIAL	*4,130.91*	*24.4*
2 - BENTONITE	*623.04*	*3.7*
3 - VISCOSIFIERS	*4,377.08*	*25.8*
4 - SALTS	*63.64*	*0.4*
5 - THINNERS	*40.55*	*0.2*
6 - ENCAPSULATORS	*6,063.75*	*35.8*
7 - ALKALIES	*264.12*	*1.6*
8 - MISC	*1,393.73*	*8.2*
WATER BASE MUD TOTAL COST	*16,956.82*	*100.0*

SECTION 7



HYDRAULICS

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS HYDRAULICS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

*Date	09/03/95	10/03/95	11/03/95	12/03/95	13/03/95	14/03/95	15/03/95	16/03/95	17/03/95
*Depth	115.0	317.0	317.0	693.0	1047.0	1382.0	1507.0	1557.0	1557.0
*Days Since Spud	1	2	3	4	5	6	7	8	9
*RHEOLOGICAL PROPERTIES									
Mud Wt -lb/gal	9.3	9.1	8.5	8.7	9.0	9.1	9.3	9.3	9.3
Plastic Visc -cps	10	13	41	17	17	18	24	22	18
Yield Point -lb/100ft2	24	20	65	23	21	21	24	22	19
3-rpm Rdg -Fann deg	4	5	6	3	2	2	3	3	2
np Value	0.372	0.479	0.471	0.511	0.533	0.547	0.585	0.585	0.572
Kp -lb-sec^n/100ft2	3.5715	1.7772	5.9786	1.7670	1.4593	1.3720	1.3369	1.2255	1.1179
na Value	0.465	0.410	0.624	0.562	0.639	0.645	0.602	0.583	0.634
Ka -lb-sec^n/100ft2	2.0000	2.7343	2.3151	1.2789	0.7521	0.7452	1.1989	1.2364	0.7592
*FLOW DATA									
Flow Rate -gal/min	335	450	330	275	275	275	275	275	275
Pump Pressure -psi	625	900	1400	950	1100	1150	1220	1220	1200
Pump -hhp	122	236	270	152	176	185	196	196	193
*PRESSURE LOSSES									
Drill String -psi	***	***	196	156	208	255	287	301	283
Bit -psi	130	230	1100	780	810	820	840	840	840
Annulus -psi	***	***	72	47	52	66	94	92	70
Total System -psi	***	***	1368	983	1070	1141	1221	1233	1193
*BIT HYDRAULICS									
Nozzles -1/32 inch	18/20/20	18/20/20	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 -%	21	25	79	82	74	71	68	68	70
Bit -hhp	25	60	212	125	130	131	134	134	134
Bit HSI (Index)	0.20	0.50	3.70	2.20	2.30	2.30	2.40	2.40	2.40
Jet Velocity -m/sec	38.0	51.0	115.9	96.6	96.6	96.6	96.6	96.6	96.6
Impact Force -lbs	201	355	552	392	406	410	419	419	419
*DRILL COLLARS ANNULUS									
Velocity -m/min	***	***	74.3	61.9	61.9	61.9	61.9	61.9	61.9
Critical Vel -m/min	***	***	258.4	130.1	116.3	117.1	137.9	131.1	111.8
Reynolds Number	***	***	470	928	1100	1091	863	922	1160
Crit Re (Lam - Tran)	***	***	2616	2699	2594	2586	2645	2671	2602
*DRILL PIPE ANNULUS									
Velocity -m/min	***	***	44.7	37.3	37.3	37.3	37.3	37.3	37.3
Critical Vel -m/min	***	***	195.2	102.1	86.9	87.2	105.6	101.6	83.9
Reynolds Number	***	***	345	634	820	819	617	645	859
Crit Re (Lam - Tran)	***	***	2616	2699	2594	2586	2645	2671	2602
*HOLE CLEANING									
Slip Velocity -m/min	***	***	7.3	14.1	16.2	15.9	12.2	12.6	15.9
Rising Velocity -m/min	***	***	37.4	23.2	21.1	21.4	25.1	24.6	21.4
Lifting Capacity -%	***	***	84	62	57	57	67	66	57
Cuttings Conc -%	***	***	***	2.07	2.28	1.85	0.89	1.11	***
Penetration Rate -m/hr	9.6	28.0	***	22.0	22.0	18.1	10.2	12.5	***
*CASING SHOE PRESSURES									
ECD -lb/gal	***	***	9.8	8.9	9.2	9.3	9.6	9.6	9.5
ECD+Cuttings -lb/gal	***	***	***	9.2	9.5	9.5	9.7	9.7	***
*TOTAL DEPTH PRESSURES									
ECD -lb/gal	***	***	9.8	9.1	9.3	9.4	9.7	9.6	9.6
ECD+Cuttings -lb/gal	***	***	***	9.3	9.6	9.6	9.8	9.8	***

M-I DRILLING FLUIDS HYDRAULICS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

*Date	18/03/95	19/03/95	20/03/95	21/03/95	22/03/95	23/03/95	24/03/95	25/03/95	26/03/95
*Depth	1557.0	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0
*Days Since Spud	10	11	12	13	14	15	16	17	18
*RHEOLOGICAL PROPERTIES									
Mud Wt -lb/gal	9.3	9.3	9.3	9.3	9.4	9.4	9.3	9.4	9.4
Plastic Visc -cps	18	17	16	16	20	23	14	16	19
Yield Point -lb/100ft2	21	15	12	15	15	18	11	12	12
3-rpm Rdg -Fann deg	2	3	2	3	2	2	2	2	2
np Value	0.547	0.614	0.652	0.600	0.652	0.642	0.641	0.652	0.689
Kp -lb-sec^n/100ft2	1.3720	0.7405	0.5133	0.7843	0.6416	0.7981	0.4894	0.5133	0.4496
na Value	0.645	0.514	0.573	0.507	0.622	0.656	0.548	0.573	0.595
Ka -lb-sec^n/100ft2	0.7452	1.3841	0.8380	1.3997	0.7743	0.7321	0.8723	0.8380	0.8083
*FLOW DATA									
Flow Rate -gal/min	0	275	0	300	250	275	275	160	0
Pump Pressure -psi	0	1220	0	800	600	700	700	200	0
Pump -hhp	***	196	***	140	88	112	112	19	***
*PRESSURE LOSSES									
Drill String -psi	***	308	***	346	280	340	294	***	***
Bit -psi	***	840	***	240	170	210	200	***	***
Annulus -psi	***	84	***	86	71	82	61	***	***
Total System -psi	***	1232	***	672	521	632	555	***	***
*BIT HYDRAULICS									
Nozzles -1/32 inch	11/11/11	11/11/11	11/11/11	11/17/18	11/17/18	11/17/18	11/17/18	/ /	/ /
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -%	***	68	***	30	28	30	29	***	***
Bit -hhp	***	134	***	43	25	33	33	***	***
Bit HSI (Index)	***	2.40	***	0.80	0.40	0.60	0.60	***	***
Jet Velocity -m/sec	***	96.6	***	52.1	43.4	47.8	47.8	***	***
Impact Force -lbs	***	419	***	247	173	210	207	***	***
*DRILL COLLARS ANNULUS									
Velocity -m/min	***	61.9	***	67.5	56.3	61.9	61.9	***	***
Critical Vel -m/min	***	110.1	***	108.3	107.5	117.6	90.7	***	***
Reynolds Number	***	1176	***	1372	1072	1085	1562	***	***
Crit Re (Lam - Tran)	***	2766	***	2775	2619	2571	2719	***	***
*DRILL PIPE ANNULUS									
Velocity -m/min	***	37.3	***	40.7	33.9	37.3	37.3	***	***
Critical Vel -m/min	***	88.8	***	87.7	81.3	86.9	71.7	***	***
Reynolds Number	***	761	***	881	784	824	1051	***	***
Crit Re (Lam - Tran)	***	2766	***	2775	2619	2571	2719	***	***
*HOLE CLEANING									
Slip Velocity -m/min	***	14.7	***	15.0	16.2	15.0	19.7	***	***
Rising Velocity -m/min	***	22.6	***	25.7	17.7	22.3	17.6	***	***
Lifting Capacity -%	***	61	***	63	52	60	47	***	***
Cuttings Conc -%	***	1.30	***	***	***	***	***	***	***
Penetration Rate -m/hr	***	13.4	***	***	***	***	***	***	***
*CASING SHOE PRESSURES									
ECD -lb/gal	***	9.5	***	9.5	9.6	9.6	9.5	***	***
ECD+Cuttings -lb/gal	***	9.7	***	***	***	***	***	***	***
*TOTAL DEPTH PRESSURES									
ECD -lb/gal	***	9.6	***	9.6	9.6	9.7	9.5	***	***
ECD+Cuttings -lb/gal	***	9.7	***	***	***	***	***	***	***

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM G0003 April 12, 1995

M-I DRILLING FLUIDS HYDRAULICS RECAP

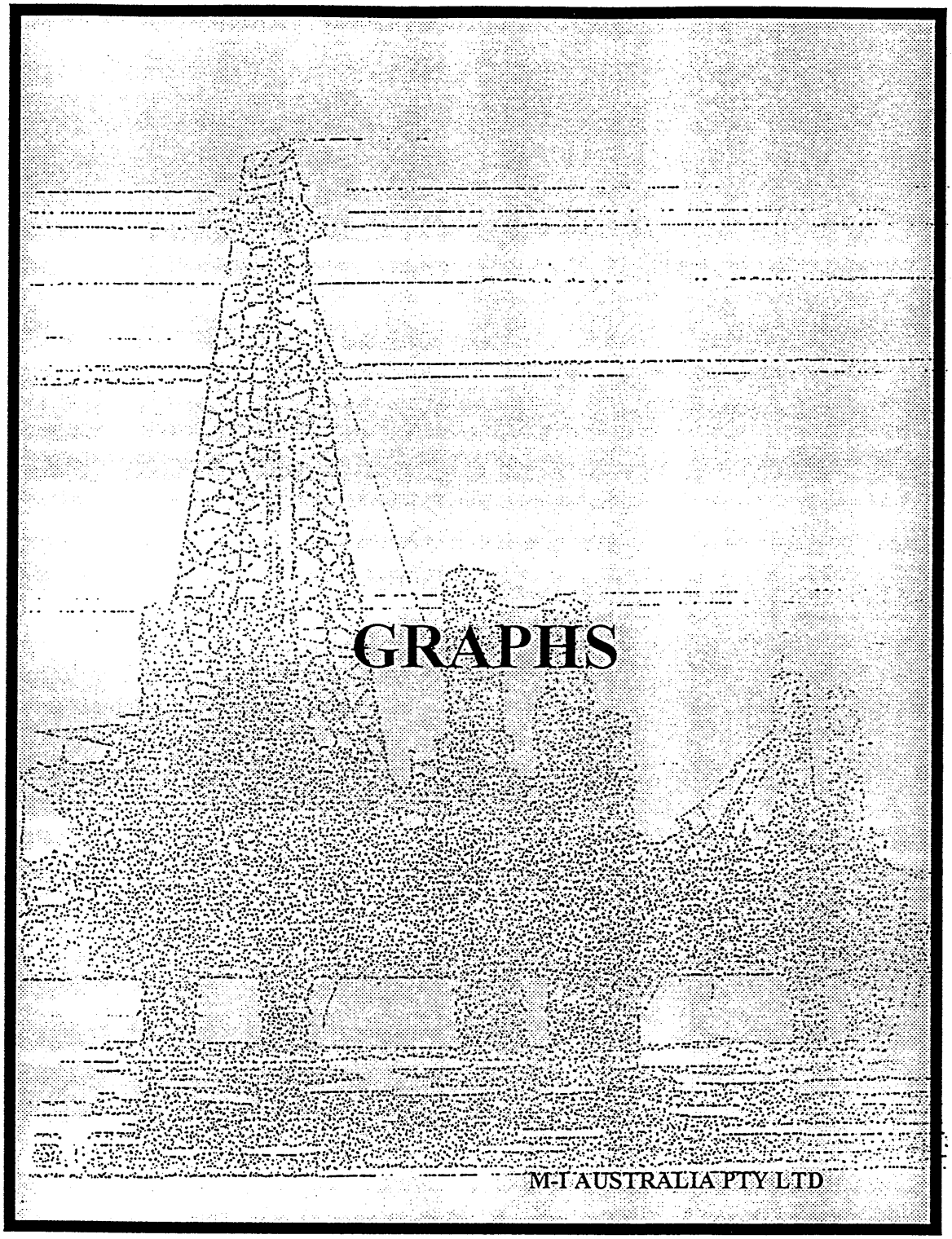
Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

	27/03/95	28/03/95	29/03/95	30/03/95	31/03/95	01/04/95
*Date						
*Depth	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0
*Days Since Spud	19	20	21	22	23	24
*RHEOLOGICAL PROPERTIES						
Mud Wt -lb/gal	9.4	9.4	9.4	9.3	9.3	9.3
Plastic Visc -cps	20	19	20	14	19	20
Yield Point -lb/100ft2	11	11	11	10	10	10
3-rpm Rdg -Fann deg	2	2	2	2	2	2
np Value	0.718	0.707	0.718	0.663	0.727	0.737
Kp -lb-sec^n/100ft2	0.3763	0.3886	0.3763	0.4111	0.3333	0.3240
na Value	0.595	0.588	0.595	0.540	0.581	0.588
Ka -lb-sec^n/100ft2	0.8083	0.8178	0.8083	0.8850	0.8276	0.8178
*FLOW DATA						
Flow Rate -gal/min	0	0	0	250	0	0
Pump Pressure -psi	0	0	0	800	0	0
Pump -hhp	***	***	***	117	***	***
*PRESSURE LOSSES						
Drill String -psi	***	***	***	***	***	***
Bit -psi	***	***	***	***	***	***
Annulus -psi	***	***	***	***	***	***
Total System -psi	***	***	***	***	***	***
*BIT HYDRAULICS						
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /
Nozzles -1/32 inch	/ /	/ /	/ /	/ /	/ /	/ /
Bit Pressure -#	***	***	***	***	***	***
Bit -hhp	***	***	***	***	***	***
Bit HSI (Index)	***	***	***	***	***	***
Jet Velocity -m/sec	***	***	***	***	***	***
Impact Force -lbs	***	***	***	***	***	***
*DRILL COLLARS ANNULUS						
Velocity -m/min	***	***	***	139.0	***	***
Critical Vel -m/min	***	***	***	110.4	***	***
Reynolds Number	***	***	***	3824	***	***
Crit Re (Lam - Tran)	***	***	***	2731	***	***
*DRILL PIPE ANNULUS						
Velocity -m/min	***	***	***	68.7	***	***
Critical Vel -m/min	***	***	***	82.1	***	***
Reynolds Number	***	***	***	2103	***	***
Crit Re (Lam - Tran)	***	***	***	2731	***	***
*HOLE CLEANING						
Slip Velocity -m/min	***	***	***	19.9	***	***
Rising Velocity -m/min	***	***	***	48.8	***	***
Lifting Capacity -#	***	***	***	71	***	***
Cuttings Conc -#	***	***	***	***	***	***
Penetration Rate -m/hr	***	***	***	***	***	***
*CASING SHOE PRESSURES						
ECD -lb/gal	***	***	***	9.7	***	***
ECD+Cuttings -lb/gal	***	***	***	***	***	***
*TOTAL DEPTH PRESSURES						
ECD -lb/gal	***	***	***	9.9	***	***
ECD+Cuttings -lb/gal	***	***	***	***	***	***

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM G0003 April 12, 1995

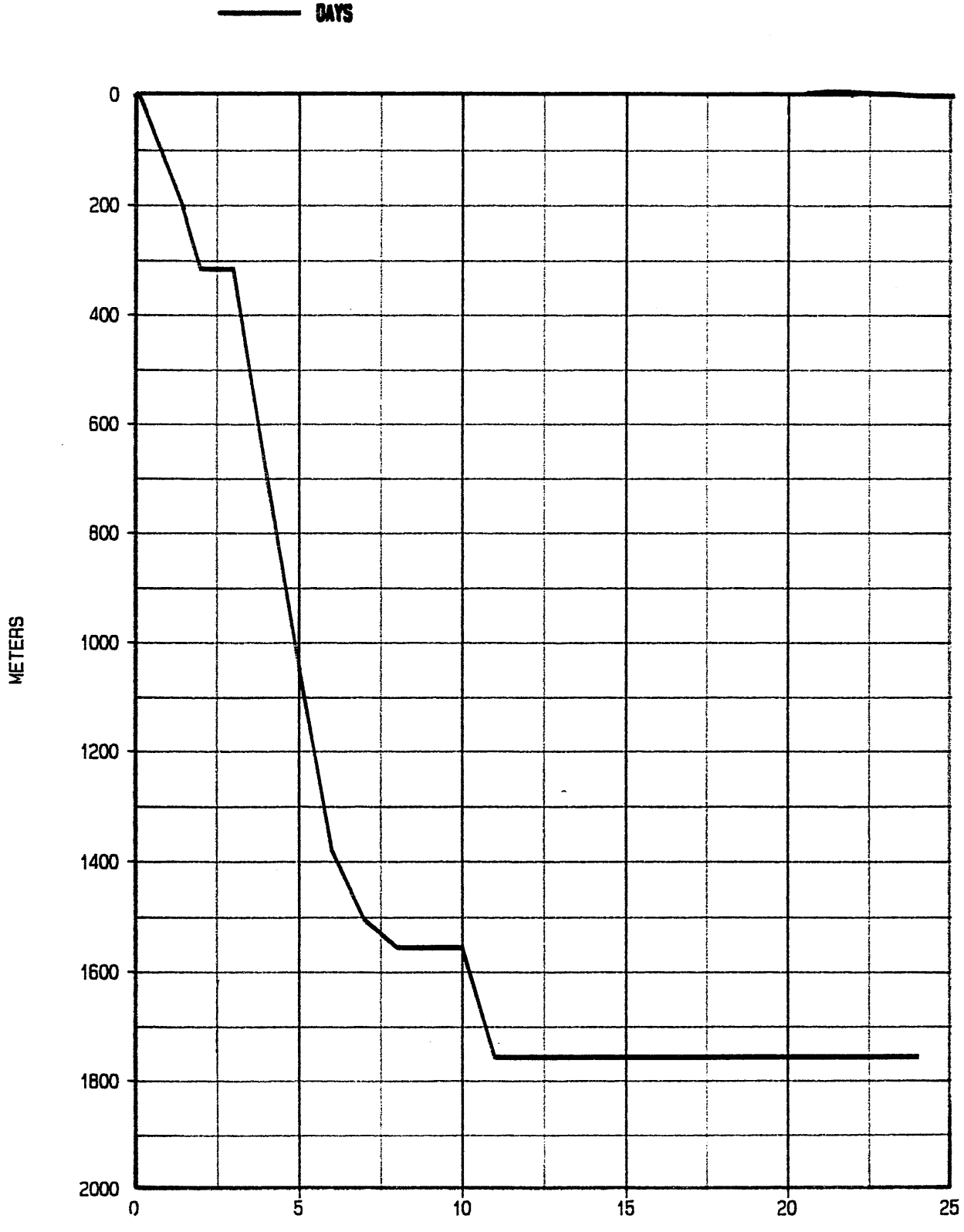
SECTION 8



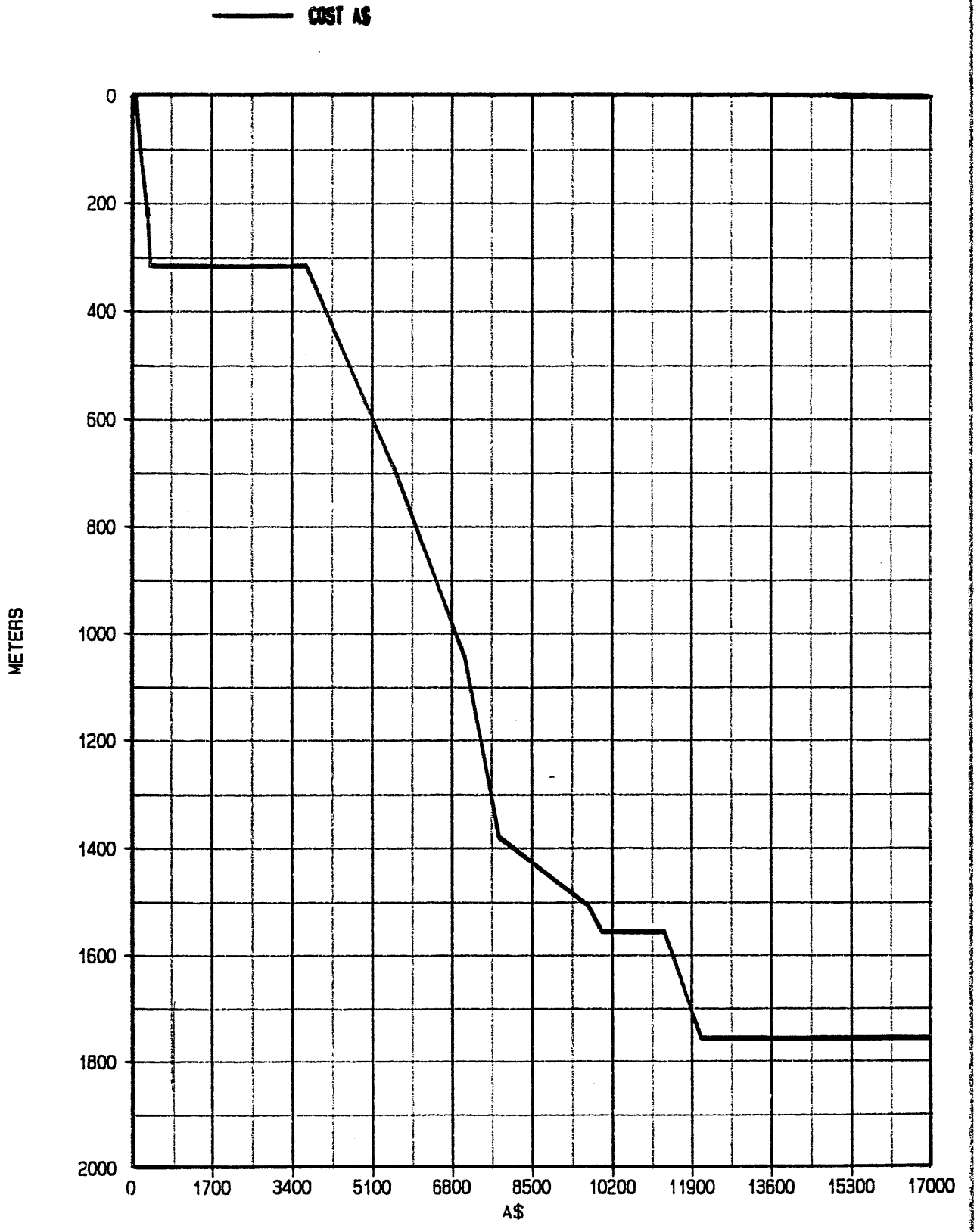
GRAPHS

M-I AUSTRALIA PTY LTD

M-I Mercoser/IMCO	Operator : GFE RESOURCES Well Name : DUNBAR 1 Legal : EXPLORATION Field/Block : PPL 1 County/State : OTWAY BASIN	DRILLING FLUID PARAMETERS

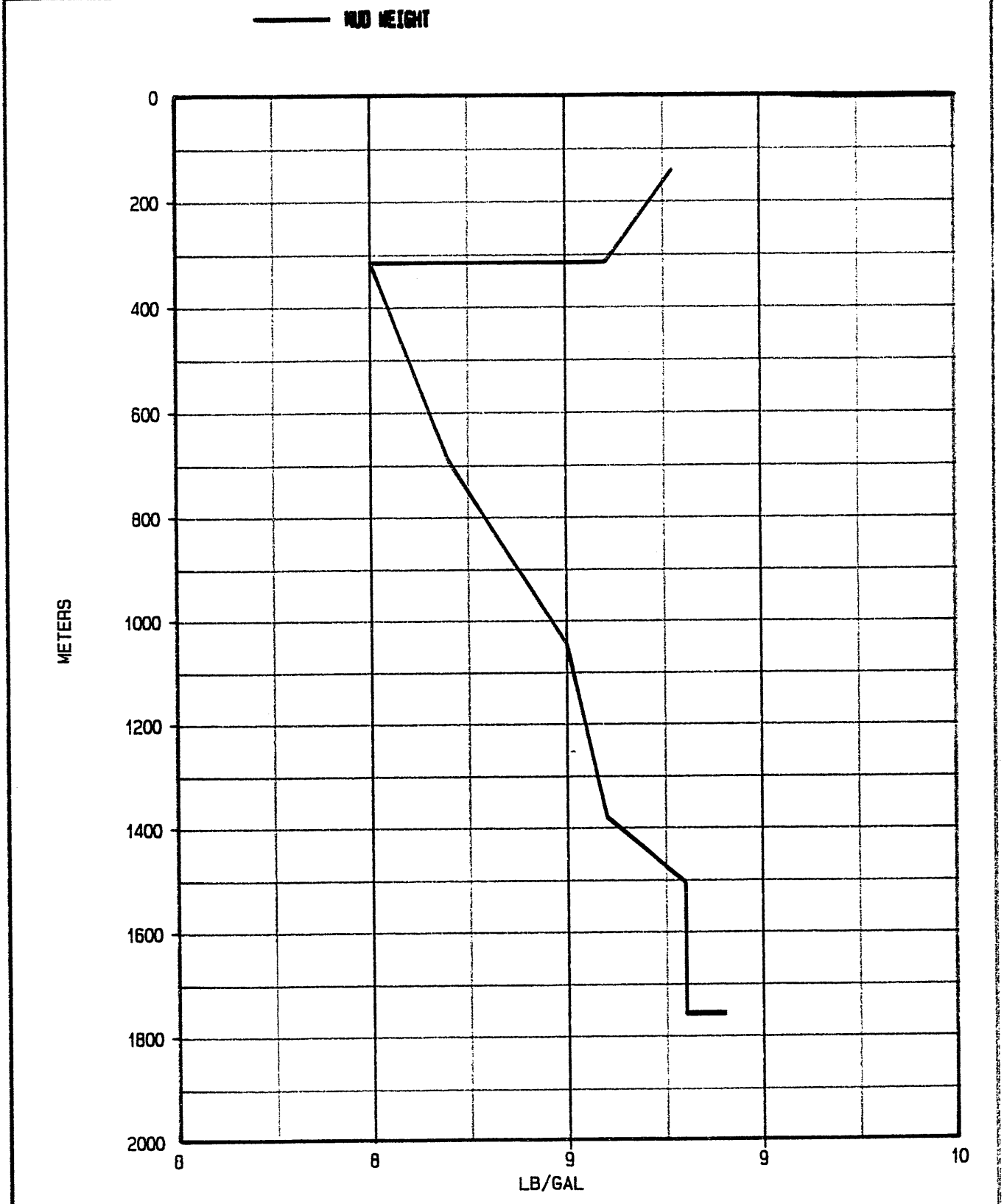


M-I MAGCOBAR/IMCO	Operator : GFE RESOURCES Well Name : DUNBAR 1 Legal : EXPLORATION Field/Block : PPL 1 County/State : OTWAY BASIN	DRILLING FLUID PARAMETERS

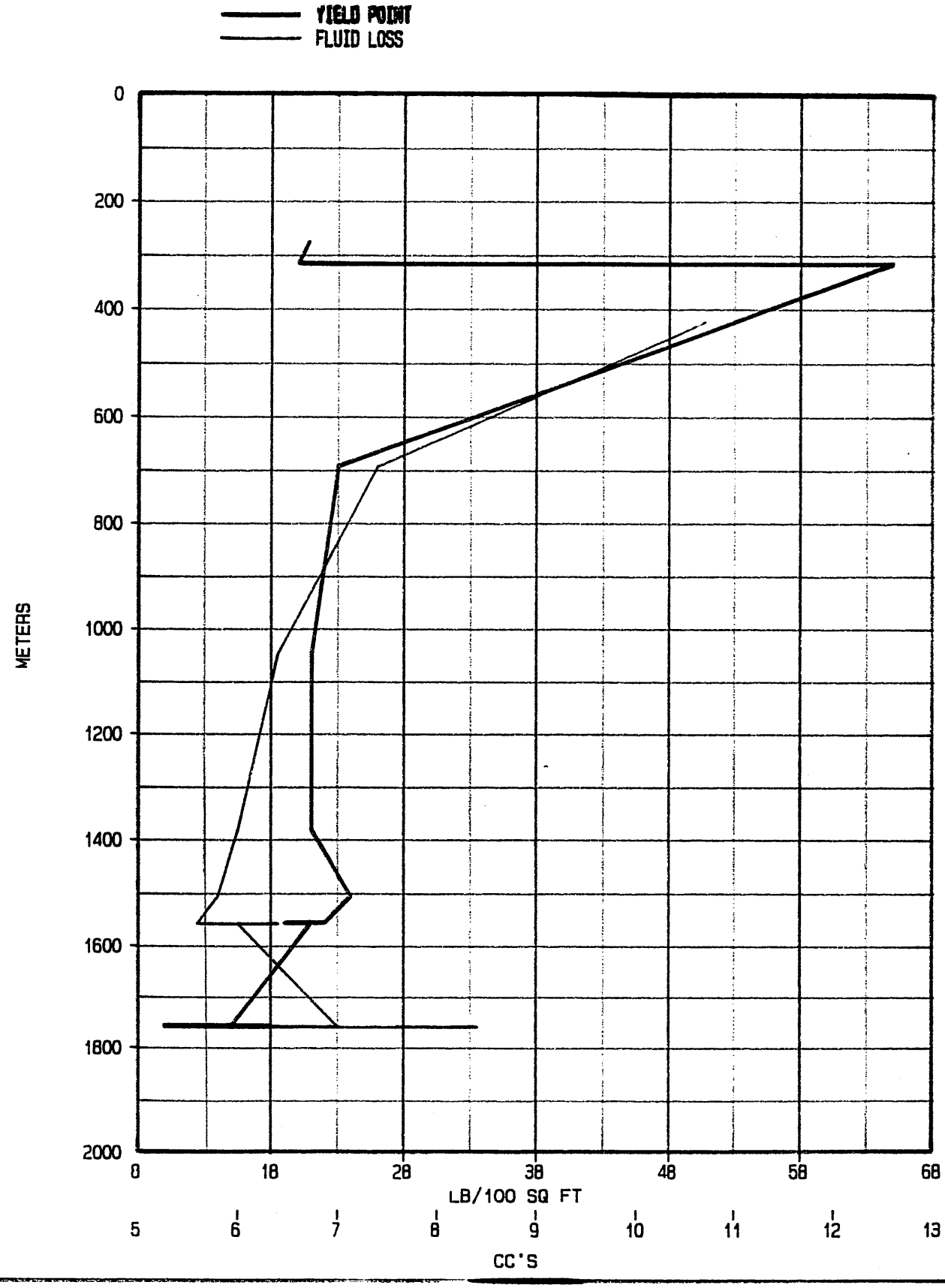


Operator : GFE RESOURCES
Well Name : DUNBAR 1
Legal : EXPLORATION
Field/Block : PPL 1
County/State : OTWAY BASIN

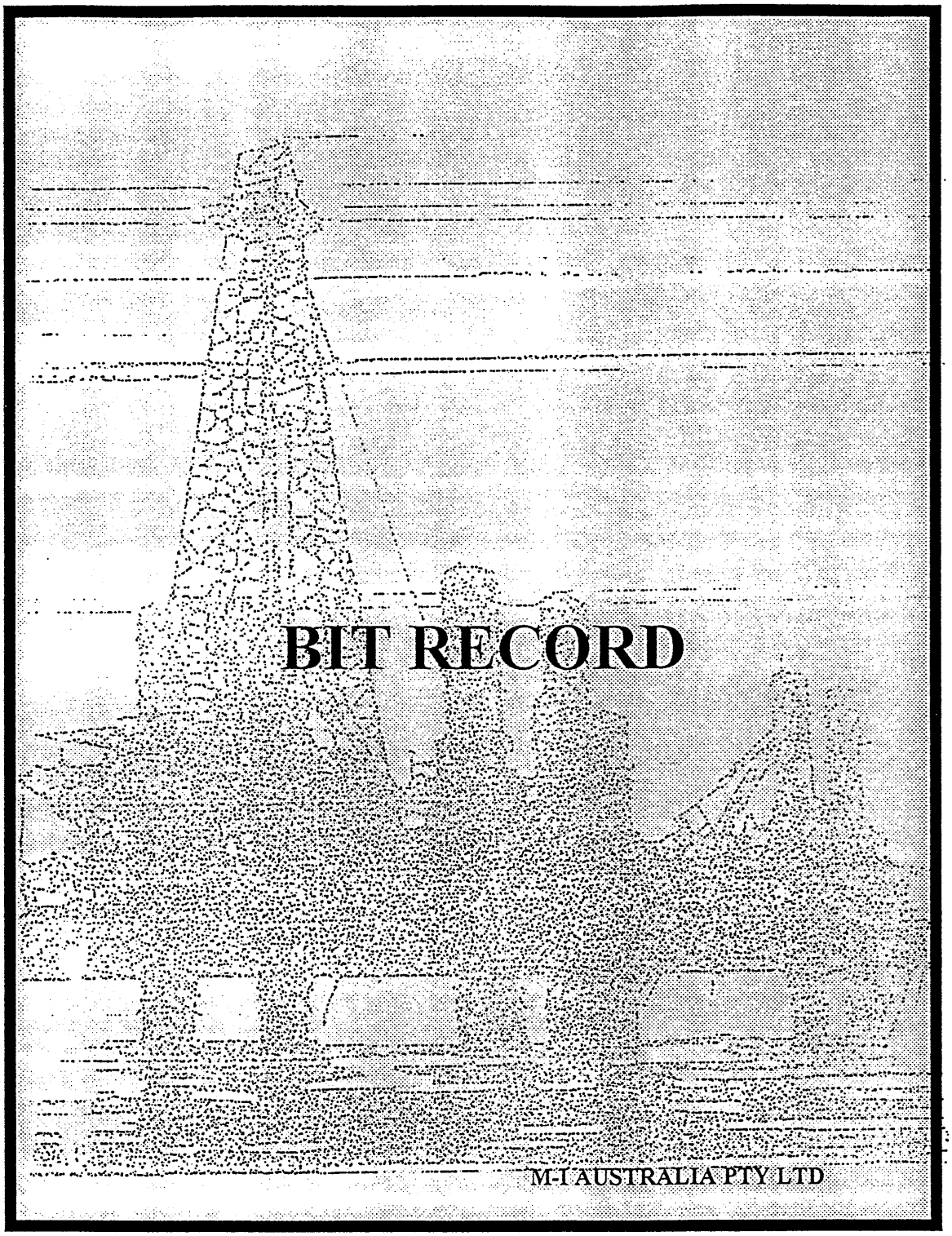
DRILLING FLUID PARAMETERS



M-I INTEQ/IMCO	Operator : GFE RESOURCES Well Name : DUNBAR 1 Legal : EXPLORATION Field/Block : PPL 1 County/State : OTWAY BASIN	DRILLING FLUID PARAMETERS



SECTION 9

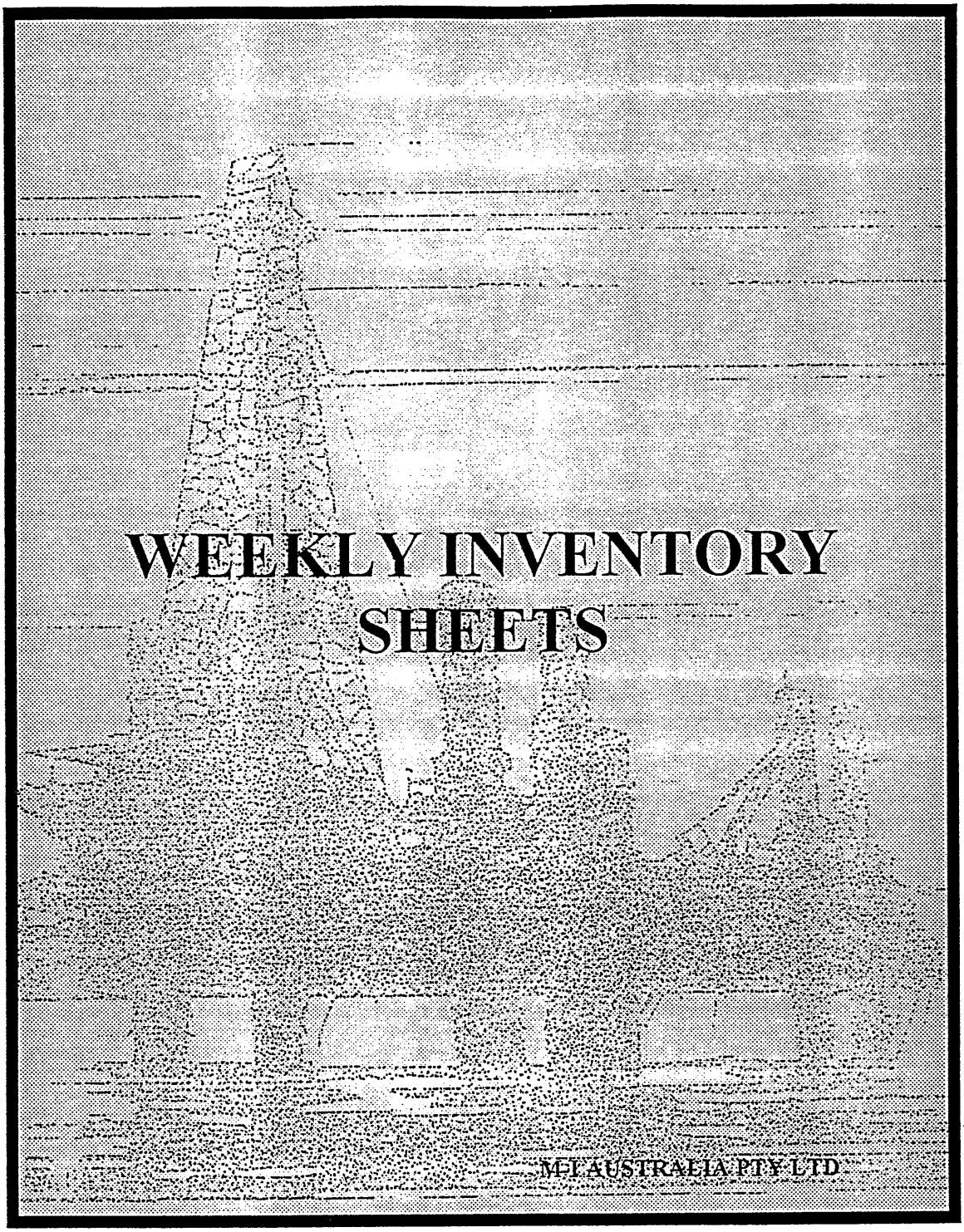


BIT RECORD

M-I AUSTRALIA PTY LTD

Contractor - Century Drilling Rig 11					Location - Otway Basin, Victoria								Well : Dunbar 1		
Operator : GFE Resources					Permit PPL-1								Engineer: Paul 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		7-P-50	5.1/2 x 7.75		6.1/4, 2.25 x 162m		4.1/2		-		16.6		0.054		
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
9-Mar	1RR	12.1/4	Varel	L114	2x20,1x18	317	307	12.1/2	20k	125	300	0	195	94	2-3-1/16
11-Mar	2	8.1/2	HTC	ATJ05	3 x 11	1507	1190	60	25k	100	1220	1 deg	121	278	7-8-1/2
13-Mar	3	8.1/2	HTC	ATJ05	3 x 11	1758	251	19	25k	110	1220	1 deg	121	130	
30-Mar	4RR	6	HIC	654	w/c	1758	Drill Cmt	8	20k	110	800		110	226	

SECTION 10



WEEKLY INVENTORY SHEETS

MI AUSTRALIA PTY LTD

Operator : GFE Resources

WEEKLY INVENTORY SHEETS

Well : Dunbar 1

DATE: 1995

Product Name	Unit	8-Mar			9-Mar			10-Mar			11-Mar			12-Mar			13-Mar			14-Mar			Total for Week		
		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	907			907			907			907			907			907			907			907	0	0	907
M-I Gel	25 kg	12			12	144	47	109	96		205			205			205			205	19*		224	19*	47	224
KCl	25 kg	149			149			149		4	145			145			145			145			145	0	4	145
Polypac R	25 kg	10			10	49		59			59	32	9	82		1	81		1	80			80	81	11	80
CMC LV	25 kg	8			8	80		88			88		9	79		3	76		5	71			71	80	17	71
Polyplus	25 kg	0			0			0			0	67	9	58		9	49		5	44		3	41	67	26	41
Caustic Soda	25 kg	10			10	42	1	51			51			51			51			51			51	42	1	51
Soda Ash	25 kg	20			20			20			20			20			20			20			20	0	0	20
Sod Bicarbonate	25 kg	12			12			12			12			12			12			12			12	0	0	12
Spersene	25 kg	17			17			17		1	16			16			16			16			16	0	1	16
Lime	20 kg	19			19			19		2	17			17			17			17			17	0	2	17
Calc Chloride	25 kg	40			40			40		1	39			39			39			39			39	0	1	39
OS-1	25 kg	20			20			20			20			20			20		4	16		2	14	0	6	14
Bacban III	6 lb	6			6			6			6			6			6			6		1	5	0	1	5
Conqor 303	25 lt	10			10			10			10			10			10			10			10	0	0	10
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Pipelax	205 lt	2			2			2			2			2			2			2			2	0	0	2
Mica Medium	50 lb	30			30			30			30			30			30			30			30	0	0	30
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30

Operator : GFE Resources

WEEKLY INVENTORY SHEETS

Well : Dunbar 1

DATE: 1995

Product Name	Unit	15-Mar			16-Mar			17-Mar			18-Mar			19-Mar			20-Mar			21-Mar			Total for Week		
		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	907			907			907		208	699			699		99	600		40	560		40	520	0	387	520
M-I Gel	25 kg	224			224			224			224			224			224			224		9	215	0	9	215
KCl	25 kg	145			145			145			145			145			145			145			145	0	0	145
Polypac R	25 kg	80			80		1	79		1	78			78			78			78		2	76	0	4	76
CMC LV	25 kg	71		5	66			66			66			66			66			66			66	0	5	66
Polyplus	25 kg	41		9	32			32			32			32			32			32			32	0	9	32
Caustic Soda	25 kg	51			51		3	48			48			48		4	44			44		2	42	0	9	42
Soda Ash	25 kg	20			20			20			20			20			20			20		1	19	0	1	19
Sod Bicarbonate	25 kg	12			12			12			12			12			12			12			12	0	0	12
Spersene	25 kg	16			16			16			16			16			16			16			16	0	0	16
Lime	20 kg	17			17			17			17			17			17			17			17	0	0	17
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
OS-1	25 kg	14			14		2	12		1	11			11		3	8			8			8	0	6	8
Bacban III	6 lb	5			5			5			5			5			5			5			5	0	0	5
Conqor 303	25 lt	10			10			10			10			10			10			10			10	0	0	10
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Pipelax	205 lt	2			2			2			2			2			2			2			2	0	0	2
Mica Medium	50 lb	30			30			30			30			30			30			30			30	0	0	30
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30

Operator : GFE Resources

WEEKLY INVENTORY SHEETS

Well : Dunbar 1

DATE: 1995

22-Mar	23-Mar	24-Mar	25-Mar	26-Mar	27-Mar	28-Mar	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	520		136	384			384		41	343			343			343			343			343	0	177	343
M-I Gel	25 kg	215		11	204			204		8	196		10	186			186			186			186	0	29	186
KCl	25 kg	145			145			145			145			145			145			145			145	0	0	145
Polypac R	25 kg	76		5	71			71			71			71			71			71			71	0	5	71
CMC LV	25 kg	66			66			66			66			66			66			66			66	0	0	66
Polyplus	25 kg	32			32			32			32			32			32			32			32	0	0	32
Caustic Soda	25 kg	42			42			42			42			42			42			42			42	0	0	42
Soda Ash	25 kg	19		1	18			18			18			18			18			18			18	0	1	18
Sod Bicarbonate	25 kg	12			12			12			12			12			12			12			12	0	0	12
Spersene	25 kg	16			16			16			16			16			16			16			16	0	0	16
Lime	20 kg	17			17			17			17			17			17			17			17	0	0	17
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
OS-1	25 kg	8			8			8		1	7			7			7			7			7	0	1	7
Bacban III	6 lb	5			5			5			5			5			5			5			5	0	0	5
Conqor 303	25 lt	10			10			10			10			10			10			10			10	0	0	10
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Pipelax	205 lt	2			2			2			2			2			2			2			2	0	0	2
Mica Medium	50 lb	30			30			30			30			30			30			30			30	0	0	30
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30

Operator : GFE Resources

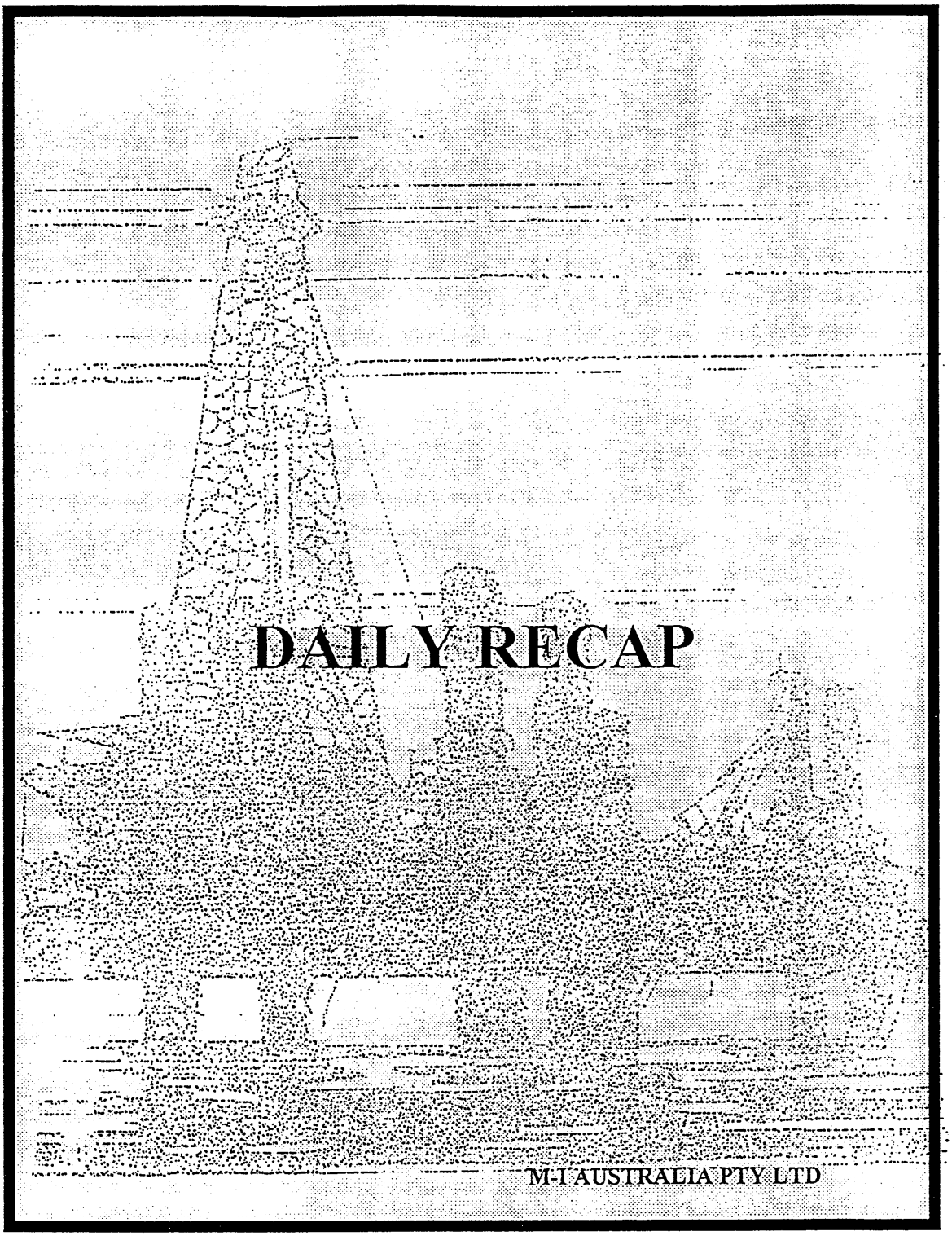
WEEKLY INVENTORY SHEETS

Well : Dunbar 1

DATE: 1995

	29-Mar			30-Mar			31-Mar			1-Apr			2-Apr			3-Apr			4-Apr			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	343			343		103	240		80	160			160			160			160			160	0	183	160
M-I Gel	25 kg	186			186			186			186			186			186			186			186	0	0	186
KCl	25 kg	145			145			145			145			145			145			145			145	0	0	145
Polypac R	25 kg	71			71		2	69		2	67			67			67			67			67	0	4	67
CMC LV	25 kg	66			66			66			66			66			66			66			66	0	0	66
Polyplus	25 kg	32			32			32			32			32			32			32			32	0	0	32
Caustic Soda	25 kg	42			42			42			42			42			42			42			42	0	0	42
Soda Ash	25 kg	18			18			18			18			18			18			18			18	0	0	18
Sod Bicarbonate	25 kg	12			12			12			12			12			12			12			12	0	0	12
Spersene	25 kg	16			16			16			16			16			16			16			16	0	0	16
Lime	20 kg	17			17			17			17			17			17			17			17	0	0	17
Calc Chloride	25 kg	39			39			39			39			39			39			39			39	0	0	39
OS-1	25 kg	7			7			7			7			7			7			7			7	0	0	7
Bacban III	6 lb	5			5			5			5			5			5			5			5	0	0	5
Conqor 303	25 lt	10			10			10			10		10	0			0			0			0	0	10	0
Defoam A	25 lt	5			5			5			5			5			5			5			5	0	0	5
Pipelax	205 lt	2			2			2			2			2			2			2			2	0	0	2
Mica Medium	50 lb	30			30			30			30			30			30			30			30	0	0	30
Kwikseal Med	40 lb	30			30			30			30			30			30			30			30	0	0	30

SECTION 11



DAILY RECAP

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

Date - Day	09/03/95- 1	10/03/95- 2	11/03/95- 3	12/03/95- 4	13/03/95- 5	14/03/95- 6	15/03/95- 7
Depth/TVD -m	115.0 /115.0	317.0 /317.0	317.0 /317.0	693.0 /693.0	1047.0/1047.0	1382.0/1382.0	1507.0/1507.0
Activity	DRILLING	CEMENT CSG	RIH	DRILL 8.5"	DRILL 8.5"	DRILL 8.5"	RIH
Mud Type Code	208	208	206	206	206	206	206
Hole Size -in	12.25	12.25	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	375	370	305	362	433	528	580
Flow Rate -gal/min	335	450	330	275	275	275	275
Circ Pressure -psi	625	900	1400	950	1100	1150	1220
Avg ROP -m/hr	9.6	28		22	22	18.1	10.2
Sample From	FL 24:00	PIT 23:00	PIT 23:00	FL 22:30	FL 23:00	FL 23:00	PIT 24:00
Flow Line Temp -^F	80			70	82	90	
Mud Wt -lb/gal	9.3	9.1	8.5	8.7	9	9.1	9.3
Funnel Vis -s/qt	45 @ 78 ^F	45 @ 50 ^F	120 @ 50 ^F	45 @ 68 ^F	42 @ 77 ^F	42 @ 80 ^F	46 @ 60 ^F
PV -cps	10 @ 75 ^F	13 @ 50 ^F	41 @ 50 ^F	17 @ 63 ^F	17 @ 65 ^F	18 @ 70 ^F	24 @ 60 ^F
YP/R3 -lb/100ft2	24 / 4	20 / 5	65 / 6	23 / 3	21 / 2	21 / 2	24 / 3
10s/10m Gel	6 / 30	10 / 34	10 / 17	4 / 10	3 / 8	3 / 8	4 / 10
API Filtrate -cm3			12	7.4	6.4	6	5.8
HTHP Filtrate -cm3							
Cake API/HT -1/32"	3 /	3 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	3.5	5	1	3	5	5.5	7
Oil/Water -%vol	/ 96.5	/ 95	/ 99	/ 97	/ 95	/ 94.5	/ 93
Sand -%vol	0.75	0.5	0	0.5	3	2	0.5
MBT -lb/bbl	22.5	17.5		7.5	9	9	10
pH	8.3 @ 70 ^F	8.5 @ 50 ^F	8.3 @ 50 ^F	8.5 @ 55 ^F	8.5 @ 60 ^F	8.3 @ 60 ^F	8.3 @ 60 ^F
Alkal Mud (Pm)	0.1	0.1	0.1	0.1	0.1	0.1	0.1
Pf/Mf	0.0 / 0.4	0.05 / 0.2	0.05 / 0.1	0.05 / 0.1	0.05 / 0.2	0.05 / 0.3	0.05 / 0.2
Chlorides -mg/L	600	1000	500	800	700	800	800
Hardness (Ca) -mg/L	160	80	60	80	80	100	100
			1.4	1.1	1.3	1.3	1.44
					60	100	80
Daily Mud Cost -	287	116	3296	1875	1508	731	1865
Cumml Mud Cost -	287	403	3699	5574	7081	7812	9678
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used	GEL 28	KCL 4	POLP 9	POLP 9	POLP 5	POLP 3	POLP 9
	CAUS 1	SPCF 1	PACR 9	PACR 1	PACR 1	OS-1 2	CMCL 5
		LIME 2	CMCL 9	CMCL 3	CMCL 5	BAC 1	
		CACL 1			OS-1 4		

Remarks

09/03 : Spud Dunbar 1 at 1700 hrs and drill 12.1/4" hole to 115m

10/03 : Drill 12.1/4" hole f/115m-317m TD. Perform wiper trip. POOH. Run casing. Prepare to cement 9.5/8" casing.

11/03 : Cement casing. WOC. Nipple up BOP's. Pick up BHA and prepare to run in hole with 8.1/2" drill assembly.

12/03 : RIH and tag cement at 294m.Drill out and displace hole to PHPA system. Perform FIT and drill 8.5" hole f/322m- 69

13/03 : Drill to 856m. POOH for wiper trip. Circ out tight hole f/579-531m. Cont POOH tight. RIH & Rream to bottom18mFILL

14/03 : Drill from1047M-1230M.POOH for wiper trip.Work tight hole RIH & ream 1255M-1287M. 7M fill.Drill F/1287-1382M.

15/03 : Drill from 1382m-1507m. POOH for bit change. M/U new bit and RIH.

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

Date - Day	16/03/95- 8	17/03/95- 9	18/03/95- 10	19/03/95- 11	20/03/95- 12	21/03/95- 13	22/03/95- 14
Depth/TVD -m	1557.0/1557.0	1557.0/1557.0	1557.0/1557.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0
Activity	POH TO TEST	CIRCULATE	M/U BHA	W/TRIP	LOGGING	LOGGING	LOGGING
Mud Type Code	206	206	206	206	206	206	206
Hole Size -in	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	587	509	502	626	605	571	548
Flow Rate -gal/min	275	275		275		300	250
Circ Pressure -psi	1220	1200		1220		800	600
Avg ROP -m/hr	12.5			13.4			
Sample From	FL 20:00	FL 24:00	FL 23:30	FL 22:00	PIT 23:00	PIT 24:00	PIT 22:30
Flow Line Temp -^F	86	87		88			
Mud Wt -lb/gal	9.3	9.3	9.3	9.3	9.3	9.3	9.4
Funnel Vis -s/qt	48 @ 75 ^F	44 @ 85 ^F	46 @ 60 ^F	40 @ 85 ^F	40 @ 70 ^F	40 @ 70 ^F	42 @ 70 ^F
PV -cps	22 @ 70 ^F	18 @ 75 ^F	18 @ 57 ^F	17 @ 76 ^F	16 @ 65 ^F	16 @ 65 ^F	20 @ 65 ^F
YP/R3 -lb/100ft2	22 / 3	19 / 2	21 / 2	15 / 3	12 / 2	15 / 3	15 / 2
10s/10m Gel	4 / 14	3 / 10	4 / 10	4 / 10	3 / 13	4 / 12	4 / 13
API Filtrate -cm3	5.6	6.4	6	7	6.4	6.2	6.4
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	7	7	7	6.5	6.5	6.5	7
Oil/Water -%vol	/ 93	/ 93	/ 93	/ 93.5	/ 93.5	/ 93.5	/ 93
Sand -%vol	1	0.75	0.5	0.5	0.75	0.5	0.75
MBT -lb/bbl	10	12.5	12	10.5	11	11	11.5
pH	8.6 @ 60 ^F	8.3 @ 60 ^F	8.3 @ 55 ^F	8.6 @ 55 ^F	8.5 @ 55 ^F	8.6 @ 55 ^F	8.5 @ 55 ^F
Alkal Mud (Pm)	0.2	0.1	0.1	0.1	0.1	0.1	0.1
Pf/Mf	0.1 / 0.3	0.05 / 0.35	0.05 / 0.35	0.1 / 0.5	0.1 / 0.45	0.1 / 0.45	0.05 / 0.45
Chlorides -mg/L	800	750	800	750	7500	750	750
Hardness (Ca)-mg/L	80	80	80	60	60	60	60
PHPA	1.44	1.3	1.3	1.2	1.2	1.2	1.1
SULPHITE	100	60	50	120	100	100	80
Daily Mud Cost -	301	1333		790	221	629	1529
Cumml Mud Cost -	9979	11311	11311	12101	12322	12951	14480
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used	CAUS 3	PACR 1		CAUS 4	BAR 40	GEL 9	GEL 11
	PACR 1	OS-1 1		OS-1 3		CAUS 2	PACR 5
	OS-1 2	BAR 208		BAR 99		PACR 2	BAR 136
						BAR 40	SODA 1
						SODA 1	

Remarks

16/03 : Contin RIH & ream u/gauge hole. Drill f/1507-1557m. Circ and POOH for wiper trip.RIH-hole good-5m.Fill.POH to tes
17/03 : Cont POOH. M/U and RIH w/ test tool. DST #1.POH & lay out T/T-tool blocked.RIH & circ and dilute.Pump Hi Vis & PO
18/03 : Wiper trip.POOH.RIH for DST #2. Perform DST #2. Pull free hole good. Recover sample. Test BOPs. Prepare to RIH.
19/03 : RIH W/ BHA.Break circ.@1533m and wash and ream to bottom- 1.5m fill. Drill f/1557-1758m. POOH for wiper trip.
20/03 : RIH for wiper trip.Ream tight hole f/1533-1648m. 7m fill circulate hole clean and POOH.Hole good.Rig up and log.
21/03 : Cont log run #3. RIH to 1741m. Wash to bottom-4m fill. Circ hole clean and POOH. Rig up and run logs #4 & 5.
22/03 : Cont log run #5, run log #6. P/U BHA and RIH, circ and trip out to 1176m. RIH, circ & POOH to log. Run log #7

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

Date - Day	23/03/95- 15	24/03/95- 16	25/03/95- 17	26/03/95- 18	27/03/95- 19	28/03/95- 20	29/03/95- 21
Depth/TVD -m	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0
Activity	CIRC.	RUN CASING	WORK CASING	WAIT ON DP	WAIT ON DP	WAIT ON DP	WAIT ON DP
Mud Type Code	206	206	206	206	206	206	206
Hole Size -in	8.5	8.5	8.5	8.5	8.5	8.5	8.5
Circ Volume -bbl	494	509	532	315	315	315	
Flow Rate -gal/min	275	275	160				
Circ Pressure -psi	700	700	200				
Avg ROP -m/hr							
Sample From	FL 23:00	FL 23:00	FL 23:00	PIT 23:00	PIT 22:30	PIT 22:00	PIT 22:00
Flow Line Temp -^F	84	80	74				
Mud Wt -lb/gal	9.4	9.3	9.4	9.4	9.4	9.4	9.4
Funnel Vis -s/qt	44 @ 80 ^F	39 @ 75 ^F	39 @ 68 ^F	40 @ 60 ^F	39 @ 60 ^F	40 @ 60 ^F	40 @ 60 ^F
PV -cps	23 @ 70 ^F	14 @ 70 ^F	16 @ 55 ^F	19 @ 55 ^F	20 @ 55 ^F	19 @ 55 ^F	20 @ 55 ^F
YP/R3 -lb/100ft2	18 / 2	11 / 2	12 / 2	12 / 2	11 / 2	11 / 2	11 / 2
10s/10m Gel	3 / 12	3 / 10	3 / 10	3 / 9	3 / 9	3 / 11	3 / 10
API Filtrate -cm3	6.4	6.4	6.6	6.6	6.6	6.6	6.6
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /	1 /	1 /	1 /	1 /
Solids -%vol	7	6.5	7	7	7	7	7
Oil/Water -%vol	/ 93	/ 93.5	/ 93	/ 93	/ 93	/ 93	/ 93
Sand -%vol	0.75	0.5	0.5	0.5	0.5	0.25	0.25
MBT -lb/bbl	12	12	12.5	12.5	12.5	12.5	12.5
pH	8.5 @ 55 ^F	8.7 @ 55 ^F	8.5 @ 55 ^F	8.5 @ 55 ^F	8.3 @ 55 ^F	8.5 @ 55 ^F	8.5 @ 55 ^F
Alkal Mud (Pm)	0.1	0.2	0.1	0.1	0.1	0.1	0.1
Pf/Mf	0.05 / 0.45	0.08 / 0.6	0.05 / 0.5	0.05 / 0.45	0.05 / 0.4	0.1 / 0.6	0.1 / 0.65
Chlorides -mg/L	750	750	750	750	750	750	750
Hardness (Ca) -mg/L	60	60	60	60	60	50	50
PHPA	1.1	1	1	1	1	1	1
SULPHITE	50	100	80	50	50	10	10
Daily Mud Cost -		353	94				
Cumml Mud Cost -	14480	14833	14928	14928	14928	14928	14928
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL	P.MARSHALL
Products Used		GEL 8	GEL 10				
		OS-1 1					
		BAR 41					

Remarks

23/03 : Coneinue log run#7.POOH w/blocked tool.Rerun log #7.POOH P/U 8.5" Drl assy and RIH to 1755.5m.wash to bottom. Cir
24/03 : Cont circ hole clean. Lay out DP & drill assy. Rig up and run casing.Work and circ tight hole f/1123-1130m.
25/03 : Cont to run casing. Circ & work stuck casing F/1148m.- 1153m.Lay out 4 JNTS,P/U 1 JNT.Cont to work f/1097-1108m
26/03 : Rig up and cement 7" casing. Cut casing. Nipple down BOPs Nipple up and test. Wait on 3.5" drill pipe.
27/03 : WOC. Pressure test casing. Wait on 3.5" drill pipe.
28/03 : Wait on 3.5" drill pipe. Service rig.
29/03 : Wait on drill 3.5" drill pipe.

M-I DRILLING FLUIDS RECAP

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION

Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

Date - Day	30/03/95- 22	31/03/95- 23	01/04/95- 24				
Depth/TVD -m	1758.0/1758.0	1758.0/1758.0	1758.0/1758.0				
Activity	DRILL CMT	LAY OUT DP	RIG DOWN				
Mud Type Code	206	206	206				
Hole Size -in	6	6	6				
Circ Volume -bbl	410	319					
Flow Rate -gal/min	250						
Circ Pressure -psi	800						
Avg ROP -m/hr							
Sample From	FL 23:00	PIT 24:00	FL 15:00				
Flow Line Temp -^F	74		70				
Mud Wt -lb/gal	9.3	9.3	9.3				
Funnel Vis -s/qt	38 @ 70 ^F	41 @ 70 ^F	42 @ 70 ^F				
PV -cps	14 @ 65 ^F	19 @ 65 ^F	20 @ 65 ^F				
YP/R3 -lb/100ft2	10 / 2	10 / 2	10 / 2				
10s/10m Gel	2 / 9	2 / 9	2 / 9				
API Filtrate -cm3	8.4	7.6	7.6				
HTHP Filtrate -cm3							
Cake API/HT -1/32"	1 /	1 /	1 /				
Solids -%vol	7	7	7				
Oil/Water -%vol	/ 93	/ 93	/ 93				
Sand -%vol	3	1.5	1.5				
MBT -lb/bbl	12	12.5	12.5				
pH	12.5 @ 55 ^F	13.5 @ 55 ^F	12.5 @ 55 ^F				
Alkal Mud (Pm)	2.2	2	2				
Pf/Mf	1.9 / 2.1	1.8 / 2.0	1.8 / 2.0				
Chlorides -mg/L	750	750	750				
Hardness (Ca) -mg/L	200	200	200				
PHPA			0.9				
SULPHITE	10	10	300				
Daily Mud Cost -	833	574	622				
Cumml Mud Cost -	15761	16335	16957				
Sales Engineer	P.MARSHALL	P.MARSHALL	P.MARSHALL				
Products Used	PACR 2	PACR 1	BAC 1				
	BAR 103	BAR 80	CNQ3 10				

Remarks

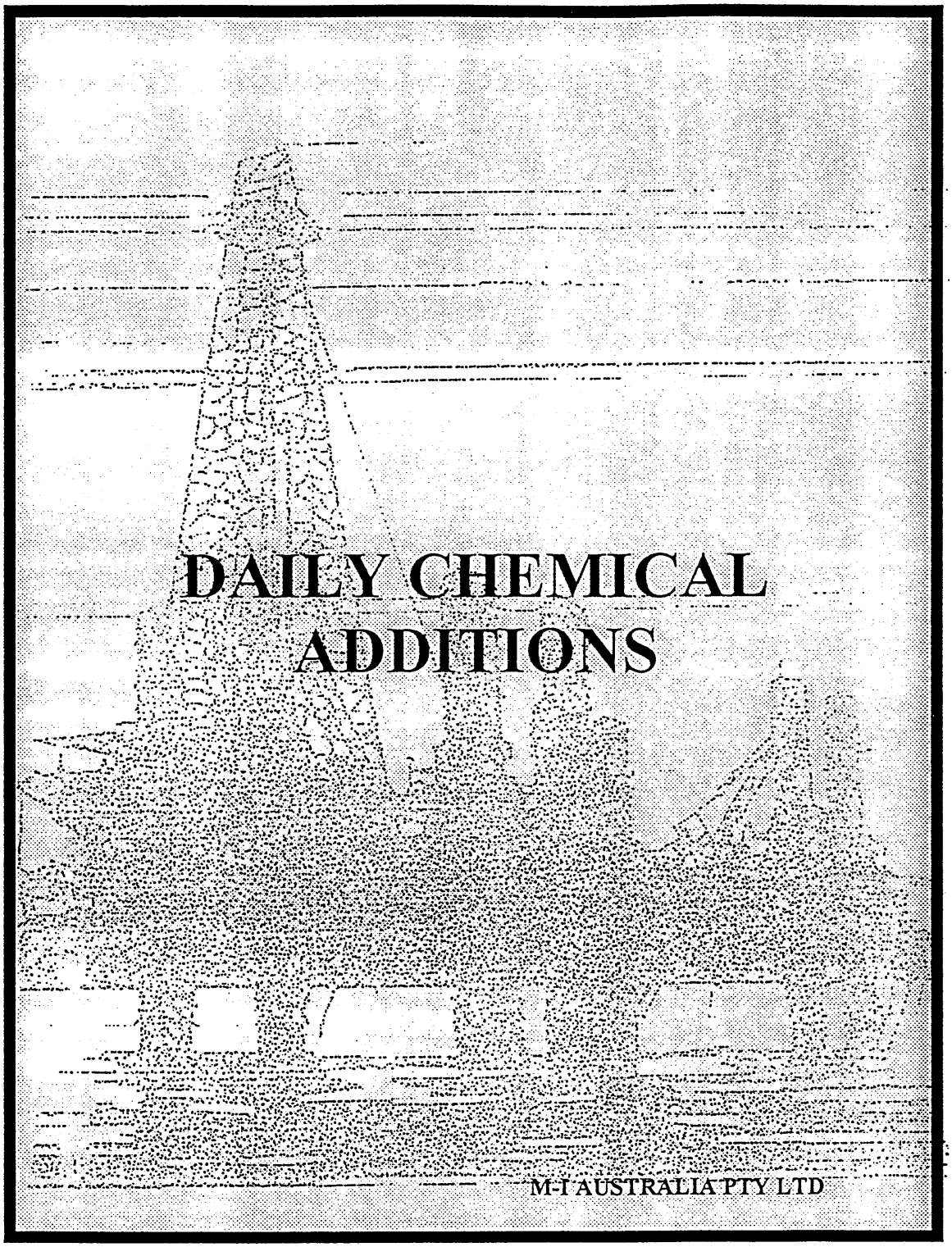
30/03 : Test BOPs. P/U 4.75" DC,M/U bit and RIH with 3.5" DP.Tag cement at 1102m.Drill out cmt & shoe track f/1102-1196m.

31/03 : Drill out shoe track.RIH to 1758m & circ POOH,lay out drl assy and RIH O/E to 1610m and set cmt plug #1.1610-1440

01/04 : Rig up and set cement plug #2 f/1240-1180m. RIH and tag cmt @ 1178m circ and displace hole to inhibited mud.

M-I Drilling Fluids L.L.C. DRILLING FLUIDS DATA MANAGEMENT SYSTEM G0003 April 12, 1995

SECTION 12



DAILY CHEMICAL ADDITIONS

M-I AUSTRALIA PTY LTD

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION | Page: 1
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN | Well: G0003

Date	:	09/03/95	10/03/95	11/03/95	12/03/95	13/03/95	14/03/95	15/03/95
Depth	-m:	115.0	317.0	317.0	693.0	1047.0	1382.0	1507.0
Daily Mud Cost	:	287	116	3296	1875	1508	731	1865
Cumulative Mud Cost	:	287	403	3699	5574	7081	7812	9678
Bacban	6 LB JU:						1	
CMC TG LV	25 KG S:			9	3	5		5
Calcium Chloride	25 KG S:		1					
Caustic Soda	25 KG S:	1						
Conqor 303	25 LT D:							
Lime	40 KG S:		2					
M-I Bar	25 KG S:							
M-I Gel	25 KG S:	28						
OS-1	25 KG S:					4	2	
Polypac R	25 KG S:			9	1	1		
Polyplus Powder	25 KG S:			9	9	5	3	9
Potassm Chloride	25 KG S:		4					
Soda Ash	40 KG S:							
Dispersene CF	50 LB S:		1					

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION | Page: 2
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN | Well: G0003

Date	:	16/03/95	17/03/95	18/03/95	19/03/95	20/03/95	21/03/95	22/03/95
Depth	-m:	1557.0	1557.0	1557.0	1758.0	1758.0	1758.0	1758.0
Daily Mud Cost	:	301	1333		790	221	629	1529
Cumulative Mud Cost	:	9979	11311	11311	12101	12322	12951	14480
Bacban	6 LB JU:							
CMC TG LV	25 KG S:							
Calcium Chloride	25 KG S:							
Caustic Soda	25 KG S:	3			4		2	
Conqor 303	25 LT D:							
Lime	40 KG S:							
M-I Bar	25 KG S:		208		99	40	40	136
M-I Gel	25 KG S:						9	11
OS-1	25 KG S:	2	1		3			
Polypac R	25 KG S:	1	1				2	5
Polyplus Powder	25 KG S:							
Potassm Chloride	25 KG S:							
Soda Ash	40 KG S:						1	1
Spersene CF	50 LB S:							

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION | Page: 3
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN | Well: G0003

Date	:	23/03/95	24/03/95	25/03/95	26/03/95	27/03/95	28/03/95	29/03/95
Depth	-m:	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0	1758.0
Daily Mud Cost	:		353	94				
Cumulative Mud Cost	:	14480	14833	14928	14928	14928	14928	14928
Bacban	6 LB JU:							
CMC TG LV	25 KG S:							
Calcium Chloride	25 KG S:							
Caustic Soda	25 KG S:							
Conqor 303	25 LT D:							
Lime	40 KG S:							
M-I Bar	25 KG S:		41					
M-I Gel	25 KG S:		8	10				
OS-1	25 KG S:		1					
Polypac R	25 KG S:							
Polyplus Powder	25 KG S:							
Potassm Chloride	25 KG S:							
Soda Ash	40 KG S:							
Spersene CF	50 LB S:							

M-I DRILLING FLUIDS DAILY MUD ADDITIONS

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION | Page: 4
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN | Well: G0003

Date		:	30/03/95	31/03/95	01/04/95
Depth		-m:	1758.0	1758.0	1758.0
Daily Mud Cost		:	833	574	622
Cumulative Mud Cost		:	15761	16335	16957
Bacban	6 LB JU:				1
CMC TG LV	25 KG S:				
Calcium Chloride	25 KG S:				
Caustic Soda	25 KG S:				
Conqor 303	25 LT D:				10
Lime	40 KG S:				
M-I Bar	25 KG S:		103	80	
M-I Gel	25 KG S:				
OS-1	25 KG S:				
Polypac R	25 KG S:		2	1	
Polyplus Powder	25 KG S:				
Potassm Chloride	25 KG S:				
Soda Ash	40 KG S:				
Spersene CF	50 LB S:				

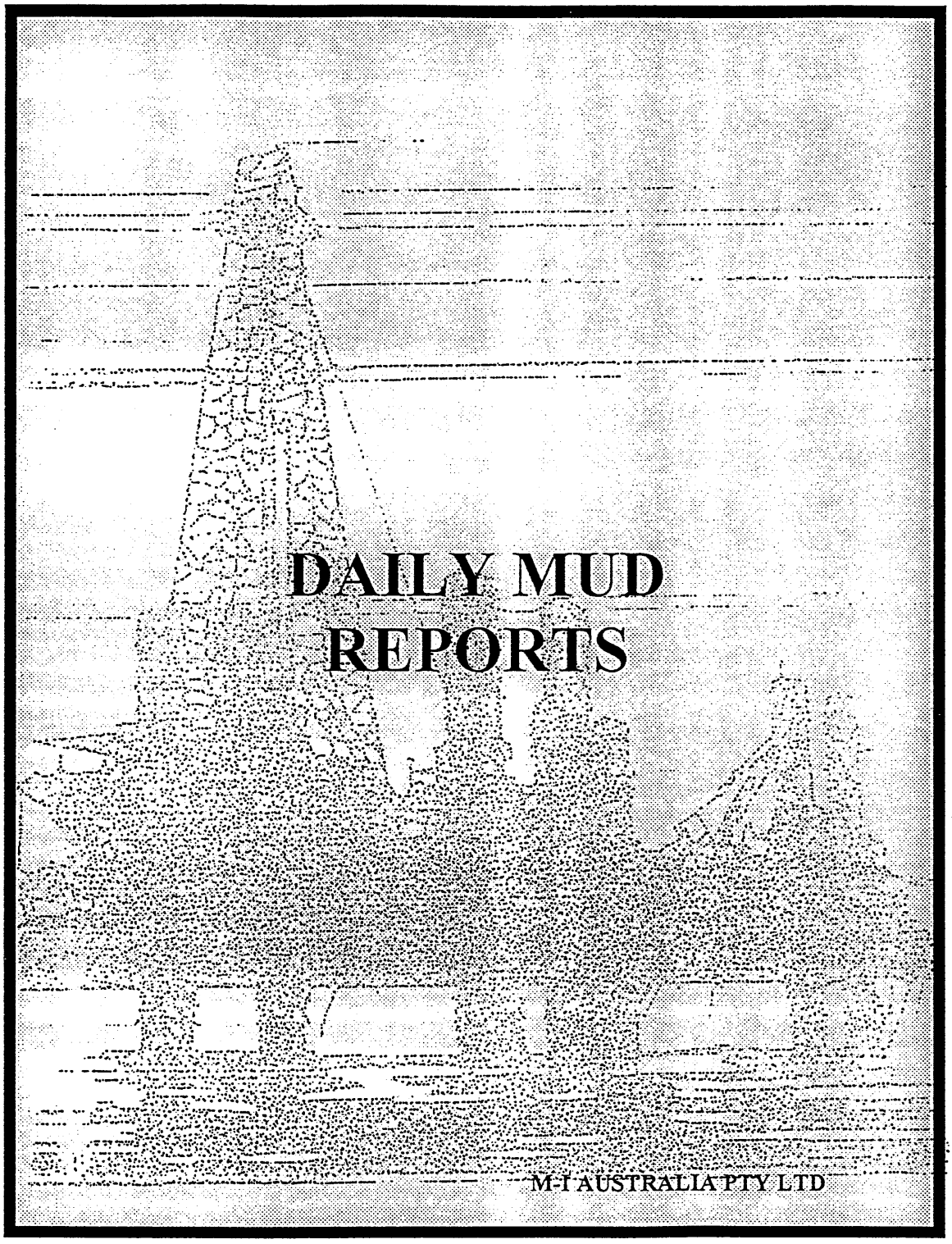
M-I DRILLING FLUIDS PRODUCT SUMMARY

Operator : GFE RESOURCES | Contractor : CENTURY DRILLING 11 | Description : EXPLORATION | Well: G0003
Well Name : DUNBAR 1 | Field/Area : PPL 1 | Location : OTWAY BASIN

SUMMARY OF PRODUCT USAGE FOR INTERVAL FROM 09/03/95 - 01/04/95, 115.0 m - 1758.0 m

WATER-BASE PROD	SIZE	AMOUNT
Bacban	6 LB JUG	2
CMC TG LV	25 KG SX	22
Calcium Chloride	25 KG SX	1
Caustic Soda	25 KG SX	10
Conqor 303	25 LT DM	10
Lime	40 KG SX	2
M-I Bar	25 KG SX	747
M-I Gel	25 KG SX	66
OS-1	25 KG SX	13
Polypac R	25 KG SX	23
Polyplus Powder	25 KG SX	35
Potassm Chloride	25 KG SX	4
Soda Ash	40 KG SX	2
Spersene CF	50 LB SX	1

SECTION 13



DAILY MUD REPORTS

M-I AUSTRALIA PTY LTD

WATER BASE MUD REPORT - Day : 1

M-I Drilling Fluids Company — Date : 09/03/95 — Depth : 115.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : DRILLING

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 12.250 in
Nozzles:18/20/20/ / / 1/32"
Drill Pipe 1 OD : 4.500 in Error m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 145.0 m

CASING

Casing OD :	in	Liner OD :	in		
Casing ID :	in	Liner ID :	in		
Casing TD :	m	Liner TD :	m		
Casing TVD :	m	Liner TVD :	m		

MUD VOLUME (bbl)

Hole Volume :
Pits Volume :
Circulating Volume : 375
Mud : FW NATIVE MUD

MUD PROPERTIES

Sample From	: FL 24:00
Flow Line Temp	: 80 ^F
Depth/TVD -m	:115.0 /115.0
Mud Wt -lb/gal	: 9.3
Funnel Vis -s/qt	: 45 @ 78 ^F
Plastic Visc -cps	: 10 @ 75 ^F
YP/R3 -lb/100ft2 /deg	: 24 / 4
10s/10m Gel -lb/100ft2	: 6 / 30
API F Loss -cc/30 min	:
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 3
Solids -%vol	: 3.5
Oil/Water -%vol	: /96.5
Sand -%vol	: 0.75
MBT -lb/bbl	: 22.5
pH	: 8.3 @ 70 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.0 / 0.4
Chlorides -mg/l	: 600
Hardness Ca	: 160
	:
	:
	:
	:
np Value	: 0.372
Kp -lb-sec^n/100ft2	: 3.57151
na Value	: 0.465
Ka -lb-sec^n/100ft2	: 1.99997

CIRCULATION DATA

Flow Rate -gal/min	:	335
DP Annular Vel -m/min	:	
DC Annular Vel -m/min	:	
DP Critical Vel -m/min	:	
DC Critical Vel -m/min	:	
Circ. Pressure -psi	:	625
Bottoms Up -min	:	
Total Circ Time -min	:	

PRODUCTS USED LAST 24 HOURS

M-I Gel	25 KG S	28
Caustic Soda	25 KG S	1

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 7.2 / 66
Bentonite	: 1.9 / 17
Drill Solids	: 5.4 / 49
Weight Material	: N/A / N/A
Chemical Conc	: - / 0.0

Inert/React : 1.93 Average SG : 2.60

SOLIDS EQUIPMENT

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

MUD VOLUME ACCOUNTING bbl

Oil Added :		DUMP	:155
Water Added :	575	SURFACE	:45
Mud Built :	50	TOTAL MUD	:425
Mud Received:			
Mud Disposed:	200		

Remarks :
Spud Dunbar 1 at 1700 hrs and drill 12.1/4" hole to 115m
Continue to rig up. Spud Dunbar 1 at 1700 hrs on 9 March 1995 and drill
12.1/4" hole to 115m, sweeping hole with Hi Vis PHG on surveys.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 287 — Cumul Cost : 287

DRILLING MUD REPORT

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

OPERATOR

DRILLING MUD REPORT NO. 1

DATE 10 MAR 19 95 | DEPTH 115 m

SPUD DATE 9 MAR | PRESENT ACTIVITY DRILL 12 1/4" HOLE

OPERATOR	CONTRACTOR	RIG NO.
GFE RESOURCES	CENTURY	11
REPORT FOR	**REPORT FOR**	**SECTION, TOWNSHIP, RANGE**
KEN SMITH		ONSHORE

WELL NAME AND NO.	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA	STATE/PROVINCE
OUNBAR #1	PPL-1	OTWAY BASIN	VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
12 1/4	VAREL L114	2 x 18 1 x 20

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2		

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	HWDP	

DRILL COLLAR SIZE	LENGTH
6 1/4 / 8"	99m

CASING

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

MUD VOLUME (BBL)

HOLE	PITS
105	270

TOTAL CIRCULATING VOLUME: 375

IN STORAGE: 50 | WEIGHT:

MUD TYPE: NATIVE/SPUD

CIRCULATION DATA

PUMP SIZE	X	IN.	ANNULAR VEL (ft/min)
5.5 / 6.0		7.75 / 8.5	DP ____ DC ____

PUMP MAKE, MODEL	ASSUMED EFF	CIRCULATION PRESSURE (psi)
NAT 7P50 BP 80	95 %	625

bbl/stk	stk/min	BOTTOMS UP (min) (strk)
0.054/0.07	49/76	14 mn

8.0 bbl/min	335 gal/min	TOTAL CIRC TIME (min) (strk) 47 mn

MUD PROPERTIES

	☐ F.L. ☐ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken		0600
Flowline Temperature (°F)		80
Depth (ft) (TVD / ft)		263
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)		9.3
Funnel Viscosity (sec/qt) API @ °F		45
Plastic Viscosity cp @ °F		10
Yield Point (lb/100 ft²)		24
Gel Strength (lb/100 ft²) 10 sec/10 min	/	6/30
Filtrate API (cm³/30 min)		N/A
API HTHP Filtrate (cm³/30 min) @ °F		-
Cake Thickness (32nd in. API/HTHP)	/	31
Solids Content (% by Vol) ☐ calculated ☐ retort		3.5
Liquid Content (% by Vol) Oil/Water	/	19/65
Sand Content (% by Vol)		0.75
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud		22.5
pH ☐ Strip ☐ Meter @ °F		8.3
Alkalinity Mud (P_m)		
Alkalinity Filtrate (P_f/M_f)	/	/
Chloride (mg/L)		600
Total Hardness as Calcium (mg/L)		160

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN.	35-45 sec/qt	N/A

RECOMMENDED TOUR TREATMENT

PROPOSE TO TREAT SYSTEM WITH 1% KCl & DILUTE WITH D/W AS REQ'D

REMARKS

SPUD WELL 1700 HRS 9/3/95
DRILL 12 1/4" HOLE TO 115m
- ALLOW FORMATION TO BUILD VISCOSITY WITH HI VIS SWEEPS ON SURVEYS
-

PRODUCT INVENTORY	GEL	CAUSTIC SODA
STARTING INVENTORY		
RECEIVED		
USED LAST 24 hr	47	1
CLOSING INVENTORY		
COST LAST 24 hr	18.68 443	22.35
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			$ 466.03	$ 466.03

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	7	Water Added (bbl)		Low Gravity %	
Drilling	12.5	Mud Built (bbl)		Low Gravity, ppb	
Reaming/Coring		Mud Received (bbl)		Bentonite %	
Circulating		Mud Disposed (bbl)		Bentonite, ppb	
Tripping				Drill Solids %	
Survey	1.0			Drill Solids, ppb	
Logging				Shale CEC, ppb	
Running Casing				D/B Ratio	
Testing		Starting Depth		High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
RIG DOWN	3.5	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						

MI 20B

WATER BASE MUD REPORT - Day : 2

M-I Drilling Fluids Company — Date : 10/03/95 — Depth : 317.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : CEMENT CSG

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 12.250 in
Nozzles:18/20/20/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 117 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 145.0 m

CASING

Casing OD :	in	Liner OD :	in	Hole Volume :	
Casing ID :	in	Liner ID :	in	Pits Volume :	
Casing TD :	m	Liner TD :	m	Circulating Volume :	370
Casing TVD :	m	Liner TVD :	m	Mud :	FW NATIVE MUD

MUD VOLUME (bbl)

MUD PROPERTIES

Sample From	: PIT 23:00
Flow Line Temp	: ^F
Depth/TVD -m	:317.0 /317.0
Mud Wt -lb/gal	: 9.1
Funnel Vis -s/qt	: 45 @ 50 ^F
Plastic Visc -cps	: 13 @ 50 ^F
YP/R3 -lb/100ft2 /deg	: 20 / 5
10s/10m Gel -lb/100ft2	: 10 / 34
API F Loss -cc/30 min	:
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 3
Solids -%vol	: 5
Oil/Water -%vol	: /95
Sand -%vol	: 0.5
MBT -lb/bbl	: 17.5
pH	: 8.5 @ 50 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.2
Chlorides -mg/l	: 1000
Hardness Ca	: 80
	:
	:
	:
	:
np Value	: 0.479
Kp -lb-sec^n/100ft2	: 1.77720
na Value	: 0.410
Ka -lb-sec^n/100ft2	: 2.73433

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 :	900
Bottoms Up	-min :	
Total Circ Time	-min :	

PRODUCTS USED LAST 24 HOURS

Potassm Chloride	25 KG S	4
Spersene CF	50 LB S	1
Lime	40 KG S	2
Calcium Chloride	25 KG S	1

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 1
KCl	: 0.0 / 0
Low Gravity Solids	: 5.7 / 52
Bentonite	: 1.5 / 13
Drill Solids	: 4.3 / 39
Weight Material	: N/A / N/A
Chemical Conc	: - / 0.0

Inert/React : 1.97 Average SG : 2.60

SOLIDS EQUIPMENT

Shaker #1	:	84 X 3	12
Shaker #2	:		
Shaker #3	:		
Shaker #4	:		
Mud Cleaner	:		
Centrifuge	:		
Desander	:	2 X 12"	10
Desilter	:	12 X 4"	10
Degasser	:		

MUD VOLUME ACCOUNTING bbl

Oil Added	:	DUMP	:40
Water Added	:65	SURFACE	:30
Mud Built	:	TOTAL MUD	:420
Mud Received:			
Mud Disposed:	70		

Remarks :
Drill 12.1/4" hole f/115m-317m TD. Perform wiper trip. POOH. Run casing. Prepare to cement 9.5/8" casing.
Drill 12.1/4" hole from 115-317m TD. Severe build up of mud rings at 263m,
291m and 310m required the flow line to be cleared of mud cake. Performed
wiper trip with 1m fill on bottom. Circulate and clear flow line. POOH and rig
up to run casing. Run casing and prepare to cement.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 116 — Cumul Cost : 403

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 2

DATE 10 MAR 19 95 | DEPTH 317 m TD

SPUD DATE 9 MAR | PRESENT ACTIVITY PREPARE TO CEMENT

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR # 1	FIELD OR BLOCK NO.: PPL-1	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: 127	PITS: 243	PUMP SIZE: 5½ x 7.75 IN. / 6 x 8.5	ANNULAR VEL (ft/min) DP: 85 DC: 128	
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME: 370		PUMP MAKE, MODEL: NAT TP 50 BP 80	ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi): 900
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	IN STORAGE: 50	WEIGHT: 8.7	bbl/stk: 0.054/0.102	stk/min: 99/76	BOTTOMS UP (min) (strk): 12 min
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER in. @ ft.	MUD TYPE: NATIVE/SPUD		10.68 bbl/min	450 gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES		
Sample From	☐ F.L. ☐ PIT	☐ F.L. ☑ PIT
Time Sample Taken		
Flowline Temperature (°F)		
Depth (ft) (TVD 317 m)		317m
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)		9.1
Funnel Viscosity (sec/qt) API @ 52 °F		45
Plastic Viscosity cp @ 50 °F		13
Yield Point (lb/100 ft²)		20
Gel Strength (lb/100 ft²) 10 sec/10 min	1	10/34
Filtrate API (cm³/30 min)		N/C
API HTHP Filtrate (cm³/30 min) @ °F		-
Cake Thickness (32nd in. API/HTHP)	1	3/-
Solids Content (% by Vol) ☑ calculated ☐ retort		5
Liquid Content (% by Vol) Oil/Water	1	195
Sand Content (% by Vol)		0.5
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud		17.5
pH ☐ Strip ☐ Meter @ °F		8.3
Alkalinity Mud (P_m)		0.05
Alkalinity Filtrate (P_f/M_f)	1	.05/0.2
Chloride (mg/L)		1000
Total Hardness as Calcium (mg/L)		80

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
MIN	35-45sec/qt	N/C

RECOMMENDED TOUR TREATMENT

- DILUTE WITH D/W AS REQ'D TO MAINTAIN VIS = 45-50±
- KCl ADDITIONS SUSPENDED DUE TO UNACCEPTABLE VISC INCR.

REMARKS

DRILL F/ 115m - 263m - CLEAR FLOW LINE & CIRC OUT MUD RINGS
DRILL F/ 263 - 291m - CLEAR FLOW LINE.
DRILL F/ 291 - 310m - CLEAR FLOWLINE OF MUD RINGS
DRILL 310m - 317m - TD - CIRCULATE HOLE CLEAN - MAX DEV - 1/3°
POOH FOR WIPER TRIP
RIH - 1m FILL - CIRC B/U - CLEAR FLOW LINE OF MUD CAKE & JET CELLAR
POOH TO RUN 9⅝" CASING
RIG UP AND RUN CASING.
RIG UP AND PREPARE TO CEMENT CSG.

N.B. * INDICATES DAMAGED UNUSABLE STOCK

PRODUCT INVENTORY	GEL	BARITE	KCl	PAC R	CMC LV	CAUSTIC SODA	SOD. BICARB	SPERSENE	LIME	CAL. CHLORIDE	OS-1	POLY PLUS	DACGUM NOVOR 30% DEFOAMA PIPELAX	HICAP K-SEAL M
STARTING INVENTORY	109	907	149	59	88	51	12	17	20	40	20	-	6/10	5/2	30/30
RECEIVED	96														
USED LAST 24 hr			4					*1	*2	*1					
CLOSING INVENTORY	205	907	145	59	88	51	12	16	18	39	20	-	6/10	5/2	30/30
COST LAST 24 hr			4584					40.55	12.00	17.80					
USED (from IADC)															

SOLIDS EQUIPMENT

SHAKER #1 3 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	09 3254822		$116.19	$582.22

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)	65	Low Gravity %	5.1
Drilling	7.0	Mud Built (bbl)		Low Gravity, ppb	46.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	1.5
Circulating	1.5	Mud Disposed (bbl)	70	Bentonite, ppb	13.9
Tripping	4.5	DUMP	40	Drill Solids %	3.6
Survey	1.5	SURFACE	30	Drill Solids, ppb	32.4
Logging		TOTAL MUD	420	Shale CEC, ppb	-
Running Casing	4.0			D/B Ratio	1.65
Testing		Starting Depth	115	High Gravity %	-
Fishing		Ending Depth	317	High Gravity, ppb	-
OTHER	5.5	New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS							
Zero Gel	5	Avg ROP	28.	ECD @			
n Factor	0.41	% Cutting		Leak Off @			
k Factor	2.73	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics		263	29	69	0.59	180	
Annular Section		1	2	3	4	5	
Hole Size		12.25	12.25	12.25			
Pipe OD		4.5	6.25	8.0			
Critical Velocity		289	309	337			
Annular Velocity		85	99	128			
Viscosity		190	149	105			
Annular Pressure		0.8	1.2	0.3			

MI-39P

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 3
DATE 11 MAR 19 95 | DEPTH 317 m
SPUD DATE 9 MAR | PRESENT ACTIVITY R.I.H

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HUGHES ATM05	3 x 11

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	16.6	

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	HWDP	55 m

DRILL COLLAR SIZE	LENGTH
6 1/4	162 m

CASING

SURFACE	9 5/8 in. @ 312 m
INTERMEDIATE	in. @ ft
INTERMEDIATE	in. @ ft
PRODUCTION OR LINER	in. @ ft

MUD VOLUME (BBL)

HOLE	70± O/H
PITS	
TOTAL CIRCULATING VOLUME	
IN STORAGE	305
WEIGHT	
MUD TYPE	PHPA/PAC

CIRCULATION DATA

PUMP SIZE	5 1/2 x 6	IN.	7.75 8.5
PUMP MAKE, MODEL	NAT 7P 50 BP 80	ASSUMED EFF	95 %
bbl/stk	0.054/0.072	stk/min	110
bbl/min	6.93	gal/min	290

ANNULAR VEL (ft/min) m/min: DP 137(42) 214(65)
CIRCULATION PRESSURE (psi): 1400
BOTTOMS UP (min) (strk): 10 —
TOTAL CIRC TIME (min) (strk): 49 —

MUD PROPERTIES

	☐ F.L. ☑ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	23:00	05:30
Flowline Temperature (°F)		27
Depth (ft) (TVD / ft)	317m	348
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	8.5	8.6
Funnel Viscosity (sec/qt) API @ °F	120	45
Plastic Viscosity cp @ °F	41	22
Yield Point (lb/100 ft²)	65	25
Gel Strength (lb/100 ft²) 10 sec/10 min	10/17	3/5
Filtrate API (cm³/30 min)	12.0	10.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☑ calculated ☐ retort	1	2
Liquid Content (% by Vol) Oil/Water	199	198
Sand Content (% by Vol)	-	TR
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	0.0	0.0
pH ☑ Strip ☐ Meter @ °F	8.3	8.3
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.1	.05/0.1
Chloride (mg/L)	500	600
Total Hardness as Calcium (mg/L)	60	60
PHPA ppb		1.4

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
< 9.2 ppg	35-42 sec/qt	8.0 cc

RECOMMENDED TOUR TREATMENT

- DUMP & CLEAN ALL PITS, SERVICE SHAKER AND REPLACE SCREENS
- PREPARE PHPA/PAC R/CMC LV DISPL SYSTEM - & SHEAR THROUGH SCE
- PROPOSE TO PREP PHC & BLEED INTO SYSTEM ONCE CIRC. COMMENCED.

REMARKS

CEMENT CASING + DISPL WITH O/W - WOC.
NIPPLE UP BOPs - FUCTION + PRESS. TEST.
P/U NEW BHA.
PREPARE TO RIH WITH 8 1/2" DRL ASSY

PRODUCT INVENTORY	GEL	POLY PLUS	PAC R	CMC LV
STARTING INVENTORY	205	-	59	88
RECEIVED		67	32	
USED LAST 24 hr		9	9	9
CLOSING INVENTORY	205	58	82	79
COST LAST 24 hr		.25 1554	.66 1185	07 551.
USED (from IADC)				

SOLIDS EQUIPMENT

SHAKER #1 3 x 84 mesh
SHAKER #2 mesh
MUD CLEANER mesh
CENTRIFUGE hours
DESANDER 0 hours
DESILTER 0 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	09 3254822		$ 3295.98	$ 3878.20

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	
Drilling	
Reaming/Coring	
Circulating	1.5
Tripping	2.0
Survey	
Logging	
Running Casing/Cmt	8.0
Testing BOP	2.5
Fishing	
BOPs	10.0

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	305
Mud Received (bbl)	
Mud Disposed (bbl)	420
DUMP	420
TOTAL MUD	305
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	2	Avg ROP		ECD @		
n Factor	0.68	% Cutting		Leak Off @		
k Factor	6.70	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		859	61	145	2.56	334 (102)
Annular Section		1	2	3	4	5
Hole Size		8.68	8.5	8.68		
Pipe OD		4.5	6.25	6.25		
Critical Velocity		324	448	430		
Annular Velocity		1.37	214	196		
Viscosity		83.5	60.5	63.8		
Annular Pressure		2.2	1.7	4.9		

MI-39P

WATER BASE MUD REPORT - Day : 4

M-I Drilling Fluids Company — Date : 12/03/95 — Depth : 693.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 476 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 137
Pits Volume : 225
Circulating Volume : 362
Mud : FW POLYMER

MUD PROPERTIES

Sample From	FL 22:30
Flow Line Temp	70 ^F
Depth/TVD -m	693.0 /693.0
Mud Wt -lb/gal	8.7
Funnel Vis -s/qt	45 @ 68 ^F
Plastic Visc -cps	17 @ 63 ^F
YP/R3 -lb/100ft2 /deg	23 / 3
10s/10m Gel -lb/100ft2	4 / 10
API F Loss -cc/30 min	7.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	3
Oil/Water -%vol	/97
Sand -%vol	0.5
MBT -lb/bbl	7.5
pH	8.5 @ 55 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.1
Chlorides -mg/l	800
Hardness Ca	80
PHPA	1.1
np Value	0.511
Kp -lb-sec^n/100ft2	1.76696
na Value	0.562
Ka -lb-sec^n/100ft2	1.27888

CIRCULATION DATA

Flow Rate -gal/min	275
DP Annular Vel -m/min	39.5
DC Annular Vel -m/min	61.9
DP Critical Vel -m/min	103.9
DC Critical Vel -m/min	130.1
Circ. Pressure -psi	950
Bottoms Up -min	16.6
Total Circ Time -min	55.3

PRODUCTS USED LAST 24 HOURS

Polyplus Powder	25 KG S	9
Polypac R	25 KG S	1
CMC TG LV	25 KG S	3

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	2.7 / 25
Bentonite	0.7 / 6
Drill Solids	1.5 / 14
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 1.63 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	2X50+84	18
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	14
Desilter	12 X 4"	8
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		DUMP	123
Water Added	140	SURFACE +SCE	240
Mud Built	400	TOTAL MUD	482
Mud Received:			
Mud Disposed:	363		

Remarks :
RIH and tag cement at 294m.Drill out and displace hole to PHPA system. Perform FIT and drill 8.5" hole f/322m- 693M
RIH and tag cement at 294m. Drill out cement, float, shoetrack and 5m new
hole. Perform FIT, mud wt equiv = 22.9 ppg. Drill 8.1/2" hole from 322m-349m.
POOH and add stabilizer to BHA. RIH and drill from 349-387m. Clear shakers and
clear header box of clay "boulders". Drill from 387m-406m. Clear header box
and sand trap. Drill 406-693m with surveys. Max dev 0.5 deg.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 1875 — Cumul Cost : 5574

DRILLING MUD REPORT

RIG —

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

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

DRILLING MUD REPORT NO. 4

DATE 12 MAR 19 95 | DEPTH 693 m

SPUD DATE 9 MAR | PRESENT ACTIVITY DRILL 8½ HOLE

OPERATOR: GFE RESOURCES | CONTRACTOR: CENTURY | RIG NO. 11

REPORT FOR: KEN SMITH | REPORT FOR: ROGER BINDON | SECTION, TOWNSHIP, RANGE: ONSHORE

WELL NAME AND NO.: DUNBAR # 1 | FIELD OR BLOCK NO.: PPL-1 | COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN | STATE/PROVINCE: VICT

DRILLING ASSEMBLY

	TYPE	JET SIZE
BIT SIZE 8½	HTC ATJ05	3×11

	TYPE	LENGTH
DRILL PIPE SIZE 4½	16.6	
DRILL PIPE SIZE 4½	HWDP	55 m
DRILL COLLAR SIZE 6¼		LENGTH 162 m

CASING

SURFACE 9⅝ in. @ 312 m

INTERMEDIATE in. @ ft

INTERMEDIATE in. @ ft

PRODUCTION OR LINER in. @ ft

MUD VOLUME (BBL)

HOLE	PITS
136	226

TOTAL CIRCULATING VOLUME: 362

IN STORAGE: 120 | WEIGHT: 8.5

MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE 5½ X 6 IN. 7.75 8.5

PUMP MAKE, MODEL: NAT 8P80 | ASSUMED EFF 95 %

bbl/stk .054/.072 | stk/min 121/—

6.55 bbl/min | 275 gal/min

ANNULAR VEL (ft/min) DP 40 DC 61.8

CIRCULATION PRESSURE (psi) 950

BOTTOMS UP (min) (strk) 21—

TOTAL CIRC TIME (min) (strk) 55—

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Time Sample Taken	22:30	05:30
Flowline Temperature (°F)	70 (21°)	74 (23)
Depth (ft) (TVD / MD)	660	805
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	8.7	8.8
Funnel Viscosity (sec/qt) API @ °F	45	44
Plastic Viscosity cp @ 68 °F	17	16
Yield Point (lb/100 ft²) 63	23	20
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 10	3 / 7
Filtrate API (cm³/30 min)	7.4	7.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1 /	1 / 1
Solids Content (% by Vol) ☑ calculated ☐ retort	3	3
Liquid Content (% by Vol) Oil/Water	197	197
Sand Content (% by Vol)	0.5	0.25
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	7.5	8.5
pH ☐ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/0.2
Chloride (mg/L)	800	800
Total Hardness as Calcium (mg/L)	80	80
PHPA ppb	1.1	1.1

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
< 9.2 ppg	35-42 sec/qt	8.00 cc

RECOMMENDED TOUR TREATMENT

- MAINTAIN VOL & PHPA CONC. WITH PREMIX
- SEVERE SHAKER LOSSES UP TO 480 m³
- PARTIALLY DUMP S/TRAP ON CONNECT.
- RUN D/SAND CONTIN. & D/SILT INTERMITT.

REMARKS

RIH & TAG CMT @ 294 m
DRILL OUT CMT FLOAT SHOE TRACK + 5 m
NEW HOLE - DISPL TO PHPA MUD WHILE
DRILLING OUT DEREUMM FIT = 22.9 ppg EQUIV.
POOH - ADD STABILISER RIH - DRILL 8½
F/ 349 m - 387 m - CLEAN SHAKERS
HEADED BY CLAY "BOULDERS"
DRILL F/ 387 m - 406 m - CLEAN SHAKERS
HEADER DRILL 406 m - 693 m WITH
SURVEYS MAX DEV 0.5°

D/SANDER 12.3 ppg U/FLOW 8.7 ppg O/FLOW 4 GPM
D/SILTER 11.1 ppg U/FLOW 8.6 ppg O/FLOW 0-8 GPM

PRODUCT INVENTORY	POLY PLUS	POLY PAC	CMC LV
STARTING INVENTORY	58	82	79
RECEIVED			
USED LAST 24 hr	9	1	3
CLOSING INVENTORY	47	81	76
COST LAST 24 hr	.25 / 1559	.74 / 131	.69 / 183
USED MUD UNIT COST	.25 / 173	.74 / 131	61.23

SOLIDS EQUIPMENT

SHAKER #1 1 x 84 / 2 x 150 mesh

SHAKER #2 1 mesh

MUD CLEANER mesh

CENTRIFUGE hours

DESANDER 14 hours

DESILTER 8 hours

M-I REPRESENTATIVE: PAUL MARSHALL | PHONE: 0932524822 | WAREHOUSE PHONE | DAILY COST: $ 1874.68 | CUMULATIVE COST: $ 5752.88

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

TIME DISTRIBUTION (hrs)	
Rig Up/Service	2.0
Drilling	14.0
Reaming/Coring	0.5
Circulating	1.0
Tripping	3.5
Survey	1.5
Logging	
Running Casing	
Testing	1.5
Fishing	
OTHER	0.0

MUD VOLUME ACCOUNTING	
Water Added (bbl)	140
Mud Built (bbl)	400
Mud Received (bbl)	
Mud Disposed (bbl)	363
DUMP	123
SURF	180
SCE	60
TOTAL MUD	482
Starting Depth	317
Ending Depth	
New Hole Vol. (bbl)	

SOLIDS ANALYSIS	
Low Gravity %	2.7
Low Gravity, ppb	24.7
Bentonite %	0.6
Bentonite, ppb	5.8
Drill Solids %	1.6
Drill Solids, ppb	14.9
Shale CEC, ppb	
D/B Ratio	1.76
High Gravity %	—
High Gravity, ppb	—

MUD RHEOLOGY and HYDRAULICS							
Zero Gel	3	Avg ROP	22	ECD @			
n Factor	0.56	% Cutting		Leak Off @			
k Factor	1.28	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics		782	84	125	2.21	317	
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		102	104	130			
Annular Velocity		37	40	41.8			
Viscosity		95	91	58.2			
Annular Pressure		4.6	2.4	7.8			

WATER BASE MUD REPORT - Day : 5

M-I Drilling Fluids Company — Date : 13/03/95 — Depth : 1047.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 830 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 211
Pits Volume : 222
Circulating Volume : 433
Mud : FW POLYMER

MUD PROPERTIES

Sample From	FL 23:00
Flow Line Temp	82 ^F
Depth/TVD -m	1047.0/1047.0
Mud Wt -lb/gal	9.0
Funnel Vis -s/qt	42 @ 77 ^F
Plastic Visc -cps	17 @ 65 ^F
YP/R3 -lb/100ft2 /deg	21 / 2
10s/10m Gel -lb/100ft2	3 / 8
API F Loss -cc/30 min	6.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	5
Oil/Water -%vol	/95
Sand -%vol	3
MBT -lb/bbl	9.0
pH	8.5 @ 60 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.2
Chlorides -mg/l	700
Hardness Ca	80
PHPA	1.3
SULPHITE	60
np Value	0.533
Kp -lb-sec^n/100ft2	1.45926
na Value	0.639
Ka -lb-sec^n/100ft2	0.75207

CIRCULATION DATA

Flow Rate -gal/min	275
DP Annular Vel -m/min	39.5
DC Annular Vel -m/min	61.9
DP Critical Vel -m/min	88.7
DC Critical Vel -m/min	116.3
Circ. Pressure -psi	1100
Bottoms Up -min	25.5
Total Circ Time -min	66.1

PRODUCTS USED LAST 24 HOURS

Polyplus Powder	25 KG S	5
Polypac R	25 KG S	1
CMC TG LV	25 KG S	5
OS-1	25 KG S	4

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	5.0 / 45
Bentonite	0.6 / 5
Drill Solids	3.9 / 35
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 3.48 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	2X50+84	22
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	14
Desilter	12 X 4"	14
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		DUMP+D/H	25
Water Added		SURFACE +SCE	70
Mud Built	186	TOTAL MUD	573
Mud Received:			
Mud Disposed:	95		

Remarks :
Drill to 856m. POOH for wiper trip. Circ out tight hole f/579-531m. Cont POOH tight. RIH & Rream to bottom18mFILL
Drill from 693m-856m. Circulate B/U and POOH for wiper trip. P/U kelly and
circulate out tight hole from 579m-531m. Continue to POOH tight from
512m-378m. RIH and ream from 531m to bottom with 18m fill. Continue to drill
from 856m-1047m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 1508 — Cumul Cost : 7081

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 6

DATE 13 MAR 19 95 | DEPTH 1047 m

SPUD DATE 9 MAR | PRESENT ACTIVITY DRILLING 8½"

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

	TYPE	JET SIZE
BIT SIZE 8½"	HTC ATJ05	3 x 11
DRILL PIPE SIZE 4½"	TYPE 16.6	LENGTH
DRILL PIPE SIZE 4½"	TYPE HWDP	LENGTH 55 m
DRILL COLLAR SIZE 6¼"		LENGTH 162 m

CASING

SURFACE 9⅝ in. @ 312 m
INTERMEDIATE in. @ ft.
INTERMEDIATE in. @ ft.
PRODUCTION OR LINER in. @ ft.

MUD VOLUME (BBL)

HOLE 213	PITS 220
TOTAL CIRCULATING VOLUME 433	
IN STORAGE 140	WEIGHT 8.5
MUD TYPE PHPA/PAC	

CIRCULATION DATA

PUMP SIZE 5½ x 6 IN. 7.75 8.5	ANNULAR VEL (ft/min) DP 40 DC 62
PUMP MAKE, MODEL NAT 7P50 8P80	ASSUMED EFF 95 %
CIRCULATION PRESSURE (psi) 1100	
bbl/stk 0.054/0.072	stk/min 121
2.53 bbl/min	275 gal/min
BOTTOMS UP (min) (strk) 33 min	
TOTAL CIRC TIME (min) (strk) 66 min	

MUD PROPERTIES

	☑ F.L. ☐ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	23 00	05.30
Flowline Temperature (°F) (°C)	82(28)	82(28)
Depth (ft) (TVD / m)	1047	1191
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.0	9.1
Funnel Viscosity (sec/qt) API @ 77 °F	42	40
Plastic Viscosity cp @ 65 °F	17	16
Yield Point (lb/100 ft²)	21	18
Gel Strength (lb/100 ft²) 10 sec/10 min	3 18	3 17
Filtrate API (cm³/30 min)	6.4	6.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1 1 -	1 1
Solids Content (% by Vol) ☑ calculated ☐ retort	5	5
Liquid Content (% by Vol) Oil/Water	- 195	195
Sand Content (% by Vol)	3	1
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	9.0	9.5
pH ☑ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/0.2
Chloride (mg/L)	700	700
Total Hardness as Calcium (mg/L)	80	80
PHPA ppb	1.3	1.3
$SO_3^=$ ppm	160	160

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
< 9.2 ppg	35-42 sec/qt	< 8.00 cc

RECOMMENDED TOUR TREATMENT

- COMMENCE RE-CYCLING SUMP WATER FOR PREMIX
- MAINTAIN VOL & PHPA CONC WITH P/MIX
- PARTIALLY DUMP SAND LADDEN S/TRAP INTERMITT.
- RUN DESANDER & DESILTER CONTIN.
- MINOR LOSSES REMARKS TO S/ST FORMATION
- DRILL F/ 693m - 856m - CIRC B/U & WIPER TRIP TO SHOE
- P/U KELLY & CIRC OUT TIGHT HOLE F/ 579m - 531m.
- CONTIN TO POOH TIGHT F/ 512 - 378m
- RIH AND REAM F/ 531m - 856m
- 18m FILL.
- CONTIN TO DRILL 8½" F/ 856m - 1047m
- LOSSE TO FM = 3 bbls/HR
- D/SAND. 14.6 ppg U/F 8.8 ppg O/F 2.86 GPM
- D/SILT 12.7 ppg U/F 8.8 ppg O/F 1.2 GPM

PRODUCT INVENTORY

	POLY PLUS	PAC R	CMC LV	OS-1
STARTING INVENTORY	49	81	76	20
RECEIVED		1		
USED LAST 24 hr	5	1	5	4
CLOSING INVENTORY	44	80	71	16
COST LAST 24 hr	.25 866	.74 131	.15 306	.80 203
USED UNIT (from IADC) COST	.25 173	.74 131	61.23	50.95

SOLIDS EQUIPMENT

SHAKER #1	1 x 84 2 x 50 mesh
SHAKER #2	mesh
MUD CLEANER	mesh
CENTRIFUGE	hours
DESANDER 14	hours
DESILTER 14	hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$1507.94	$ 7260.82

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	
Drilling	13.5
Reaming/Coring	1.5
Circulating	0.5
Tripping	7.0
Survey	1.5
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	186
Mud Received (bbl)	
Mud Disposed (bbl)	95
DUMP	25
SURF	30
SCE + D/H	40
TOTAL MUD	573.
Starting Depth	693
Ending Depth	1047.
New Hole Vol. (bbl)	80

SOLIDS ANALYSIS

Low Gravity %	5.0
Low Gravity, ppb	45.3
Bentonite %	0.5
Bentonite, ppb	5.0
Drill Solids %	4.0
Drill Solids, ppb	36.3
Shale CEC, ppb	-
D/B Ratio	3.58
High Gravity %	-
High Gravity, ppb	-

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	26.	ECD @		
n Factor	0.55	% Cutting		Leak Off @ 317m = 22.9 ppg		
k Factor	1.30	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		809	74	130	2.29	97
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	89	116		
Annular Velocity		40	37	62		
Viscosity		75	78	52		
Annular Pressure		3.2	6.3	6.8		

MI-39P

WATER BASE MUD REPORT - Day : 6

M-I Drilling Fluids Company — Date : 14/03/95 — Depth : 1382.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : DRILL 8.5"

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1165 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 283
Pits Volume : 245
Circulating Volume : 528
Mud : FW POLYMER

MUD PROPERTIES

Sample From		FL 23:00
Flow Line Temp		90 ^F
Depth/TVD	-m	1382.0/1382.0
Mud Wt	-lb/gal	9.1
Funnel Vis	-s/qt	42 @ 80 ^F
Plastic Visc	-cps	18 @ 70 ^F
YP/R3	-lb/100ft2 /deg	21 / 2
10s/10m Gel	-lb/100ft2	3 / 8
API F Loss	-cc/30 min	6.0
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	5.5
Oil/Water	-%vol	/94.5
Sand	-%vol	2
MBT	-lb/bbl	9.0
pH		8.3 @ 60 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.05/ 0.3
Chlorides	-mg/l	800
Hardness Ca		100
PHPA		1.3
SULPHITE		100
np Value		0.547
Kp	-lb-sec^n/100ft2	1.37205
na Value		0.645
Ka	-lb-sec^n/100ft2	0.74518

CIRCULATION DATA

Flow Rate	-gal/min	275
DP Annular Vel	-m/min	39.5
DC Annular Vel	-m/min	61.9
DP Critical Vel	-m/min	89.0
DC Critical Vel	-m/min	117.1
Circ. Pressure	-psi	1150
Bottoms Up	-min	34.1
Total Circ Time	-min	80.6

PRODUCTS USED LAST 24 HOURS

Polyplus Powder	25 KG S	3
OS-1	25 KG S	2
Bacban	6 LB JU	1

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	5.7 / 52
Bentonite	0.5 / 4
Drill Solids	4.7 / 43
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 4.23 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	3 X 50	24
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	18
Desilter	12 X 4"	4
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		DUMP+D/H	55
Water Added		SURFACE +SCE	40
Mud Built	100	TOTAL MUD	578
Mud Received:			
Mud Disposed:			

Remarks :
Drill from1047M-1230M.POOH for wiper trip.Work tight hole RIH & ream 1255M-1287M. 7M fill.Drill F/1287-1382M.
Drill 8.5" hoel from 1047m-1230m & survey. Maximum deviation = 1.25 deg. Drill
to 1287m and POOH for wiper trip to 576m. Work tight hole from 1095-847m,
790-770m & 713-675m. RIH and ream from 1255-1287m. 7m fill. Drill ahead to
1382m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 731 — Cumul Cost : 7812

DRILLING MUD REPORT

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

OPERATOR

DRILLING MUD REPORT NO. 6			
DATE 14 MAR 19 95	DEPTH 1382 m		
SPUD DATE 9 MAR	PRESENT ACTIVITY DRILL 8 1/2"		

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

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8 1/2	TYPE HTC ATJ05	JET SIZE 3 x 11	SURFACE 9 5/8 in. @ 312 m	HOLE 281	PITS 247	PUMP SIZE 5 1/2 x 7.75 / 6 x 8.5 IN.		ANNULAR VEL (ft/min) DP 40 DC 62
DRILL PIPE SIZE 4 1/2"	TYPE 16.6#	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 528		PUMP MAKE, MODEL NAT 7P50 8P80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 1150
DRILL PIPE SIZE 4 1/2	TYPE HWDP	LENGTH 55 m	INTERMEDIATE in. @ ft	IN STORAGE 50	WEIGHT 8.5	bbl/stk 0.054/0.072	stk/min 121	BOTTOMS UP (min) (strk) 43 min.
DRILL COLLAR SIZE 6 1/4"		LENGTH 162 m	PRODUCTION OR LINER in. @ ft	MUD TYPE PHPA/PAC		bbl/min 6.53	gal/min 275	TOTAL CIRC TIME (min) (strk) 81 min

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS / RECOMMENDED TOUR TREATMENT / REMARKS
Sample From	☑F.L. ☐ PIT	☑F.L. ☐ PIT	WEIGHT < 9.3 ppg · VISCOSITY 35-42 ppg · FILTRATE < 8.0 cc
Time Sample Taken	23:00	05:30	RECOMMENDED TOUR TREATMENT
Flowline Temperature (°F) (°C)	90 (32)	90 (32)	
Depth (ft) (TVD / ft)	1370	1440	- CONTIN TO RE-CYCLE SUMP WATER
Weight ☑(ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.1	9.2	- MAINTAIN VOL & PHPA CONC WITH P/MIX
Funnel Viscosity (sec/qt) API @ °F	42	47	- RUN D/SAND CONTIN & DUMP S/TRAP
Plastic Viscosity cp @ °F	18	20	PARTIALLY ON CONN. CELLAR JETT ACT.
Yield Point (lb/100 ft²)	21	24	- MINOR LOSSES TO FORMATION CONTIN.
Gel Strength (lb/100 ft²) 10 sec/10 min	3 / 8	3 / 10	- RAISE MUD WT TO 9.2 ppg WITH BARITE
Filtrate API (cm³/30 min)	6.0	6.0	IF NECC. BY TD. REMARKS
API HTHP Filtrate (cm³/30 min) @ °F	-	-	- PRECAUTIONARY BACTERIACIDE TREATMENT.
Cake Thickness (32nd in. API/HTHP)	1 / 1	1 / 1	- DRILL 8 1/2" F/ 1047m - 1230m - SURV = 1.25°
Solids Content (% by Vol) ☐ calculated ☐ retort	5.5	6.0	- DRILL TO 1287m CIRC B/U + POOH FOR
Liquid Content (% by Vol) Oil/Water	/94.5	/94.	WIPER TRIP. TO 576m.
Sand Content (% by Vol)	2	1+	WORK TIGHT HOLE 1095m - 847m
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	9.0	10.0	790m - 770m
pH ☐ Strip ☐ Meter @ °F	8.3	8.3	713m - 675m
Alkalinity Mud (P_m)	0.05	0.05	RIH + REAM F/ 1255m - 1287m 7m FILL
Alkalinity Filtrate (P_f/M_f)	0.05/0.3	.05/1.3	DRILL F/ 1287m - 1382m.
Chloride (mg/L)	800	800	
Total Hardness as Calcium (mg/L)	100	100	
PHPA	1.40	1.3	D/SAND 14.2 ppg U/FL 9.0 ppg O/F 1.4 GPM
$SO_3^=$	80	80	D/SILT 12.4 ppg U/FL 9.0 ppg O/F 0.8 GPM
ENV	710⁶		
			*NOTE. - STOCK CORRECTION - CUMM $ COST ADJUSTED.

PRODUCT INVENTORY	GEL	POLY PLUS	DS-1	BAC BAN III										SOLIDS EQUIPMENT
STARTING INVENTORY	205	44	16	6										SHAKER #1 3 x 50 mesh
RECEIVED	19*													SHAKER #2 " " mesh
USED LAST 24 hr		3	2	1										MUD CLEANER ___ mesh
CLOSING INVENTORY	224	41	14	5										CENTRIFUGE ___ hours
COST LAST 24 hr	.36 -179	.75 519	.90 101	.34 109										DESANDER 18 hours
USED (from IADC)		.25 173	50.45	.34 109										DESILTER 4 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 730.99	$ 7812.45

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		Water Added (bbl)		Low Gravity %	5.7	Zero Gel	2	Avg ROP	18.1	ECD @ ___	
Drilling	18.5	Mud Built (bbl)	100	Low Gravity, ppb	52.0	n Factor	0.55	% Cutting		Leak Off @ 317 = 22.9 ppg	
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.5	k Factor	1.29	psi	%	hhp	HSI / Jet Vel
Circulating	1.0	Mud Disposed (bbl)	95	Bentonite, ppb	4.1	Bit Hydraulics		818	71	131	2.31 / 97.
Tripping	4.0	DUMP	25	Drill Solids %	4.8	Annular Section		1	2	3	4 / 5
Survey	0.5	SURF + SCE	40	Drill Solids, ppb	43.9	Hole Size		8.68	8.5	8.5	
Logging		D/H	30	Shale CEC, ppb	-	Pipe OD		4.5	4.5	6.25	
Running Casing		TOTAL MUD	578	D/B Ratio	4.34	Critical Velocity		87	89	117	
Testing		Starting Depth	1047	High Gravity %	-	Annular Velocity		37	40	62	
Fishing		Ending Depth	1382	High Gravity, ppb	-	Viscosity		79	76	53	
		New Hole Vol. (bbl)	77			Annular Pressure		3.2	10.1	6.9	

MI-39P

WATER BASE MUD REPORT - Day : 7

M-I Drilling Fluids Company — Date : 15/03/95 — Depth : 1507.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : RIH

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1290 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 310
Pits Volume : 270
Circulating Volume : 580
Mud : FW POLYMER

MUD PROPERTIES

Sample From		PIT 24:00
Flow Line Temp		^F
Depth/TVD	-m	1507.0/1507.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	46 @ 60 ^F
Plastic Visc	-cps	24 @ 60 ^F
YP/R3	-lb/100ft2 /deg	24 / 3
10s/10m Gel	-lb/100ft2	4 / 10
API F Loss	-cc/30 min	5.8
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	7
Oil/Water	-%vol	/93
Sand	-%vol	0.5
MBT	-lb/bbl	10.0
pH		8.3 @ 60 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.05/ 0.2
Chlorides	-mg/l	800
Hardness Ca		100
PHPA		1.44
SULPHITE		80
np Value		0.585
Kp	-lb-sec^n/100ft2	1.33695
na Value		0.602
Ka	-lb-sec^n/100ft2	1.19890

CIRCULATION DATA

Flow Rate	-gal/min	275
DP Annular Vel	-m/min	39.5
DC Annular Vel	-m/min	61.9
DP Critical Vel	-m/min	107.6
DC Critical Vel	-m/min	137.9
Circ. Pressure	-psi	1220
Bottoms Up	-min	37.3
Total Circ Time	-min	88.6

PRODUCTS USED LAST 24 HOURS

Polyplus Powder	25 KG S	9
CMC TG LV	25 KG S	5

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 /	0
KCl	0.0 /	0
Low Gravity Solids	7.2 /	66
Bentonite	0.4 /	4
Drill Solids	6.3 /	57
Weight Material	N/A /	N/A
Chemical Conc	- /	5.0

Inert/React : 5.07 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	3 X 50	15
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	12
Desilter	12 X 4"	12
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		DUMP	18
Water Added		SURFACE +SCE	40
Mud Built	210	TOTAL MUD	730
Mud Received:			
Mud Disposed:	58		

Remarks :
Drill from 1382m-1507m. POOH for bit change. M/U new bit and RIH.
Drill 8.5" hole from 1382-1507m. Survey (1deg) and POOH for bit change. Work pipe from 1331-1082m. M/U junk sub and new bit and RIH. Precautionary ream under gauge hole from 660-683m, 756-780m & 813-875m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 1865 — Cumul Cost : 9678

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 7
DATE 15 MAR 19 95 | DEPTH 1507 m
SPUD DATE 9 MAR | PRESENT ACTIVITY RIH

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KIEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HTC ATJ05	3 x 11

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	16.6#	

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	HWDP	55 m

DRILL COLLAR SIZE	LENGTH
6 1/4	162 m

CASING

SURFACE	9 5/8 in. @ 312 ft
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS
305	275

TOTAL CIRCULATING VOLUME: 580
IN STORAGE: 150 | WEIGHT: 8.6
MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE	X	IN.	ANNULAR VEL (ft/min)
5 1/2	7.75		DP 40 DC 62
6	8.5		

PUMP MAKE, MODEL: NAT 7P 50 / 8P 80 | ASSUMED EFF: 95 %
CIRCULATION PRESSURE (psi): 1220
bbl/stk: 0.054/0.072 | stk/min: 121
BOTTOMS UP (min) (strk): 47 min.
bbl/min: 6.53 | gal/min: 275
TOTAL CIRC TIME (min) (strk): 89 min.

MUD PROPERTIES

	☐ F.L. ☑ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	24:00	05:30
Flowline Temperature (°F)	-	86 (30)
Depth (ft) (TVD / ft)	1507	1507
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ °F	46	46
Plastic Viscosity cp @ °F	24	25
Yield Point (lb/100 ft²)	24	24
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 10	4 / 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	7.0	7.0
Liquid Content (% by Vol) Oil/Water	193	193
Sand Content (% by Vol)	0.5	1.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	10.0	10.0
pH ☐ Strip ☐ Meter @ °F	8.3	8.3
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/0.2	.05/.02
Chloride (mg/L)	800	800
Total Hardness as Calcium (mg/L)	100	100
PHPA	1.44	1.5
$SO_3^=$	80	80

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
≤ 9.3 ppg	35-42 sec/qt	< 8.00

RECOMMENDED TOUR TREATMENT

- CONTIN TO PREP. PHPA/CMC LV PREMIX
- RUN D/SAND & D/SILT. CONTIN.
- MAINTAIN SYSTEM WITH PRE MIX
- PARTALLY DUMP S/TRAP REGULARLY

REMARKS

DRILL F/1382m - 1507m - SURVEY 1°
POOH FOR BIT CHANGE - WORK PIPE
F/1331m - 1082m BREAK CIRC TO WASH
STAB @ 1215m & 1082m.
M/U JUNK SUB + NEW BIT + RIH.
PRECAUTIONARY REAM F/ 660 - 668m
UNDERGAUGE HOLE: 756 - 780m
1813 - 875m
0:680 - REAMING U/GAUGE HOLE.

D/SAND 12.4ppg U/F 9.3 ppg O/F 0.8 GPM
D/SILT 12.0ppg U/F 9.2ppg O/F 0.6 GPM

PRODUCT INVENTORY

	POLY PLUS	CMC LV
STARTING INVENTORY	41	71
RECEIVED		
USED LAST 24 hr	9	5
CLOSING INVENTORY	32	66
COST LAST 24 hr	.25 1559	.15 306
USED (from IADC)	173.25	61.23

SOLIDS EQUIPMENT

SHAKER #1: 3 x 50 mesh
SHAKER #2: " 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		$1865.40	$ 9677.85

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	2.0
Drilling	13.0
Reaming/Coring	
Circulating	
Tripping	8.5
Survey	0.5
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	
Mud Built (bbl)	210
Mud Received (bbl)	
Mud Disposed (bbl)	58
DUMP	18
SURF	20
SCE	20
TOTAL MUD	730
Starting Depth	1382
Ending Depth	1507
New Hole Vol. (bbl)	29

SOLIDS ANALYSIS

Low Gravity %	7.2
Low Gravity, ppb	65.7
Bentonite %	0.4
Bentonite, ppb	3.5
Drill Solids %	6.4
Drill Solids, ppb	58.2
Shale CEC, ppb	-
D/B Ratio	5.17
High Gravity %	
High Gravity, ppb	

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	10.2	ECD @		
n Factor	0.58	% Cutting		Leak Off @ 317m = 22.9ppg		
k Factor	1.23	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		836	68	134	2.36	97.
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		905	92	123		
Annular Velocity		37	40	62		
Viscosity		86	84	61		
Annular Pressure		3.4	12.3	8.2		

MI-39P

WATER BASE MUD REPORT - Day : 8

M-I Drilling Fluids Company — Date : 16/03/95 — Depth : 1557.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : POH TO TEST

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1340 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 320
Pits Volume : 267
Circulating Volume : 587
Mud : FW POLYMER

MUD PROPERTIES		
Sample From	:	FL 20:00
Flow Line Temp	:	86 ^F
Depth/TVD -m	:	1557.0/1557.0
Mud Wt -lb/gal	:	9.3
Funnel Vis -s/qt	:	48 @ 75 ^F
Plastic Visc -cps	:	22 @ 70 ^F
YP/R3 -lb/100ft2 /deg	:	22 / 3
10s/10m Gel -lb/100ft2	:	4 / 14
API F Loss -cc/30 min	:	5.6
HTHP F Loss -cc/30 min	:	@ ^F
Cake API/HT -1/32"	:	1
Solids -%vol	:	7.0
Oil/Water -%vol	:	/93
Sand -%vol	:	1.0
MBT -lb/bbl	:	10.0
pH	:	8.6 @ 60 ^F
Alkal Mud (Pm)	:	0.2
Pf/Mf	:	0.1 / 0.3
Chlorides -mg/l	:	800
Hardness Ca	:	80
PHPA	:	1.44
SULPHITE	:	100
	:	
	:	
np Value	:	0.585
Kp -lb-sec^n/100ft2	:	1.22553
na Value	:	0.583
Ka -lb-sec^n/100ft2	:	1.23643

CIRCULATION DATA		
Flow Rate -gal/min	:	275
DP Annular Vel -m/min	:	39.5
DC Annular Vel -m/min	:	61.9
DP Critical Vel -m/min	:	103.5
DC Critical Vel -m/min	:	131.1
Circ. Pressure -psi	:	1220
Bottoms Up -min	:	38.5
Total Circ Time -min	:	89.7

PRODUCTS USED LAST 24 HOURS

Caustic Soda	25 KG S	3
Polypac R	25 KG S	1
OS-1	25 KG S	2

SOLIDS ANALYSIS		(% / lb/bbl)
NaCl	:	0.0 / 0
KCl	:	0.0 / 0
Low Gravity Solids	:	7.2 / 66
Bentonite	:	0.4 / 4
Drill Solids	:	6.3 / 57
Weight Material	:	N/A / N/A
Chemical Conc	:	- / 5.0

Inert/React : 5.07 Average SG : 2.60

SOLIDS EQUIPMENT		Size	Hours
Shaker #1	:	3 X 50	20
Shaker #2	:		
Shaker #3	:		
Shaker #4	:		
Mud Cleaner	:		
Centrifuge	:		
Desander	:	2 X 12"	15
Desilter	:	12 X 4"	12
Degasser	:		4

MUD VOLUME ACCOUNTING bbl

Oil Added	:	DUMP	:16
Water Added	:	SURFACE +SCE	:17
Mud Built	:	TOTAL MUD	:697
Mud Received:			
Mud Disposed:	33		

Remarks :
Contin RIH & ream u/gauge hole. Drill f/1507-1557m. Circ and POOH for wiper trip.RIH-hole good-5m.Fill.POH to test
Continue to RIH and ream under gauge hole. Ream from 920-971m, 1016-1061m,
1192-1248m and 1283-1507m. Circulate and pull back to 785m for wiper trip.
Work tight hole from 1340-1168m. RIH-hole good 5m. Fill. Pull back 3 stands
circulate bottoms up and RIH. Spot Hi Vis mud over 50m hole and POOH to run
test tool.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 301 — Cumul Cost : 9979

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 8

DATE 16 MAR 1995 | DEPTH 1557

SPUD DATE 9 MAR | PRESENT ACTIVITY POOH TO TEST

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE: 8 1/2	TYPE: HTC ATJ05	JET SIZE: 3x11	SURFACE: 9 5/8 in. @ 312 m	HOLE: 317	PITS: 270	PUMP SIZE: 5 1/2 X 7.75 IN.		ANNULAR VEL (ft/min): DP 40 DC 62
DRILL PIPE SIZE: 4 1/2	TYPE: 16.6 ppf	LENGTH:	INTERMEDIATE: in. @ ft.	TOTAL CIRCULATING VOLUME: 587		PUMP MAKE, MODEL: NAT 7P50	ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi): 1220
DRILL PIPE SIZE: 4 1/2	TYPE: HWDP	LENGTH: 55m	INTERMEDIATE: in. @ ft.	IN STORAGE: 110	WEIGHT: 8.6	bbl/stk: 0.054	stk/min: 121	BOTTOMS UP (min) (strk): 48 min
DRILL COLLAR SIZE: 6 1/4		LENGTH: 162m	PRODUCTION OR LINER: in. @ ft.	MUD TYPE: PHPA/PAC		bbl/min: 6.53	gal/min: 275	TOTAL CIRC TIME (min) (strk): 90 min

MUD PROPERTIES		
Sample From	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT
Time Sample Taken	20:00	05:30
Flowline Temperature (°F)	86 (30)	
Depth (ft) (TVD / ft)	1557	1557
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3+
Funnel Viscosity (sec/qt) API @ °F	48	52
Plastic Viscosity cp @ °F	22	26
Yield Point (lb/100 ft²)	22	26
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 14	6 / 14
Filtrate API (cm³/30 min)	5.6	6.0
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7	7.0
Liquid Content (% by Vol) Oil/Water	1 / 93	1 / 93
Sand Content (% by Vol)	1	0.5
Methylene Blue Capacity ☑ lb/bbl equiv ☐ cm³/cm³ mud	10.0	10.0
pH ☐ Strip ☐ Meter @ °F	8.6	8.5
Alkalinity Mud (P_m)	0.15	0.10
Alkalinity Filtrate (P_f/M_f)	.1 / 0.3	.1 / 0.3
Chloride (mg/L)	800	800
Total Hardness as Calcium (mg/L)	80	80
PHPA	1.44	1.44
$SO_3^=$	100	100
ENV LC50	710⁶	

MUD PROPERTY SPECIFICATIONS		
WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- RAISE pH WITH CAUSTIC
- MAINTAIN SYSTEM WITH PREMIX
- PREPARE HIVIS PACR PILL TO SPOT ON BOTTOM

REMARKS

CONTIN RIH + REAM U/GAUGE HOLE
REAM 920-971, 1016-1067m 1192-1248 1283-1507m
DRILL 1507m - 1557m
CIRC + PULL BACK TO 785m FOR WIPER
WORK TIGHT HOLE 1340-1168m
RIH - HOLE GOOD 5m FILL
PULL BACK 3 STDS, BREAK CIRC - CLEAN UP HOLE & RIH - SPOT HIVIS PILL OVER 50m & POOH TO TEST

D/SAND 14.4 ppg U/F 9.3 ppg O/F 0.25 GPM
D/SILT 12.6 ppg U/F 9.2 ppg O/F 0.5 GPM

PRODUCT INVENTORY	POLY PLUS	PAC R	CAUSTIC SODA	OS-1
STARTING INVENTORY	32	80	51	14
RECEIVED				
USED LAST 24 hr		1	3	2
CLOSING INVENTORY	32	79	48	12
COST LAST 24 hr		131.74	67.05	187.85
USED (from IADC)		131.74	22.35	50.95

SOLIDS EQUIPMENT

SHAKER #1: 3 x 50 mesh
SHAKER #2: / mesh
MUD CLEANER: mesh
CENTRIFUGE: hours
DESANDER: 15 hours
DESILTER: 12 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 300.69	$ 9978.54

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

TIME DISTRIBUTION (hrs)	
Rig Up/Service	0.5
Drilling	4.0
Reaming/Coring	9.0
Circulating	2.5
Tripping	8.0
Survey	
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING		
Water Added (bbl)		
Mud Built (bbl)		
Mud Received (bbl)		
Mud Disposed (bbl)	33	
DUMP	16	
SURF	5	
SCE	12	
TOTAL MUD	697	
Starting Depth	1507	
Ending Depth	1557	
New Hole Vol. (bbl)	11	

SOLIDS ANALYSIS	
Low Gravity %	7.2
Low Gravity, ppb	65.7
Bentonite %	0.4
Bentonite, ppb	3.5
Drill Solids %	6.4
Drill Solids, ppb	58.2
Shale CEC, ppb	-
D/B Ratio	5.17
High Gravity %	-
High Gravity, ppb	-

MUD RHEOLOGY and HYDRAULICS						
Zero Gel	3	Avg ROP	12.5	ECD @		
n Factor	0.58	% Cutting		Leak Off @ 317m = 22.9 ppg		
k Factor	1.23	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		836	68	134	2.36	96
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		104	105	134		
Annular Velocity		37	40	62		
Viscosity		103	99	65		
Annular Pressure		4.2	15.6	9.1		

MI-39P

WATER BASE MUD REPORT - Day : 9

M-I Drilling Fluids Company — Date : 17/03/95 — Depth : 1557.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : CIRCULATE

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Report For: KEN SMITH

Contractor : CENTURY DRILLING 11
Field/Area : PPL 1

Description : EXPLORATION
Location : OTWAY BASIN

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1340 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD :	9.625 in	Liner OD :	in
Casing ID :	8.680 in	Liner ID :	in
Casing TD :	312.0 m	Liner TD :	m
Casing TVD :	312.0 m	Liner TVD :	m

MUD VOLUME (bbl)

Hole Volume : 320
Pits Volume : 189
Circulating Volume : 509
Mud : FW POLYMER

MUD PROPERTIES

Sample From	: FL 24:00
Flow Line Temp	: 87 ^F
Depth/TVD -m	:1557.0/1557.0
Mud Wt -lb/gal	: 9.3
Funnel Vis -s/qt	: 44 @ 85 ^F
Plastic Visc -cps	: 18 @ 75 ^F
YP/R3 -lb/100ft2 /deg	: 19 / 2
10s/10m Gel -lb/100ft2	: 3 / 10
API F Loss -cc/30 min	: 6.4
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.75
MBT -lb/bbl	: 12.5
pH	: 8.3 @ 60 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.35
Chlorides -mg/l	: 750
Hardness Ca	: 80
PHPA	: 1.3
SULPHITE	: 60
	:
	:
np Value	: 0.572
Kp -lb-sec^n/100ft2	: 1.11793
na Value	: 0.634
Ka -lb-sec^n/100ft2	: 0.75921

CIRCULATION DATA

Flow Rate	-gal/min :	275
DP Annular Vel	-m/min :	39.5
DC Annular Vel	-m/min :	61.9
DP Critical Vel	-m/min :	85.6
DC Critical Vel	-m/min :	111.8
Circ. Pressure	-psi :	1200
Bottoms Up	-min :	38.5
Total Circ Time	-min :	77.7

PRODUCTS USED LAST 24 HOURS

Polypac R	25 KG S	1
OS-1	25 KG S	1
M-I Bar	25 KG S	208

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 7.2 / 66
Bentonite	: 0.7 / 6
Drill Solids	: 6.0 / 54
Weight Material	: N/A / N/A
Chemical Conc	: - / 5.0

Inert/React : 3.86 Average SG : 2.60

SOLIDS EQUIPMENT

		Size	Hours
Shaker #1	:	3 X 50	10
Shaker #2	:		
Shaker #3	:		
Shaker #4	:		
Mud Cleaner	:		
Centrifuge	:		
Desander	:	2 X 12"	
Desilter	:	12 X 4"	
Degasser	:		

MUD VOLUME ACCOUNTING bbl

Oil Added	:	DUMP	:60
Water Added	:110	SURFACE +SCE	:31
Mud Built	:	TOTAL MUD	:716

Mud Received:
Mud Disposed:91

Remarks :
Cont POOH. M/U and RIH w/ test tool. DST #1.POH & lay out T/T-tool blocked.RIH & circ and dilute.Pump Hi Vis & POOH
Continue POOH. Make-up and RIH with test tool. DST #1 ? failure. POOH and lay
out test tool-tool blocked. Make-up BHA and RIH-wash from 1533m to bottom-3m.
fill. Circulate on bottom, pull 3 stands and continue to circulate and dilute
mud. Maintain mud weight = 9.3 ppg with Barite. Run to bottom-no fill,pumpP
Hi Vis pill and circulate out - no increase cuttings over shaker.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 1333 — Cumul Cost : 11311

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 9

DATE 17 MAR 19 95 | DEPTH 1557 m

SPUD DATE 9 MAR | PRESENT ACTIVITY CIRC

OPERATOR: GFE RESOURCES.	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR # 1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN; STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE / TYPE / JET SIZE			SURFACE	HOLE	PITS	PUMP SIZE X IN.		ANNULAR VEL (ft/min)
8 1/2	HTC ATJ05	3 x 11	9 5/8 in. @ 312 m	317	192	5 1/2	7.75	DP 40 DC 62
DRILL PIPE SIZE / TYPE / LENGTH			INTERMEDIATE	TOTAL CIRCULATING VOLUME		PUMP MAKE, MODEL	ASSUMED EFF	CIRCULATION PRESSURE (psi)
4 1/2	16-6		in. @ ft	509		NAT 7P50	95 %	1200
DRILL PIPE SIZE / TYPE / LENGTH			INTERMEDIATE	IN STORAGE	WEIGHT	bbl/stk	stk/min	BOTTOMS UP (min) (strk)
4 1/2	HWDP	55m	in. @ ft	207	9.3	0.054	121	48 min
DRILL COLLAR SIZE / LENGTH			PRODUCTION OR LINER	MUD TYPE		6.53 bbl/min	275 gal/min	TOTAL CIRC TIME (min) (strk) 90 min
6 1/4"		162 m	in. @ ft	PHPA/PAC				

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
			WEIGHT	VISCOSITY	FILTRATE
Sample From	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT	9.3 ppg	35-42 sec/qt	5-7 cc
Time Sample Taken	24:00	05:30			
Flowline Temperature (°F)	87 (30.5)	-			
Depth (ft) (TVD / MD)	1557	1557			
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3+			
Funnel Viscosity (sec/qt) API @ 85 °F	44	46			
Plastic Viscosity cp @ 75 °F	18	19			
Yield Point (lb/100 ft²)	19	20			
Gel Strength (lb/100 ft²) 10 sec/10 min	3 / 10	3 / 10			
Filtrate API (cm³/30 min)	6.4	6.2			
API HTHP Filtrate (cm³/30 min) @ °F	-	-			
Cake Thickness (32nd in. API/HTHP)	1	1			
Solids Content (% by Vol) ☑ calculated ☐ retort	7.0	7.0			
Liquid Content (% by Vol) Oil/Water	193	193			
Sand Content (% by Vol)	0.75	0.5			
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	12.5			
pH ☐ Strip ☐ Meter @ °F	8.3	8.3			
Alkalinity Mud (P_m)	0.05	0.05			
Alkalinity Filtrate (P_f/M_f)	.05/1.35	.05/1.35			
Chloride (mg/L)	750	750			
Total Hardness as Calcium (mg/L)	80	80			
PHPA	1.3	1.3			
$SO_3^=$	60	60			

RECOMMENDED TOUR TREATMENT

- CIRC AND DILUTE SYSTEM WITH D/W WHILE MAINTAINING WT = 9.3 ppg WITH BARITE
- PREPARE HIVIS PAC PILL WITH WHICH TO SWEEP HOLE PRIOR TO WIPER TRIP.
- REDUCE SURFACE ACTIVE VOL.

REMARKS

- CONTIN TO POOH. M/U AND RIH WITH TEST TOOL.
- DST #1 - ? FAILURE
- POOH & LAY OUT TEST TOOL - TOOL BLOCKED
- M/U BHA + RIH - WASH F/1533 - 1557m - 3m FILL.
- CIRC ON BOTTOM, PULL 3 STDS + CONTIN TO CIRC + DILUTE MUD. MAINTAIN WT = 9.3 WITH BARITE.
- RUN TO BOTTOM (NO FILL) PUMP HIVIS PAC PILL + CIRC OUT - NO INCR. IN CUTTINGS.

PRODUCT INVENTORY	BARITE	OS-1	PAC-R
STARTING INVENTORY	907	12	79
RECEIVED			
USED LAST 24 hr	208	1	1
CLOSING INVENTORY	699	11	78
COST LAST 24 hr	1150.24	50.95	131.74
USED (from IADC)	5.53	50.95	131.74

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		$ 1332.93	$ 11311.47

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)	110	Low Gravity %	7.2
Drilling		Mud Built (bbl)		Low Gravity, ppb	65.7
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.7
Circulating	2.5	Mud Disposed (bbl)	91	Bentonite, ppb	6.3
Tripping	13.0	DUMP	60	Drill Solids %	6.1
Survey		SURFACE	31	Drill Solids, ppb	55.4
Logging				Shale CEC, ppb	-
Running Casing		TOTAL MUD	716	D/B Ratio	3.94
Testing DST	4.0	Starting Depth		High Gravity %	-
Fishing		Ending Depth		High Gravity, ppb	-
		New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS							
Zero Gel	2	Avg ROP		ECD @			
n Factor	0.63	% Cutting		Leak Off @ 317m = 22.9 ppg			
k Factor	0.75	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics		836	68	134	2.36	96	
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		84	86	162			
Annular Velocity		37	40	62			
Viscosity		77	74	51			
Annular Pressure		3.1	11.8	7.2			

MI 30B

WATER BASE MUD REPORT - Day : 10

M-I Drilling Fluids Company — Date : 18/03/95 — Depth : 1557.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : M/U BHA

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Report For: KEN SMITH

Contractor : CENTURY DRILLING 11
Field/Area : PPL 1

Description : EXPLORATION
Location : OTWAY BASIN

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1340 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 320
Pits Volume : 182
Circulating Volume : 502
Mud : FW POLYMER

MUD PROPERTIES

Sample From	: FL 23:30
Flow Line Temp	: ^F
Depth/TVD -m	:1557.0/1557.0
Mud Wt -lb/gal	: 9.3
Funnel Vis -s/qt	: 46 @ 60 ^F
Plastic Visc -cps	: 18 @ 57 ^F
YP/R3 -lb/100ft2 /deg	: 21 / 2
10s/10m Gel -lb/100ft2	: 4 / 10
API F Loss -cc/30 min	: 6.0
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.5
MBT -lb/bbl	: 12.0
pH	: 8.3 @ 55 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.35
Chlorides -mg/l	: 800
Hardness Ca	: 80
PHPA	: 1.3
SULPHITE	: 50
	:
	:
np Value	: 0.547
Kp -lb-sec^n/100ft2	: 1.37205
na Value	: 0.645
Ka -lb-sec^n/100ft2	: 0.74518

CIRCULATION DATA

Flow Rate	-gal/min :	
DP Annular Vel	-m/min :	
DC Annular Vel	-m/min :	
DP Critical Vel	-m/min :	87.6
DC Critical Vel	-m/min :	115.2
Circ. Pressure	-psi :	
Bottoms Up	-min :	
Total Circ Time	-min :	

PRODUCTS USED LAST 24 HOURS

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 7.2 / 66
Bentonite	: 0.7 / 6
Drill Solids	: 6.0 / 55
Weight Material	: N/A / N/A
Chemical Conc	: - / 5.0

Inert/React : 4.06 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1 :	3 X 50	10
Shaker #2 :		
Shaker #3 :		
Shaker #4 :		
Mud Cleaner :		
Centrifuge :		
Desander :	2 X 12"	
Desilter :	12 X 4"	
Degasser :		

MUD VOLUME ACCOUNTING bbl

Oil Added :	D/H	:12
Water Added :	SURFACE	:17
Mud Built :	TOTAL MUD	:687
Mud Received:		
Mud Disposed:29		

Remarks :
Wiper trip.POOH.RIH for DST #2. Perform DST #2. Pull free hole good. Recover sample. Test BOPs. Prepare to RIH. Perform wiper trip. POOH for DST. Conduct DST #2. Build to 9 psi. Close tool for 1 hr. Flow well. Pull free-hole good. Recover sample and lay out test tool. Test BOPs. Prepare to make up BHA and RIH.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 0 — Cumul Cost : 11311

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 10
DATE 18 MAR 19 95 | DEPTH 1557m
SPUD DATE 9 MAR | PRESENT ACTIVITY M/U BHA/TEST BOP

OPERATOR: GFE	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HTC ATJ05	3x11

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	16.6	
4 1/2	HWDP	55m

DRILL COLLAR SIZE	LENGTH
6 1/4	162m

CASING

SURFACE	9 5/8 in. @ 312 m
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS
362	140

TOTAL CIRCULATING VOLUME: 502

IN STORAGE	WEIGHT
185	9.3

MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE	X	IN.
5 1/2		7.75

PUMP MAKE, MODEL	ASSUMED EFF	%
NAT 7P50	95	

bbl/stk	stk/min
0.054	121

6.53 bbl/min | 275 gal/min

ANNULAR VEL (ft/min): DP _____ DC _____
CIRCULATION PRESSURE (psi): 1150
BOTTOMS UP (min) (strk):
TOTAL CIRC TIME (min) (strk):

MUD PROPERTIES

	☐ F.L. ☑ PIT	☑ F.L. ☐ PIT
Sample From		
Time Sample Taken	23:30	05:30
Flowline Temperature (°F)	-	
Depth (ft) (TVD / M)	1557	1557
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3+	9.3
Funnel Viscosity (sec/qt) API @ °F	48	43
Plastic Viscosity cp @ °F	18	19
Yield Point (lb/100 ft²)	21	17
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 10	3 / 8
Filtrate API (cm³/30 min)	6.0	5.8
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7	7
Liquid Content (% by Vol) Oil/Water	193	193
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.0	12.0
pH ☐ Strip ☐ Meter @ °F	8.3	8.3
Alkalinity Mud (P_m)	0.05	.05
Alkalinity Filtrate (P_f/M_f)	.05/0.35	.05/0.35
Chloride (mg/L)	800	800
Total Hardness as Calcium (mg/L)	80	80
PHPA	1.3	1.3
$SO_3^=$	50	40

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- NO TREATMENT TO SYSTEM
- MAINTAIN WT = 9.3 ppg
- TREAT SYSTEM WITH OS-1 & RAISE pH

REMARKS

- PERFORM WIPER TRIP
- POOH FOR DST #2. LAY OUT BHA & M/U TEST TOOL.
- RIH FOR DST #2.
- DST - OPEN - 9psi. CLOSE FOR 1 HR
- GAS FLOWED.
- PULL FREE - HOLE GOOD
- RECOVER SAMPLE & LAY OUT T/TOOL
- M/U CUP TESTER - TEST BOPs
- PREP TO M/U BHA & RIH.

PRODUCT INVENTORY																	
STARTING INVENTORY																	
RECEIVED		1															
USED LAST 24 hr																	
CLOSING INVENTORY																	
COST LAST 24 hr																	
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		$ 0.00	$ 11311.47

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	4.0
Drilling	
Reaming/Coring	
Circulating	
Tripping	19.5
Survey	
Logging	
Running Casing	
Testing DST	6.5
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)		
Mud Built (bbl)		
Mud Received (bbl)		
Mud Disposed (bbl)	29	
SURFACE	17	
D/H	12	
TOTAL	58	7
Starting Depth		
Ending Depth		
New Hole Vol. (bbl)		

SOLIDS ANALYSIS

Low Gravity %	7.2
Low Gravity, ppb	65.7
Bentonite %	0.7
Bentonite, ppb	6.3
Drill Solids %	6.1
Drill Solids, ppb	55.4
Shale CEC, ppb	-
D/B Ratio	3.94
High Gravity %	-
High Gravity, ppb	-

MUD RHEOLOGY and HYDRAULICS

Zero Gel 2 | n Factor 0.63 | k Factor 0.75 | Avg ROP | % Cutting | ECD @ _____ | Leak Off @ 317 = 22.9 MPa

	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	836	68	134	2.36	96
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	84	86	112		
Annular Velocity	37	40	62		
Viscosity	77	74	51		
Annular Pressure	3.1	11.8	7.2		

MI-39P

WATER BASE MUD REPORT - Day : 11

M-I Drilling Fluids Company — Date : 19/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : W/TRIP

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 363
Pits Volume : 263
Circulating Volume : 626
Mud : FW POLYMER

MUD PROPERTIES		
Sample From		FL 22:00
Flow Line Temp		88 ^F
Depth/TVD	-m	1758.0/1758.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	40 @ 85 ^F
Plastic Visc	-cps	17 @ 76 ^F
YP/R3	-lb/100ft2 /deg	15 / 3
10s/10m Gel	-lb/100ft2	4 / 10
API F Loss	-cc/30 min	7.0
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	6.5
Oil/Water	-%vol	/93.5
Sand	-%vol	0.5
MBT	-lb/bbl	10.5
pH		8.6 @ 55 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.1 / 0.5
Chlorides	-mg/l	750
Hardness Ca		60
PHPA		1.2
SULPHITE		120
np Value		0.614
Kp	-lb-sec^n/100ft2	0.74047
na Value		0.514
Ka	-lb-sec^n/100ft2	1.38406

CIRCULATION DATA		
Flow Rate	-gal/min	275
DP Annular Vel	-m/min	39.5
DC Annular Vel	-m/min	61.9
DP Critical Vel	-m/min	90.2
DC Critical Vel	-m/min	110.1
Circ. Pressure	-psi	1220
Bottoms Up	-min	43.5
Total Circ Time	-min	95.6

PRODUCTS USED LAST 24 HOURS

Caustic Soda	25 KG S	4
OS-1	25 KG S	3
M-I Bar	25 KG S	99

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	7.2 / 66
Bentonite	0.5 / 4
Drill Solids	6.2 / 57
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 4.79 Average SG : 2.60

SOLIDS EQUIPMENT	Size	Hours
Shaker #1	3 X 50	20
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	12
Desilter	12 X 4"	12
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		DUMP	60
Water Added	110	SURFACE+SCE	71
Mud Built		TOTAL MUD	666
Mud Received:			
Mud Disposed:	131		

Remarks :
RIH W/ BHA.Break circ.@1533m and wash and ream to bottom- 1.5m fill. Drill f/1557-1758m. POOH for wiper trip.
RIH with BHA, break circulation at 1533m and wash and ream to bottom-1.5m.
Fill drill 8.5" hole from 1557-1758m. Survey -1.5 deg. Circulate bottoms up
and POOH for wiper trip.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 790 — Cumul Cost : 12101

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 11
DATE 19 MAR 19 95 | DEPTH 1758 TD
SPUD DATE 9 MAR | PRESENT ACTIVITY WIPER TRIP.

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH.	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HTC ATJ05	3 x 11

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	16.6	
4 1/2	HWDP	55m

DRILL COLLAR SIZE	LENGTH
8 1/4	162m

CASING

SURFACE	INTERMEDIATE	PRODUCTION OR LINER
9 5/8 in. @ 312 ft	in. @ ft	in. @ ft

MUD VOLUME (BBL)

HOLE	PITS
358	268

TOTAL CIRCULATING VOLUME: 626
IN STORAGE | WEIGHT
MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE	PUMP MAKE, MODEL	ASSUMED EFF
6 x 8.5 IN / 5 1/2 x 7.75	NAT 7P 50	95 %

ANNULAR VEL (ft/min): DP 40 DC 62
CIRCULATION PRESSURE (psi): 1220
bbl/stk: 0.054/0.072 | stk/min: 93
BOTTOMS UP (min) (strk): 55 min.
bbl/min: 6.55 | gal/min: 275
TOTAL CIRC TIME (min) (strk): 96 min.

MUD PROPERTIES

	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT
Sample From		
Time Sample Taken	22:00	05:30
Flowline Temperature (°F) (°C)	88 (31)	
Depth (ft) (TVD / MD)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ 86 °F	40	42
Plastic Viscosity cp @ 68 °F	17	16
Yield Point (lb/100 ft²)	15	14
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 10	31
Filtrate API (cm³/30 min)	7.0	6.8
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	6.5	6.5
Liquid Content (% by Vol) Oil/Water	93.5	93.5
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	10.5	10.5
pH ☑ Strip ☐ Meter @ °F	8.6	8.6
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	0.1 / 0.5	0.1 / 0.5
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	60
PHPA	1.2	1.2
50 #	120	120

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-40 sec/qt	5-7 cc.

RECOMMENDED TOUR TREATMENT

- REDUCE DRILL SOLIDS BY O/W DILUTION WHILE MAINTAING WT = 9.3 WITH BARITE
- SYSTEM TREATED WITH CAUSTIC & OS-1.
- RUN SOLIDS CONTROL EQUIP CONTIN.

REMARKS

- RIH WITH BHA - BREAK CIRC. @ 1533m
- WASH & REAM TO BOTTOM 1.5m FILL.
- DRILL 8½" IF/1557m - 1758m.
- CIRC. B/U AND POOH FOR WIPER TRIP.

D/SAND. 12.7 ppg U/E 9.3 ppg O/F 0.4 GPM
D/SILT. 12.0 ppg U/E 9.2 ppg O/F 2.0 GPM.

PRODUCT INVENTORY

PRODUCT	BARITE	CAUSTIC SODA	OS-1
STARTING INVENTORY	699	48	11
RECEIVED		1	
USED LAST 24 hr	99	4	3
CLOSING INVENTORY	600	44	8
COST LAST 24 hr	.47 547	89.40	.85 152
USED (from IADC)	5.53	22.35	50.95

SOLIDS EQUIPMENT

SHAKER #1 3 x 50 mesh
SHAKER #2 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		$ 790.72	$ 12102.19

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	1.5
Drilling	15.0
Reaming/Coring	
Circulating	1.0
Tripping	6.0
Survey	0.5
Logging	
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	140
Mud Built (bbl)	
Mud Received (bbl)	
Mud Disposed (bbl)	101
SCE	41
SURF	20
DUMP	40
TOTAL MUD	626
Starting Depth	1557
Ending Depth	1758
New Hole Vol. (bbl)	46

SOLIDS ANALYSIS

Low Gravity %	6.3
Low Gravity, ppb	57.5
Bentonite %	0.8
Bentonite, ppb	7.4
Drill Solids %	5.1
Drill Solids, ppb	46.1
Shale CEC, ppb	-
D/B Ratio	3.28
High Gravity %	0.5
High Gravity, ppb	6.7

MUD RHEOLOGY and HYDRAULICS

Zero Gel 3 | Avg ROP 13.4 | ECD @
n Factor 0.514 | % Cutting | Leak Off @ 317 = 22.9 ppg.
k Factor 1.38

	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	836	68	134	2.36	97
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	89	90	110		
Annular Velocity	37	40	62		
Viscosity	84	80	49		
Annular Pressure	3.5	15.6	7.1		

MI-39P

WATER BASE MUD REPORT - Day : 12

M-I Drilling Fluids Company — Date : 20/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : LOGGING

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/11/11/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 363
Pits Volume : 242
Circulating Volume : 605
Mud : FW POLYMER

MUD PROPERTIES

Sample From	:	PIT 23:00
Flow Line Temp	:	^F
Depth/TVD -m	:	1758.0/1758.0
Mud Wt -lb/gal	:	9.3
Funnel Vis -s/qt	:	40 @ 70 ^F
Plastic Visc -cps	:	16 @ 65 ^F
YP/R3 -lb/100ft2 /deg	:	12 / 2
10s/10m Gel -lb/100ft2	:	3 / 13
API F Loss -cc/30 min	:	6.4
HTHP F Loss -cc/30 min	:	@ ^F
Cake API/HT -1/32"	:	1
Solids -%vol	:	6.5
Oil/Water -%vol	:	/93.5
Sand -%vol	:	0.75
MBT -lb/bbl	:	11.0
pH	:	8.5 @ 55 ^F
Alkal Mud (Pm)	:	0.1
Pf/Mf	:	0.1 / 0.45
Chlorides -mg/l	:	7500
Hardness Ca	:	60
PHPA	:	1.2
SULPHITE	:	100
	:	
	:	
np Value	:	0.652
Kp -lb-sec^n/100ft2	:	0.51331
na Value	:	0.573
Ka -lb-sec^n/100ft2	:	0.83798

CIRCULATION DATA

Flow Rate -gal/min	:	
DP Annular Vel -m/min	:	
DC Annular Vel -m/min	:	
DP Critical Vel -m/min	:	76.3
DC Critical Vel -m/min	:	96.1
Circ. Pressure -psi	:	
Bottoms Up -min	:	
Total Circ Time -min	:	

PRODUCTS USED LAST 24 HOURS

M-I Bar	25 KG S	40

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	:	0.3 / 4
KCl	:	0.0 / 0
Low Gravity Solids	:	6.8 / 62
Bentonite	:	0.6 / 5
Drill Solids	:	5.6 / 51
Weight Material	:	N/A / N/A
Chemical Conc	:	- / 5.0

Inert/React : 4.14 Average SG : 2.60

SOLIDS EQUIPMENT

		Size	Hours
Shaker #1	:	3 X 50	5
Shaker #2	:		
Shaker #3	:		
Shaker #4	:		
Mud Cleaner	:		
Centrifuge	:		
Desander	:	2 X 12"	
Desilter	:	12 X 4"	
Degasser	:		

MUD VOLUME ACCOUNTING bbl

Oil Added	:	DUMP	:31
Water Added	:	D/HOLE	:30
Mud Built	:	TOTAL MUD	:605
Mud Received:			
Mud Disposed:61			

Remarks :
RIH for wiper trip.Ream tight hole f/1533-1648m. 7m fill circulate hole clean and POOH.Hole good.Rig up and log.
RIH for wiper trip. Ream tight hole f/1533-1648m 7m fill. Circulate hole
clean and POOH. Hole good. Rig up and log. Run log #1, 2 & 3.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 221 — Cumul Cost : 12322

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 12

DATE 20 MAR 19 95 | DEPTH 1758m - TD

SPUD DATE 9 MAR | PRESENT ACTIVITY LOGGING

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE.
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN.
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HTC ATJ05	3 x 11

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2		

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2	HWDP	55m

DRILL COLLAR SIZE	LENGTH
6 1/4	162 m

CASING

SURFACE	INTERMEDIATE	INTERMEDIATE	PRODUCTION OR LINER
9 5/8 in. @ 312 m	in. @ ft.	in. @ ft.	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS
408	197

TOTAL CIRCULATING VOLUME: 605

IN STORAGE | WEIGHT

MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE	X	IN.	ANNULAR VEL (ft/min)
6 5 1/2		8 1/2 7 3/4	DP 36 DC 56

PUMP MAKE, MODEL	ASSUMED EFF	CIRCULATION PRESSURE (psi)
NAT 7P50 8P80	95 %	1000

bbl/stk	stk/min	BOTTOMS UP (min) (strk)
0.054/0.072	83	68 min

bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)
6.0	250	101 min

MUD PROPERTIES

	☐ F.L. ☑ PIT	☐ F.L. ☑ PIT
Sample From		
Time Sample Taken	22:30	05:30
Flowline Temperature (°F)		
Depth (ft) (TVD / MD)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3
Funnel Viscosity (sec/qt) API @ 70 °F	40	42
Plastic Viscosity cp @ 63 °F	16	20
Yield Point (lb/100 ft²)	12	12
Gel Strength (lb/100 ft²) 10 sec/10 min	3 | 12	3 | 13
Filtrate API (cm³/30 min)	6.6	6.4
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	6.5	6.5
Liquid Content (% by Vol) Oil/Water	93.5	93.5
Sand Content (% by Vol)	0.75	0.75
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	11.0	11.0
pH ☑ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.1	0.1
Alkalinity Filtrate (P_f/M_f)	0.1 | 0.45	0.1 | 0.45
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	60
PHPA	1.2	1.2
$SO_3^=$	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- NO TREATMENT
- MIX SLUG
- LOOSING APPROX 2 bbl/HR D/HOLE WHILE LOGGING

REMARKS

RIH - REAM 1533m - 1648m. 7m FILL
CIRC HOLE CLEAN, SURVEY, PUMP SLUG & POOH - HOLE GOOD.
RIG UP AND LOG.
RUN LOG #1, 2 & 3.

PRODUCT INVENTORY	BARITE																
STARTING INVENTORY	600																
RECEIVED																	
USED LAST 24 hr	40																
CLOSING INVENTORY	560																
COST LAST 24 hr	221.20																
USED (from IADC)	5.53																

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		$ 221.20	$ 12323.39

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	0.5
Drilling	
Reaming/Coring	2.0
Circulating	1.5
Tripping	3.0
Survey	0.5
Logging	16.5
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)		
Mud Built (bbl)		
Mud Received (bbl)		
Mud Disposed (bbl)	D/HOLE	61
	DUMP	30
		31
	TOTAL MUD	605
Starting Depth		
Ending Depth		
New Hole Vol. (bbl)		

SOLIDS ANALYSIS

Low Gravity %	6.3
Low Gravity, ppb	57.5
Bentonite %	0.8
Bentonite, ppb	7.4
Drill Solids %	5.1
Drill Solids, ppb	46.1
Shale CEC, ppb	-
D/B Ratio	3.28
High Gravity %	0.5
High Gravity, ppb	6.7

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	-	ECD @		
n Factor	0.57	% Cutting	-	Leak Off @	317	22.9
k Factor	0.84	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics		691	69	101	1.78	88
Annular Section		1	2	3	4	5
Hole Size		8.68	8.5	8.5	P	
Pipe OD		4.5	4.5	6.25		
Critical Velocity		75	76	96		
Annular Velocity		34	36	56		
Viscosity		68	65	42		
Annular Pressure		2.6	11.4	5.5		

MI-39P

WATER BASE MUD REPORT - Day : 13

M-I Drilling Fluids Company — - - — Date : 21/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : LOGGING

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/17/18/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 363
Pits Volume : 208
Circulating Volume : 571
Mud : FW POLYMER

MUD PROPERTIES

Sample From		PIT 24:00
Flow Line Temp		^F
Depth/TVD	-m	1758.0/1758.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	40 @ 70 ^F
Plastic Visc	-cps	16 @ 65 ^F
YP/R3	-lb/100ft2 /deg	15 / 3
10s/10m Gel	-lb/100ft2	4 / 12
API F Loss	-cc/30 min	6.2
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	6.5
Oil/Water	-%vol	/93.5
Sand	-%vol	0.5
MBT	-lb/bbl	11.0
pH		8.6 @ 55 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.1 / 0.45
Chlorides	-mg/l	750
Hardness Ca		60
PHPA		1.2
SULPHITE		100
np Value		0.600
Kp	-lb-sec^n/100ft2	0.78428
na Value		0.507
Ka	-lb-sec^n/100ft2	1.39972

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	89.0
DC Critical Vel	-m/min	108.3
Circ. Pressure	-psi	800
Bottoms Up	-min	39.9
Total Circ Time	-min	79.9

PRODUCTS USED LAST 24 HOURS

M-I Gel	25	KG S	9
Caustic Soda	25	KG S	2
Polypac R	25	KG S	2
M-I Bar	25	KG S	40
Soda Ash	40	KG S	1

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0	0
KCl	0.0	0
Low Gravity Solids	7.2	66
Bentonite	0.5	5
Drill Solids	6.1	56
Weight Material	N/A	N/A
Chemical Conc	-	5.0

Inert/React : 4.52 Average SG : 2.60

SOLIDS EQUIPMENT

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

MUD VOLUME ACCOUNTING bbl

Oil Added		SURFACE	10
Water Added		D/HOLE	99
Mud Built	75	TOTAL MUD	571
Mud Received:			
Mud Disposed:	109		

Remarks :
Cont log run #3. RIH to 1741m. Wash to bottom-4m fill. Circ hole clean and POOH. Rig up and run logs #4 & 5.
Continue to run log #3. Rig down and RIH to 1741m. Wash to bottom-4m fill.
Circulate hole clean-increased hole losses. POOH and rig up to run log #4
RFT/GR and log #5-VEL.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 629 — Cumul Cost : 12951

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 13
DATE 21 MAR 19 95 | DEPTH 1758 m
SPUD DATE 9 MAR | PRESENT ACTIVITY LOGGING.

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH.	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE.
WELL NAME AND NO.: DUNBAR # 1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE	DRILL PIPE SIZE	TYPE	LENGTH	DRILL PIPE SIZE	TYPE	LENGTH	DRILL COLLAR SIZE	LENGTH
8 1/2	ATJ 05	1x11, 1x18 1x17	4 1/2			4 1/2	HWDP	55 m	6 1/4"	162 m

CASING

SURFACE	INTERMEDIATE	INTERMEDIATE	PRODUCTION OR LINER
9 5/8 in. @ 312 m	in. @ ft.	in. @ ft.	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS	TOTAL CIRCULATING VOLUME	IN STORAGE	WEIGHT	MUD TYPE
408	163	571			PHPA/PAC

CIRCULATION DATA

PUMP SIZE	PUMP MAKE, MODEL	ASSUMED EFF	ANNULAR VEL (ft/min)	CIRCULATION PRESSURE (psi)	BOTTOMS UP (min) (strk)	TOTAL CIRC TIME (min) (strk)
6 x 8 1/2 IN. 5 1/2 7 3/4	NAT 7P50 8P80	95 %	DP 43 DC 68	800	57 min.	80 min.

bbl/stk: 0.054/0.072 | stk/min: 100 | bbl/min: 0.72 | gal/min: 300

MUD PROPERTIES

	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	24:00	05:30
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3.
Funnel Viscosity (sec/qt) API @ 70 °F	40	38
Plastic Viscosity cp @ 64 °F	16	17
Yield Point (lb/100 ft²)	15	12
Gel Strength (lb/100 ft²) 10 sec/10 min	4 / 12	3 / 13
Filtrate API (cm³/30 min)	6.2	6.2
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1 /	1 /
Solids Content (% by Vol) ☑ calculated ☐ retort	6.5	6.5
Liquid Content (% by Vol) Oil/Water	93.5	93.5
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	11.0	11.0
pH ☑ Strip ☐ Meter @ 50 °F	8.6	8.5
Alkalinity Mud (P_m)	0.1	0.05
Alkalinity Filtrate (P_f/M_f)	0.1/1.45	.05/1.45
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	60
PHPA	1.2	1.2
SOJ	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- PREPARE NEW GEL/POLYMER MUD
- CONTIN. TO LOOSE ≈ 2 bbl/HR WHILE LOGGING

REMARKS

- CONTIN LOG RUN # 3 POS.
- RIG DOWN & RIH TO 1741m - WASH TO BOTTOM - 4m FILL
- CIRC. HOLE CLEAN. - INCR. HOLE LOSSES
- POOH, RIG UP & RUN LOG #4 RFT/GR
- RIG UP & RUN LOG #5 VEL.

PRODUCT INVENTORY	BARITE	CEL	CAUSTIC SODA	SODA ASH	PAC R
STARTING INVENTORY	560	224	44	20	78
RECEIVED					
USED LAST 24 hr	40	9	2	1	2
CLOSING INVENTORY	520	215	42	19	76
COST LAST 24 hr	-20 221	8496	44.70	14.31	-48 263
USED (from IADC)	5.53	9.44	22.35	14.31	131.74

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		$ 628.65	$ 12952.04

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	1.5	Water Added (bbl)		Low Gravity %	6.3
Drilling		Mud Built (bbl)	75	Low Gravity, ppb	57.5
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.8
Circulating	1.0	Mud Disposed (bbl)	109	Bentonite, ppb	7.4
Tripping	6.0	SURFACE	10	Drill Solids %	5.1
Survey		D/HOLE	99	Drill Solids, ppb	46.1
Logging	15.5			Shale CEC, ppb	-
Running Casing		TOTAL MUD	571	D/B Ratio	3.28
Testing		Starting Depth		High Gravity %	0.5
Fishing		Ending Depth		High Gravity, ppb	6.7.
		New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS

Zero Gel	3.	Avg ROP	-	ECD @			
n Factor	0.507	% Cutting		Leak Off @ 317m = 22.9 ppg			
k Factor	1.40	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics		243	30	43	0.75	52	
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		88	89	108			
Annular Velocity		40.5	43	68			
Viscosity		79	75	45			
Annular Pressure							

MI-39P

WATER BASE MUD REPORT - Day : 14

M-I Drilling Fluids Company — Date : 22/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : LOGGING

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/17/18/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 363
Pits Volume : 185
Circulating Volume : 548
Mud : FW POLYMER

MUD PROPERTIES

Sample From	PIT 22:30
Flow Line Temp ^F	
Depth/TVD -m	1758.0/1758.0
Mud Wt -lb/gal	9.4
Funnel Vis -s/qt	42 @ 70 ^F
Plastic Visc -cps	20 @ 65 ^F
YP/R3 -lb/100ft2 /deg	15 / 2
10s/10m Gel -lb/100ft2	4 / 13
API F Loss -cc/30 min	6.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	7
Oil/Water -%vol	/93
Sand -%vol	0.75
MBT -lb/bbl	11.5
pH	8.5 @ 55 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.45
Chlorides -mg/l	750
Hardness Ca	60
PHPA	1.1
SULPHITE	80
np Value	0.652
Kp -lb-sec^n/100ft2	0.64163
na Value	0.622
Ka -lb-sec^n/100ft2	0.77430

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	83.0
DC Critical Vel	-m/min	107.5
Circ. Pressure	-psi	600
Bottoms Up	-min	47.9
Total Circ Time	-min	92.1

PRODUCTS USED LAST 24 HOURS

M-I Gel	25 KG S	11
Polypac R	25 KG S	5
M-I Bar	25 KG S	136
Soda Ash	40 KG S	1

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	8.0 / 73
Bentonite	0.5 / 4
Drill Solids	6.9 / 63
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 4.88 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	3 X 50	6
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	
Desilter	12 X 4"	
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		SURFACE	13
Water Added		D/HOLE	30
Mud Built	140	TOTAL MUD	668
Mud Received:			
Mud Disposed:	43		

Remarks :
Cont log run #5, run log #6. P/U BHA and RIH, circ and trip out to 1176m. RIH, circ & POOH to log. Run log #7
Continue log run #5. R/U and run log #6. Rig down BPB and pick up BHA. RIH-3m
fill-circulate hole clean and POOH on wiper trip to 1176m. RIH-1.5m fill.
Circulate bottoms up. Pump slug and POOH to continue logging. Rig up and run
log #7-RFT/CR.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 1529 — Cumul Cost : 14480

FROM 03817.4949 RECEIVED 23 MAR 1995 CA92 KL. RIH. MOG. WO. FEB.20.95 15:41 P.001

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 14

DATE 22 MAR 1995 DEPTH 1758 M
SPUD DATE 9 MAR PRESENT ACTIVITY LOGGING

OPERATOR GFE RESOURCES	CONTRACTOR CENTURY	RIG NO. 11
REPORT FOR KEN SMITH	REPORT FOR SEAN KELLY	SECTION, TOWNSHIP, RANGE ONSHORE
WELL NAME AND NO. DUNBAR #1	FIELD OR BLOCK NO. PPL-1 / COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN	STATE/PROVINCE VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE 8½	TYPE HTC ATJ05	JET SIZE 1x11, 1x18, 1x17	SURFACE 9⅝ in. @ 312 m	HOLE 408	PITS 140	PUMP SIZE 6 x 8.5 IN.; 5½ x 7.75		ANNULAR VEL (ft/min) DP 36 DC 56
DRILL PIPE SIZE 4½"	TYPE	LENGTH	INTERMEDIATE in. @ ft	TOTAL CIRCULATING VOLUME 548		PUMP MAKE, MODEL NAT 7P 50 / 8P 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 600
DRILL PIPE SIZE 4½	TYPE HWDP	LENGTH 55 m	INTERMEDIATE in. @ ft	IN STORAGE 120	WEIGHT 9.2	bbl/stk 0.054/0.072	stk/min 83	BOTTOMS UP (min) (strk) 60 min
DRILL COLLAR SIZE 6¼"		LENGTH 162 m	PRODUCTION OR LINER in. @ ft	MUD TYPE PHPA/PAC		bbl/min 6.0	gal/min 250	TOTAL CIRC TIME (min) (strk) 92 min

MUD PROPERTIES		
Sample From	☐ F.L. ☑ PIT	☐ F.L. ☑ PIT
Time Sample Taken	22:30	05:30
Flowline Temperature (°F)	–	TRIP TANK
Depth (ft) (TVD / ft)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	9.4
Funnel Viscosity (sec/qt) API @ °F	42	40
Plastic Viscosity cp @ 70 °F	20	16
Yield Point (lb/100 ft²) 65	15	14
Gel Strength (lb/100 ft²) 10 sec/10 min	4/13	3/11
Filtrate API (cm³/30 min)	6.4	6.4
API HTHP Filtrate (cm³/30 min) @ °F	–	–
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☑ calculated ☐ retort	7.0	7.0
Liquid Content (% by Vol) Oil/Water	-/93	-/93
Sand Content (% by Vol)	0.75	0.50
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	11.5	11.5
pH ☐ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/1.45	.05/1.40
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	60
PHPA	1.1	1.1
$SO_3^=$	80	80

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- PREPARE ADDITIONAL RESERVE MUD - 9.3 ppg.
- TOTAL D/HOLE LOSSES = 30 bbls ±

- NOTE LOW GRAV SOL = 6% D/S = 4.7%

REMARKS

- CONTIN LOG RUN #5 VEL.
R/U & RUN LOG #6 SWC
RIG DOWN BPB, P/U BHA & RIH 3m FILL
CIRC HOLE CLEAN & POOH ON WIPER TRIP
TO 1176m RIH. 1.5m FILL
CIRC B/U, PUMP SLUG & POOH TO LOG
R/U FOR LOG RUN #7 RFT/GR.

PRODUCT INVENTORY	BARITE	GEL	SODA ASH	PAC R
STARTING INVENTORY	520	215	19	76
RECEIVED				
USED LAST 24 hr	136	11	1	5
CLOSING INVENTORY	384	204	18	71
COST LAST 24 hr	752.08	103.84	14.31	658.70
USED (from IADC)	553	9.44	14.31	131.74

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		$1528.93	$14480.97

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 %	6.0
Drilling		Mud Built (bbl)	140	Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating	5.5	Mud Disposed (bbl)	43	Bentonite, ppb	7.8
Tripping	5.0	D/HOLE	30	Drill Solids %	4.7
Survey		SURFACE	13	Drill Solids, ppb	42.5
Logging	13.5			Shale CEC, ppb	13
Running Casing		TOTAL MUD	668	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.8
Fishing		Ending Depth		High Gravity, ppb	14.8
		New Hole Vol. (bbl)			

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	–	ECD @	
n Factor	0.62	% Cutting	–	Leak Off @ 317 : 22.9 ppg	
k Factor	0.77	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics	171	28	25	0.44	43
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	81	83	108		
Annular Velocity	34	36	56		
Viscosity	77	74	50		
Annular Pressure	2.9	13.0	6.0		

WATER BASE MUD REPORT - Day : 15

M-I Drilling Fluids Company — Date : 23/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : CIRC.

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles:11/17/18/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 363
Pits Volume : 131
Circulating Volume : 494
Mud : FW POLYMER

MUD PROPERTIES

Sample From	FL 23:00
Flow Line Temp	84 ^F
Depth/TVD -m	1758.0/1758.0
Mud Wt -lb/gal	9.4
Funnel Vis -s/qt	44 @ 80 ^F
Plastic Visc -cps	23 @ 70 ^F
YP/R3 -lb/100ft2 /deg	18 / 2
10s/10m Gel -lb/100ft2	3 / 12
API F Loss -cc/30 min	6.4
HTHP F Loss -cc/30 min	@ ^F
Cake API/HT -1/32"	1
Solids -%vol	7
Oil/Water -%vol	/93
Sand -%vol	0.75
MBT -lb/bbl	12.0
pH	8.5 @ 55 ^F
Alkal Mud (Pm)	0.1
Pf/Mf	0.05/ 0.45
Chlorides -mg/l	750
Hardness Ca	60
PHPA	1.1
SULPHITE	50
np Value	0.642
Kp -lb-sec^n/100ft2	0.79811
na Value	0.656
Ka -lb-sec^n/100ft2	0.73210

CIRCULATION DATA

Flow Rate -gal/min	275
DP Annular Vel -m/min	39.5
DC Annular Vel -m/min	61.9
DP Critical Vel -m/min	88.8
DC Critical Vel -m/min	117.6
Circ. Pressure -psi	700
Bottoms Up -min	43.5
Total Circ Time -min	75.4

PRODUCTS USED LAST 24 HOURS

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	8.0 / 73
Bentonite	0.6 / 5
Drill Solids	6.9 / 63
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 4.63 Average SG : 2.60

SOLIDS EQUIPMENT

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

MUD VOLUME ACCOUNTING bbl

Oil Added		SURFACE+SCE	32
Water Added	40	D/HOLE	36
Mud Built		TOTAL MUD	640
Mud Received:			
Mud Disposed:	68		

Remarks :
Coneinue log run#7.POOH w/blocked tool.Rerun log #7.POOH P/U 8.5" Drl assy and RIH to 1755.5m.wash to bottom. Circ
Continue to run log #7-RFT. Pull blocked RFT tool to surface. Re-run log #7.
Rig down BPB. Pick up 8.5" drilling assembly and RIH to 1755.5-2.5m fill.
Wash to bottom and circulate hole.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 0 — Cumul Cost : 14480

DRILLING MUD REPORT

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

OPERATOR

DRILLING MUD REPORT NO. 15

DATE 23 MAR 19 95 | DEPTH 1758M

SPUD DATE 9 MAR | PRESENT ACTIVITY CIRCULATE

OPERATOR GFE RESOURCES | CONTRACTOR CENTURY | RIG NO. 11

REPORT FOR KEN SMITH | REPORT FOR SEAN KELLY | SECTION, TOWNSHIP, RANGE ONSHORE

WELL NAME AND NO. DUNBAR #1 | FIELD OR BLOCK NO. PPL-1 | COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN | STATE/PROVINCE VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
8 1/2	HTC ATJ05	1-11, 1-18 / 1-17

DRILL PIPE SIZE	TYPE	LENGTH
4 1/2"	16.6#	
4 1/2"	HWDP	55m

DRILL COLLAR SIZE	LENGTH
6 1/4	162m

CASING

SURFACE	INTERMEDIATE	INTERMEDIATE	PRODUCTION OR LINER
9 5/8 in. @ 312 m	in. @ ft.	in. @ ft.	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS
358	136

TOTAL CIRCULATING VOLUME: 494

IN STORAGE	WEIGHT
146	9.2

MUD TYPE: PHPA/PAC

CIRCULATION DATA

PUMP SIZE: 6 x 8.5 IN. | 5 1/2 x 7.75

ANNULAR VEL (ft/min): DP 40 DC 62

PUMP MAKE, MODEL: NAT TP50 / BP80 | ASSUMED EFF 95 %

CIRCULATION PRESSURE (psi): 700

bbl/stk: 0.054/0.072 | stk/min: 121

BOTTOMS UP (min) (strk): 55 min.

6.53 bbl/min | 275 gal/min

TOTAL CIRC TIME (min) (strk): 76 min.

MUD PROPERTIES

Sample From	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT
Time Sample Taken	24:00	05:30
Flowline Temperature (°F) (°C)	84 (29)	-
Depth (ft) (TVD / MD)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4+	9.3
Funnel Viscosity (sec/qt) API @ 80 °F	44	39
Plastic Viscosity cp @ 70 °F	23	15
Yield Point (lb/100 ft²)	18	12
Gel Strength (lb/100 ft²) 10 sec/10 min	3 / 12	3 / 9
Filtrate API (cm³/30 min)	6.4	6.6
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0	6.5
Liquid Content (% by Vol) Oil/Water	93	93.5
Sand Content (% by Vol)	0.75	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.0	11.5
pH ☐ Strip ☐ Meter @ °F	8.5	8.5
Alkalinity Mud (P_m)	0.05	0.05
Alkalinity Filtrate (P_f/M_f)	.05/.45	.05/.45
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	80
PHPA	1.1	1.1
$SO_3^=$	50	50

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc.

RECOMMENDED TOUR TREATMENT

- NO TREATMENT.
- REDUCE MUD WT BY DILUTION & CONTIN USE OF SCE WHILE CIRC.

REMARKS

- CONTIN LOG RUN # 7 RFT/GR
RFT TOOL BLOCKED - PULL TOOL TO SURF.
- RE-RUN LOG # 7 - RIG DOWN BPB.
P/U 8 1/2" DRILL ASSY. & RIH TO 1755.5
- 2.5m FILL. - CIRC & WASH TO BOTTOM. - CIRC HOLE

D/SAND 12.8ppg U/F 9.4ppg O/F 3 GPM
D/SILT 13.8ppg U/F 7 GPM

PRODUCT INVENTORY

STARTING INVENTORY																		
RECEIVED		1																
USED LAST 24 hr																		
CLOSING INVENTORY																		
COST LAST 24 hr																		
USED (from IADC)																		

SOLIDS EQUIPMENT

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

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 0.00	$ 14480.97

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	
Drilling	
Reaming/Coring	
Circulating	1.0
Tripping	3.5
Survey	
Logging	19.5
Running Casing	
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	40
Mud Built (bbl)	
Mud Received (bbl)	
Mud Disposed (bbl)	68
O/H.	36
SURF	17
SCE	15
TOTAL MUD	640
Starting Depth	
Ending Depth	
New Hole Vol. (bbl)	

SOLIDS ANALYSIS

Low Gravity %	6.0
Low Gravity, ppb	54.3
Bentonite %	0.9
Bentonite, ppb	7.8
Drill Solids %	4.7
Drill Solids, ppb	42.5
Shale CEC, ppb	
D/B Ratio	3.02
High Gravity %	1.8
High Gravity, ppb	14.8

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP		ECD @
n Factor	0.656	% Cutting		Leak Off @ 317m - 22.9ppg
k Factor	0.732	psi	%	hhp / HSI / Jet Vel
Bit Hydraulics		207	30	33 / 0.58 / 48
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	89	118
Annular Velocity		38	40	62
Viscosity		90	85	55
Annular Pressure		3.3	15.0	7.1

MI-39P

WATER BASE MUD REPORT - Day : 16

M-I Drilling Fluids Company — Date : 24/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : RUN CASING

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Report For: KEN SMITH

Contractor : CENTURY DRILLING 11
Field/Area : PPL 1

Description : EXPLORATION
Location : OTWAY BASIN

Bit : 8.500 in
Nozzles:11/17/18/ / / 1/32"
Drill Pipe 1 OD : 4.500 in 1541 m
Drill Pipe 2 OD : 4.500 in 55.0 m
Drill Collar OD : 6.250 in 162.0 m

CASING

Casing OD :	9.625 in	Liner OD :	in
Casing ID :	8.680 in	Liner ID :	in
Casing TD :	312.0 m	Liner TD :	m
Casing TVD :	312.0 m	Liner TVD :	m

MUD VOLUME (bbl)

Hole Volume : 363
Pits Volume : 146
Circulating Volume : 509
Mud : FW POLYMER

MUD PROPERTIES

Sample From	:	FL 23:00
Flow Line Temp	:	80 ^F
Depth/TVD -m	:	1758.0/1758.0
Mud Wt -lb/gal	:	9.3
Funnel Vis -s/qt	:	39 @ 75 ^F
Plastic Visc -cps	:	14 @ 70 ^F
YP/R3 -lb/100ft2 /deg	:	11 / 2
10s/10m Gel -lb/100ft2	:	3 / 10
API F Loss -cc/30 min	:	6.4
HTHP F Loss -cc/30 min	:	@ ^F
Cake API/HT -1/32"	:	1
Solids -%vol	:	6.5
Oil/Water -%vol	:	/93.5
Sand -%vol	:	0.5
MBT -lb/bbl	:	12.0
pH	:	8.7 @ 55 ^F
Alkal Mud (Pm)	:	0.2
Pf/Mf	:	0.08/ 0.6
Chlorides -mg/l	:	750
Hardness Ca	:	60
PHPA	:	1.0
SULPHITE	:	100
	:	
	:	
np Value	:	0.641
Kp -lb-sec^n/100ft2	:	0.48940
na Value	:	0.548
Ka -lb-sec^n/100ft2	:	0.87230

CIRCULATION DATA

Flow Rate -gal/min	:	275
DP Annular Vel -m/min	:	39.5
DC Annular Vel -m/min	:	61.9
DP Critical Vel -m/min	:	73.0
DC Critical Vel -m/min	:	90.7
Circ. Pressure -psi	:	700
Bottoms Up -min	:	43.5
Total Circ Time -min	:	77.7

PRODUCTS USED LAST 24 HOURS

M-I Gel	25 KG S	8
OS-1	25 KG S	1
M-I Bar	25 KG S	41

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	:	0.0 / 0
KCl	:	0.0 / 0
Low Gravity Solids	:	7.2 / 66
Bentonite	:	0.6 / 6
Drill Solids	:	6.0 / 55
Weight Material	:	N/A / N/A
Chemical Conc	:	- / 5.0

Inert/React : 4.06 Average SG : 2.60

SOLIDS EQUIPMENT

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

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:25
Water Added	:40	D/HOLE	:30
Mud Built	:	TOTAL MUD	:625
Mud Received:			
Mud Disposed:	55		

Remarks :
Cont circ hole clean. Lay out DP & drill assy. Rig up and run casing.Work and circ tight hole f/1123-1130m.
Continue to circulate hole clean, pump slug and POOH. Lay down DP and drilling
assembly. Rig up and run 7" casing. Casing held up at 1130 m. Rig up and
circulate hole. Circulates freely. Work and circulate casing from 1123-1130m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 353 — Cumul Cost : 14833

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 16
DATE 24 MAR 19 95 | DEPTH 1758
SPUD DATE 9 MAR | PRESENT ACTIVITY RUN CASING

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR # 1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN	STATE/PROVINCE: VICTORIA

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
DRILL PIPE SIZE	TYPE	LENGTH
DRILL PIPE SIZE	TYPE	LENGTH
DRILL COLLAR SIZE		LENGTH

CASING

SURFACE	9 5/8 in. @ 312 m
INTERMEDIATE	in. @ ft.
INTERMEDIATE	in. @ ft.
PRODUCTION OR LINER	in. @ ft.

MUD VOLUME (BBL)

HOLE	371
PITS	138
TOTAL CIRCULATING VOLUME	509
IN STORAGE	116
WEIGHT	9.2
MUD TYPE	PHPA/PAC

CIRCULATION DATA

PUMP SIZE	6 x 8.5 IN.
	5.5 7.75
ANNULAR VEL (ft/min)	DP 40 DC 62
PUMP MAKE, MODEL	NAT TP 50 / BP 80
ASSUMED EFF	95 %
CIRCULATION PRESSURE (psi)	700
bbl/stk	0.054/0.072
stk/min	121
BOTTOMS UP (min) (strk)	55 min
bbl/min	6.53
gal/min	275
TOTAL CIRC TIME (min) (strk)	76 min.

MUD PROPERTIES

	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT
Sample From		
Time Sample Taken	23:00	06:30
Flowline Temperature (°F) (°C)	80 (27)	
Depth (ft) (TVD / MD)	1758	1758
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	9.3+
Funnel Viscosity (sec/qt) API @ 75 °F	39	41
Plastic Viscosity cp @ 70 °F	14	18
Yield Point (lb/100 ft²)	11	12
Gel Strength (lb/100 ft²) 10 sec/10 min	3/10	3/10
Filtrate API (cm³/30 min)	6.4	6.4
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☑ calculated ☐ retort	6.5	6.5
Liquid Content (% by Vol) Oil/Water	93.5	93.5
Sand Content (% by Vol)	0.5	0.5
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.0	12.0
pH ☐ Strip ☐ Meter @ °F	8.7	8.6
Alkalinity Mud (P_m)	0.15	0.15
Alkalinity Filtrate (P_f/M_f)	.08/0.6	.08/1.6
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	60	60
PHPA	1.0	1.0
$SO_3^=$	100	100

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35 - 42 sec/qt	5 - 7 cc.

RECOMMENDED TOUR TREATMENT

- CONTIN. TO REDUCE MUD WT = 9.3 ppg BY D/W DILUTION & USE OF SCE.
- PREPARE 2% GEL CMT MIX WATER
- NO CHARGE FOR 1SK NaOH - STOCK ADJ.

REMARKS

- CIRC, PUMP SLUG & POOH - LAY DOWN DP & DRILL ASSY.
- RIG UP & RUN 7" CASING
- CASING STOOD UP @ 1130m - WORK & CIRCULATE CASING 1123m - 1130m.

D/SAND 12.1 ppg U/F 9.3 ppg O/F 2 GPM
D/SILT 12.8 ppg U/F 4 GPM

PRODUCT INVENTORY	BARITE	GEL	OS-1
STARTING INVENTORY	384	204	8
RECEIVED		1	
USED LAST 24 hr	41	8	1
CLOSING INVENTORY	343	196	7
COST LAST 24 hr	226.73	75.52	50.95
USED (from IADC)	5.53	9.44	50.95

SOLIDS EQUIPMENT

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

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 353.20	$ 14834.17

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	2.5
Drilling	
Reaming/Coring	
Circulating	4.0
Tripping	8.0
Survey	
Logging	
Running Casing	9.5
Testing	
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	40
Mud Built (bbl)	
Mud Received (bbl)	
Mud Disposed (bbl)	55
D/HOLE	30
SURFACE	10
SCE	15
TOTAL MUD	625
Starting Depth	
Ending Depth	
New Hole Vol. (bbl)	

SOLIDS ANALYSIS

Low Gravity %	6.0
Low Gravity, ppb	54.3
Bentonite %	0.8
Bentonite, ppb	7.8
Drill Solids %	4.7
Drill Solids, ppb	42.5
Shale CEC, ppb	-
D/B Ratio	3.02
High Gravity %	1.8
High Gravity, ppb	14.8

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP	-	ECD @			
n Factor	0.656	% Cutting		Leak Off @ 317m = 22.9 MPa			
k Factor	0.73	psi	%	hhp	HSI	Jet Vel	
Bit Hydraulics		207	30	33	0.58	48	
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	89	118			
Annular Velocity		38	40	62			
Viscosity		90	85	55			
Annular Pressure		3.3	15.0	7.1			

MI-39P

WATER BASE MUD REPORT - Day : 17

M-I Drilling Fluids Company — Date : 25/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : WORK CASING

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume :
Pits Volume :
Circulating Volume : 532
Mud : FW POLYMER

MUD PROPERTIES	:
Sample From	: FL 23:00
Flow Line Temp	: 74 ^F
Depth/TVD -m	:1758.0/1758.0
Mud Wt -lb/gal	: 9.4
Funnel Vis -s/qt	: 39 @ 68 ^F
Plastic Visc -cps	: 16 @ 55 ^F
YP/R3 -lb/100ft2 /deg	: 12 / 2
10s/10m Gel -lb/100ft2	: 3 / 10
API F Loss -cc/30 min	: 6.6
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.5
MBT -lb/bbl	: 12.5
pH	: 8.5 @ 55 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.5
Chlorides -mg/l	: 750
Hardness Ca	: 60
PHPA	: 1.0
SULPHITE	: 80
	:
	:
np Value	: 0.652
Kp -lb-sec^n/100ft2	: 0.51331
na Value	: 0.573
Ka -lb-sec^n/100ft2	: 0.83798

CIRCULATION DATA

Flow Rate	-gal/min :	160
DP Annular Vel	-m/min :	
DC Annular Vel	-m/min :	
DP Critical Vel	-m/min :	
DC Critical Vel	-m/min :	
Circ. Pressure	-psi :	200
Bottoms Up	-min :	
Total Circ Time	-min :	

PRODUCTS USED LAST 24 HOURS

M-I Gel	25 KG S	10

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	:	0.0 / 0
KCl	:	0.0 / 0
Low Gravity Solids	:	8.0 / 73
Bentonite	:	0.6 / 6
Drill Solids	:	6.8 / 62
Weight Material	:	N/A / N/A
Chemical Conc	:	- / 5.0

Inert/React : 4.41 Average SG : 2.60

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

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:37
Water Added	:30	D/HOLE	:36
Mud Built	:	TOTAL MUD	:582
Mud Received:			
Mud Disposed:	73		

Remarks :
Cont to run casing. Circ & work stuck casing F/1148m.- 1153m.Lay out 4 JNTS,P/U 1 JNT.Cont to work f/1097-1108m
Continue to run casing. Circulate and work stuck casing from 1148-1153m. LayAY
out 4 joints and continue to wash and work. Pick up 1 joint and work
1097-1108m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 94 — Cumul Cost : 14928

DRILLING MUD REPORT

RIG

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

DRILLING MUD REPORT NO. 17
DATE 25 MAR 1995 | DEPTH 1758 m
SPUD DATE 9 MAR | PRESENT ACTIVITY CIRC & WORK CASING

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE 9⅝ in. @ 312 m	HOLE 372	PITS 160	PUMP SIZE 6 X 8.5 IN.		ANNULAR VEL (ft/min) DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	TOTAL CIRCULATING VOLUME 532		PUMP MAKE, MODEL NAT 7P 50 BP 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi) 200-600
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	IN STORAGE 50	WEIGHT 9.3	bbl/stk 0.054/0.072	stk/min 70	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER in. @ ft.	MUD TYPE PHPA/PAC		3.78 bbl/min	160 gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
Sample From	☑ F.L. ☐ PIT	☐ F.L. ☑ PIT	WEIGHT	VISCOSITY	FILTRATE
Time Sample Taken	23:00	05:30	9.3 ppg	35-42 sec/qt	5-7 cc
Flowline Temperature (°F)	74(23)				
Depth (ft) (TVD / ft)	1758	1758			
Weight ☐ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3+	9.4			
Funnel Viscosity (sec/qt) API @ 68 °F	39	39			
Plastic Viscosity cp @ 55 °F	16	18			
Yield Point (lb/100 ft²)	12	11			
Gel Strength (lb/100 ft²) 10 sec/10 min	3 \ 10	2 \ 9			
Filtrate API (cm³/30 min)	6.6	6.6			
API HTHP Filtrate (cm³/30 min) @ °F	-				
Cake Thickness (32nd in. API/HTHP)	1	1			
Solids Content (% by Vol) ☑ calculated ☐ retort	7.0	7.0			
Liquid Content (% by Vol) Oil/Water	93	93			
Sand Content (% by Vol)	0.5	0.5			
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	12.5			
pH ☐ Strip ☐ Meter @ °F	8.5	8.5			
Alkalinity Mud (P_m)	0.10	0.10			
Alkalinity Filtrate (P_f/M_f)	0.05/1.50	0.05/1.50			
Chloride (mg/L)	750	750			
Total Hardness as Calcium (mg/L)	60	60			
PHPA	1.0	1.0			
$SO_3^=$	80	80			

RECOMMENDED TOUR TREATMENT

- DILUTE WITH D/W AS REQ'D TO CONTROL WT & RHEOLOGY
- COMMENCE PREP OF ADDITIONAL GEL BASED VOLUME

REMARKS

- CONTIN TO CIRC & WORK CASING F/ 1148m - 1153m L/OUT 3 JOINTS.
CONTIN TO CIRC & WORK L/OUT 1 JNT P/U 1 JOINT AND WORK 1097m ↑ - 1108m ↓.

D/SAND 10.9 U/F 9.3 O/F 2 GPM
D/SILT 11.4 ppg U/F 3 GPM

PRODUCT INVENTORY	GEL																
STARTING INVENTORY	196																
RECEIVED																	
USED LAST 24 hr	10																
CLOSING INVENTORY	186																
COST LAST 24 hr	94.40																
USED (from IADC)	9.44																

SOLIDS EQUIPMENT

SHAKER #1 3 x 150 mesh
SHAKER #2 ____ mesh
MUD CLEANER ____ mesh
CENTRIFUGE ____ hours
DESANDER 4 hours
DESILTER 4 hours

M-I REPRESENTATIVE	PHONE	WAREHOUSE PHONE	DAILY COST	CUMULATIVE COST
PAUL MARSHALL	093254822		$ 94.40	$ 14928.57

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)	30	Low Gravity %	6.0
Drilling		Mud Built (bbl)		Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating		Mud Disposed (bbl)	73.	Bentonite, ppb	7.8
Tripping		D/HOLE	36	Drill Solids %	4.7
Survey		SCE	31	Drill Solids, ppb	42.5
Logging		SURF.	6	Shale CEC, ppb	-
Running Casing	24.0	TOTAL MUD	582	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.0
Fishing		Ending Depth		High Gravity, ppb	14.8
		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							

MI-39P

WATER BASE MUD REPORT - Day : 18

M-I Drilling Fluids Company
DRILLING FLUIDS DATA MANAGEMENT SYSTEM

Date : 26/03/95 Depth : 1758.0 m
Well No. : G0003 Spud Date : 09/03/95 Activity : WAIT ON DP

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Report For: KEN SMITH

Contractor : CENTURY DRILLING 11
Field/Area : PPL 1

Description : EXPLORATION
Location : OTWAY BASIN

Bit : 8.500 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING

Casing OD : 9.625 in Liner OD : in
Casing ID : 8.680 in Liner ID : in
Casing TD : 312.0 m Liner TD : m
Casing TVD : 312.0 m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume :
Pits Volume :
Circulating Volume : 315
Mud : FW POLYMER

MUD PROPERTIES

Sample From	: PIT 23:00
Flow Line Temp	: ^F
Depth/TVD -m	:1758.0/1758.0
Mud Wt -lb/gal	: 9.4
Funnel Vis -s/qt	: 40 @ 60 ^F
Plastic Visc -cps	: 19 @ 55 ^F
YP/R3 -lb/100ft2 /deg	: 12 / 2
10s/10m Gel -lb/100ft2	: 3 / 9
API F Loss -cc/30 min	: 6.6
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.5
MBT -lb/bbl	: 12.5
pH	: 8.5 @ 55 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.45
Chlorides -mg/l	: 750
Hardness Ca	: 60
PHPA	: 1.0
SULPHITE	: 50
	:
	:
np Value	: 0.689
Kp -lb-sec^n/100ft2	: 0.44963
na Value	: 0.595
Ka -lb-sec^n/100ft2	: 0.80831

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

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 8.0 / 73
Bentonite	: 0.6 / 6
Drill Solids	: 6.8 / 62
Weight Material	: N/A / N/A
Chemical Conc	: - / 5.0

Inert/React : 4.41 Average SG : 2.60

SOLIDS EQUIPMENT Size Hours

Shaker #1	: 3 X 50	6
Shaker #2	:	
Shaker #3	:	
Shaker #4	:	
Mud Cleaner	:	
Centrifuge	:	
Desander	: 2 X 12"	
Desilter	: 12 X 4"	
Degasser	:	

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:
Water Added	:	DUMP	:137
Mud Built	:	TOTAL MUD	:445
Mud Received:			
Mud Disposed:	137		

Remarks :
Rig up and cement 7" casing. Cut casing. Nipple down BOPs Nipple up and test. Wait on 3.5" drill pipe.
Rig up cement head and circulate 260 GPM at 1097m. Pump cement and displace
with water and dump returns. Nipple down BOPs, cut casing, nipple up and test.
Wait on 3.5" drill pipe to drill out and set cement plugs.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE Daily Cost : 0 Cumul Cost : 14928

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 18
DATE 26 MAR 19 95 | DEPTH 1758 M
SPUD DATE 9 MAR | PRESENT ACTIVITY NIPPLE UP & TEST BOP.

OPERATOR: GFE RESOURCES.	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR # 1	FIELD OR BLOCK NO.: PDL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE: 9 5/8 in. @ 312 ft.	HOLE: 152	PITS: 163	PUMP SIZE: 6 5-5 X 8.5 IN. 7.75		ANNULAR VEL (ft/min) DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: in. @ ft.	TOTAL CIRCULATING VOLUME: 315		PUMP MAKE/MODEL: NAT 7P 30 BP 80	ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi): 400
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: in. @ ft.	IN STORAGE: 130	WEIGHT: 8.8	bbl/stk: 0.054/0.072	stk/min: 115	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER: in. @ ft.	MUD TYPE: PHPA/PAC		6.21 bbl/min	260 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)	1758	
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	
Funnel Viscosity (sec/qt) API @ 60 °F	40	
Plastic Viscosity cp @ 55 °F	19	
Yield Point (lb/100 ft²)	12	
Gel Strength (lb/100 ft²) 10 sec/10 min	3 1 9	1
Filtrate API (cm³/30 min)	6.6	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0	
Liquid Content (% by Vol) Oil/Water	93	1
Sand Content (% by Vol)	0.5	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	
pH ☐ Strip ☐ Meter @ °F	8.5	
Alkalinity Mud (P_m)	0.10	
Alkalinity Filtrate (P_f/M_f)	.05/1.45	1
Chloride (mg/L)	750	
Total Hardness as Calcium (mg/L)	60	
PHPA	1.0	
SOJ	50	

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc.

RECOMMENDED TOUR TREATMENT

- NO TREATMENT.
- DISPL CMT WITH D/W + DUMP 137 bbls RETURNS.

REMARKS

- RIG UP CEMENT HEAD & CIRC 260 GPM @ 1097 m. PUMP CEMENT & DISPL. WITH WATER.
- NIPPLE DOWN BOPs & CUT CASING
- NIPPLE UP BOPs.
- WAIT ON 3½" DP.

PRODUCT INVENTORY																	
STARTING INVENTORY																	
RECEIVED		1															
USED LAST 24 hr																	
CLOSING INVENTORY																	
COST LAST 24 hr																	
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.	09 3254822		$ 0.00	$ 14928.57

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	7.0	Water Added (bbl)		Low Gravity %	6.0
Drilling		Mud Built (bbl)		Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating	2.0	Mud Disposed (bbl)	137	Bentonite, ppb	7.8
Tripping		DUMP	137	Drill Solids %	4.7
Survey				Drill Solids, ppb	42.5
Logging				Shale CEC, ppb	
Running Casing/CMT	3.0	TOTAL MUD	445	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.0
Fishing		Ending Depth		High Gravity, ppb	14.8
BOPs.	12.0	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							

MI-39P

WATER BASE MUD REPORT - Day : 19

M-I Drilling Fluids Company — Date : 27/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : WAIT ON DP

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1197.0m Liner TD : m
Casing TVD : 1197.0m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume :
Pits Volume :
Circulating Volume : 315
Mud : FW POLYMER

MUD PROPERTIES	:
Sample From	: PIT 22:30
Flow Line Temp	: ^F
Depth/TVD -m	:1758.0/1758.0
Mud Wt -lb/gal	: 9.4
Funnel Vis -s/qt	: 39 @ 60 ^F
Plastic Visc -cps	: 20 @ 55 ^F
YP/R3 -lb/100ft2 /deg	: 11 / 2
10s/10m Gel -lb/100ft2	: 3 / 9
API F Loss -cc/30 min	: 6.6
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.5
MBT -lb/bbl	: 12.5
pH	: 8.3 @ 55 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.05/ 0.4
Chlorides -mg/l	: 750
Hardness Ca	: 60
PHPA	: 1.0
SULPHITE	: 50
	:
	:
np Value	: 0.718
Kp -lb-sec^n/100ft2	: 0.37629
na Value	: 0.595
Ka -lb-sec^n/100ft2	: 0.80831

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

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 8.0 / 73
Bentonite	: 0.6 / 6
Drill Solids	: 6.8 / 62
Weight Material	: N/A / N/A
Chemical Conc	: - / 5.0

Inert/React : 4.41 Average SG : 2.60

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

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:
Water Added	:	DUMP	:
Mud Built	:	TOTAL MUD	:445
Mud Received:			
Mud Disposed:			

Remarks :
WOC. Pressure test casing. Wait on 3.5" drill pipe.
Wait on cement. Pressure test casing. Wait on 3.5" drill pipe.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 0 — Cumul Cost : 14928

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 19
DATE 27 MAR 19 95 | DEPTH 1758 M
SPUD DATE 9 MAR. | PRESENT ACTIVITY WAIT ON 3½" DP

OPERATOR: G.F.E. RESOURCES.	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH.	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE.
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE: 9⅝ in. @ 312 ft	HOLE: 152	PITS: 163	PUMP SIZE: 6 X 8.5 IN.		ANNULAR VEL (ft/min): DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: 7" in. @ 11973 ft	TOTAL CIRCULATING VOLUME: 315		PUMP MAKE, MODEL: NAT 7P 30 8P 80	ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: in. @ ft	IN STORAGE: 130	WEIGHT: 8.8	bbl/stk: 0.054/0.072	stk/min	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER: in. @ ft	MUD TYPE: PHPA/PACR.		bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	22:30	
Flowline Temperature (°F)	-	
Depth (ft) (TVD / MD)	1758	
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	
Funnel Viscosity (sec/qt) API @ 60 °F	39	
Plastic Viscosity cp @ 55 °F	20	
Yield Point (lb/100 ft²)	11	
Gel Strength (lb/100 ft²) 10 sec/10 min	3 1 9	1
Filtrate API (cm³/30 min)	6.6	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0	
Liquid Content (% by Vol) Oil/Water	93	1
Sand Content (% by Vol)	0.5	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	
pH ☑ Strip ☐ Meter @ °F	8.3	
Alkalinity Mud (P_m)	0.05	
Alkalinity Filtrate (P_f/M_f)	.05/1.45	1
Chloride (mg/L)	750	
Total Hardness as Calcium (mg/L)	60	
PHPA	1.0	
$SO_3^=$	50	

MUD PROPERTY SPECIFICATIONS		
WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 Sec/Qt	5-7 cc.

RECOMMENDED TOUR TREATMENT

- NO TREATMENT.

REMARKS

WOC - PRESS TEST CASING.
WAIT ON 3½" DP.

PRODUCT INVENTORY																	
STARTING INVENTORY																	
RECEIVED																	
USED LAST 24 hr																	
CLOSING INVENTORY																	
COST LAST 24 hr																	
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	09 3254822		$ 0.00	$ 14928.57

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	12.0	Water Added (bbl)		Low Gravity %	6.0
Drilling		Mud Built (bbl)		Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating		Mud Disposed (bbl)		Bentonite, ppb	7.8
Tripping				Drill Solids %	4.7
Survey				Drill Solids, ppb	42.5
Logging				Shale CEC, ppb	-
Running Casing		TOTAL MUD	445	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.0
Fishing		Ending Depth		High Gravity, ppb	14.8
WOC	12.0	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							

MI-39P

WATER BASE MUD REPORT - Day : 20

M-I Drilling Fluids Company — Date : 28/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : WAIT ON DP

Operator : GFE RESOURCES
Well Name : DUNBAR 1
Report For: KEN SMITH

Contractor : CENTURY DRILLING 11
Field/Area : PPL 1

Description : EXPLORATION
Location : OTWAY BASIN

Bit : 8.500 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1197.0m Liner TD : m
Casing TVD : 1197.0m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume :
Pits Volume :
Circulating Volume : 315
Mud : FW POLYMER

MUD PROPERTIES		
Sample From		PIT 22:00
Flow Line Temp		^F
Depth/TVD	-m	1758.0/1758.0
Mud Wt	-lb/gal	9.4
Funnel Vis	-s/qt	40 @ 60 ^F
Plastic Visc	-cps	19 @ 55 ^F
YP/R3	-lb/100ft2 /deg	11 / 2
10s/10m Gel	-lb/100ft2	3 / 11
API F Loss	-cc/30 min	6.6
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	7.0
Oil/Water	-%vol	/93
Sand	-%vol	0.25
MBT	-lb/bbl	12.5
pH		8.5 @ 55 ^F
Alkal Mud (Pm)		0.1
Pf/Mf		0.1 / 0.6
Chlorides	-mg/l	750
Hardness Ca		50
PHPA		1.0
SULPHITE		10
np Value		0.707
Kp	-lb-sec^n/100ft2	0.38856
na Value		0.588
Ka	-lb-sec^n/100ft2	0.81775

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

SOLIDS ANALYSIS	(% / lb/bbl)
NaCl	0.0 / 0
KCl	0.0 / 0
Low Gravity Solids	8.0 / 73
Bentonite	0.6 / 6
Drill Solids	6.8 / 62
Weight Material	N/A / N/A
Chemical Conc	- / 5.0

Inert/React : 4.41 Average SG : 2.60

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

MUD VOLUME ACCOUNTING bbl

Oil Added		SURFACE+SCE	
Water Added		DUMP	
Mud Built		TOTAL MUD	445
Mud Received:			
Mud Disposed:			

Remarks :
Wait on 3.5" drill pipe. Service rig.
Wait on 3.5" drill pipe. Service rig.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 0 — Cumul Cost : 14928

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 20
DATE 28 MAR 19 95 | DEPTH 1758m
SPUD DATE 9 MAR | PRESENT ACTIVITY WAIT ON 3½" DP

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11
REPORT FOR: KEN SMITH	REPORT FOR: SEAN KELLY	SECTION, TOWNSHIP, RANGE: ONSHORE
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN
		STATE/PROVINCE: VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE: 9 5/8 in. @ 312 m	HOLE: 152 + WATER	PITS: 163	PUMP SIZE: 6 X 8.5 IN. / 5.5 7.75		ANNULAR VEL (ft/min): DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: 7" in. @ 1197 ft	TOTAL CIRCULATING VOLUME: 315		PUMP MAKE, MODEL: NAT 7P 50 8P80	ASSUMED EFF: 95 %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: in. @ ft.	IN STORAGE: 130	WEIGHT: 8.8	bbl/stk: 0.054/0.072 stk/min		BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER: in. @ ft.	MUD TYPE: PHPA/PAC R		bbl/min gal/min		TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	22:00	
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)	1758	
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	
Funnel Viscosity (sec/qt) API @ °F	40	
Plastic Viscosity cp @ °F	19	
Yield Point (lb/100 ft²)	11	
Gel Strength (lb/100 ft²) 10 sec/10 min	3 / 11	1
Filtrate API (cm³/30 min)	6.6	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 /	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0	
Liquid Content (% by Vol) Oil/Water	93.0	1
Sand Content (% by Vol)	0.25	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	
pH ☑ Strip ☐ Meter @ °F	8.5	
Alkalinity Mud (P_m)	0.1	
Alkalinity Filtrate (P_f/M_f)	.1 / 0.6	1
Chloride (mg/L)	750	
Total Hardness as Calcium (mg/L)	50	
PHPA	1.0	
$SO_3^=$	10	

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 prg	5-7 cc

RECOMMENDED TOUR TREATMENT

- NO TREATMENT
- CIRCULATE MUD TANKS

REMARKS

WAIT ON 3½" DRILL PIPE.

PRODUCT INVENTORY																	
STARTING INVENTORY																	
RECEIVED		1															
USED LAST 24 hr																	
CLOSING INVENTORY																	
COST LAST 24 hr																	
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		$ 0.00	$ 14928.57

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	24.0	Water Added (bbl)		Low Gravity %	6.0
Drilling		Mud Built (bbl)		Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating		Mud Disposed (bbl)		Bentonite, ppb	7.8
Tripping				Drill Solids %	4.7
Survey				Drill Solids, ppb	42.5
Logging				Shale CEC, ppb	-
Running Casing		TOTAL MUD	445	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.0
Fishing		Ending Depth		High Gravity, ppb	14.8
		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							

MI-39P

WATER BASE MUD REPORT - Day : 21

M-I Drilling Fluids Company — Date : 29/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : WAIT ON DP

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 8.500 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1197.0m Liner TD : m
Casing TVD : 1197.0m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume :
Pits Volume :
Circulating Volume :
Mud : FW POLYMER

MUD PROPERTIES

Sample From	: PIT 22:00
Flow Line Temp	: ^F
Depth/TVD -m	:1758.0/1758.0
Mud Wt -lb/gal	: 9.4
Funnel Vis -s/qt	: 40 @ 60 ^F
Plastic Visc -cps	: 20 @ 55 ^F
YP/R3 -lb/100ft2 /deg	: 11 / 2
10s/10m Gel -lb/100ft2	: 3 / 10
API F Loss -cc/30 min	: 6.6
HTHP F Loss -cc/30 min	: @ ^F
Cake API/HT -1/32"	: 1
Solids -%vol	: 7.0
Oil/Water -%vol	: /93
Sand -%vol	: 0.25
MBT -lb/bbl	: 12.5
pH	: 8.5 @ 55 ^F
Alkal Mud (Pm)	: 0.1
Pf/Mf	: 0.1 / 0.65
Chlorides -mg/l	: 750
Hardness Ca	: 50
PHPA	: 1.0
SULPHITE	: 10
	:
	:
np Value	: 0.718
Kp -lb-sec^n/100ft2	: 0.37629
na Value	: 0.595
Ka -lb-sec^n/100ft2	: 0.80831

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

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	: 0.0 / 0
KCl	: 0.0 / 0
Low Gravity Solids	: 8.0 / 73
Bentonite	: 0.6 / 6
Drill Solids	: 6.8 / 62
Weight Material	: N/A / N/A
Chemical Conc	: - / 5.0

Inert/React : 4.41 Average SG : 2.60

SOLIDS EQUIPMENT Size Hours

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

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:
Water Added	:	DUMP	:
Mud Built	:	TOTAL MUD	:445
Mud Received:			
Mud Disposed:			

Remarks :
Wait on drill 3.5" drill pipe.
Wait on 3.5" drill pipe. Service rig.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 0 — Cumul Cost : 14928

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 21
DATE 29 MAR 19 95 | DEPTH 1758 m
SPUD DATE 9 MAR | PRESENT ACTIVITY WAIT ON 3½" DP

OPERATOR	CONTRACTOR	RIG NO.
GFE RESOURCES	CENTURY	11
REPORT FOR	**REPORT FOR**	**SECTION, TOWNSHIP, RANGE**
KEN SMITH	SEAN KELLY	ONSHORE
WELL NAME AND NO.	**FIELD OR BLOCK NO.**	**COUNTY, PARISH OR OFFSHORE AREA / STATE/PROVINCE**
DUNBAR #1		OTWAY BASIN / VICT.

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE 9 5/8" in. @ 312 m	HOLE 152+0/N	PITS 163	PUMP SIZE 6 X 8.5 IN. 5.5 x 7.75		ANNULAR VEL (ft/min) DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE 7" in. @ 1197 ft	TOTAL CIRCULATING VOLUME 315		PUMP MAKE, MODEL NAT TP 50 BP 80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	IN STORAGE 130	WEIGHT 8.8	bbl/stk 0.054/0.072	stk/min	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER in. @ ft.	MUD TYPE PHPA/PAC		bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	22:00	
Flowline Temperature (°F)		
Depth (ft) (TVD / MD)	1758	
Weight ☑(ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.4	
Funnel Viscosity (sec/qt) API @ °F	40	
Plastic Viscosity cp @ °F	20	
Yield Point (lb/100 ft²)	11	
Gel Strength (lb/100 ft²) 10 sec/10 min	3 / 10	/
Filtrate API (cm³/30 min)	6.6	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 / 1	/
Solids Content (% by Vol) ☑ calculated ☐ retort	7.0	
Liquid Content (% by Vol) Oil/Water	93.	/
Sand Content (% by Vol)	0.25	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	
pH ☐ Strip ☐ Meter @ °F	8.5	
Alkalinity Mud (P_m)	0.1	
Alkalinity Filtrate (P_f/M_f)	0.1 / 0.65	/
Chloride (mg/L)	750	
Total Hardness as Calcium (mg/L)	50	
PHPA.	1.0	
$SO_3^=$	10	

MUD PROPERTY SPECIFICATIONS		
WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

NO TREATMENT
- SERVICE DESILTER

REMARKS

WAIT ON 3.5" DRILL PIPE
- SERVICE RIG

PRODUCT INVENTORY																	
STARTING INVENTORY																	
RECEIVED		1															
USED LAST 24 hr																	
CLOSING INVENTORY																	
COST LAST 24 hr																	
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		$ 0.00	$ 14928.57

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	24.0	Water Added (bbl)		Low Gravity %	6.0
Drilling		Mud Built (bbl)		Low Gravity, ppb	54.3
Reaming/Coring		Mud Received (bbl)		Bentonite %	0.9
Circulating		Mud Disposed (bbl)		Bentonite, ppb	7.8
Tripping				Drill Solids %	4.7
Survey				Drill Solids, ppb	42.5
Logging				Shale CEC, ppb	-
Running Casing		TOTAL MUD	445	D/B Ratio	3.02
Testing		Starting Depth		High Gravity %	1.0
Fishing		Ending Depth		High Gravity, ppb	14.8
		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						

MI-39P

WATER BASE MUD REPORT - Day : 22

M-I Drilling Fluids Company — Date : 30/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : DRILL CMT

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 6.000 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : 3.500 in 1619 m
Drill Pipe 2 OD : in m
Drill Collar OD : 4.750 in 139.0 m

CASING

Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1209.0m Liner TD : m
Casing TVD : 1209.0m Liner TVD : m

MUD VOLUME (bbl)

Hole Volume : 184
Pits Volume : 226
Circulating Volume : 410
Mud : FW POLYMER

MUD PROPERTIES :

Sample From	:	FL 23:00
Flow Line Temp	:	74 ^F
Depth/TVD -m	:	1758.0/1758.0
Mud Wt -lb/gal	:	9.3
Funnel Vis -s/qt	:	38 @ 70 ^F
Plastic Visc -cps	:	14 @ 65 ^F
YP/R3 -lb/100ft2 /deg	:	10 / 2
10s/10m Gel -lb/100ft2	:	2 / 9
API F Loss -cc/30 min	:	8.4
HTHP F Loss -cc/30 min	:	@ ^F
Cake API/HT -1/32"	:	1
Solids -%vol	:	7.0
Oil/Water -%vol	:	/93
Sand -%vol	:	3
MBT -lb/bbl	:	12.0
pH	:	12.5@ 55 ^F
Alkal Mud (Pm)	:	2.2
Pf/Mf	:	1.9 / 2.1
Chlorides -mg/l	:	750
Hardness Ca	:	200
PHPA	:	
SULPHITE	:	10
	:	
	:	
np Value	:	0.663
Kp -lb-sec^n/100ft2	:	0.41111
na Value	:	0.540
Ka -lb-sec^n/100ft2	:	0.88501

CIRCULATION DATA

Flow Rate -gal/min	:	250
DP Annular Vel -m/min	:	78.6
DC Annular Vel -m/min	:	139.0
DP Critical Vel -m/min	:	85.4
DC Critical Vel -m/min	:	110.4
Circ. Pressure -psi	:	800
Bottoms Up -min	:	23.9
Total Circ Time -min	:	68.9

PRODUCTS USED LAST 24 HOURS

Polypac R	25 KG S	2
M-I Bar	25 KG S	103

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	:	0.0 / 0
KCl	:	0.0 / 0
Low Gravity Solids	:	7.2 / 66
Bentonite	:	0.6 / 6
Drill Solids	:	6.0 / 55
Weight Material	:	N/A / N/A
Chemical Conc	:	- / 5.0

Inert/React : 4.06 Average SG : 2.60

SOLIDS EQUIPMENT Size Hours

Shaker #1	:	3 X 50	6
Shaker #2	:		
Shaker #3	:		
Shaker #4	:		
Mud Cleaner	:		
Centrifuge	:		
Desander	:	2 X 12"	
Desilter	:	12 X 4"	
Degasser	:		

MUD VOLUME ACCOUNTING bbl

Oil Added	:	SURFACE+SCE	:30
Water Added	:15	DUMP	:10
Mud Built	:40	TOTAL MUD	:460
Mud Received:			
Mud Disposed:	40		

Remarks :
Test BOPs. P/U 4.75" DC,M/U bit and RIH with 3.5" DP.Tag cement at 1102m.Drill out cmt & shoe track f/1102-1196m.
Test BOPs. Pick up 4.75" DCs, make-up 6" bit and RIH with 3.5" DP. Tag cement
at 1102m. Drill out cement and shoe track from 1102-1196m.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 833 — Cumul Cost : 15761

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 22

DATE 30 MAR 19 95 | DEPTH 1758 m

SPUD DATE 9 MAR | PRESENT ACTIVITY DRILL OUT CEMENT

OPERATOR: GFE RESOURCES	CONTRACTOR: CENTURY	RIG NO.: 11	
REPORT FOR: KEN SMITH	REPORT FOR: ROGER BINDON	SECTION, TOWNSHIP, RANGE: ONSHORE	
WELL NAME AND NO.: DUNBAR #1	FIELD OR BLOCK NO.: PPL-1	COUNTY, PARISH OR OFFSHORE AREA: OTWAY BASIN	STATE/PROVINCE: VICT.

DRILLING ASSEMBLY

BIT SIZE	TYPE	JET SIZE
6"	HTC 654	

DRILL PIPE SIZE	TYPE	LENGTH
3½		

DRILL PIPE SIZE	TYPE	LENGTH

DRILL COLLAR SIZE	LENGTH
4¾"	139m

CASING

SURFACE	INTERMEDIATE	INTERMEDIATE	PRODUCTION OR LINER
9⅝ in. @ 312 m	7" in. @ 1209 m	in. @ ft.	in. @ ft.

MUD VOLUME (BBL)

HOLE	PITS	TOTAL CIRCULATING VOLUME	IN STORAGE	WEIGHT
244	166	410	50	9.3

MUD TYPE: PHPA/PACR

CIRCULATION DATA

PUMP SIZE	PUMP MAKE, MODEL	ASSUMED EFF.	ANNULAR VEL (ft/min)	CIRCULATION PRESSURE (psi)
6 x 8.5 IN. 5.5 x 7.75	NAT FP50 BP80	95 %	DP 69 DC 111	800

bbl/stk	stk/min	BOTTOMS UP (min) (strk)	TOTAL CIRC TIME (min) (strk)
0.054/0.072	110	41 min.	52 min.

bbl/min	gal/min
5.94	250

MUD PROPERTIES

	F.L. ☐ PIT	F.L. ☐ PIT
Sample From	☑	☑
Time Sample Taken	23:00	06:00
Flowline Temperature (°F) (°C)	74(23)	75(23)
Depth (ft) (TVD / ft)	1758	1758
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3.	9.3
Funnel Viscosity (sec/qt) API @ 70 °F	38	40
Plastic Viscosity cp @ 65 °F	14	18
Yield Point (lb/100 ft²)	10	9
Gel Strength (lb/100 ft²) 10 sec/10 min	2/9	2/9
Filtrate API (cm³/30 min)	8.4	8.6
API HTHP Filtrate (cm³/30 min) @ °F	-	-
Cake Thickness (32nd in. API/HTHP)	1	1
Solids Content (% by Vol) ☑ calculated ☐ retort	7.0	7.0
Liquid Content (% by Vol) Oil/Water	93	93.0
Sand Content (% by Vol)	3	3.
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.0	12.0
pH ☑ Strip ☐ Meter @ °F	12.5	13.0
Alkalinity Mud (P_m)	2.2	2.0
Alkalinity Filtrate (P_f/M_f)	1.9/2.1	1.8/2.1
Chloride (mg/L)	750	750
Total Hardness as Calcium (mg/L)	200	180
PHPA		1.0
$SO_3^=$	TR	TR.

MUD PROPERTY SPECIFICATIONS

WEIGHT	VISCOSITY	FILTRATE
9.3 ppg	35-42 sec/qt	5-7 cc

RECOMMENDED TOUR TREATMENT

- DISPACE WELL TO MUD & MAITAIN MUD WT = 9.3 ppg.
- PREPARE ADDITIONAL VOL. WT = 10 ppg.

REMARKS

- TEST BOPs.
- P/U 4¾" DC, M/U 6" BIT & RIH WITH 3½" DP. TAG CMT @ 1102m.
- DRILL OUT CMT & SHOE TRACK F/ 1102m - 1196m.

PRODUCT INVENTORY	BARITE	PACR
STARTING INVENTORY	343	71
RECEIVED		1
USED LAST 24 hr	103	2
CLOSING INVENTORY	240	69
COST LAST 24 hr	.59 569	.48 263
USED (from IADC)	5.53	131.74

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		$ 833.07	$ 15761.64

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

TIME DISTRIBUTION (hrs)

Rig Up/Service	5.5
Drilling CMT	6.0
Reaming/Coring	
Circulating	
Tripping	8.5
Survey	
Logging	
Running Casing	
Testing BOP+SURF	4.0
Fishing	

MUD VOLUME ACCOUNTING

Water Added (bbl)	15
Mud Built (bbl)	40
Mud Received (bbl)	
Mud Disposed (bbl)	40
SURFACE	30
SCE/DUMP	10
TOTAL MUD	460
Starting Depth	
Ending Depth	
New Hole Vol. (bbl)	

SOLIDS ANALYSIS

Low Gravity %	6.7
Low Gravity, ppb	61.1
Bentonite %	0.8
Bentonite, ppb	6.9
Drill Solids %	5.5
Drill Solids, ppb	50.2
Shale CEC, ppb	-
D/B Ratio	3.57
High Gravity %	0.3
High Gravity, ppb	3.7

MUD RHEOLOGY and HYDRAULICS

Zero Gel	2	Avg ROP		ECD @		
n Factor	0.54	% Cutting		Leak Off @		
k Factor	0.88	psi	%	hhp	HSI	Jet Vel
Bit Hydraulics						
Annular Section	1	2	3	4	5	
Hole Size	6.276	6.276	6.00			
Pipe OD	4.75	3.5	4.75			
Critical Velocity	182	82	110			
Annular Velocity	111	69	139			
Viscosity	23	37.	19			
Annular Pressure	9.7	22.4	10.2			

MI-39P

WATER BASE MUD REPORT - Day : 23

M-I Drilling Fluids Company — Date : 31/03/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : LAY OUT DP

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 6.000 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : 3.500 in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1209.0m Liner TD : m
Casing TVD : 1209.0m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 190
Pits Volume : 129
Circulating Volume : 319
Mud : FW POLYMER

MUD PROPERTIES		CIRCULATION DATA		SOLIDS ANALYSIS	(% / lb/bbl)
Sample From	: PIT 24:00	Flow Rate -gal/min	:	NaCl	: 0.0 / 0
Flow Line Temp	: ^F	DP Annular Vel -m/min	:	KCl	: 0.0 / 0
Depth/TVD -m	:1758.0/1758.0	DC Annular Vel -m/min	:	Low Gravity Solids	: 7.2 / 66
Mud Wt -lb/gal	: 9.3	DP Critical Vel -m/min	: 89.8	Bentonite	: 0.7 / 6
Funnel Vis -s/qt	: 41 @ 70 ^F	DC Critical Vel -m/min	:	Drill Solids	: 6.0 / 54
Plastic Visc -cps	: 19 @ 65 ^F	Circ. Pressure -psi	:	Weight Material	: N/A / N/A
YP/R3 -lb/100ft2 /deg	: 10 / 2	Bottoms Up -min	:	Chemical Conc	: - / 5.0
10s/10m Gel -lb/100ft2	: 2 / 9	Total Circ Time -min	:	Inert/React : 3.86	Average SG : 2.60
API F Loss -cc/30 min	: 7.6				
HTHP F Loss -cc/30 min	: @ ^F				
Cake API/HT -1/32"	: 1				
Solids -%vol	: 7.0				
Oil/Water -%vol	: /93				
Sand -%vol	: 1.5				
MBT -lb/bbl	: 12.5				
pH	: 13.5@ 55 ^F				
Alkal Mud (Pm)	: 2.0				
Pf/Mf	: 1.8 / 2.0				
Chlorides -mg/l	: 750				
Hardness Ca	: 200				
PHPA	:				
SULPHITE	: 10				
	:				
	:				
np Value	: 0.727				
Kp -lb-sec^n/100ft2	: 0.33333				
na Value	: 0.581				
Ka -lb-sec^n/100ft2	: 0.82763				

PRODUCTS USED LAST 24 HOURS

Polypac R	25 KG S	1
M-I Bar	25 KG S	80

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

MUD VOLUME ACCOUNTING bbl

Oil Added :		SURFACE+SCE	:30
Water Added :		D/H +PLUG	:66
Mud Built	:60	TOTAL MUD	:424
Mud Received:			
Mud Disposed:	96		

Remarks :
Drill out shoe track.RIH to 1758m & circ POOH,lay out drl assy and RIH O/E to 1610m and set cmt plug #1.1610-1440m.
Continue to drill out shoe track. RIH to 1265m, 1302m & 1758m. Circulate and
flow check each stage. POOH and lay out DC. RIH O/E to 1610m and pump cement
plug #1 from 1610 -1440m. POOH 12 stands and WOC. RIH and tag cement at 1437m.
Circulate and lay out DP.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 574 — Cumul Cost : 16335

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 23
DATE 31 MAR 19 95 | DEPTH 1758 M
SPUD DATE 9 MAR | PRESENT ACTIVITY LAY OUT D.P

OPERATOR GFE RESOURCES | CONTRACTOR CENTURY | RIG NO. 11
REPORT FOR KEN SMITH. | REPORT FOR ROGER BINDON | SECTION, TOWNSHIP, RANGE ONSHORE.
WELL NAME AND NO. DUNBAR #1 | FIELD OR BLOCK NO. PPL-1 | COUNTY, PARISH OR OFFSHORE AREA OTWAY BASIN | STATE/PROVINCE VICT

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE 9 5/8 in. @ 312 M	HOLE 203	PITS 116	PUMP SIZE 6 X 8.5 IN. 5.5 . 7.75		ANNULAR VEL (ft/min) DP ____ DC ____
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE 7" in. @ 1209 M	TOTAL CIRCULATING VOLUME 319		PUMP MAKE, MODEL NAT 7P 50 8-P-80	ASSUMED EFF 95 %	CIRCULATION PRESSURE (psi)
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE in. @ ft.	IN STORAGE 105	WEIGHT 9.3	bbl/stk 0.054/0.072	stk/min 132	BOTTOMS UP (min) (strk)
DRILL COLLAR SIZE		LENGTH	PRODUCTION OR LINER in. @ ft.	MUD TYPE PHPA/PAC		7.13 bbl/min	300 gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT
Sample From		
Time Sample Taken	24:00	
Flowline Temperature (°F)		
Depth (ft) (TVD / ft)	1758	
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3	
Funnel Viscosity (sec/qt) API @ 65 °F	41	
Plastic Viscosity cp @ 60 °F	19	
Yield Point (lb/100 ft²)	10	
Gel Strength (lb/100 ft²) 10 sec/10 min	2 19	1
Filtrate API (cm³/30 min)	7.6	
API HTHP Filtrate (cm³/30 min) @ °F	-	
Cake Thickness (32nd in. API/HTHP)	1 1	1
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0	
Liquid Content (% by Vol) Oil/Water	93	1
Sand Content (% by Vol)	1.5	
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5	
pH ☑ Strip ☐ Meter @ °F	13.5	
Alkalinity Mud (P_m)	2.0	
Alkalinity Filtrate (P_f/M_f)	1.8/2.0	1
Chloride (mg/L)	750	
Total Hardness as Calcium (mg/L)	200	
PHPA		
$SO_3^=$	10	

MUD PROPERTY SPECIFICATIONS
WEIGHT 9.3 ppg | VISCOSITY 35-42 sec/qt | FILTRATE 5-7 cc

RECOMMENDED TOUR TREATMENT
BUILD ADDITIONAL VOL & MAINTAIN WT = 9.3 ppg.

REMARKS
- CONTIN TO DRILL OUT SHOE TRACK
RIH TO 1265m & CIRC B/U - FLOW CHECK
RIH TO 1302m & CIRC
RIH TO 1758m, CIRC & FLOW CHECK
POOH & LAY OUT D/C
RIH O/E TO 1610m & PUMP
CEMENT PLUG #1 1610m - 1440m
POOH 12 STDS CIRC & WOC
RIH & TAG CMT @ 1437m. CIRC PIPE & LAY OUT DP.

PRODUCT INVENTORY	BARITE	PAC R																
STARTING INVENTORY	240	69																
RECEIVED																		
USED LAST 24 hr	80	1																
CLOSING INVENTORY	160	68																
COST LAST 24 hr	.40 442	.74 131																
USED (from IADC)	5.53	131.74																

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		$ 574.14	$ 16335.78

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	1.5	Water Added (bbl)		Low Gravity %	6.7
Drilling		Mud Built (bbl)	60	Low Gravity, ppb	61.1
Reaming/Coring	2.0	Mud Received (bbl)		Bentonite %	0.8
Circulating	2.0	Mud Disposed (bbl)	96	Bentonite, ppb	6.9
Tripping	13.5	PLUG	35	Drill Solids %	5.5
Survey		SURF	30	Drill Solids, ppb	50.2
Logging		O/H	31	Shale CEC, ppb	-
Running Casing		TOTAL MUD	424	D/B Ratio	3.57
Testing		Starting Depth		High Gravity %	0.3
Fishing CMT	1.0	Ending Depth		High Gravity, ppb	3.7
WOC	4.0	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						

MI-39P

WATER BASE MUD REPORT - Day : 24

M-I Drilling Fluids Company — Date : 01/04/95 — Depth : 1758.0 m
DRILLING FLUIDS DATA MANAGEMENT SYSTEM — Well No. : G0003 — Spud Date : 09/03/95 — Activity : RIG DOWN

Operator : GFE RESOURCES — Contractor : CENTURY DRILLING 11 — Description : EXPLORATION
Well Name : DUNBAR 1 — Field/Area : PPL 1 — Location : OTWAY BASIN
Report For: KEN SMITH

Bit : 6.000 in
Nozzles: / / / / / 1/32"
Drill Pipe 1 OD : 3.500 in 1758 m
Drill Pipe 2 OD : in m
Drill Collar OD : in m

CASING
Casing OD : 7.000 in Liner OD : in
Casing ID : 6.280 in Liner ID : in
Casing TD : 1209.0m Liner TD : m
Casing TVD : 1209.0m Liner TVD : m

MUD VOLUME (bbl)
Hole Volume : 190
Pits Volume : -190
Circulating Volume :
Mud : FW POLYMER

MUD PROPERTIES

Sample From		FL 15:00
Flow Line Temp		70 ^F
Depth/TVD	-m	1758.0/1758.0
Mud Wt	-lb/gal	9.3
Funnel Vis	-s/qt	42 @ 70 ^F
Plastic Visc	-cps	20 @ 65 ^F
YP/R3	-lb/100ft2 /deg	10 / 2
10s/10m Gel	-lb/100ft2	2 / 9
API F Loss	-cc/30 min	7.6
HTHP F Loss	-cc/30 min	@ ^F
Cake API/HT	-1/32"	1
Solids	-%vol	7.0
Oil/Water	-%vol	/93
Sand	-%vol	1.5
MBT	-lb/bbl	12.5
pH		12.5@ 55 ^F
Alkal Mud (Pm)		2.0
Pf/Mf		1.8 / 2.0
Chlorides	-mg/l	750
Hardness Ca		200
PHPA		0.9
SULPHITE		300
np Value		0.737
Kp	-lb-sec^n/100ft2	0.32402
na Value		0.588
Ka	-lb-sec^n/100ft2	0.81775

CIRCULATION DATA

Flow Rate	-gal/min	
DP Annular Vel	-m/min	
DC Annular Vel	-m/min	
DP Critical Vel	-m/min	91.3
DC Critical Vel	-m/min	
Circ. Pressure	-psi	
Bottoms Up	-min	
Total Circ Time	-min	

PRODUCTS USED LAST 24 HOURS

Bacban	6 LB JU	1
Conqor 303	25 LT D	10

SOLIDS ANALYSIS (% / lb/bbl)

NaCl	0.0	0
KCl	0.0	0
Low Gravity Solids	7.2	66
Bentonite	0.7	6
Drill Solids	6.0	54
Weight Material	N/A	N/A
Chemical Conc	-	5.0

Inert/React : 3.86 Average SG : 2.60

SOLIDS EQUIPMENT

	Size	Hours
Shaker #1	3 X 50	7
Shaker #2		
Shaker #3		
Shaker #4		
Mud Cleaner		
Centrifuge		
Desander	2 X 12"	
Desilter	12 X 4"	
Degasser		

MUD VOLUME ACCOUNTING bbl

Oil Added		PLUG	46
Water Added		DUMP	230
Mud Built		TOTAL MUD	148
Mud Received:			
Mud Disposed:	276		

Remarks :
Rig up and set cement plug #2 f/1240-1180m. RIH and tag cmt @ 1178m circ and displace hole to inhibited mud.
Rig up and set cement plug #2 from 1240-1189m. Pull 5 stands and WOC. RIH and
tag cement at 1178m. Circulate and pressure test plug to 500 psi. Minimize pit
volume and circulate inhibited mud. POOH and lay out drill pipe. P & A
complete. Rig down.

M-I Sales Engineer: P.MARSHALL Warehouse: ADELAIDE — Daily Cost : 622 — Cumul Cost : 16957

DRILLING MUD REPORT

OPERATOR

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

DRILLING MUD REPORT NO. 24

DATE 1st APRIL 19 95 | DEPTH 1758

SPUD DATE 9 MAR | PRESENT ACTIVITY RIG DOWN

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

DRILLING ASSEMBLY			CASING	MUD VOLUME (BBL)		CIRCULATION DATA		
BIT SIZE	TYPE	JET SIZE	SURFACE: 9 5/8 in. @ 312 ft	HOLE: 148	PITS: -	PUMP SIZE X IN.		ANNULAR VEL (ft/min) DP DC
DRILL PIPE SIZE	TYPE	LENGTH	INTERMEDIATE: 7" in. @ 1209 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: PHPA/PAC		bbl/min	gal/min	TOTAL CIRC TIME (min) (strk)

MUD PROPERTIES			MUD PROPERTY SPECIFICATIONS		
	☐ F.L. ☑ PIT	☐ F.L. ☐ PIT	WEIGHT	VISCOSITY	FILTRATE
Sample From					
Time Sample Taken	15:00				
Flowline Temperature (°F)					
Depth (ft) (TVD / ft)	1758.				
Weight ☑ (ppg) ☐ (lb/cu ft) ☐ (sp gr)	9.3+				
Funnel Viscosity (sec/qt) API @ °F	42				
Plastic Viscosity cp @ °F	20				
Yield Point (lb/100 ft²)	10				
Gel Strength (lb/100 ft²) 10 sec/10 min	2 1 9	1			
Filtrate API (cm³/30 min)	7.4				
API HTHP Filtrate (cm³/30 min) @ °F	-				
Cake Thickness (32nd in. API/HTHP)	1 1	1			
Solids Content (% by Vol) ☐ calculated ☐ retort	7.0				
Liquid Content (% by Vol) Oil/Water	93.0	1			
Sand Content (% by Vol)	2.0				
Methylene Blue Capacity ☐ lb/bbl equiv ☐ cm³/cm³ mud	12.5				
pH ☑ Strip ☐ Meter @ °F	12.5				
Alkalinity Mud (P_m)	8.0				
Alkalinity Filtrate (P_f/M_f)	.8/2.0	1			
Chloride (mg/L)	750				
Total Hardness as Calcium (mg/L)	200				
SO3	300				

RECOMMENDED TOUR TREATMENT

- MINIMISE SUCTION PIT TO 50 L/s AND ADD CONQOR 303, BACBAN & OS-1 (NO CHARGE, STOCK ADJUSTMENT) WHILE CIRC. ON CMT PLUG # 2
- DUMP SURFACE VOLUME.

REMARKS

- LAY OUT D/P.
- RIG UP & PUMP CMT PLUG # 2 F/ 1240 m - 1180 m. - PRESS TEST - OK
POOH 5 STDS & WOC
RIH & TAG CEMENT @ 1178 m
CIRC & PRESS TEST PLUG TO 500 psi OK
DISPLACE CASED HOLE TO INHIBITED MUD. POOH & L/OUT D.P

E. O. H.

PRODUCT INVENTORY	CONQOR 303	BACBAN II	OS-1
STARTING INVENTORY	10	5	
RECEIVED		1	
USED LAST 24 hr	10	1	1
CLOSING INVENTORY	-	4	
COST LAST 24 hr	.70 512	.34 109	NO CHARGE
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		$ 622.04	$ 16957.82

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	12.0	Water Added (bbl)		Low Gravity %	
Drilling		Mud Built (bbl)		Low Gravity, ppb	
Reaming/Coring		Mud Received (bbl)		Bentonite %	
Circulating	1.0	Mud Disposed (bbl)	276	Bentonite, ppb	
Tripping	5.5	PLUG	46	Drill Solids %	
Survey		DUMP	230	Drill Solids, ppb	
Logging				Shale CEC, ppb	
Running Casing/CMT	0.25	TOTAL MUD	148	D/B Ratio	
Testing		Starting Depth		High Gravity %	
Fishing		Ending Depth		High Gravity, ppb	
WOC	5.0	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						

MI-39P

APPENDIX 3

APPENDIX 3

DAILY REPORT SUMMARY OF DRILLING OPERATIONS

GFE Resources Ltd

DRILLING OPERATIONS SUMMARY

DUNBAR-1

Permit:	PPL1	**Spud Date:**	10 / 05 / 1995	**Rig:**	Century Rig 11
GFE Rep:	K. Smith	**Geologist:**	D. Horner		

Time	Hours	Operations	Page: 1
9 / 3 / 95			
0600-1700	11	Finalize rig-up. Drill rat hole and mouse hole. Pre-spud meeting with crews and service companies.	
1700-1900	2	Spud in and drill 12¼" hole from 10 to 41m.	
1900-1930	½	Work on generator to restore power.	
1930-2000	½	Drill to 43m. Circulate and survey at 30m.	
2000-2300	3	Drill 12¼" hole from 43 to 97m.	
2300-2330	½	Circulate and survey at 84m.	
2330-2400	½	Drill 12¼" hole from 97 to 115m.	
10 / 3 / 95			
0000-0100	1	Drill 12¼" hole from 115 to 142m.	
0100-0130	½	Circulate and survey at 129m.	
0130-0300	1½	Drill 12¼" hole from 142 to 206m.	
0300-0330	½	Circulate and survey at 193m.	
0330-0500	1½	Drill 12¼" hole from 206 to 263m.	
0500-0530	½	Work mud ring out of annulus and flow line.	
0530-0600	½	Circulate and survey at 250m.	
0600-0730	1½	Drill 12¼" hole from 263 to 291m.	
0730-0800	½	Clear flow-line and conductor of mud ring.	
0800-0900	1	Drill 12¼" hole from 291 to 310m.	
0900-0930	½	Clear flow-line and conductor of mud ring.	
0930-1000	½	Drill 12¼" hole from 310 to 317m - casing point.	
1000-1030	½	Circulate hole clean.	
1030-1400	3½	Wiper trip to surface - strap out to top of 8" DC's. Tag 1m of fill.	
1400-1430	½	Circulate hole clean. Clean flow-line and unblock cellar jet from mud ring.	
1430-1500	½	Circulate hole clean prior to running casing.	
1500-1700	2	Pull out of hole to run casing. Lay out 8" DC's and 12¼" stabilizer.	
1700-2200	5	Rig up to run and run $9^{5}/_{8}$" casing. Hold safety meeting.	
2200-2230	½	Break collar and head up Dowell.	
2230-2300	½	Circulate 120bbls of mud through casing prior to cementing.	
2300-2400	1	Pressure test and mix cement. Only 35bbls of slurry mixed after 1 hour. Unable to mix continuously and maintain weight.	

11 / 3 / 95		
0000-0130	1½	Circulate cement to surface and dump. Dowell working on cement unit.
0130-0230	1	Resume cementing - run 393 sacks and displace.
0230-0600	3½	Wait on cement.
0600-0930	3½	Wait on cement.
0930-1030	1	Slack off and remove landing joint and lay out same. Lay out cementing head and conductor barrel.
1030-2000	9½	Install casing bowl, nipple up BOP's, install choke manifold and lay flare line - function BOP.
2000-2200	2	Pressure test Hydril and flare line to 1500psi, blind rams to 1000psi, pipe rams to 2500psi and 300psi and all choke manifold valves, manual and HCR valve and 2 kill line valves to 2500psi.
2200-2400	2	Make up slick 8½" BHA and run in hole - pick up 2 x 6¼" DC's and drilling jars.
12 / 3 / 95		
0000-0030	½	Run in hole with 8½" BHA.
0030-0100	½	Slip 20 ft of drill line.
0100-0130	½	Run in hole - tag top of cement at 293m.
0130-0200	½	Pressure test upper and lower kelly cocks to 1000psi.
0200-0330	1½	Drill out float, cement and shoe, and drill 5m of new hole (317-322m).
0330-0400	½	Circulate hole clean.
0400-0500	1	Run formation integrity test with Dowell/Schlumberger with 8½ppg mud at 321m to 790psi - EMW 22.89ppg.
0500-0600	1	Drill 8½" hole from 322 to 348m.
0600-0830	2½	Pull outof hole to pick up stabilizer, install at 60ft and run in hole.
0830-0930	1	Drill 8½" hole from 349 to 387m.
0930-1000	½	Clear shakers (and flow-line) of balling clay, reduce bit weight and ROP for shakers to cope.
1000-1100	1	Drill 8½" hole from 387 to 406m.
1100-1130	½	Clean shakers and sand trap - cuttings too gluey to flow through sand trap - dump gate.
1130-1230	1	Drill 8½" hole from 406 to 422m.
1230-1300	½	Circulate and survey at 422m.
1300-2030	7½	Drill 8½" hole from 435 to 626m.
2030-2100	½	Circulate and survey at 613m.
2100-2400	3	Drill 8½" hole from 626 to 693m.

13 / 3 / 95		
0000-0600	6	Drill 8½" hole from 693 to 818m.
0600-0630	½	Drill 8½" hole from 818 to 827m.
0630-0700	½	Circulate and survey at 814m.
0700-0800	1	Drill 8½" hole from 827 to 856m.
0800-0830	½	Circulate bottoms up prior to wiper trip to casing shoe of 29 stands.
0830-0930	1	Wiper trip first 3 stands free - then starting to pull tight.
0930-1100	1½	Pick up kelly, work to free stuck pipe and work tight hole from 579 to 559m.
1100-1330	2½	Circulate and continue pulling to shoe, work tight hole from 550 to 531m., 512 to 474m., 394 to 378m. String spiralling and twisting block line - pull 1 pass with unlocked blocks and re-pull same with locked blocks to wipe hole clean.
1330-1700	3½	Run in hole. Ream from 531 to 569m, 597 to 610m, 665 to 678m, 798 to 856m, running stands where possible - 18m. of fill.
1700-2230	5½	Drill 8½" hole from 856 to 1028m.
2230-2300	½	Circulate and survey at 1015m.
2300-2400	1	Drill 8½" hole from 1028 to 1047m.
14 / 3 / 95		
0000-0600	6	Drill 8½" hole from 1047 to 1204m.
0600-0730	1½	Drill 8½" hole from 1204 to 1230m.
0730-0800	½	Circulate and survey at 1217m.
0800-1130	3½	Drill 8½" hole from 1230 to 1287m.
1130-1200	½	Circulate bottoms up prior to wiper trip.
1200-1430	2½	Wiper trip from 1287 back to 575m. - work tight hole at 905 to 847m., 790 to 770m. and 713 to 675m.
1430-1500	½	Pick up kelly and break circulation to check for plugged bit jet and to wash stabilizer blades.
1500-1630	1½	Run in hole -ream and clean from 1255 to 1287m. - 7m. of fill.
1630-2400	7½	Drill 8½" hole from 1287 to 1382m.
15 / 3 / 95		
0000-0400	4	Drill 8½" hole from 1382 to 1430m.
0400-0430	½	Circulate and survey at 1417m.
0430-0600	1½	Drill 8½" hole from 1430 to 1445m.
0600-1330	7½	Drill 8½" hole from 1445 to 1507m - Drill string torqueing up.
1330-1930	6	Pull out of hole, work tight hole 1331 to 1082m with up to 40000 lbs over-pull. Approximately 230m of the tight section was wiped last trip. Picked up kelly twice to fill pipe and wash stabilizer. Stabilizer $^{3}/_{8}$" and $^{7}/_{8}$" undergauge, bit ½" undergauge.
1930-2100	1½	Make up new bit on junk sub and run in slick BHA to casing shoe.
2100-2130	½	Slip 32 feet of drilling line.
2130-2400	2½	Run in hole -precautionary ream tight hole from 616 to 683m, 756 to 780m, 823 to 836m, and 852 to 875m, running stands where possible.

16 / 3 / 95		
0000-0600	6	Continue running in hole. Precautionary reaming tight hole from 920 to 971m, 1016 to 1067m, 1092 to 1125m, 1150 to 1248m and 1283 to 1411m Running stands where possible without forcing bit into under-gauge hole.
0600-0900	3	Ream and clean tight hole from 1411 to 1507m running stands where possible.
0900-0930	½	Work junk sub at 1507m.
0930-1330	4	Drill 8½" hole from 1507 to 1557m.
1330-1530	2	Circulate geological sample at 1507m - flow check and pull back 3 stands.
1530-1700	1½	Wiper trip back to 785m - work sticky hole from 1340 to 1168m.
1700-1850	1½	Run in hole - 5m of fill.
1830-1930	1	Break circulation, clean to bottom, pull 3 stands and circulate hole clean.
1930-2000	½	Run in hole 3 stands and spot high viscosity pill on bottom 50m of hole.
2000-2130	1½	Pull out of hole - strap pipe.
2130-2200	½	Slug pipe with baryte pill.
2200-2300	1	Continue to pull out of hole.
2300-2330	½	Slip 17 feet of drilling line.
2330-2400	½	Continue to pull out of hole.
17 / 3 / 95		
0000-0100	1	Pull out of hole - lay out jars.
0100-0300	2	Make up test tool.
0300-0600	3	Run in hole with test tool.
0600-0700	1	Run in hole with test tool.
0700-0800	1	Head up surface equipment, pressure test chiksans with 100psi air pressure and hold safety meeting.
0800-1000	2	Run DST-1 from 1526m to 1557m.
1000-1400	4	Rig down surface equipment, pull free and pull out of hole for suspected plugged test tool.
1400-1700	3	Break and lay-out test tool and clean same - plugged.
1700-2100	4	Make up 8½" BHA and run in hole to bridge at 1533m.
2100-2130	½	Clean out bridge at 1533 to 1535m and wash to bottom - 3m of fill.
2130-2400	2½	Circulate 5 minutes, pull 3 stands to 1493m and circulate and condition mud, run back to bottom, pump 20bbls of 80 viscosity sweep and circulate around while conditioning mud - pull back to 1493m when sweep clear of bit.

18 / 3 / 95		
0000-0200	2	Wiper trip to 977m - 1.5m of fill.
0200-0600	4	Pull out of hole for DST-2. Lay out jars, shock sub and bit.
0600-0730	1½	Make up test tools.
0730-1100	3½	Run in hole with test tool.
1100-1130	½	Head up surface equipment. Pressure test surface chiksans and hold safety meeting.
1130-1600	4½	Set packers, open tool and run DST-2 from 1526m to 1557m with Baker Tools.
1600-2000	4	Unseat packers, rig down surface equipment and pull out of hole - recover fluid samples.
2000-2230	2½	Break and lay out test tools.
2230-2400	1½	Pressure test pipe rams, choke manifold valves, HCR, manifold choke line valve and kill line valve to 2500psi and Hydril to 1000psi.
19 / 3 / 95		
0000-0200	2	Make up 8½" BHA and run in hole.
0200-0300	1	Slip 40ft and cut 110ft of drilling line.
0300-0500	2	Run in hole to 1533m.
0500-0530	½	Break circulation and wash to bottom - 1.5m of fill. Work junk sub and put fresh mud spacer behind rathole mud prior to drilling ahead.
0530-0600	½	Drill 8½" hole from 1557 to 1559m.
0600-1100	5	Drill 8½" hole from 1559 to 1632m.
1100-1130	½	Circulate and survey at 1619m.
1130-2100	9½	Drill 8½" hole from 1632 to 1758m.
2100-2200	1	Circulate bottoms up.
2200-2400	2	30 stand wiper trip back to 1169m - work tight hole from 1552 to 1495m.
20 / 3 / 95		
0000-0200	2	Run in hole - wiper trip, clean and wash from 1533 to 1648m. Run stands where able - 7m of fill
0200-0330	1½	Circulate hole clean.
0330-0400	½	Drop survey and pump barite pill.
0400-0600	2	Pull out of hole to log - strap drill pipe.
0600-0730	1½	Pull out of hole to log. Lay out jars - recover survey barrel - strap pipe
0730-2400	16½	Rig up BPB and run logs - Run#1 AIS/MRS/BCA/SP/GR/CAL Run#2 AST. Run#3 PDS/CNS.

21 / 3 / 95		
0000-0330	3½	Continue logging Run#3 with BPB and rig down.
0330-0430	1	Make up 8½" BHA and run in hole to casing shoe.
0430-0500	½	Slip 20ft of drilling line.
0500-0600	1	Run in hole to condition for RFT.
0600-0630	½	Run in hole to 1741m.
0630-0700	½	Break circulation and ream to bottom - 4 metres of fill.
0700-0800	1	Circulate hole clean at 300gpm.
0800-0830	½	Pull out of hole.
0830-0900	½	Pick up kelly and circulate barite pill - mud out of balance - wet pipe.
0900-1200	3	Pull out of hole - lay out jars.
1200-2400	12	Rig up BPB - BPB wireline damaged picking up tools, rig down, cut and splice new socket end, run RFS-GR - unable to maintain pressure on hydraulic arm and unable to repair - run velocity survey.
22 / 3 / 95		
0000-0430	4½	Run velocity survey and sidewall cores with BPB - rig down BPB.
0430-0600	1½	Run in hole to condition mud and hole.
0600-0730	1½	Run in hole to 1751m. Break circulation and clean to bottom - 3m of fill.
0730-1200	4½	Circulate and condition mud while waiting for new RFS tool.
1200-1400	2	Wiper trip back to 1176m. Run in hole - 1.5m of fill.
1400-1500	1	Circulate bottoms up.
1500-1800	3	Pull out of hole to run RFS.
1800-2400	6	Rig up BPB and run RFS-GR.
23 / 3 / 95		
0000-0530	5½	Continue to run RFS-GR with BPB.
0530-0600	½	Pull out of hole to clear plugging of RFS tool.
0600-1930	13½	Run RFS with BPB - pull out and rig down BPB.
1930-2300	3½	Make up 8½" BHA and run in hole.
2300-2400	1	Break circulation and clean to bottom, 2.5m of fill, circulate hole clean and prepare casing.
24 / 3 / 95		
0000-0200	2	Circulate hole clean prior to running casing and prepare casing.
0200-0600	4	Pull out of hole laying down drill pipe.
0600-0730	1½	Layout drill pipe and BHA and break Kelly.
0730-0800	½	Slip 40ft of drill-line.
0800-1030	2½	Lay out BHA.
1030-1200	1½	Change 4½" to 7" rams and rig up to run 7" casing.
1200-2130	9½	Back out swage nipple, back off 2 x 7" collars. Make up shoe and float collar and run 7" casing installing centralisers and scratchers - casing stuck at 1245m while running in Joint #105.
2130-2400	1½	Work pipe free. Make up circulating swage. Circulate casing and work from 1237 to 1248m to clean up hole.

25 / 3 / 95		
0000-0330	3½	Pick up Joint #106 and try to run - unable to get past 1253m (5m in). Work casing while circulating through swage.
0330-0600	2½	Circulate and lay out three joints of casing - work each joint free first.
0600-1200	6	Continue to try to get fourth Joint out before attempting to re-run casing. Hole packed off after getting joint #102 laid out. Picked up joint #103 to re-establish circulation; worked and circulated tight hole. Laid out joints # 103 and 102. Work joint #101 at 1201 to 1197m - 240,000 lbs pull.
1200-2230	10½	Picked up joint #102 and circulated and worked down from 1201 to 1210m. Pulled up with 250,000 lbs and lost 10 inches of down travel at 1210m end.
2230-2300	½	Slip 20 feet of drilling line.
2300-2400	1	Continue to work casing down at 1210m.
26 / 3 / 95		
0000-0100	1	Head up casing with Dowell cement head and load plugs.
0100-0200	2	Circulate casing at 260 gpm - no losses. Hold cementing safety meeting with Dowell and rig crew.
0200-0400	2	Mix and run cement with Dowell Schlumberger and cement casing at 1209.32m.
0400-0430	½	Set 7" slip and assembly in casing bowl.
0430-0600	1½	Nipple down BOP's.
0600-0830	2½	Nipple down BOP and raise stack - slup and seal not level, re-seat - cut casing and lay out.
0830-0930	1	Lay out flow nipple and lift stack and dress casing stub at 6" (7" of clearance in spool).
0930-1130	2	Install tubing spool and lay out spacer spool.
1130-1500	3½	Nipple up BOP's.
1500-1730	2½	Change 7" casing rams to 3½" pipe rams.
1730-1900	1½	Energize 'X' bushing and pressure test to 3,000 psi with hydraulic hand pump.
1900-2000	1	Cut 84 feet of drilling line.
2000-2200	2	Lay out kelly bushing, kelly spinner and kelly.
2200-2400	2	General maintenance while waiting on cement and waiting on 3½" drill string.
27 / 3 / 95		
0000-0600	6	General maintenance to rig while waiting on cement and waiting on 3½" drill string.
0600-2400	18	Standby with crew while waiting on 3½" drill string - test casing to 1,000 psi against blind rams and HCR valve for 15 minutes with Dowell/ Schlumberger - OK.
28 / 3 / 95		
0000-0600	6	Stand by with crew.
0600-2400	18	Standby with crew while waiting on 3½" drill string.
29 / 3 / 95		
0000-0600	6	Standby with crew while waiting on 3½" drill string.
0600-2330	17½	Standby with crew while waiting on 3½" drill string.
2330-2400	½	Unload tubulars and handling equipment.

30 / 3 / 95		
0000-0130	1½	Unload tubulars.
0130-0230	1	Pick up and make up kelly and kelly cock and install kelly bushing.
0230-0300	½	Pick up joint of 3½" drill pipe and make up 7" cup tester.
0300-0600	3	Pressure test pipe rams, all choke manifold valves, HCR valve, manual valve and kill-line valves to 300psi - chase and repair leaks.
0600-0700	1	Continue pressure testing pipe rams and pressure test Hydril to 1500psi. Load racks and sort pipe.
0700-0830	1½	Pick up 4¾" drill collars and make up 6" BHA.
0830-1530	7	Pick up 3½" drill pipe and run in hole. Tag cement at 1102m.
1530-1600	½	Hold meeting with crews on drill-out procedure. Pick up kelly and make up kelly cock and saver sub.
1600-1700	1	Pressure test upper and lower kelly cocks and stabbing valve to 1500psi.
1700-1730	½	Repair blockage in air line to koomey remote control.
1730-1800	½	Circulate through choke prior to drilling out.
1800-2400	6	Drill out cement from 1102 to 1196m.
31 / 3 / 95		
0000-0100	1	Drill out shoe track to 1209m - flow check.
0100-0200	1	Precautionary ream from 1209m to1265m.
0200-0230	½	Circulate bottoms up.
0230-0300	½	Run in hole, ream from 1264m to 1274m, run in hole to 1302m.
0300-0330	½	Circulate 1½ times hole volume.
0330-0600	2½	Run in hole, flow check every 10 stands, break circulation every 15 joints.
0600-0630	½	Run in hole to TD with flow check every ten stands - 2.5 metres of fill. Circulate.
0630-0730	1	Circulate two times hole volume at 300gpm.
0730-1030	3	Pull out of hole.
1030-1230	2	Lay out 4¾" drill collars and break out bit and bit sub.
1230-1530	3	Run in hole with open-ended drill pipe.
1530-1600	½	Head up to run cement plugs and circulate - wrong crossover sub.
1600-1700	1	Pick up kelly, prime pumps and circulate prior to running plug #1.
1700-1800	1	Pressure test line and run cement plug #1 from 1610 to 1440m with 200 sacks class 'G' cement through kelly.
1800-1830	½	Pull back 12 stands.
1830-2330	5	Wait on cement - circulate and lay out excess pipe. Run in hole nine stands and tag plug #1 at 1437m.
2330-2400	½	Circulate pipe clear after tagging plug.

1 / 4 / 95		
0000-0030	½	Lay out 21 singles and run in hole one stand to 1240m.
0030-0130	1	Pick up kelly, circulate and run plug #2 from 1240 to 1180m.
0130-0600	4½	Pull out of hole five stands and circulate at 1144m while waiting on cement.
0600-0700	1	Circulate at 1144m while waiting on cement plug #2.
0700-0730	½	Run in hole and tag plug #2 at 1178m.
0730-0830	1	Circulate, pressure test plug to 500psi -OK, mix and circulate inhibited mud.
0830-0930	1	Pull out of hole laying out 3½" drill pipe.
0930-1100	1½	Break and lay out 3½" kelly and swivel.
1100-1200	1	Continue to lay out drill pipe.
1200-1500	3	Re-reeve fast line over crown with sand line. Slip 205ft of drilling line and cut 189ft after travelling block dropped on floor (refer to separate report).
1500-1730	2½	Finish laying out 3½" drill pipe.
1730-1800	½	Load last of 3½" (rental) drill pipe and handling equipment for return to Perth.
1800-2230	4½	Tear out BOP's and clean mud tank.
2230-2400	1½	Lay out studded adaptor flange. Grease tubing hanger seat. Install new adaptor flange, recover Cameron valve and install with top flange and bull plug. Release rig at 2400hrs. FINAL REPORT.

APPENDIX 4

APPENDIX 4

A: CUTTING DESCRIPTIONS

B: DAILY REPORT LITHOLOGICAL DESCRIPTIONS

GFE Resources Ltd

CUTTINGS DESCRIPTION

WELL NAME:	DUNBAR - 1	**DATE:**	16 January, 1996
GEOLOGIST:	D.Horner	**PAGE:**	1

Interval (m)	%	Description
6-10	100	**Calcarenite**: orange, very fine to fine grained, sucrosic texture, common shell fragments and forams, common red brown iron oxide rich calcilutite, friable, good visual porosity.
10-15	100	**Calcarenite**: as for 6 to 10m.
15-20	100	**Calcarenite**: as for 6 to 10m.
20-25	30	**Calcarenite**: as for 6 to 10m.
	40	**Calcarenite**: light grey, very fine to fine grained, slightly to very argillaceous, common shell fragments, common forams, friable, poor visual porosity.
	30	**Marl**: medium grey, very calcareous grading to calcilutite, firm, non fissile.
25-30	10	**Calcarenite**: orange, very fine to fine grained, sucrosic texture, common shell fragments and forams, common red brown iron oxide rich calcilutite, friable, good visual porosity.
	60	**Calcarenite**: light grey, very fine to fine grained, slightly to very argillaceous, common shell fragments, common forams, friable, poor visual porosity.
	30	**Marl**: medium grey, very calcareous grading to calcilutite, firm, non fissile.
30-35	20	**Marl**: as for 25 to 30m.
	80	**Calcarenite**: light grey to yellow to orange to brown, very fine grained, often lutitic and very iron oxide rich, otherwise fine grained with common fossil fragments, trace glauconite, friable to moderately hard, poor visual porosity.
35-40	30	**Marl**: as for 25 to 30m.
	70	**Calcarenite**: as for 30 to 35m.
40-45	100	**Calcarenite**: light grey, occasionally yellow orange, fine grained, common fossil fragments including bivalves, gastropods, forams, sponge spicules, echinoid spines and bryozoa, trace grey chert, trace glauconite, trace black carbonaceous detritus, friable to moderately hard, poor visual porosity.
45-50	100	**Calcarenite**: as for 40 to 45m.
50-55	100	**Calcarenite**: very light grey, fine grained, trace fossil fragments as for 40 to 45m, slightly argillaceous, trace glauconite, trace medium grey marl, friable, poor visual porosity.
55-60	100	**Calcarenite**: as for 50 to 55m. but with common fossil fragments.
60-65	100	**Calcarenite**: very light grey, fine grained, slightly argillaceous, common fossil fragments including bivalves, gastropods, forams, sponge spicules, echinoid spines and bryozoa, trace grey chert, trace glauconite, trace black carbonaceous detritus, rare pyrite, friable to moderately hard, poor visual porosity.

65-70	100	**Calcarenite**: as for 60 to 65m.
70-75	100	**Calcarenite**: as for 60 to 65m. but with fossil fragments increasing to common to abundant.
75-80	90	**Calcarenite**: as for 70 to 75m.
	10	**Marl**: medium grey, very calcareous grading to calcilutite, firm, non fissile.
80-85	90	**Calcarenite**: as for 70 to 75m. becoming light grey with increasing argillaceous content.
	10	**Marl**: as for 75 to 80m.
85-90	90	**Calcarenite**: light grey, fine grained, slightly to occasionally very argillaceous, common fossil fragments including bivalves, gastropods, forams, sponge spicules, echinoid spines and bryozoa, trace grey chert, trace glauconite, trace black carbonaceous detritus, rare pyrite, friable to moderately hard, poor visual porosity.
	10	**Marl**: as for 75 to 80m.
90-95	100	**Calcarenite**: as for 85 to 90m.
	trace	**Marl**: medium grey, very calcareous grading to calcilutite, firm, non fissile.
95-100	100	**Calcarenite**: as for 85 to 90m.
	trace	**Marl**: as for 90 to 95m.
100-105	100	**Calcarenite**: light grey, very fine to fine grained, slightly to moderately argillaceous, trace fossil fragments, rare glauconite, trace black carbonaceous detritus, friable, poor visual porosity.
105-110	100	**Calcarenite**: as for 100 to 105m.
110-115	100	**Calcarenite**: as for 100 to 105m.
115-120	20	**Calcarenite**: as for 100 to 105m. but becoming finer grained and very calcilutitic.
	80	**Marl**: medium grey, very calcareous, common fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, trace glauconite, rare dispersed quartz sand grains, very soft, sticky, non fissile.
120-125	10	**Calcarenite**: as for 115 to 120m.
	90	**Marl**: as for 115 to 120m.
125-130	100	**Marl**: as for 115 to 120m. with trace pyrite.
130-135	100	**Marl**: medium grey, very calcareous, common fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, trace glauconite, rare dispersed quartz sand grains, rare pyrite, very soft, sticky, non fissile.
135-140	100	**Marl**: as for 130 to 135m but with trace black carbonaceous detritus.
140-150	80	**Marl**: as for 130 to 135m.
	20	**Calcarenite**: light grey, very fine to fine grained, slightly to moderately argillaceous, trace fossil fragments, rare glauconite, trace black carbonaceous detritus, friable, poor visual porosity.
150-155	100	**Marl**: medium grey, very calcareous, abundant fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, rare glauconite, rare dispersed quartz sand grains, trace pyrite, very soft, sticky, non fissile.

Interval (m)	%	Description
155-160	100	**Marl**: as for 150 to 155m.
160-165	100	**Marl**: as for 150 to 155m.
165-170	100	**Marl**: as for 150 to 155m. with abundant forams.
170-175	100	**Marl**: medium grey, very calcareous, abundant fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, rare glauconite, rare dispersed quartz sand grains, trace pyrite, very soft, sticky, non fissile.
175-180	100	**Marl**: as for 170 to 175m.
180-185	100	**Marl**: as for 170 to 175m.
185-190	100	**Marl**: as for 170 to 175m.
190-195	100	**Marl**: as for 170 to 175m.
195-200	100	**Marl**: as for 170 to 175m.
200-205	100	**Marl**: as for 170 to 175m.
205-210	100	**Marl**: medium grey, occasionally medium green grey, occasionally medium brown grey, moderately to very calcareous, abundant fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, rare dispersed very fine quartz sand grains, trace pyrite, very soft, sticky, non fissile.
210-215	100	**Marl**: as for 205 to 210m.
215-220	100	**Marl**: as for 205 to 210m.
220-225	100	**Marl**: as for 205 to 210m. but with common pyrite replaced fossil fragments.
225-230	100	**Marl**: as for 205 to 210m.
230-235	100	**Marl**: as for 205 to 210m.
235-240	100	**Marl**: medium grey, occasionally medium green grey, occasionally medium brown grey, moderately to very calcareous, abundant fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, rare dispersed very fine quartz sand grains, trace pyrite, trace pyrite replaced fossil fragments, very soft, sticky, non fissile.
240-245	100	**Marl**: as for 235 to 240m.
245-250	100	**Marl**: as for 235 to 240m.
250-255	100	**Marl**: as for 235 to 240m.
255-260	100	**Marl**: as above, medium grey, occasionally medium green grey, occasionally medium brown grey, moderately to very calcareous, abundant fossil fragments including bivalves, gastropods, forams, bryozoa, sponge spicules and echinoid spines, rare dispersed very fine quartz sand grains, trace pyrite, trace pyrite replaced fossil fragments, very soft, sticky, non fissile.
260-265	100	**Marl**: medium grey to medium green grey, occasionall medium brown grey, abundant fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
265-270	100	**Marl**: as for 260 to 265m.
270-280	100	**Marl**: as for 260 to 265m.

280-290	100	**Marl**: as for 260 to 265m.
290-295	100	**Marl**: as above, medium grey to medium green grey, occasionally medium brown grey, abundant fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
295-300	100	**Marl**: as for 290 to 295m.
300-305	100	**Marl**: as for 290 to 295m. but with trace black carbonaceous material.
305-310	100	**Marl**: as for 290 to 295m.
310-315	100	**Marl**: as for 290 to 295m.
315-317	100	**Marl**: as above, medium green grey, often medium grey, occasionally medium brown grey, abundant fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
317-325	100	**Marl**: medium green grey, often medium grey, occasionally medium brown grey, common fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
325-330	100	**Marl**: as for 317 to 325m.
330-335	100	**Marl**: as for 317 to 325m.
335-340	100	**Marl**: as for 317 to 325m.
340-345	100	**Marl**: as for 317 to 325m.
345-348	100	**Marl**: as above, medium green grey to medium grey, occasionally medium brown grey, common fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
348-355	100	**Marl**: medium grey, often medium green grey, occasionally medium brown grey, common fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non fissile.
355-360	100	**Marl**: as for 348 to 355m.
360-365	100	**Marl**: as for 348 to 355m.
365-370	100	**Marl**: as for 348 to 355m. Very poor samples due to clay encapsulation by PHPA. and from shaker screen blinding.
370-385	100	**Marl**: as for 348 to 355m.
385-390	100	**Marl**: as for 348 to 355m.
390-395	100	**Marl**: medium green grey, often medium grey, occasionally medium brown grey, common fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, trace black carbonaceous matter, very soft, sticky, non fissile.
395-405	100	**Marl**: as for 390 to 395m, rare brown calcarenitic material.
405-410	100	**Marl**: as for 390 to 395m.

410-415	100	**Marl**: as above, medium green grey, often medium grey, occasionally medium brown grey, common fossil fragments including gastropods, forams, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, trace black carbonaceous matter, very soft, sticky, non fissile.
415-420	100	**Calcarenite**: orange brown, very fine to very coarse grained, abundant dark brown iron oxide pellets, abundant light to medium orange brown iron oxide stained bryozoa, trace to common shell fragments, echinoid spines and sponge spicules, common brown iron oxide stained very fine to very coarse frosted subrounded to well rounded quartz grains, weak cryptocrystalline calcareous cement, friable to moderately hard, poor inferred porosity, no oil fluorescence.
420-425	30	**Calcarenite**: off white to light yellow to orange to brown, occasionally yellow green, often very lutitic, common bryozoa fragments, trace forams, echinoid spines, sponge spicules and sheel fragments, trace dark brown very fine to occasionally very coarse iron oxide pellets, trace brown very fine to occasionally very coarse iron oxide stained frosted subrounded to well rounded quartz grains, friable, very poor visual porosity, no oil fluorescence.
	70	**Marl**: medium to dark brown, trace to common medium grey to medium green grey, common bryozoa, trace shell fragments, forams, echinoid spines and sponge spicules, common pyrite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non fissile.
425-435	10 90	**Calcarenite**: as for 420 to 425m. **Marl**: as for 420 to 425m.
435-440	100	**Marl**: medium to dark brown, trace to common medium grey to medium green grey, common bryozoa, trace shell fragments, forams, echinoid spines and sponge spicules, common pyrite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non fissile.
440-445	100	**Marl**: as for 435 to 440m. but with increasing dispersed very fine to occasionally fine clear quartz sand grains.
445-450	100	**Marl**: as for 440 to 445m.
450-455	100	**Marl**: as for 435 to 440m.
455-460	100	**Marl**: medium to dark brown, common medium grey, trace medium green grey, common bryozoa, trace shell fragments, forams, echinoid spines and sponge spicules, common pyrite grading to marcasite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non fissile.
460-470	100	**Marl**: as for 455 to 460m.
470-480	100	**Marl**: medium brown, trace medium grey to medium green grey, common bryozoa, trace shell fragments, forams, echinoid spines and sponge spicules, common pyrite grading to marcasite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non fissile.
480-485	100	**Marl**: as for 470 to 480m. but with quartz sand grains decreasing to trace.
485-490	100	**Marl**: as for 470 to 480m but with common to abundant pyrite.
490-495	100	**Marl**: medium brown, trace medium grey to medium green grey, common bryozoa, trace shell fragments, forams, echinoid spines and sponge spicules, common pyrite grading to marcasite, trace dark green to black glauconite, trace very fine clear quartz grains, very soft, sticky, non fissile.
495-500	100	**Marl**: as for 490 to 495m.
500-505	100	**Marl**: as for 490 to 495m. but with glauconite increasing to common.

505-510	100	Marl: as for 490 to 495m.
510-515	50	Sandstone: medium brown, very fine to grit, dominantly medium, very poorly sorted, subangular to rounded, weak calcareous cement, weak silica cement, abundant white calcilutite matrix in part, abundant medium to dark brown argillaceous and silt matrix, strong brown stain on quartz grains, common glauconite, friable, very poor inferred porosity, no oil fluorescence.
	50	Claystone: medium to dark brown, non to occasionally very calcareous, very silty in part, abundant dispersed quartz grains in part grading to argillaceous sandstone, common glauconite, trace micromica, trace pyrite, soft, non fissile.
515-520	60	Sandstone: as for 510 to 515m. but becomin less calcareous.
	40	Claystone: as for 510 to 515m.
520-530	70	Sandstone: medium brown, very fine to grit, dominantly very coarse, subangular to rounded, very poorly sorted, occasionally moderate calcareous cement, weak silica cement, occasionally abundant white calcilutitic matrix, abundant medium to dark brown argillaceous and silt matrix, trace black carbonaceous detritus, trace glauconite, trace dark brown iron oxide pellets, strong brown stain on quartz grains, friable to occasionally moderately hard, very poor inferred porosity, no oil fluorescence.
	30	Claystone: as for 510 to 515m.
530-540	80	Sandstone: as for 520 to 530m. but with calcareous content decreasing to trace.
	20	Claystone: medium to dark brown, non to slightly calcareous, very silty in part, abundant dispersed quartz grains in part grading to argillaceous sandstone, trace glauconite, trace micromica, trace pyrite, soft, non fissile.
540-550	60	Sandstone: medium brown, very fine to very coarse, dominantly fine to medium, angular to rounded, dominantly subrounded, poorly sorted, weak silica and calcareous cements, abundant medium brown to dark brown argillaceous and silt matrix - matrix supported grading to arenaceous claystone, weak to strong brown stain on quartz grains, trace dark brown iron oxide pellets, trace black lithics, friable, very poor visual porosity.
	40	Claystone: as for 530 to 540m.
550-560	30	Sandstone: as for 540 to 550m. but becoming dominantly coarse grained.
	70	Claystone: medium to dark brown, very silty, abundant dispersed very fine to grit brown stained quartz grains, moderately calcareous in part, trace marcasite, occasionally black and very carbonaceous, trace micromica, soft, very dispersive, non fissile.
560-570	80	Sandstone: light to medium brown, very fine to grit, dominantly medium, subangular to rounded, poorly sorted, weak silica cement, abundant medium to dark brown argillaceous and silt matrix - matrix supported, trace brown to black iron oxide pellets, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	20	Claystone: medium to dark brown, very silty, abundant dispersed very fine to very coarse light brown stained quartz grains, trace marcasite, occasionally black and very carbonaceous, trace micromica, trace muscovite flakes, soft, very dispersive, non fissile.
570-580	80	Sandstone: light brown grey, very fine to very coarse, dominantly medium, subangular to subrounded, moderately sorted, weak silica cement, abundant medium to dark brown argillaceous and silt matrix, clear to light orange brown stained quartz grains, trace pyrite, trace muscovite flakes, trace green grey cherty lithics, friable, poor visual porosity, no oil fluorescence.
	20	Claystone: as for 560 to 570m.
580-585	80	Sandstone: as for 570 to 580m. but with common muscovite flakes.
	20	Claystone: as for 560 to 570m.

585-595	70	Sandstone: light brown grey, very fine to very coarse, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, abundant medium to dark brown argillaceous and silt matrix, clear to light orange brown stained quartz grains, trace pyrite, common muscovite flakes, trace green grey cherty lithics, friable, poor visual porosity, no oil fluorescence.
	30	Claystone: medium to dark brown, very silty, abundant dispersed very fine to very coarse light brown stained quartz grains, trace marcasite, occasionally black and very carbonaceous, trace micromica, trace muscovite flakes, soft, very dispersive, non fissile.
595-605	70	Sandstone: as for 585 to 595m.
	30	Claystone: as for 585 to 595m.
605-615	50	Sandstone: light brown grey, very fine to grit, dominantly very coarse, subangular to subrounded, very poorly sorted, weak silica cement, abundant medium to dark brown argillaceous and silt matrix, clear to light orange brown stained quartz grains, trace pyrite, common muscovite flakes, trace green grey cherty lithics, friable, poor visual porosity, no oil fluorescence.
	50	Claystone: medium to dark brown, very silty, abundant dispersed very fine to very coarse light brown stained quartz grains, trace marcasite, common pyrite, occasionally black and very carbonaceous, trace micromica, trace muscovite flakes, soft, very dispersive, non fissile.
615-625	10	Sandstone: as for 605 to 615m.
	90	Claystone: medium to dark brown, occasionally dark grey and very carbonaceous, nil to abundant dispersed very fine to grit quartz sand grains, common pyrite occasionally grading to marcasite, trace micromica, soft, very dispersive, non fissile.
625-635	10	Sandstone: as for 605 to 615m.
	90	Claystone: as for 615 to 625m.
635-645	100	Claystone: as for 615 to 625m.
645-655	90	Claystone: as for 615 to 625m.
	10	Sandstone: as for 605 to 615m.
655-665	50	Sandstone: light brown grey, very fine to grit, dominantly very coarse, subangular to subrounded, very poorly sorted, weak silica cement, trace strong medium brown cryptocrystalline dolomite cement, abundant medium to dark brown argillaceous and silt matrix, clear to light orange brown stained quartz grains, trace pyrite, common muscovite flakes, trace green grey cherty lithics, friable, poor visual porosity, no oil fluorescence.
	50	Claystone: medium to dark brown, occasionally dark grey and very carbonaceous, nil to abundant dispersed very fine to grit quartz sand grains, slightly calcareous in part, common pyrite occasionally grading to marcasite, trace micromica, soft, very dispersive, non fissile.
665-675	100	Claystone: medium to dark brown, occasionally very dark grey and very carbonaceous, very silty, nil to often abundant dispersed very fine to grit subrounded to rounded brown stained quartz grains, trace fossil fragments, non to occasionally moderately calcareous, trace pyrite grading to marcasite, trace micromica, rare glauconite, soft, very dispersive, non fissile.
	Trace	Sandstone: as for 655 to 665m.
675-680	90	Claystone: as for 665 to 675m.
	10	Sandstone: as for 655 to 665m.
680-690	90	Claystone: as for 665 to 675m.

Interval (m)	%	Description
	10	**Sandstone**: as for 655 to 665.
690-700	80	**Claystone**: medium to dark brown, trace very dark grey and very carbonaceous, very silty, nil to often abundant dispersed very fine to grit subrounded to rounded brown stained quartz grains, trace fossil fragments, non to occasionally very calcareous, trace pyrite grading to marcasite, trace micromica, trace glauconite, soft, very dispersive, non fissile.
	20	**Sandstone**: as for 655 to 665m.
700-710	60	**Claystone**: as for 690 to 700m.
	40	**Sandstone**: light to medium brown, very fine to grit, dominantly coarse, subangular to occasionally rounded, very poorly sorted, weak silica and rare pyrite cement, abundant medium to dark brown argillaceous and silt matrix - matrix supported, trace with off white calcilutite matrix, rare green grey cherty lithics, rare muscovite flakes, weak brown stain on quartz grains, trace yellow quartz grains, friable, very poor visual porosity, no oil fluorescence.
710-715	90	**Sandstone**: light to medium brown, very fine to grit, dominantly medium to coarse, subangular to occasionally rounded, very poorly sorted, weak silica and rare pyrite cement, strong dolomite cement in part, abundant medium to dark brown argillaceous and silt matrix - matrix supported, trace with off white calcilutite matrix, rare green grey cherty lithics, rare muscovite flakes, weak brown stain on quartz grains, trace yellow quartz grains, friable, very poor visual porosity, no oil fluorescence.
	10	**Claystone**: as for 690 to 700m.
715-720	60	**Sandstone**: as for 710 to 715m. but becoming dominantly coarse grained.
	40	**Claystone**: medium to dark brown, trace very dark grey and very carbonaceous, very silty, nil to often abundant dispersed very fine to grit subrounded to rounded brown stained quartz grains, trace fossil fragments, non to occasionally very calcareous, trace medium brown cryptocrystalline dolomite, trace pyrite grading to marcasite, trace micromica, trace glauconite, soft, very dispersive, non fissile.
720-725	80	**Sandstone**: light to medium brown, very fine to grit, dominantly medium to coarse, subangular to occasionally rounded, very poorly sorted, weak silica and rare pyrite cement, strong dolomite cement in part, abundant medium to dark brown argillaceous and silt matrix - matrix supported, trace with off white calcilutite matrix, rare green grey cherty lithics, rare muscovite flakes, weak brown stain on quartz grains, trace yellow quartz grains, friable, very poor visual porosity, no oil fluorescence.
	20	**Claystone**: as for 715 to 720m.
725-730	80	**Claystone**: as for 715 to 720m.
	20	**Sandstone**: as for 720 to 725m.
730-740	70	**Sandstone**: as for 720 to 725m.
	30	**Claystone**: as for 715 to 720m. but with glauconite increasing to trace to common.
740-745	70	**Sandstone**: light to medium brown, very fine to grit, dominantly coarse to very coarse, subangular to occasionally rounded, very poorly sorted, weak silica and rare pyrite cement, trace strong dolomite cement , abundant medium to dark brown argillaceous and silt matrix - matrix supported, trace with off white calcilutite matrix, rare green grey cherty lithics, rare muscovite flakes, weak brown stain on quartz grains, trace yellow quartz grains, friable, very poor visual porosity, no oil fluorescence.
	30	**Claystone**: medium to dark brown, trace very dark grey and very carbonaceous, very silty, nil to often abundant dispersed very fine to grit subrounded to rounded brown stained quartz grains, trace fossil fragments, non to occasionally very calcareous, trace medium brown cryptocrystalline dolomite, trace pyrite grading to marcasite, trace micromica, trace glauconite, trace to occasionally common black carbonaceous matter, soft, very dispersive, non fissile.

745-760	60	**Claystone**: as for 740 to 745m.
	40	**Sandstone**: as for 740 to 745m.
760-765	90	**Claystone**: as for 765 to 770m. but with common pyrite.
	10	**Sandstone**: light brown, very fine to fine, occasional medium to grit sized grains, subangular to rounded, dominantly subrounded, poorly sorted, weak silica cement, rare brown dolomite and calcareous cements, abundant medium to dark brown argillaceous and silt matrix - matrix supported, rare green grey cherty lithics, trace muscovite flakes, friable, very poor visual porosity, no oil fluorescence.
765-770	95	**Claystone**: medium to dark brown, very silty, common to abundant dispersed very fine to fine quartz sand grains, trace dispersed medium to grit sized quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace black carbonaceous material, trace micromica, soft, very dispersive, non fissile.
	5	**Sandstone**: as for 760 to 765m.
770-775	100	**Claystone**: as for 765 to 770m.
775-780	100	**Claystone**: as for 765 to 770m.
780-785	100	**Claystone**: medium to dark brown, very silty, common to abundant dispersed very fine to fine quartz sand grains, trace dispersed medium to grit sized quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non fissile.
	Trace	**Sandstone**: as for 760 to 765m.
785-790	100	**Claystone**: as for 780 to 785.
790-795	100	**Claystone**: as for 780 to 785m.
795-805	100	**Claystone**: as for 780 to 785m.
805-815	90	**Claystone**: medium to dark brown, very silty, common to abundant dispersed very fine to fine quartz sand grains, trace dispersed medium to grit sized quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non fissile.
	10	**Sandstone**: medium brown, very fine to grit, dominantly very coarse, subangular to rounded, dominantly subrounded, very poorly sorted, occasional strong calcareous cement, abundant medium brown argillaceous and silt matrix - matrix supported, trace brown stain on quartz grains, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
815-825	90	**Claystone**: as for 805 to 815m.
	10	**Sandstone**: medium brown, very fine to grit, dominantly very coarse, subangular to rounded, dominantly subrounded, very poorly sorted, occasional strong calcareous and medium brown cryptocrystalline dolomite cements, abundant medium brown argillaceous and silt matrix - matrix supported, trace brown stain on quartz grains, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
825-835	90	**Sandstone**: light brown, very fine to grit, dominantly very coarse, subangular to subrounded, very poorly sorted, weak silica cement, trace to common medium brown argillaceous and silt matrix, trace white argillaceous matrix, trace to common yellow to brown quartz grains, trace green clay lithics, friable, fair visual porosity, no oil fluorescence.
	10	**Claystone**: medium to dark brown, very silty, occasionally iron oxide rich, abundant dispersed very fine to grit quartz sand grains, common pyrite, trace glauconite, slightly calcareous in part, trace black carbonaceous material, soft, very dispersive, non fissile.

835-845	90	**Sandstone**: as for 825 to 835m.
	10	**Claystone**: as for 825 to 835m.
845-855	90	**Sandstone**: light to medium brown, very fine to coarse, dominantly medium, subangular to subrounded, moderately sorted, moderate silica cement, abundant medium brown argillaceous and silt matrix, quartz graind stained yellow-brown, rare dark brown iron oxide pellets, friable, fair visual porosity, no oil fluorescence.
	10	**Claystone**: as for 825 to 835m.
855-865	90	**Sandstone**: light to medium brown, very fine to very coarse, dominantly coarse, subangular to subrounded, moderately sorted, moderate silica cement, abundant medium brown argillaceous and silt matrix, quartz graind stained yellow-brown, rare dark brown iron oxide pellets, friable, fair visual porosity, no oil fluorescence.
	10	**Claystone**: medium to dark brown, very silty, abundant dispersed very fine to very coarse brown stained quartz grains, trace pyrite, trace micromica, firm, very dispersive, non fissile.
865-875	20	**Sandstone**: as for 855 to 865m.
	80	**Claystone**: dark brown to dark grey, very silty, abundant dispersed very fine to very coarse brown stained quartz grains, trace pyrite, trace micromica, firm, very dispersive, non fissile.
875-885	80	**Sandstone**: light orange grey, very fine to pebbly, dominantly coarse, subangular to subrounded, very poorly sorted, weak silica cement, common medium brown argillaceous and silt matrix in part, common yellow quartz grains, trace to common grey green cherty lithics, trace pyrite, friable, fair to good visual porosity, no oil fluorescence.
	20	**Claystone**: medium to dark grey, often very fine to pebble dispersed quartz grains, very silty, trace micromica, common pyrite, firm, very dispersive, slightly subfissile.
885-895	100	**Sandstone**: very light orange grey, very fine to pebbly, dominantly grit, subangular to subrounded, moderately to well sorted, weak silica cement,trace medium brown argillaceous and silt matrix , common yellow quartz grains,common grey green and trace red cherty lithics, trace pyrite, friable, fair to good visual porosity, no oil fluorescence.
895-905	100	**Sandstone**: very light orange grey, very fine to pebbly, dominantly very coarse to grit, subangular to subrounded, moderately to well sorted, weak silica cement,trace medium brown argillaceous and silt matrix , common yellow quartz grains,common grey green and trace red cherty lithics, trace pyrite, friable, fair to good visual porosity, no oil fluorescence.
905-915	100	**Sandstone**: very light orange grey, very fine to pebbly, dominantly coarse to very coarse, subangular to subrounded, moderately to well sorted, weak silica cement,trace medium brown argillaceous and silt matrix , common yellow quartz grains,common grey green and trace red cherty lithics, trace pyrite, friable, fair to good visual porosity, no oil fluorescence.
915-925	100	**Sandstone**: very light orange grey, very fine to grit, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, trace to common dark grey argillaceous and silt matrix, common yellow to orange quartz grains, trace grey to green cherty lithics, rare red to brown cherty lithics, trace pyrite, trace black carbonaceous detritus, trace muscovite flakes, friable, good inferred porosity.
925-930	100	**Sandstone**: very light orange grey, very fine to grit, dominantly medium to coarse, subangular to subrounded, moderately sorted, weak silica cement, trace to common dark grey argillaceous and silt matrix, common yellow to orange quartz grains, trace grey to green cherty lithics, rare red to brown cherty lithics, trace pyrite, trace black carbonaceous detritus, trace muscovite flakes, friable, good inferred porosity.
930-940	100	**Sandstone**: very light orange grey, very fine to grit, dominantly very coarse to grit, subangular to subrounded, moderately sorted, weak silica cement, trace to common dark grey argillaceous and silt matrix, common yellow to orange quartz grains, common grey to green cherty lithics, common red to brown cherty lithics, trace pyrite, trace black carbonaceous detritus, trace muscovite flakes, friable, good inferred porosity.
940-950	100	**Sandstone**: as for 930 to 940m. but dominantly coarse to very coarse.

950-960	100	Poor sample - abundant contaminants.
960-970	100	**Sandstone**: as for 930 to 940m.
970-980	70	**Sandstone**: very light orange grey, very fine to pebble, dominantly very coarse to pebble, subangular to subrounded, poorly sorted, weak silica cement, trace to common dark grey argillaceous and silt matrix, common yellow to orange quartz grains, trace grey to green cherty lithics, trace red to brown cherty lithics, trace pyrite, trace black carbonaceous detritus, trace muscovite flakes, friable, good inferred porosity.
	30	**Claystone**: medium to dark grey to dark brown grey, very silty, often abundant dispersed very fine to pebble quartz grains, trace dispersed green grey and red cherty lithics, common black coaly detritus, common pyrite often associated with the coaly detritus, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
980-990	70	**Claystone**: as for 970 to 980m.
	30	**Sandstone**: as for 970 to 980m.
990-995	90	**Claystone**: as for 970 to 980m.
	10	**Sandstone**: as for 970 to 980m.
995-1005	90	**Claystone**: as above, medium to dominantly dark grey, ark brown grey in part, very silty, often abundant dispersed very fine to pebble quartz grains, trace dispersed green grey and red cherty lithics, common black coaly detritus, common pyrite often associated with the coaly detritus, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
	10	**Sandstone**: as for 970 to 980m.
1005-1015	80	**Sandstone**: very light brown grey, very fine to pebble, dominantly very coarse to grit, subangular, poorly sorted, weak silica cement, trace to abundant medium to dark grey argillaceous and silt matrix, trace grey green and red cherty lithics, trace pyrite, trace black coal detritus often with associated pyrite, friable, fair to good visual porosity, no oil fluorescence.
	20	**Claystone**: as for 995 to 1005m.
1015-1025	60	**Sandstone**: as for 1005 to 1015m. but dominantly coarse grained.
	40	**Claystone**: as for 995 to 1005m.
1025-1035	100	**Claystone**: as above, medium to dominantly dark grey, dark brown grey in part, very silty, often abundant dispersed very fine to grit quartz grains, trace dispersed green grey and red cherty lithics, common black coaly detritus, common pyrite often associated with the coaly detritus, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
	Trace	**Sandstone**: as for 1005 to 1015m.
1035-1045	100	**Claystone**: medium grey occasionally dark grey and very carbonaceous, often light grey and very silty grading to siltstone, common dispersed very fine quartz and partially altered feldspar grains in part, common black coal detritus, common pyrite often being associated with the coal, trace micromica, firm, slightly subfissile.
1045-1050	70	**Claystone**: as for 1035 to 1045m.
	30	**Sandstone**: light grey, very fine to fine, dominantly fine, subangular, moderately sorted, weak to moderate silica cement, abundant light grey silt and medium grey argillaceous matrix, common very fine off white partially altered feldspars, trace grey green and red cherty lithics, trace black carbonaceous flecks, rare pyrite, friable, very poor visual porosity.
1050-1055	60	**Claystone**: as for 1035 to 1045m.

	40	**Sandstone**: light grey, very fine to coarse, dominantly fine, subangular, moderately sorted, weak to moderate silica cement, abundant light grey silt and medium grey argillaceous matrix, common very fine off white partially altered feldspars, trace grey green and red cherty lithics, trace black carbonaceous flecks, rare pyrite, friable, very poor visual porosity.
1055-1060	80	**Sandstone**: light grey, very fine to grit, dominantly coarse, subangular, poorly sorted, weak silica and pyrite cement, abundant white argillaceous and silt matrix in part, abundant medium grey argillaceous and silt matrix in part, trace green grey cherty lithics, common very fine to medium off white partially altered feldspar, trace black coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
	20	**Claystone**: medium grey occasionally dark grey and very carbonaceous, often light grey and very silty grading to siltstone, common dispersed very fine quartz and partially altered feldspar grains in part, common black coal detritus, common pyrite often being associated with the coal, trace micromica, firm, slightly subfissile.
1060-1070	90	**Sandstone**: as for 1055 to 1060m.
	10	**Claystone**: as for 1055 to 1060m.
1070-1080	100	**Sandstone**: light grey, very fine to grit, dominantly coarse, subangular, poorly sorted, weak silica and pyrite cement, abundant white argillaceous and silt matrix in part, abundant medium grey argillaceous and silt matrix in part, trace green grey cherty lithics, common very fine to medium off white partially altered feldspar, trace black coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
1080-1090	70	**Claystone**: light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz sand grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace very fine partially altered feldspar, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
	30	**Sandstone**: as for 1070 to 1080.
1090-1095	90	**Claystone**: as for 1080 to 1090m. but with minor medium brown cryptocrystalline dolomite.
	10	**Sandstone**: as for 1070 to 1080m. but dominantly very coarse grained.
1095-1100	100	**Claystone**: as for 1080 to 1090m. but with common medium brown cryptocrystalline dolomite.
	Trace	**Sandstone**: as for 1070 to 1080m.
1100-1110	100	**Claystone**: light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz sand grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace very fine partially altered feldspar, trace medium brown cryptocrystalline dolomite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
	Trace	**Sandstone**: as for 1070 to 1080m. but dominantly fine grained.
1110-1120	80	**Sandstone**: light grey, very fine to grit, dominantly very coarse, subangular, poorly sorted, weak silica and pyrite cement, abundant white argillaceous and silt matrix in part, abundant medium grey argillaceous and silt matrix in part, trace green grey cherty lithics, common very fine to medium off white partially altered feldspar, trace black coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
	20	**Claystone**: as for 1110 to 1120m.
1120-1130	70	**Sandstone**: as for 1110 to 1120m.
	30	**Claystone**: as for 1110 to 1120m.
1130-1140	60	**Sandstone**: as for 1110 to 1120m.

	40	**Claystone**: as for 1110 to 1120m.
1140-1150	70	**Sandstone**: as above, light grey, very fine to grit, dominantly very coarse, subangular, poorly sorted, weak silica and pyrite cement, abundant white argillaceous and silt matrix in part, abundant medium grey argillaceous and silt matrix in part, trace green grey cherty lithics, common very fine to medium off white partially altered feldspar, trace black coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
	30	**Claystone**: as above, light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz sand grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace very fine partially altered feldspar, trace medium brown cryptocrystalline dolomite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
1150-1160	80	**Claystone**: as for 1140 to 1150m.
	20	**Sandstone**: as for 1140 to 1150m.
1160-1170	70	**Claystone**: as for 1140 to 1150m.
	30	**Sandstone**: light grey, very fine to grit, dominantly fine, subangular, poorly sorted, weak silica and pyrite cement, abundant white argillaceous and silt matrix , abundant medium grey argillaceous and silt matrix in part, trace green grey cherty lithics, common very fine to medium off white partially altered feldspar, trace black coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence.
1170-1180	50	**Claystone**: as for 1140 to 1150m.
	50	**Sandstone**: light grey, very fine to grit, dominantly fine, subangular, poorly sorted, moderate silica cement, weak light brown dolomite cement in part, common to abundant white to light brown argillaceous matrix, abundant medium grey argillaceous and silt matrix in part, trace grey green and red lithics, trace black coal detritus, trace pyrite often associated with coal detrital, friable to moderately hard, poor visual porosity, no oil fluorescence.
1180-1190	30	**Sandstone**: as for 1170 to 1180m.
	70	**Claystone**: as above, light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz sand grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace very fine partially altered feldspar, trace medium brown cryptocrystalline dolomite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
1190-1200	90	**Claystone**: as for 1180 to 1190m. in part off white and very kaolinitic.
	10	**Sandstone**: off white to light grey to light brown, very fine, subangular, well sorted, strong dolomite cement in part, moderate silica cement, abundant white argillaceous matrix, common very fine partially altered feldspar, trace black carbonaceous flecks, rare pyrite, trace very fine muscovite flakes, moderately hard, very poor visual porosity
1200-1210	90	**Claystone**: as for 1180 to 1190m. in part off white and very kaolinitic.
	10	**Sandstone**: off white to light grey to light brown, very fine to dominantly fine, subangular, well sorted, strong dolomite cement in part, moderate silica cement, abundant white argillaceous matrix, common very fine partially altered feldspar, trace black carbonaceous flecks, rare pyrite, trace very fine muscovite flakes, moderately hard, very poor visual porosity
1210-1220	70	**Claystone**: medium grey, occasionally light grey and very kaolinitic with abundant dispersed very fine quartz and partially altered feldspar grains, common black carbonaceous flecks in part, trace very fine light green glauconite grains, common micromica, trace medium brown cryptocrystalline dolomite, trace pyrite, firm, very dispersive washing from samples, very dispersive, slightly subfissile.

	30	**Sandstone**: off white to very light grey, very fine to fine, occasional medium to very coarse grains, subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity, no oil fluorescence.
1220-1230	60	**Claystone**: as for 1210 to 1220m.
	40	**Sandstone**: as for 1210 to 1220m.
1230-1240	80	**Claystone**: as for 1210 to 1220m.
	20	**Sandstone**: off white to very light grey, very fine , subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity, no oil fluorescence.
1240-1245	90	**Claystone**: medium grey, occasionally light grey and very kaolinitic with abundant dispersed very fine quartz and partially altered feldspar grains, common black carbonaceous flecks in part, trace very fine light green glauconite grains, common micromica, trace medium brown cryptocrystalline dolomite, trace pyrite, firm, very dispersive washing from samples, very dispersive, slightly subfissile.
	10	**Sandstone**: off white to very light grey, very fine , subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity, no oil fluorescence.
1245-1250	90	**Claystone**: medium to dark grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile.
	10	**Sandstone**: light brown grey, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate silica cement, abundant white to light brown argillaceous and silt matrix, trace black and green lithics, trace pyrite, trace micromica, moderately hard, no visual porosity, no oil fluorescence.
1250-1255	100	**Claystone**: as for 1245 to 1250m.
	Trace	**Sandstone**: as for 1245 to 1250m.
1255-1260	100	**Claystone**: medium to dark grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile.
	Trace	**Sandstone**: as for 1245 to 1250m.
1260-1270	100	**Claystone**: as for 1255 to 1260m. with trace medium to dark brown grey
	Trace	**Sandstone**: as for 1245 to 1250m.
1270-1280	100	**Claystone**: medium to dark grey, occasionally medium to dark brown grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile.

	Trace	Sandstone: as above, light brown grey, very fine to fine, dominantly very fine, subangular, moderately sorted, moderate silica cement, abundant white to light brown argillaceous and silt matrix, trace black and green lithics, trace pyrite, trace micromica, moderately hard, no visual porosity, no oil fluorescence.
1280-1285	100	Claystone: as for 1270 to 1280m.
	Trace	Sandstone: as for 1270 to 1280m.
1285-1290	100	Claystone: as for 1270 to 1280m.
	Trace	Sandstone: as for 1270 to 1280m. but with very strong calcareous and dolomitic cement in part.
1290-1295	100	Claystone: as for 1270 to 1280m. but with common medium brown cryptocrystalline dolomite.
	Trace	Sandstone: as for 1285 to 1290m.
1295-1300	100	Claystone: as for 1285 to 1290m.
	Trace	Sandstone: as for 1285 to 1290m.
1300-1305	80	Claystone: medium to dark grey, occasionally medium to dark brown grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile.
	20	Sandstone: off white to light grey to light brown, very fine to fine, dominantly very fine, subangular, well sorted, strong silica cement, strong calcareous cement in part, abundant white argillaceous matrix in part, abundant partially altered feldspar in part, common very fine grey to green to brown lithics, trace very fine black carbonaceous grains, trace pyrite, trace micromica, friable to hard, no visual porosity, no oil fluorescence.
HARD BANDS	100	INTERVALS: 1308-1309.5m. 1316-1317.5m. Sandstone: off white to light grey, very fine to fine, subangular, well sorted, strong silica and calcareous cements, common white argillaceous matrix in part, common light green lithics, trace biotite and muscovite, trace very fine black arbonaceous grains, very hard, no visual porosity - MINERAL FLUORESCENCE: The sandstone has 20% solid moderately bright greenish yellow-white fluorescence, no cut, no show.
1305-1310	60	Claystone: as for 1300 to 1305m.
	40	Sandstone: as for "hard bands".
1310-1315	90	Claystone: as for 1300 to 1305m.
	10	Sandstone: as for 1300 to 1305m.
1315-1320	70	Sandstone: off white to light grey, very fine to fine, subangular, well sorted, strong silica and calcareous cements, common white argillaceous matrix in part, common light green lithics, trace biotite and muscovite, trace very fine black arbonaceous grains, very hard, no visual porosity, 10% dull orange mineral fluorescence, no cut, no show.
	30	Claystone: medium to dark grey, occasionally medium to dark brown grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile.
1320-1325	90	Claystone: medium grey to medium brown grey, very silty, very dolomitic in part, very calcareous in part, occasionally dark grey and very carbonaceous, common very fine sandstone laminae, very finely arenaceous in part, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, very dspersive, slightly subfissile.
	10	Sandstone: as for 1320 to 1325m.

1325-1330	90	**Claystone**: as for 1320 to 1325m.
	10	**Sandstone**: off white to light grey to light brown, very fine to fine, dominantly very fine, subangular, well sorted, strong silica cement, strong calcareous cement in part, abundant white argillaceous matrix in part, abundant partially altered feldspar in part, common very fine grey to green to brown lithics, trace very fine black carbonaceous grains, trace pyrite, trace micromica, friable to hard, no visual porosity, no oil fluorescence.
1330-1335	100	**Claystone**: medium grey to medium brown grey, very silty, trace dolomite, slightly calcareous in part, occasionally dark grey and very carbonaceous, common very fine sandstone laminae, very finely arenaceous in part, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, very dspersive, slightly subfissile.
	Trace	**Sandstone**: as for 1325 to 1330m.
1335-1340	100	**Claystone**: as for 1330 to 1335m. but with abundant pyrite.
	Trace	**Sandstone**: as for 1325 to 1330m.
1340-1345	100	**Claystone**: medium to dark grey, occasionally medium brown grey, very silty, trace dolomite, slightly calcareous in part, occasionally dark grey and very carbonaceous, common very fine sandstone laminae, very finely arenaceous in part, trace black carbonaceous flecks, trace pyrite, trace micromica, firm, very dspersive, slightly subfissile.
1345-1350	90	**Claystone**: medium grey to medium brown grey, very silty grading to siltstone, common dispersed very fine quartz sand grains in part, abundant dispersed very fine to fine off white partially altered feldspar grains in part, trace to common black carbonaceous flecks, common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile
	10	**Sandstone**, off white to light grey to light brown, very fine, subangular, moderately sorted, moderate to strong calcareous cement, common to abundant white argillaceous matrix, abundant medium grey silt matrix in part, common very fine black carbonaceous grains, trace pyrite, abundant off white partially altered feldspar grains, trace very fine biotite and muscovite flakes, friable to dominantly hard, no visual porosity, no oil fluorescence but 30% dull orange mineral fluorescence.
1350-1355	100	**Claystone**: as for 1345 to 1350m.
	Trace	**Sandstone**: as for 1345 to 1350m.
1355-1360	100	**Claystone**: dark grey, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1360-1370	100	**Claystone**: as for 1355 to 1360m. Note: very poor samples due to clay encapsulation by PHPA - difficult to describe formation fully.
1370-1380	100	**Claystone**: Claystone: as for 1355 to 1360m.
1380-1385	100	**Claystone**: dark grey, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1385-1390	100	**Claystone**: as for 1380 to 1385m.
1390-1395	100	**Claystone**: as for 1380 to 1385m. but with common very fine dispersed quartz sand grains.
1395-1400	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, trace very fine dispersed quartz sand grains, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.

1400-1405	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, trace glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1405-1410	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, common glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1410-1415	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, common black coaly detritus, trace glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1415-1420	100	**Claystone**: as for 1410 to 1415m.
1420-1425	100	**Claystone**: as for 1410 to 1415m.
1425-1430	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, trace to common black coaly detritus, common very dark green glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1430-1435	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, trace to common black coaly detritus, common to abundant very dark green to black glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1435-1440	100	**Claystone**: as for 1430 to 1435m.
1440-1445	100	**Claystone**: as for 1430 to 1435m.
1445-1450	100	**Claystone**: dark grey, occasionally very dark grey and very carbonaceous, trace to common black coaly detritus, common to abundant very dark green to black glauconite, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1450-1455	100	**Claystone**: as for 1445 to 1450m.
1455-1460	100	**Claystone**: medium to dark grey, moderately to very silty, common to bundant glauconite, comm medium brown cryptocrysalline dolomite, trace to common Inoceramus, trace very fine quartz and altered feldspar sand grains, trace black coal detritus, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1460-1465	100	**Claystone**: as for 1455 to 1460m. but with minor very strongly calcareous and dolomitically cemented sandstone laminae.
1460-1470	100	**Claystone**: as for 1455 to 1460m.
1470-1477	100	**Claystone**: as for 1455 to 1460m.
1477-1479	60 40	**Claystone**: as for 1455 to 1460m. Limestone: very light brown, lutitic to cryptocrystalline, trace glauconite, hard, no visual porosity - the limestone has solid bright yellow mineral fluorescence, no cut, no show.
1479-1485	20 80	**Claystone**: as for 1455 to 1460m. **Sandstone**: light grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak silica cement, trace white argillaceous matrix, trace black coal detritus, trace pyrite, friable, good inferred porosity.

1485-1490	90	**Sandstone**: light grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak silica cement, trace white argillaceous matrix, trace black coal detritus, trace pyrite, friable, very good inferred porosity. **Fluorescence:** the sandstone from 1487.5 to 1489m. has trace dull blue-white fluorescence associated only with the rock flour giving a blue-white crush cut.
	10	**Claystone**: as for 1455-1460m.
1490-1495	90	**Sandstone**: as for 1485 to 1490m. but with increasing silica cement and argillaceous matrix, good inferred porosity, no oil fluorescence.
	10	**Claystone**: as for 1455-1460m.
1495-1500	100	**Sandstone**: light grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak silica cement, trace white argillaceous matrix, trace black coal detritus, trace pyrite, friable, very good inferred porosity.
1500-1505	100	**Sandstone**: as for 1495 to 1500m.
1505-1507	70	**Claystone**: medium to dark grey, very silty, moderately carbonaceous, trace micromica, firm, very dispersive, subfissile. Very poor sample due to low drill rate and clay encapsulation by PHPA.
	30	**Sandstone**: as for 1505 to 1507m.
1507-1510	90	**Sandstone**: light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant white argillaceous matrix, trace black carbonaceous detritus, trace pyrite, friable, good inferred porosity.
	10	**Claystone**: medium to dark grey, moderately silty, moderately carbonaceous, trace black coal flecks, trace pyrite, trace very fine dispersed quartz and alteered feldspar grains in part, trace to common micromica, firm, very dispersive and washing from sample, slightly subfissile.
1510-1515	100	**Sandstone**: as for 1507 to 1510m.
1515-1520	90	**Claystone**: medium to dark grey, moderately silty, moderately carbonaceous, trace black coal flecks, trace pyrite, trace very fine dispersed quartz and alteered feldspar grains in part, trace to common micromica, firm, very dispersive and washing from sample, slightly subfissile.
	10	**Sandstone**: as for 1507 to 1510m.
1520-1525	100	**Claystone**: as for 1515 to 1520m.
	Trace	**Sandstone**: as for 1507 to 1510m.
1525-1530	100	**Claystone**: as for 1515 to 1520m.
1530-1535	70	**Sandstone**: off white to very light grey, very fine to medium, occasional coarse to very coarse grains, dominantly fine, angular to subangular, poor to moderate sorting, weak silica cement, abundant white argillaceous matrix, in part matrix supported, trace to common grey, green, red and brown lithics, trace muscovite and brown mica flakes, trace black coal detritus, trace pyrite, friable, very poor to poor visual porosity, no oil fluorescence.
	30	**Claystone**: - kaolinite - off white, abundant dispersed very fine to fine quartz and lithic sand garins in part, soft, sticky, non fissile.
1535-1540	90	**Sandstone**: light green grey, very fine to coarse, trace very coarse to grit grains,, dominantly fine to medium, subangular, moderately sorted, weak silica cement, trace to abundant white argillaceous matrix, common green and brown lithics, trace black carbonaceous detritus, friable, poor visual porosity **Fluorescence:** the sandstone at 1544m. has trace dull blue white fluorescence giving trace blue crush cut.

Interval (m)	%	Description
	10	**Claystone**: as for 1530 to 1535m.
1540-1545	90	**Sandstone**: light green grey, very fine to girt, common very coarse to grit grains,, dominantly medium, subangular, moderately sorted, weak silica cement, trace to abundant white argillaceous matrix, common green and brown lithics, trace black carbonaceous detritus, friable, poor visual porosity
	10	**Claystone**: as for 1530 to 1535m.
1545-1550	40	**Sandstone**: medium green grey, very fine to coarse, dominantly medium, subangular, moderately sorted, weak silica cement, trace weak calcareous cement, abundant white argillaceous matrix, abundant green grey lithics, common brown and red lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
	60	**Claystone**: light blue grey, soft, sticky, very dispersive and washing from sample, non fissle.
1550-1555	50	**Sandstone**: as for 1530 to 1535m.
	50	**Claystone**: as for 1530 to 1535m.
1555-1557	60	**Sandstone**: as for 1530 to 1535m.
	40	**Claystone**: as for 1530 to 1535m.
1557-1560	60	**Claystone**: sample too contaminated by cavings after DST for useful description.
	40	**Sandstone**: sample too contaminated by cavings after DST for useful description.
1560-1565	60	**Sandstone**: light grey to medium green grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, weak silica and calcareous cement, abundant white argillaceous matrix, abunant gray green lithics, common brown and trace red lithics, abundant off white altered feldspars, trace black coal detritus, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	40	**Claystone**: off white to light grey, slightly silty in part, trace dispersed very fine to medium lithic and quartz sand grains in part, trace black coaly detritus, trace pyrite, trace micromica, firm, very dispersive washing from sample, sticky, non fissile.
1565-1570	70	**Sandstone**: as for 1560 to 1565m.
	30	**Claystone**: as for 1560 to 1565m.
1570-1575	90	**Sandstone**: as for 1560 to 1565m.
	10	**Claystone**: as for 1560 to 1565m.
1575-1580	50	**Sandstone**: light grey to medium green grey, very fine to coarse, dominantly fine to medium, subangular, moderately sorted, weak silica and calcareous cement, abundant white argillaceous matrix, abunant gray green lithics, common brown and trace red lithics, abundant off white altered feldspars, trace brown and green mica flakes, trace black coal detritus, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	50	**Claystone**: off white to light grey, slightly silty in part, trace very fine latered feldspar grains in part, trace black coaly detritus, trace pyrite, trace micromica, firm, very dispersive washing from sample, sticky, non fissile.
1580-1585	90	**Sandstone**: light grey to medium green grey, very fine to coarse, dominantly medium to coarse, subangular, moderately sorted, weak silica and calcareous cement, abundant white argillaceous matrix, abunant gray green lithics, common brown and trace red lithics, abundant off white altered feldspars, trace brown and green mica flakes, trace black coal detritus, trace pyrite, friable, very poor visual porosity, no oil fluorescence.
	10	**Claystone**: as for 1575 to 1580m.

1585-1595	70	**Sandstone**: as for 1580 to 1585m.
	30	**Claystone**: as for 1575 to 1580m.
1595-1600	50	**Sandstone**: light to medium green grey, very fine to coarse, dominantly medium to coarse, subangular, moderately sorted, weak silica and calcareous cements, common to dominantly abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence.
	50	**Claystone**: light green grey to medium grey, slightly silty, trace black coal detritus, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1600-1605	50	**Sandstone**: as for 1595 to 1600m.
	50	**Claystone**: as for 1595 to 1600m.
1605-1610	70	**Sandstone**: as for 1595 to 1600m.
	30	**Claystone**: as for 1595 to 1600m.
1610-1620	60	**Sandstone**: as for 1595 to 1600m.
	40	**Claystone**: light green grey to medium grey, occasionally medium brown grey, slightly to occasionally very silty, trace black coal detritus, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1620-1630	50	**Sandstone**: as for 1595 to 1600m.
	50	**Claystone**: as for 1610 to 1620m.
1630-1635	60	**Sandstone**: light to medium green grey, very fine to coarse, dominantly medium, subangular, moderately sorted, weak silica cement, occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence but trace dull orange mineral fluorescence, no cut, no show.
	40	**Claystone**: as for 1610 to 1620m.
1635-1640	70	**Sandstone**: as for 1630 to 1635m.
	30	**Claystone**: as for 1610 to 1620m.
1640-1645	50	**Sandstone**: as for 1630 to 1635m.
	50	**Claystone**: as for 1610 to 1620m.
1645-1650	20	**Sandstone**: as for 1630 to 1635m.
	80	**Claystone**: light green grey to medium grey, occasionally medium brown grey, slightly to occasionally very silty, trace black coal detritus, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1650-1655	70	**Sandstone**: light to medium green grey, very fine to occasionally coarse, dominantly fine to medium, subangular, moderately sorted, weak silica cement, occasionally moderate calcareous cement, abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence but trace dull orange mineral fluorescence, no cut, no show.
	30	**Claystone**: as for 1645 to 1650m.

1655-1660	80	**Claystone**: as for 1645 to 1650m.
	20	**Sandstone**: as for 1650 to 1655m.
1660-1665	90	**Claystone**: light green grey to medium grey, occasionally medium brown grey, slightly to occasionally very silty, trace black coal detritus, slightly calcareous in part, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
	10	**Sandstone**: as for 1650 to 1655m.
1665-1670	90	**Claystone**: as for 1660 to 1665m.
	10	**Sandstone**: as for 1650 to 1655m.
1670-1675	70	**Sandstone**: light to medium green grey, very fine to occasionally coarse, dominantly fine to medium, subangular, moderately sorted, weak silica cement, occasionally moderate calcareous cement, abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence but trace dull orange mineral fluorescence, no cut, no show.
	30	**Claystone**: as for 1660 to 1665m.
1675-1680	50	**Sandstone**: as for 1670 to 1675m.
	50	**Claystone**: as for 1660 to 1665m.
1680-1685	70	**Sandstone**: as for 1670 to 1675m.
	30	**Claystone**: as for 1660 to 1665m.
1685-1690	80	**Sandstone**: as above, light to medium green grey, very fine to occasionally coarse, dominantly fine to medium, subangular, moderately sorted, weak silica cement, occasionally moderate calcareous cement, abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence but trace dull orange mineral fluorescence, no cut, no show.
	20	**Claystone**: as above, light green grey to medium grey, occasionally medium brown grey, slightly to occasionally very silty, trace black coal detritus, slightly calcareous in part, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1690-1700	90	**Sandstone**: as for 1685 to 1690m.
	10	**Claystone**: as for 1685 to 1690m.
1700-1710	90	**Sandstone**: as for 1685 to 1690m.
	10	**Claystone**: as for 1685 to 1690m.
1710-1720	90	**Sandstone**: as for 1685 to 1690m.
	10	**Claystone**: as for 1685 to 1690m.
1720-1725	80	**Sandstone**: as for 1685 to 1690m.
	20	**Claystone**: as for 1685 to 1690m.
1725-1730	30	**Sandstone**: as for 1685 to 1690m.

	70	Claystone: light to medium grey, light to medium brown grey, light to medium green grey, slightly to occasionally very silty, common black carbonaceous flecks and black coal detritus, trace brown mica flakes, trace pyrite, nil to occasionally common very fine partially altered feldspar grains, trace micromica, firm, very dispersive, slightly subfissile.
1730-1735	90	Claystone: as for 1725 to 1730m.
	10	Sandstone: as for 1685 to 1690m.
1735-1740	90	Claystone: as for 1725 to 1730m.
	10	Sandstone: as for 1685 to 1690m.
1740-1745	90	Claystone: as for 1725 to 1730m.
	10	Sandstone: as for 1685 to 1690m.
1745-1750	90	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular, moderately to well sorted, weak silica cement, trace weak calcareous cement, common to abundant white argillaceous matrix, abundant grey to green lithics, common black brown and red lithics, abundant white altered feldspar grains, trace black carbonaceoius detritus, trace brown and green mica flakes, friable, very poor visual porosity, no oil fluorescence.
	10	Claystone: as for 1725 to 1730m.
1750-1755	80	Sandstone: as for 1745 to 1750m.
	20	Claystone: as for 1725 to 1730m.
1755-1758	60	Sandstone: medium green grey, very fine to coarse, dominantly medium, subangular, moderately to well sorted, weak silica cement, trace weak calcareous cement, common to abundant white argillaceous matrix, abundant grey to green lithics, common black brown and red lithics, abundant white altered feldspar grains, trace black carbonaceoius detritus, trace brown and green mica flakes, friable, very poor visual porosity, no oil fluorescence.
TD 1758m.	40	Claystone: light to medium grey, light to medium brown grey, light to medium green grey, slightly to occasionally very silty, common black carbonaceous flecks and black coal detritus, trace brown mica flakes, trace pyrite, nil to occasionally common very fine partially altered feldspar grains, trace micromica, firm, very dispersive, slightly subfissile.

GFE Resources Ltd

GEOLOGICAL SUMMARY

DUNBAR-1

Permit:	PPL1	**Spud Date:**		**Rig:**	Century Rig 11
GFE Rep:	K. Smith	**Geologist:**	D. Horner		

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description
6-124	10-150 *(60)*	**Calcarenite**: orange, very fine to fine grained, sucrosic texture, common shell fragments and forams, common red brown iron oxide rich calcilutite, friable, good visual porosity. By 50m gradually becoming very light grey, fine grained, trace fossil fragments including bivalves, gastropods, foraminifera, sponge spicules and echinoid spines, slightly argillaceous, trace glauconite, trace medium grey marl, friable, poor visual porosity. With minor interbedded **Marl**: medium grey, very calcareous, grading to calcilutite, firm, non-fissile.
124-263	60-240 *(120)*	**Marl**: medium grey, very calcareous, abundant fossil fragments including bivalves, gastropods, foraminifera, bryozoa, sponge spicules and echinoid spines, rare glauconite, rare dispersed quartz sand grains, trace pyrite, very soft, sticky, non-fissile, with minor medium green grey and medium brown grey marl below 205m.
263-317	25-220 *(70)*	**Marl**: medium grey, very calcareous, massive, abundant fossil fragments including bivalves, gastropods, foraminifera, bryozoa, sponge spicules and echinoid spines, rare glauconite, rare dispersed quartz sand grains, trace pyrite, very soft, sticky, non-fissile with minor medium green grey and medium brown grey marl below 205m.
317-348	15-180 *(75)*	**Marl**: medium green grey to medium grey, occasionally medium brown grey, common fossil fragments including gastropods, foraminifera, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non-fissile. NOTE: very poor samples due to clay encapsulation by PHPA.
348-415	8-125 *(70)*	**Marl**: medium green grey to medium grey, occasionally medium brown grey, common fossil fragments including gastropods, foraminifera, bivalves, bryozoa, sponge spicules and echinoid spines, trace pyrite occasionally as fossil replacement, trace micromica, trace clear very fine to coarse quartz sand grains, very soft, sticky, non-fissile.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 2
415-426	15-60 *(40)*	**Calcarenite**: orange brown, very fine to very coarse grained, abundant dark brown iron oxide pellets, abundant light to medium orange brown iron oxide stained bryozoa, trace to common shell fragments, echinoid spines and sponge spicules, common brown iron oxide stained very fine to very coarse frosted subrounded to well rounded quartz grains, weak cryptocrystalline calcareous cement, friable to moderately hard, poor inferred porosity, no oil fluorescence. Grading with depth to off white to light yellow to orange to brown, occasionally yellow green, often very lutitic, common bryozoa fragments, trace foraminifera, echinoid spines, sponge spicules and shell fragments, trace dark brown very fine to occasionally very coarse iron oxide pellets, trace brown very fine to occasionally very coarse iron oxide stained frosted subrounded to well rounded quartz grains, friable, very poor visual porosity, no oil fluorescence. With minor interbedded **Marl**: medium to dark brown, trace to common medium grey to medium green grey, common bryozoa, trace shell fragments, foraminifera, echinoid spines and sponge spicules, common pyrite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non-fissile.
426-512	17-100 *(50)*	**Marl**: medium to dark brown, common medium grey, trace medium green grey, massive, common bryozoa, trace shell fragments, foraminifera, echinoid spines and sponge spicules, common pyrite grading to marcasite, trace dark green to black glauconite, common very fine clear quartz grains, very soft, sticky, non-fissile.
512-562	8-125 *(55)*	**Sandstone**: medium brown, very fine to grit, dominantly medium, very poorly sorted, subangular to rounded, weak calcareous cement, weak silica cement, abundant white calcilutite matrix in part, abundant medium to dark brown argillaceous and silt matrix, strong brown stain on quartz grains, common glauconite, friable, very poor inferred porosity, no oil fluorescence. With depth grading to **Sandstone**: medium brown, very fine to very coarse, dominantly fine to medium, angular to rounded, dominantly subrounded, poorly sorted, weak silica and calcareous cements, abundant medium brown to dark brown argillaceous and silty matrix (matrix supported grading to arenaceous claystone), weak to strong brown stain on quartz grains, trace dark brown iron oxide pellets, trace black lithics, friable, very poor visual porosity. Grading to **Claystone**: medium to dark brown, non to occasionally very calcareous, very silty in part, abundant dispersed quartz grains in part grading to argillaceous sandstone, common glauconite, trace micromica, trace pyrite, soft, non-fissile.
562-763	6-150 *(60)*	**Sandstone**: light brown grey, very fine to very coarse, dominantly coarse, subangular to subrounded, moderately sorted, weak silica cement, occasional strong dolomite cement towards base, abundant medium to dark brown argillaceous and silty matrix, trace white calcilutite matrix in part, clear to light orange brown stained quartz grains, trace pyrite, trace muscovite flakes, trace green grey cherty lithics, trace glauconite, friable, poor visual porosity, no oil fluorescence. Grading to and occasionally interbedded with **Claystone**: medium to dark brown, very silty, trace to abundant dispersed very fine to very coarse light brown stained quartz grains, trace pyrite grading to marcasite, trace medium brown cryptocrystalline dolomite increasing towards base, occasionally black and very carbonaceous, trace micromica, trace muscovite flakes, soft, very dispersive, non-fissile.

763-810	13-45 *(30)*	**Claystone**: medium to dark brown, very silty, common to abundant dispersed very fine to fine quartz sand grains, trace dispersed medium to grit-sized quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non-fissile. Occasionally grading to **Sandstone**: light brown, very fine to fine, occasional medium to grit sized grains, subangular to rounded, dominantly subrounded, poorly sorted, weak silica cement, rare brown dolomite and calcareous cements, abundant medium to dark brown argillaceous and silt matrix (matrix supported), rare green grey cherty lithics, trace muscovite flakes, friable, very poor visual porosity, no oil fluorescence.
810-818	13-63 *(45)*	**Sandstone**: medium brown, very fine to grit, dominantly very coarse, subangular to rounded, dominantly subrounded, very poorly sorted, occasional strong calcareous and medium brown cryptocrystalline dolomite cements, abundant medium brown argillaceous and silt matrix (matrix supported), trace brown stain on quartz grains, trace pyrite, friable, very poor visual porosity, no oil fluorescence. With minor interbedded and in part grading to **Claystone**: medium bown, very silty, common to abundant dispersed very fine to grit quartz sand grains, common pyrite, trace glauconite, trace fossil fragments, slightly calcareous in part, trace medium brown cryptocrystalline dolomite, trace black carbonaceous material, trace micromica, soft, very dispersive, non-fissile.
818-879	10-125 *(55)*	**Sandstone**: light brown, very fine to grit, dominantly very coarse, subangular to subrounded, very poorly sorted, weak silica cement, trace to common medium brown argillaceous and silt matrix, trace white argillaceous matrix, trace to common yellow to brown quartz grains, trace green clay lithics, friable, fair visual porosity, no oil fluorescence. Grading in part to and occasionally interbedded with **Claystone**: medium to dark brown, very silty, occasionally iron oxide rich, abundant dispersed very fine to grit quartz sand grains, common pyrite, trace glauconite, slightly calcareous in part, trace black carbonaceous material, soft, very dispersive, non-fissile.

879-	6-120 *(50)*	**Sandstone**: very light orange grey, very fine to pebbly, dominantly coarse to very coarse in general gradually becoming finer grained with depth, subangular to subrounded, moderately to well sorted, weak silica cement, trace medium brown argillaceous and silt matrix, common yellow quartz grains, common grey green and trace red cherty lithics, trace pyrite, friable, fair to good visual porosity, no oil fluorescence. With depth becoming **Sandstone**: light grey, very fine to grit, dominantly fine, subangular, poorly sorted, moderate silica cement, weak light brown dolomite cement in part, common to abundant white to light brown argillaceous matrix, abundant medium grey argillaceous and silt matrix in part, trace grey green and red lithics, trace black coal detritus, trace pyrite often associated with coal detritus, friable to moderately hard, poor visual porosity, no oil fluorescence. Grading to **Sandstone**: off white to light grey to light brown, very fine to dominantly fine, subangular, well sorted, strong dolomite cement in part, moderate silica cement, abundant white argillaceous matrix, common very fine partially altered feldspar, trace black carbonaceous flecks, rare pyrite, trace very fine muscovite flakes, moderately hard, very poor visual porosity grading to and interbedded with **Claystone**: light to dark grey, dominantly medium grey, often light grey and very silty, abundant dispersed very fine to fine quartz sand grains in part, common dispersed medium to grit quartz sand grains in part, trace pyrite, trace black coal detritus, trace very fine partially altered feldspar, trace medium brown cryptocrystalline dolomite, trace micromica, firm, very dispersive and washing from samples, slightly subfissile.
1204-1245	5-65 *(40)*	**Claystone:** medium grey, occasionally light grey and very kaolinitic with abundant dispersed very fine quartz and partially altered feldspar grains, common black carbonaceous flecks in part, trace very fine light green glauconite grains, common micromica, trace medium brown cryptocrystalline dolomite, trace pyrite, firm, very dispersive, slightly subfissile. Interbedded with and grading to **Sandstone:** off white to very light grey, very fine to fine, occasional medium to very coarse grains, subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity, no oil fluorescence.

1245-1352	1-60 *(20)*	**Claystone:** medium to dark grey, occasionally medium to dark brown grey, very silty, common dispersed very fine to fine quartz and partially altered feldspar grains, common pyrite, trace medium brown cryptocrystalline dolomite, trace black carbonaceous flecks, trace micromica, firm, very dspersive, slightly subfissile. With minor interlaminated **Sandstone:** off white to very light grey, very fine to fine, occasional medium to very coarse grains, subangular, moderately sorted, moderate to strong silica cement, trace strong dolomite cement, common to abundant white argillaceous matrix, occasionally abundant medium grey argillaceous and silt matrix, trace very fine to fine grey and rare red lithics, common very fine to fine partially altered feldspar grains, trace black carbonaceous flecks, trace very fine light green glauconite, moderately hard, very poor visual porosity, no oil fluorescence. With from 1308-1309.5m. and 1316-1317.5m. **Sandstone:** off white to light grey, very fine to fine, subangular, well sorted, strong silica and calcareous cements, common white argillaceous matrix in part, common light green lithics, trace biotite and muscovite, trace very fine black Carbonaceous grains, very hard, no visual porosity - MINERAL FLUORESCENCE: The sandstone has 20% solid moderately bright greenish yellow-white mineral fluorescence, no cut, no show.
1352-1445	8.5-57 *(13)*	**Claystone:** dark grey, occasionally very dark grey and very carbonaceous, trace to common glauconite increasing with depth, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace to occasionally common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1445-1477	5-15 *(11)*	**Claystone:** dark grey, occasionally very dark grey and very carbonaceous, trace to common glauconite increasing with depth, moderately silty, moderately carbonaceous, trace very fine partially altered feldspar grains in part, trace to occasionally common medium brown cryptocrystalline dolomite, trace pyrite, trace micromica, firm, very dispersive, slightly subfissile.
1477-1479	2.5-6 *(5)*	**Limestone:** very light brown, lutitic to cryptocrystalline, trace glauconite, hard, no visual porosity - the limestone has solid bright yellow mineral fluorescence, no cut, no show. Intermixed with minor brownish **Claystone**, generally as for 1445 - 1477m.
1479-1507	12-35 *(27)*	**Sandstone:** light grey, very fine to grit, dominantly very coarse, angular to subangular, poorly sorted, weak silica cement, trace white argillaceous matrix, trace black coal detritus, trace pyrite, friable, good inferred porosity. Interbedded below 1503m with **Claystone:** medium to dark grey, very silty, moderately carbonaceous, trace micromica, firm, very dispersive, subfissile. The **Sandstone** from 1487.5 to 1489m. has trace dull blue-white fluorescence associated only with the rock flour giving a blue-white crush cut.

1507-1519	15-40 *(30)*	**Sandstone:** light grey, very fine to very coarse, dominantly coarse, angular to subangular, poorly sorted, weak silica cement, trace weak calcareous cement, trace to occasionally abundant white argillaceous matrix, trace black carbonaceous detritus, trace pyrite, friable, good inferred porosity.
1519-1532	10-15 *(11)*	**Claystone:** medium to dark grey, moderately silty, moderately carbonaceous, trace black coal flecks, trace pyrite, trace very fine dispersed quartz and altered feldspar grains in part, trace to common micromica, firm, very dispersive and washing from sample, slightly subfissile.
1532-1544.5	12-56 *(30)*	**Sandstone:** off white to very light grey, very fine to medium, occasional coarse to very coarse grains, dominantly fine, angular to subangular, poor to moderate sorting, weak silica cement, abundant white argillaceous matrix, in part matrix supported, trace to common grey, green, red and brown lithics, trace muscovite and brown mica flakes, trace black coal detritus, trace pyrite, friable, very poor to poor visual porosity, no oil fluorescence. Grading with depth to **Sandstone:** light green grey, very fine to coarse, trace very coarse to grit grains, dominantly fine to medium, subangular, moderately sorted, weak silica cement, trace to abundant white argillaceous matrix, common green and brown lithics, trace black carbonaceous detritus, friable, poor visual porosity. Grading in part to**Claystone (kaolinite):** off white, abundant dispersed very fine to fine quartz and lithic sand garins in part, soft, sticky, non-fissile. The sandstone at 1544m has trace dull blue white fluorescence giving trace blue crush cut.
1544.5-1548	10-58 *(30)*	**Sandstone:** off white to very light grey, very fine to medium, occasional coarse to very coarse grains, dominantly fine, angular to subangular, poor to moderate sorting, weak silica cement, abundant white argillaceous matrix, in part matrix supported, trace to common grey, green, red and brown lithics, trace muscovite and brown mica flakes, trace black coal detritus, trace pyrite, friable, very poor to poor visual porosity, no oil fluorescence. Interbedded with **Claystone (kaolinite):** off white, abundant dispersed very fine to fine quartz and lithic sand grains in part, soft, sticky, non-fissile.
1548-1557	3-45 *(35)*	**Sandstone:** medium green grey, very fine to coarse, dominantly medium, subangular, moderately sorted, weak silica cement, trace weak calcareous cement, abundant white argillaceous matrix, abundant green grey lithics, common brown and red lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence. Interbedded with **Claystone:** light blue grey, soft, sticky, very dispersive and washing from sample, non-fissile.
1557-1559	31-42 *(36)*	Sample too contaminated with cavings after DST for useful lithological description.

Interval (m)	ROP (Av.) (m/hr)	Lithological and Fluorescence Description	Page: 7
1559-1758	4-59 *(25)*	**Sandstone:** light to medium green grey, very fine to coarse, dominantly medium, subangular, moderately sorted, weak silica cement, occasionally moderate calcareous cement, common to dominantly abundant white argillaceous matrix, abundant green to grey to black lithics, common brown to red lithics, common to abundant altered feldspar grains, trace black coaly detritus, trace brown and green mica flakes, rare pyrite, friable, very poor visual porosity, no oil fluorescence but trace dull orange mineral fluorescence, no cut, no shows. Interbedded with and in part grading to **Claystone:** light to medium grey, light to medium brown grey, light to medium green grey, slightly to occasionally very silty, common black carbonaceous flecks and black coal detritus, trace brown mica flakes, trace pyrite, nil to occasionally common very fine partially altered feldspar grains, trace micromica, firm, very dispersive, slightly subfissile.	

APPENDIX 5

APPENDIX 5

SIDEWALL CORE DESCRIPTIONS

GFE Resources Ltd

SIDEWALL CORE DESCRIPTION

WELL NAME:	Dunbar-1	**DATE:**	16 January, 1996
GEOLOGIST:	David Horner	**PAGE:**	1

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION
Attempted 24, Recovered 20			
1	1568.0	15	**Claystone**: medium brown grey, moderately carbonaceous, very silghtly calcareous, slightly silty, trace micromica, slightly subfissile, no oil fluorescence.
2	1552.7	20	**Sandstone**: off white to light grey, very fine to medium, dominantly fine, subangular, moderately sorted, moderate calcareous cement in part, abundant white argillaceous matrix, common grey green lithics, trace red brown lithics, abundant altered feldspar grains, friable, no visual porosity, no oil fluorescence. Very finely interbedded with **Siltstone**: medium brown grey, very argillaceous, common dispersed very fine lithic and quartz sand grains, trace micromica, trace black carbonaceous flecks, firm, slightly subfissile, no oil fluorescence.
3	1548.2	30	**Sandstone**: light grey, very fine to dominantly fine, subangular, moderately to well sorted, weak calcareous cement, abundant white argillaceous matrix (matrix supported), abundant grey green lithics, soft and sticky, no visual porosity, no oil fluorescence.
4	1544.4	25	**Claystone**: medium brown grey, moderately carbonaceous, non-calcareous, non-silty, trace micromica, soft, non-fissile. Interbedded with 20% **Sandstone**: light grey, very fine to dominantly fine, subangular, well sorted, weak silica cement, non-calcareous, abundant white argillaceous matrix, common green grey lithics, trace red brown lithics, firm, no visual porosity, no oil fluorescence.
5	1543.5	26	**Sandstone**: light grey, very fine to dominantly fine, subangular, well sorted, non-calcareous, weak silica cement, abundant white argillaceous matrix, common green black lithics, abundant white altered feldspar grains, trace red lithics, trace black carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
6	1541.9	29	**Sandstone**: light brown grey, very fine to dominantly fine, subangular, moderately sorted, trace weak calcareous cement, abundant white argillaceous matrix, common grey green lithics, trace red brown lithics, abundant altered feldspar grains, common black coaly detritus, soft, sticky, very poor visual porosity, no oil fluorescence. Interlaminated with 10% **Siltstone**: medium brown, very argillaceous, slightly calcareous, trace micromica, soft, slightly subfissile.
7	1540.5	36	**Sandstone**: light brown grey, very fine to dominantly fine, subangular, well sorted, weak calcareous cement in part, abundant white to light brown grey argillaceous matrix, common grey green lithics, friable, very poor visual porosity, no oil fluorescence.
8	1538.3	26	**Sandstone**: light brown grey, very fine, subangular, well sorted, trace weak calcareous cement, abundant light grey brown argillaceous matrix (matrix supported), common grey to green to brown lithics, soft, sticky, very poor visual porosity, no oil fluorescence.
9	1535.9	30	**Sandstone**: light brown grey, very fine to dominantly fine, subangular, well sorted, non-calcareous, very weak silica cement, abundant light brown grey argillaceous matrix (matrix supported), common grey green lithics, trace red brown lithics, soft, sticky, very poor visual porosity, no oil fluorescence.

SWC No.	DEPTH (m)	REC'D (mm)	DESCRIPTION
10	1534.8	37	Sandstone: light brown grey, fine to occasionally medium, subangular, well sorted, moderate calcareous cement in part, common light brown grey argillaceous matrix, trace grey to green to black lithics, friable, poor to fair visual porosity, no oil fluorescence.
11	1534.0	34	Sandstone: very light brown grey, very fine to dominantly fine, subangular, moderately sorted, non-calcareous, very weak silica cement, abundant light brown grey argillaceous matrix, trace grey lithics, abundant black to dark brown carbonaceous detritus, friable, very poor visual porosity, no oil fluorescence.
12	1531.5	25	Claystone: medium to dark brown grey, slightly silty, trace black coal detritus, non-calcareous, trace micromica, soft, sticky, non- to slightly subfissile, no oil fluorescence.
13	1523.5	30	Medium brown filter cake only.
14	1520.6	30	Claystone: medium to dark brown grey, very silty, moderately carbonaceous, trace micromica, non-calcareous, soft, sticky, slightly to non-fissile. Interlaminanted with 10% Sandstone: off white, very fine, subangular, well sorted, very weak silica cement, abundant white argillaceous matrix (matrix supported), trace medium green lithics, soft, no visual porosity, no oil fluorescence.
15	1505.8	23	Claystone: medium to dark brown grey to dark green grey (mottled), very silty, common dispersed very fine quartz and fine glauconite and alterd feldspar grains, trace micromica, firm, sticky, non-fissile, no oil fluorescence.
16	1501.3	34	Sandstone: light grey, very fine to grit, dominantly very coarse, angular, very poorly sorted, non-calcareous, very weak silica cement, trace white argillaceous matrix, friable, good visual porosity, no oil fluorescence. Interlaminated with 25% Coal: black to very dark brown, earthy to slightly subvitreous texture, blocky to granular fracture, abundant pyrite, firm to moderately hard.
17	1491.4		No Recovery.
18	1489.5		No Recovery.
19	1480.2	23	Claystone: medium to dark brown, moderately carbonaceous, slightly silty, trace very fine glauconite, trace to common very fine to micromica, firm, slightly subfissile, no oil fluorescence.
20	1477.0	34	Claystone: medium to dark brown, moderately carbonaceous, slightly silty, slightly to moderately calcareous, common fine glauconite, trace to common very fine to micromica, firm, slightly subfissile, no oil fluorescence.
21	1475.2		No Recovery.
22	1472.3	42	Claystone: medium to dark brown, moderately arbonaceous, slightly silty, slightly calcareous in part, common very fine to medium glauconite, trace very fine to micromica, firm, slightly subfissile, no oil fluorescence.
23	1467.2	41	Claystone: medium to dark brown, moderately carbonaceous, slightly silty, slightly calcareous in part, trace to common fine to medium glauconite, trace very fine to micromica, firm, slightly subfissile, no oil fluorescence.
24	1401.0	43	Claystone: medium to dark brown, moderately carbonaceous, slightly silty, non-calcareous, trace very fine to,fine altered feldspar grains, race very fine to micromica, firm, slightly subfissile, no oil fluorescence.

APPENDIX 6

APPENDIX 6

DRILL STEM TEST DATA (DST-1)

& GAS SAMPLE ANALYSIS

G.F.E. RESOURCES LTD
DST #: 1
DUNBAR # 1
5006.8 ft - 5108.5 ft

Location: INLINE 6515 XLINE 2665
Test Type: DUAL CONVENTIONAL BOTTOM HOLE
Formation: WARRE

Recorder Number: 1273A
Recorder Depth: 4984 ft

Test Date: 17/03/95

	PRESSURE psia
1)Initial Hydrostatic:	2486.0
14)Final Hydrostatic :	2411.0

TEST TIMES (MIN)

BLOW DESCRIPTION:

PRE-FLOW: THE TOOL WAS OPENED AT 08:01 HRS WITH BOTH MANIFOLD AND BUBBLE HOSE CLOSED. NO VISIBLE PRESSURE INCREASE OCCURED. WHEN TOOL WAS CLOSED AT 08:07 THE BUBBLE HOSE WAS OPENED AND THERE WAS A TRACE AIR BLOW EVIDENT.
FINAL FLOW: TOOL WAS RE-OPENED AT 08:52 WITH BOTH MANIFOLD AND BUBBLE HOSE CLOSED. THE BUBBLE HOSE WAS OPENED AT 08:58 TO CHECK FOR ANY INDICATIONS OF PRESSURE BUILD UP BUT IT WAS DEAD. IT WAS DECIDED THAT THE HYDRAULIC SHUT-IN VALVE SHOULD BE CYCLED TO REMOVE ANY DOUBT FROM THE PREVIOUS OPENING. IT WAS CLOSED AT 09:09 AND RE-OPENED AT 09:12. SURFACE INDICATIONS OF TOOL FUNCTION WERE GOOD. BLOW REMAINED DEAD UNTIL TOOL CLOSED AT 09:42.

LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 10 FEET OF RAT HOLE MUD.
THE DOWNHOLE SAMPLER CONTAINED MUD ONLY.

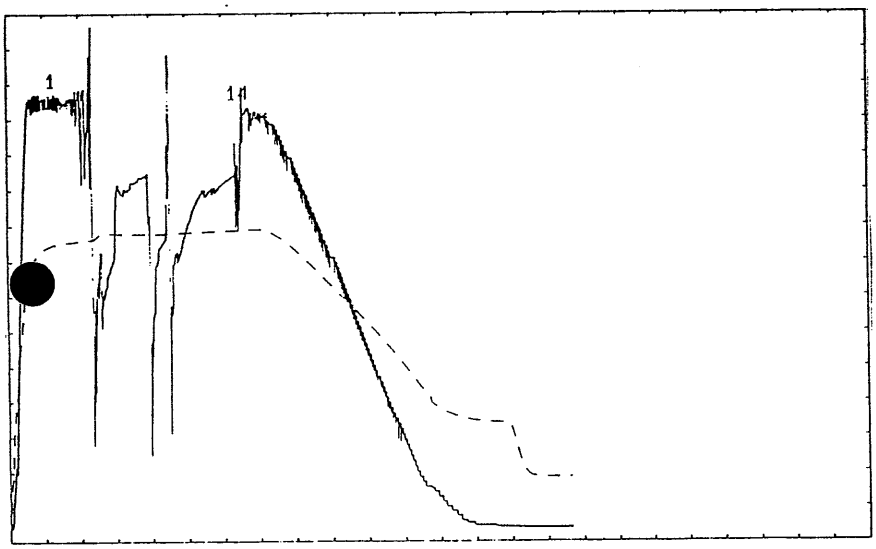
REMARKS AND TEST SUMMARY:

PACKER DEPTHS WERE CALCULATED USING THE DRILLERS TALLY.
NO PRESSURE INCURRED AT SURFACE.
TEST FAILURE DUE TO PLUGGING AT PERFORATIONS EXTERNALLY AND IN THE HYDRAULIC TOOL INTERNALLY.

G.F.E. RESOURCES LTD
DST #: 1
DUNBAR # 1
5006.8 ft - 5108.5 ft

PRESSURE RECORDER NUMBER: 1273A

DEPTH : 4983.90 ft LOCATION : INSIDE
TYPE : 4983.9 CAPACITY : 10000.00 psig
***** TEMPERATURE AT RECORDER DEPTH = 138.0 F

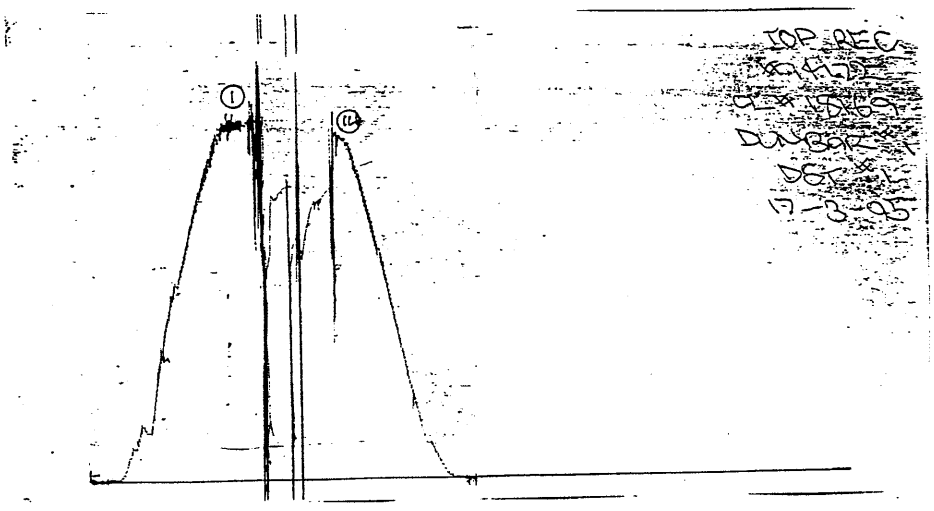


	PRESSURE psia
1)Initial Hydrostatic:	2486.0
14)Final Hydrostatic :	2411.0

TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4972.90 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 3000.00 psig



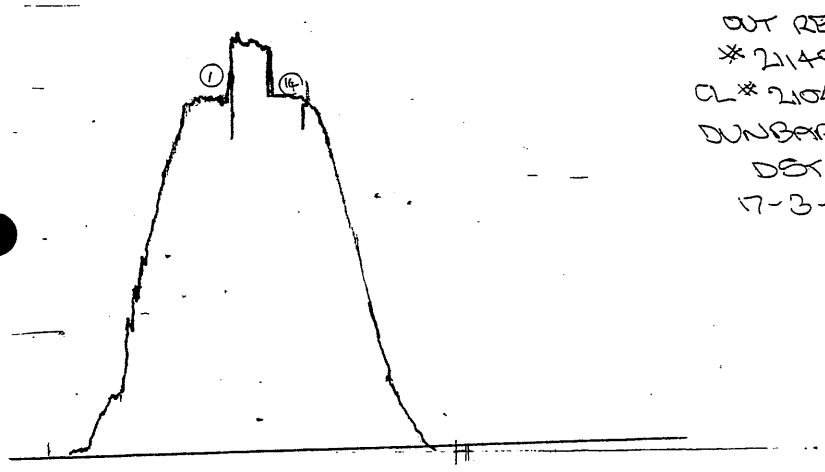
	PRESSURE psia
1)Initial Hydrostatic:	2430.9
14)Final Hydrostatic :	2352.5

G.F.E. RESOURCES LTD
DST #: 1
DUNBAR # 1
5006.8 ft - 5108.5 ft

PRESSURE RECORDER NUMBER: 21149

DEPTH : 5082.00 ft LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 3025.00 psig

	PRESSURE psia
1)Initial Hydrostatic:	2450.4
14)Final Hydrostatic :	2467.4



OUT REC
#21149
CL# 21047
DUNBAR #1
DST #1
17-3-95

TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 9987

DEPTH : 4951.70 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 :	14.7
4)End of 1st Shut-in :	14.7
5)Start of 2nd Flow :	14.7
6)End of 2nd Flow :	14.7
7)End of 2nd Shut-in :	46.0
14)Final Hydrostatic :	0.0

REC REC
#9987
CL# 13112
DUNBAR #1
DST #1
17-3-95

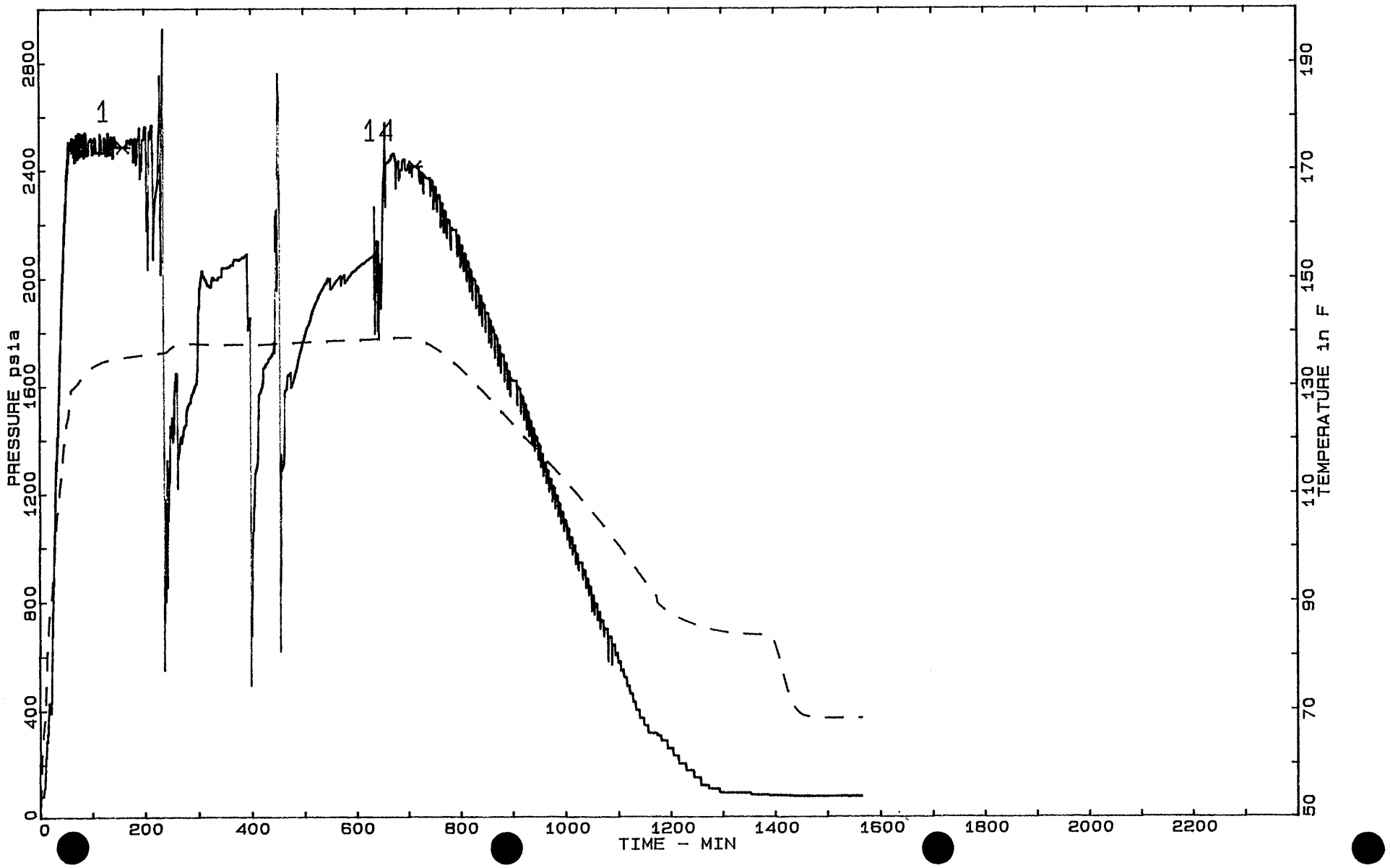
G.F.E. RESOURCES LTD

WELL NAME: DUNBAR # 1
LOCATION: INLINE 6515 XLINE 2665
DST #: 1

PRESSURE :
TEMPERATURE:

LEGEND: * 1 = 2486 psia
14 2411

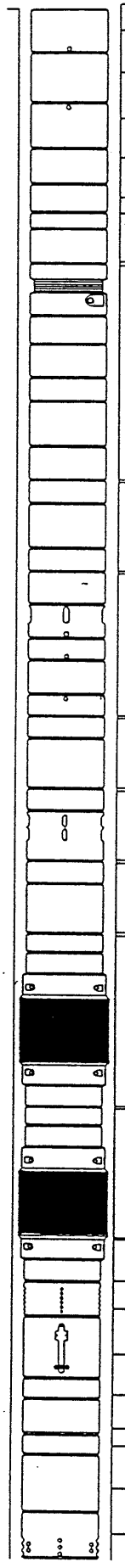
RECORDER: 1273A



DUNBAR # 1 DST # 1

BOT CONVENTIONAL DST

DWG NO. 869-055-3



DESCRIPTION	LENGTH	O.D.	I.D.	DEPTH
PUMP OUT TYPE REVERSE CIRCULATING SUB	0.42	6.25	3.00	1480.99
DRILL COLLARS	8.61	6.25	2.8125	
IMPACT TYPE REVERSE CIRCULATING SUB	0.42	6.25	3.00	1490.02
DRILL COLLARS	17.53	6.25	2.8125	
CROSS OVER SUB	0.30	6.25	2.25	
INSIDE RECORDER CARRIER	1.37	4.875	1.00	1509.22
ROTATING SHUT IN VALVE	2.59	5.00	1.00	1511.81
POSITIVE CONTROL SAMPLER	1.04	5.00	1.00	
HYDRAULIC MULTIPLE SHUT IN VALVE	1.49	5.00	1.00	
INSIDE RECORDER CARRIER	1.37	4.875	1.00	1515.71
- PANEX	3.35	4.75	2.25	1519.06
HYDRAULIC JARS	2.01	5.00	1.25	
SAFETY JOINT	0.69	5.00	2.25	
PACKER SECTION	2.88	7.50	1.00	
PACKER SECTION STICK UP AND ELEMENT	1.36	7.50	1.00	1526.00
PACKER SECTION STICK DOWN	1.33	7.50	1.00	
PERFORATED ANCHOR PIPE	4.57	4.75	2.25	
OUTSIDE RECORDER CARRIER	2.06	5.00	1.25	1533.96
CROSS OVER SUB	0.70	6.25	2.25	
DRILL COLLARS	19.01	7.50	2.8125	
SPACING SECTIONS	2.44	4.75	2.25	
ANCHOR SHOE	0.91	5.00	-	1557.02

TEST TOOL AND PIPE RECORD (CONVENTIONAL).

DESCRIPTION.	LENGTH	OD	ID
TOTAL STRING BELOW PACKER SEAL	31.02	-	-
TOTAL TOOLS BETWEEN PACKER SEALS	-	-	-
TOTAL TOOLS ABOVE PACKER SEAL + PUP	22.23	-	-
TOTAL DRILL COLLARS ABOVE INTERVAL	142.96	6.25	2.8125
TOTAL HEVI-WATE ABOVE INTERVAL	55.18	4.50	2.8750
TOTAL DRILL PIPE ABOVE INTERVAL	1310.65	4.50	3.8260
TOTAL STRING	1562.04	-	-
TOTAL DEPTH	1557.00	-	-
TOP SINGLE ABOVE TABLE	5.04	-	-

amdel

Amdel Limited
A.C.N. 008 127 802

Petroleum Services
PO Box 338
Torrensville Plaza SA 5031

Telephone: (08) 416 5240
Facsimile: (08) 234 2933

12 April 1995

GFE Resources Limited
GPO Box 1841Q
MELBOURNE VIC 3001

Attention: Kevin Lanigan

REPORT LQ3754

CLIENT REFERENCE:	Verbal Request
WELL NAME/RE:	Dunbar-1 DST-2
MATERIAL:	DST Tool & Oil/Mud Sample
WORK REQUIRED:	Sample Recovery & Compositional Analysis

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

Brian L. Watson
Manager
Petroleum Services

1. INTRODUCTION

A DST Tool was received from Dunbar-1 DST-2 for sample recovery and compositional analysis of recovered hydrocarbons. In addition an oil/mud was received.

This report is a formal presentation of data transmitted by facsimile on 21 and 22 March 1995.

2. PROCEDURE

Initially the opening pressure of the DST Tool was determined to be 2025 kPa @ 22°C. 29.63L of gas was recovered and the composition of this sample is presented in Table 1.

Oil separated from the oil/mud sample was analysed by gas chromatography (GC) for compositional analysis (Table 2). A density and kinematic viscosity determination were also performed on the oil, these results are presented in Table 3.

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TABLE 1

PETROLEUM SERVICES GAS ANALYSIS — Method GL-01-01
ASTM D 1945-81 (modified)

Client: GFE RESOURCES Ltd — Report # LQ3754

Sample: DUNBAR-1, DST-2
Gas Ex DST Tool
Open.press. 2025 kPag @ 22°C

GAS	MOL %
Nitrogen	1.98
Carbon Dioxide	0.85
Methane	87.75
Ethane	5.11
Propane	2.37
I-Butane	0.52
N-Butane	0.65
I-Pentane	0.20
N-Pentane	0.16
Hexanes	0.18
Heptanes	0.15
Octanes and higher h'c	0.08
Total	100.00

(0.00 = less than 0.01%)

Calculated Gas Density
(Air = 1) : 0.653

Calorific Value (15.0 deg C, 101.325 kPa)

Gross:	1113 BTU/CU Ft	41.45 MJ/CU.M
Nett:	1006 BTU/CU Ft	37.48 MJ/CU.M
Gross calorific value of water-saturated gas		40.73 MJ/CU.M

Average Molecular Weight = 18.924

All results are calculated on the basis that only the measured constituents are present.
This report relates specifically to the sample submitted for analysis.

Approved Signatory — Robyn L Tamke

Registration No: 2013

Date 20-Mar-95

TABLE 2

PETROLEUM SERVICES LIQUID ANALYSIS — Method GL-02-01

Client: GFE RESOURCES Ltd — Report # 3754

Sample: DUNBAR-1, DST-2
Concentrated Sample
1526-1557 m

Boiling Point Range (Deg.C)	Component	Weight%	Mol%
-88.6	ETHANE	0.00	0.01
-42.1	PROPANE	0.01	0.03
-11.7	I-BUTANE	0.01	0.03
-0.5	N-BUTANE	0.03	0.08
27.9	I-PENTANE	0.05	0.10
36.1	N-PENTANE	0.07	0.14
36.1-68.9	C-6	0.39	0.69
80.0	BENZENE	0.01	0.02
68.9-98.3	C-7	1.99	3.03
100.9	METHYLCYCHX	1.87	2.90
110.6	TOLUENE	0.29	0.48
98.3-125.6	C-8	6.28	8.39
136.1-144.4	ETHYLBZ+XYL	1.09	1.57
125.6-150.6	C-9	8.49	10.12
150.6-173.9	C-10	17.54	18.83
173.9-196.1	C-11	18.19	17.79
196.1-215.0	C-12	15.85	14.21
215.0-235.0	C-13	13.37	11.08
235.0-252.2	C-14	6.72	5.17
252.2-270.6	C-15	4.62	3.32
270.6-287.8	C-16	1.57	1.06
287.8-302.8	C-17	0.93	0.59
302.8-317.2	C-18	0.29	0.18
317.2-330.0	C-19	0.17	0.09
330.0-344.4	C-20	0.08	0.04
344.4-357.2	C-21	0.04	0.02
357.2-369.4	C-22	0.01	0.01
369.4-380.0	C-23	0.01	0.01
380.0-391.1	C-24	0.01	0.00
391.1-401.7	C-25	0.00	0.00
401.7-412.2	C-26	0.00	0.00
412.2-422.2	C-27	0.00	0.00
>422.2	C-28+	0.02	0.01
	Total	100.00	100.00

(0.00 = LESS THAN 0.01%)

The above boiling point ranges refer to the normal paraffin hydrocarbon boiling in that range. Aromatics, branched hydrocarbons, naphthenes and olefins may have higher or lower carbon numbers but are grouped and reported according to their boiling points.

Average molecular weight of C-8 plus 155 g/mol

This report relates specifically to the sample submitted for analysis.

Approved Signatory R Tamke.
Robyn L Tamke

DUNBAR-1 DST-2

1526-1557 m

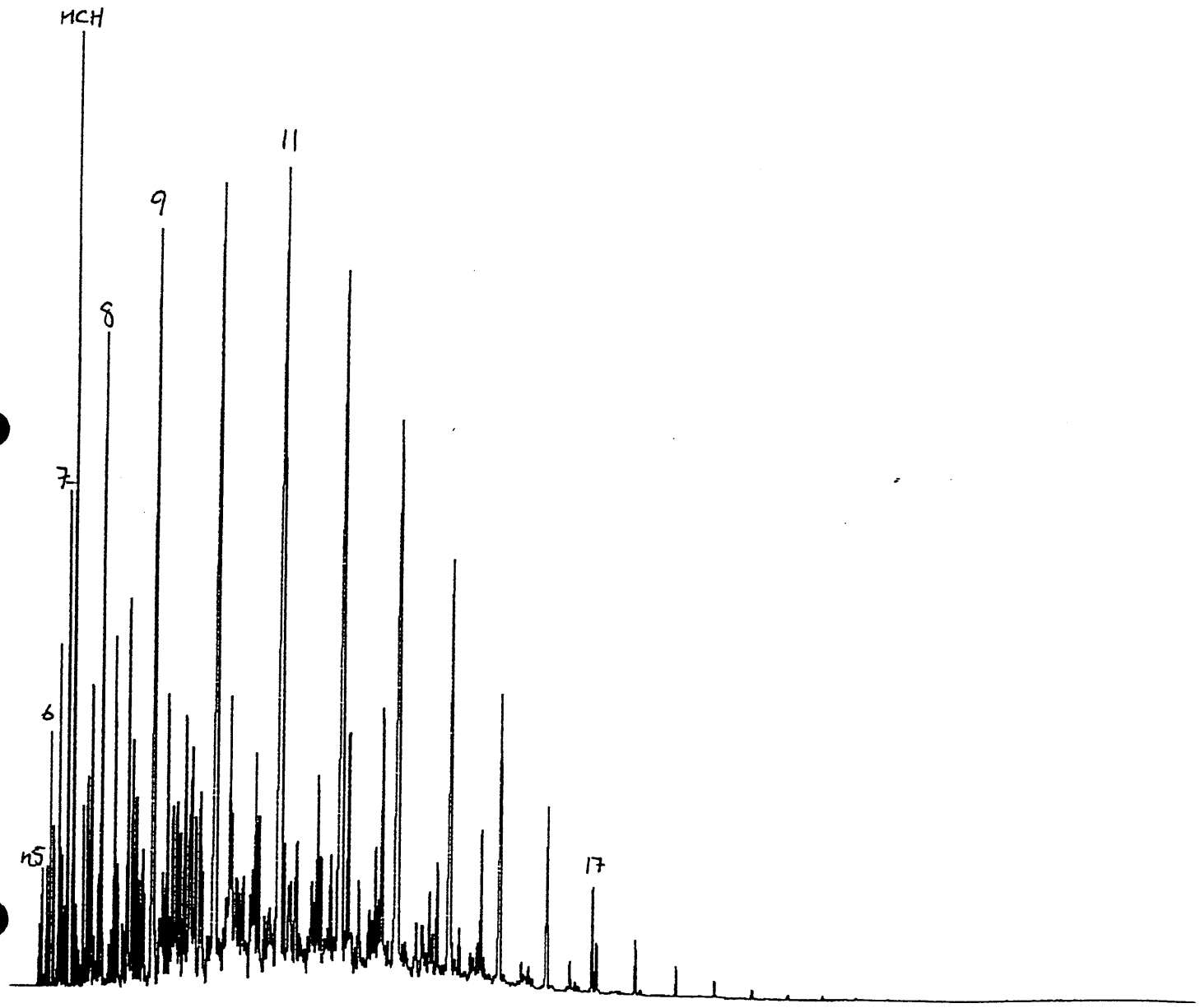

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TABLE 3

PHYSICAL PROPERTIES

Client: G.F.E. RESOURCES Ltd. Report # LQ3754

Sample: DUNBAR #1 (CONCENTRATED).
DST-2
1526-1557 m.

Method		Description	Units	DST-2
IP2	ASTM D611	Aniline Point	'C	
	ASTM D4176	Appearance, Free Water and Particulate Matter		
IP364	ASTM D976	Calculated Cetane Index		
IP219	ASTM D2500	Cloud Point	'C	
IP17		Colour by Lovibond Tintometer		
IP274	ASTM D2624	Conductivity of Fuels	pS	
IP13	ASTM D189	Conradson Carbon Residue	%wt	
IP154	ASTM D130	Copper Corrosion		
IP365	ASTM D4052	Density @ 15'C	gm/mL	0.7778
IP21		Diesel Index		
IP123	ASTM D86	Distillation		
		IBP	'C	
		10% Rec	'C	
		20% Rec	'C	
		30% Rec	'C	
		40% Rec	'C	
		50% Rec	'C	
		60% Rec	'C	
		70% Rec	'C	
		80% Rec	'C	
		90% Rec	'C	
		95% Rec	'C	
		Decomposition Point	'C	
		Residue	%vol	
		Loss	%vol	
		Evaporated @ 75'C, 105'C, 135'C	%vol	
IP131	ASTM D381	Existent Gum by Evaporation	mg/100mL	
IP170		Flash Point Abel Closed Cup	'C	
IP34	ASTM D93	Flash Point Pensky Martens Closed Cup	'C	
IP156	ASTM D1319	Fluorescent Indicator Absorption Aromatics	%	
IP16	ASTM D2386	Freezing Point	'C	
IP71	ASTM D445	Kinematic Viscosity @ 40'C	cSt	1.244
IP71	ASTM D445	Kinematic Viscosity @100'C	cSt	
IP15	ASTM D97	Pour Point	'C	
	ASTM D323	Reid Vapour Pressure	kPa	
IP277		Silver Corrosion		
IP57		Smoke Point	mm	
IP160	ASTM D1298	Specific Gravity @ 60/60'F		0.7781
IP354	ASTM D3242	Total Acidity in Aviation Fuel	mgKOH/gm	
IP270		Total Lead in Gasoline by Iodine Monochloride	gm/L	
	ASTM D2270	Viscosity Index		
IP289	ASTM D1094	Water Reaction Interface Rating		
		Separation		
	ASTM D96	Water	%vol	
	ASTM D96	Sediment	%vol	
IP160		API Gravity		50.35

Approved Signatory M. Mas.
Mohammad Massoumi

Date 21-Mar-95 Registration No: 2013

This report relates specifically to the sample submitted for testing.

OPENING PRESSURE

WELL:	DUNBAR-1 DST-2
SEPARATOR:	
DATE:	21/03/95
CYLINDER NO:	DST TOOL
OPENING PRESSURE:	2025 kpag @ 22°C
LIQUID CHECK:	NIL

G.F.E. RESOURCES LTD
DST #: 2
DUNBAR # 1
5006.8 ft - 5108.5 ft

Location: INLINE 6515 XLINE 2665
Test Type: DUAL CONVENTIONAL BOTTOM HOLE
Formation: WARRE

Recorder Number: 1273A
Recorder Depth: 4984 ft

Test Date: 18/03/95

	PRESSURE psia
1)Initial Hydrostatic:	2528.0
14)Final Hydrostatic :	2527.2

TEST TIMES (MIN)

BLOW DESCRIPTION:

PRE-FLOW: TOOL WAS OPENED AT 11:28 WITH BOTH MANIFOLD AND BUBBLE HOSE CLOSED, A 60 PSI GAUGE WAS USED TO MONITOR PRESSURE INCREASE. PRESSURE INCREASED TO 9PSI(AT THE SHUT IN TIME OF 11:33. THE MANIFOLD WAS OPENED TO ALLOW THE DRILL STRIN(TO BLEED OFF IN PREPARATION FOR THE OPENING OF THE FINAL FLOW.
FINAL FLOW: TOOL WAS RE-OPENED AT 12:33 WITH CLOSED MANIFOLD. A STRONG AIR BLO\ WAS EVIDENT. 0.5 INCH CHOKE WAS OPENED AT 12:34. GAS TO SURFACE AT 12:38 (4PSI(SURFACE PRESSURE INCREASED AT 12:39 THEN BEGAN TO DECREASE. 0.5 INCH CHOKE WAS CLOSED TO BUILD UP PRESSURE FOR GAS SAMPLE. CHOKE REOPENED AT 13:13 PRESSURE BEGAN TO DECREASE. AT 13:18 (6PSIG) 0.5 INCH CHOKE CLOSED. THERE WAS A RAPID INCREASE IN PRESSURE AND AT 13:20 (20 PSIG) THE 0.5 INCH CHOKE WAS RE-OPENED

TOOL CLOSED AT 14:33 HRS (10 PSIG).

LIQUID RECOVERY:

THE TOTAL LIQUID RECOVERY WAS 40 m OF CONDENSATE AND LIGHT OIL CUT RAT HOLE MUD
TH DOWNHOLE SAMPLER WAS SENT TO PERTH FOR ANNALYSIS.
TOOL CLOSED AT 14:33 HRS (10 PSIG).

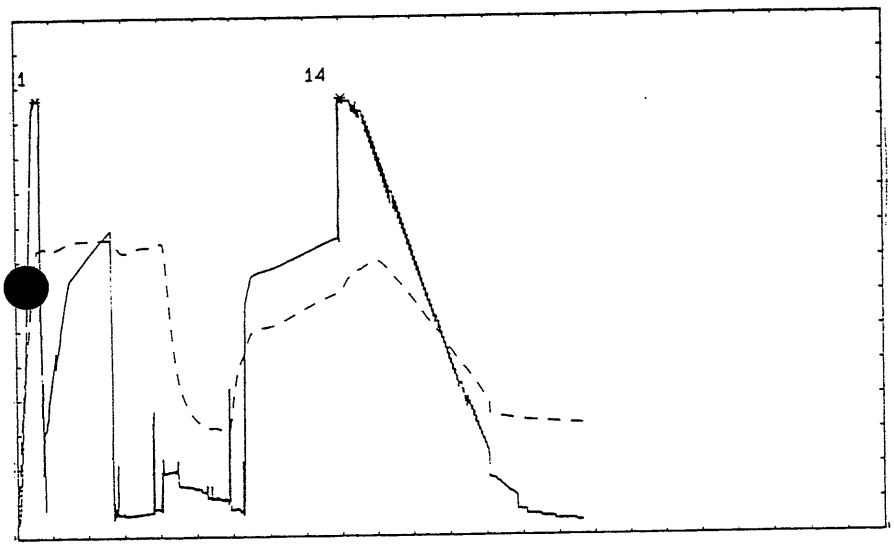
REMARKS AND TEST SUMMARY:

PACKER SETTING DEPTHS WERE CALCULATED USING DRILLER'S TALLY.
PROBLEMS WITH INTERNAL AND EXTERNAL PLUGGING WERE THE SAME AS ENCOUNTERED ON D.S.T. # 1. THE SAME OFFENDING MATERIAL WAS FOUND THROUGHOUT THE TOOL.

DST #: 2
DUNBAR # 1
5006.8 ft - 5108.5 ft

PRESSURE RECORDER NUMBER: 1273A

DEPTH : 4983.90 ft LOCATION : INSIDE
TYPE : PANEX CAPACITY : 10000.00 psig
***** TEMPERATURE AT RECORDER DEPTH = 138.0 F

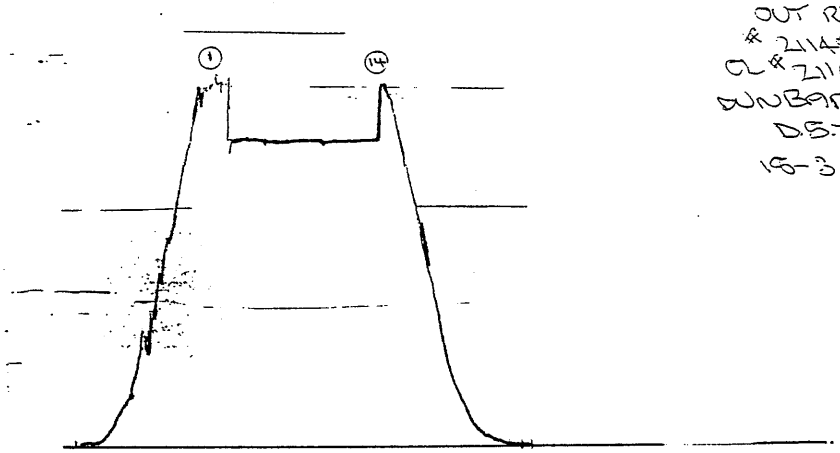


	PRESSURE psia
1)Initial Hydrostatic:	2528.0
14)Final Hydrostatic :	2527.2

TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 21149

DEPTH : 5032.80 ft LOCATION : OUTSIDE
TYPE : K-3 CAPACITY : 3025.00 psig



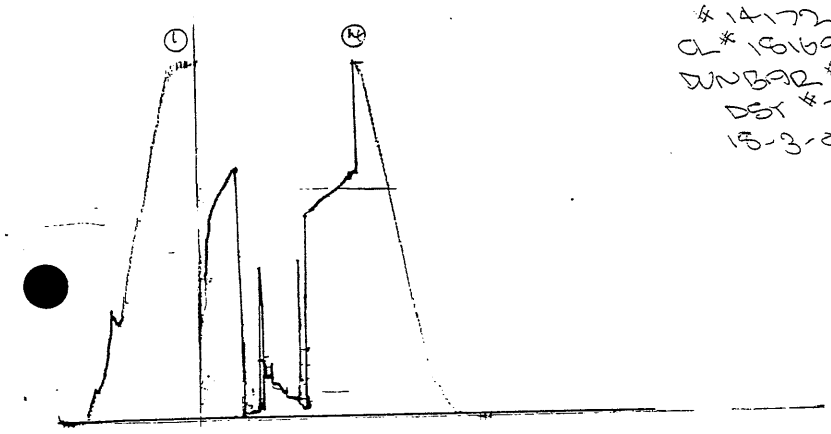
OUT REC'D
21149
CL # 21149
DUNBAR #1
DST #2
15-3-95

	PRESSURE psia
1)Initial Hydrostatic:	2517.8
14)Final Hydrostatic :	2503.5

DST #: 2
DUNBAR # 1
5006.8 ft - 5108.5 ft

PRESSURE RECORDER NUMBER: 14172

DEPTH : 4972.90 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 3000.00 psig



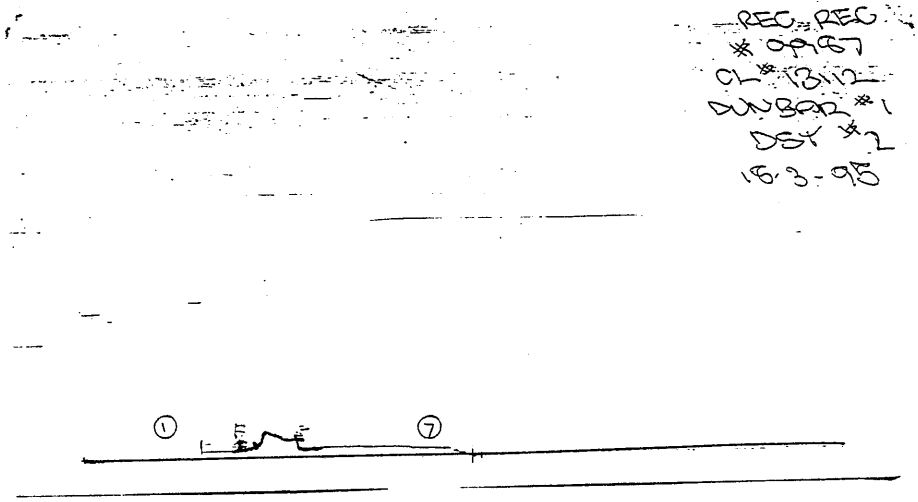
TOP REC
#14172
CL# 15169
DUNBAR #1
DST #2
15-3-95

	PRESSURE psia
1)Initial Hydrostatic:	2443.7
14)Final Hydrostatic :	2440.7

TEST TIMES (MIN)

PRESSURE RECORDER NUMBER: 9987

DEPTH : 4951.60 ft LOCATION : INSIDE
TYPE : K-3 CAPACITY : 3000.00 psig



REC. REC
#9987
CL# 13112
DUNBAR #1
DST #2
15-3-95

	PRESSURE psia
1)Initial Hydrostatic:	14.7
2)Start of 1st Flow :	14.7
3)End of 1st Flow :	14.7
4)End of 1st Shut-in :	14.7
5)Start of 2nd Flow :	14.7
6)End of 2nd Flow :	14.7
7)End of 2nd Shut-in :	80.9
14)Final Hydrostatic :	14.7

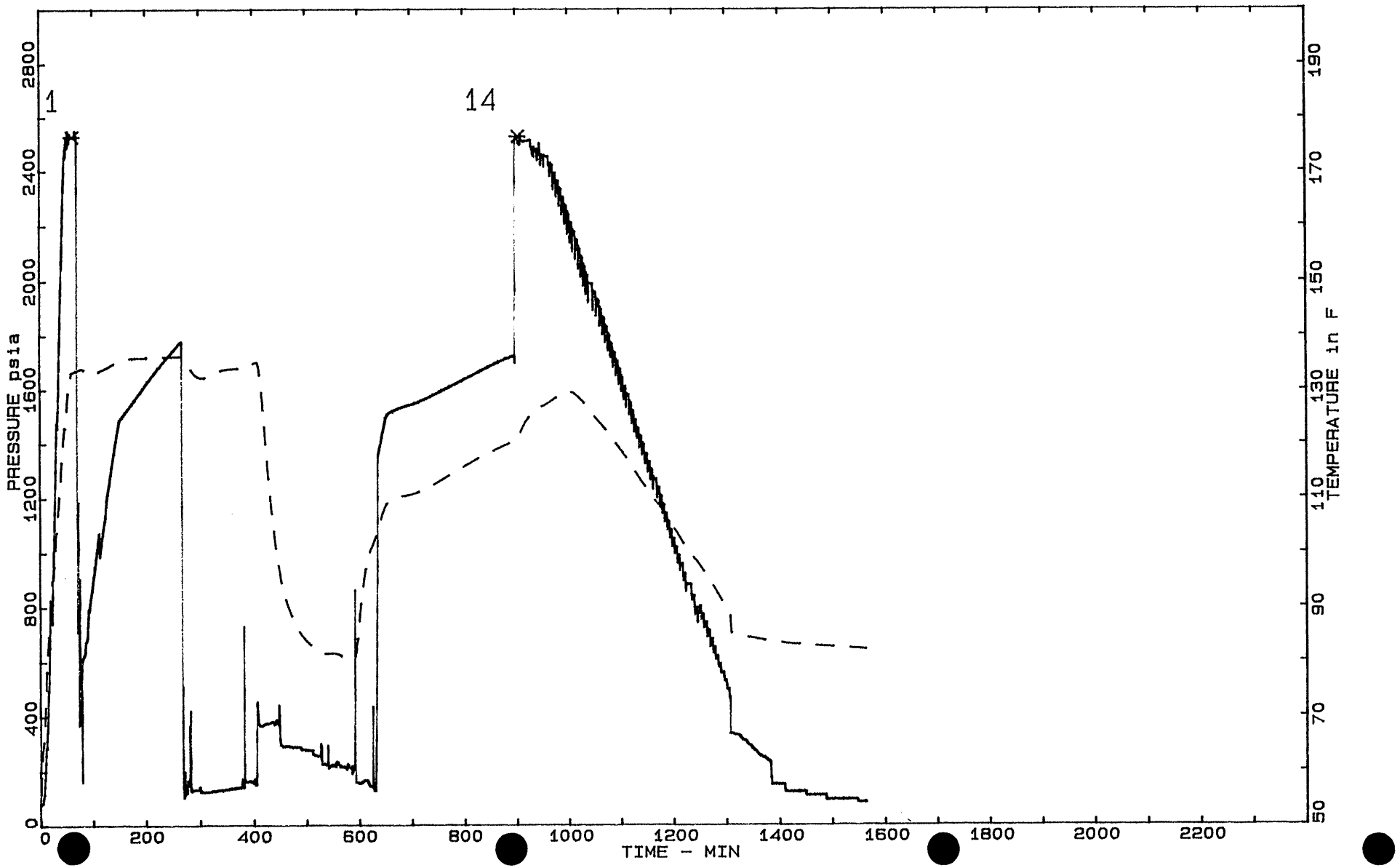
G.F.E. RESOURCES LTD

WELL NAME: DUNBAR # 1
LOCATION: INLINE 6515 XLINE 2665
DST #: 2

PRESSURE :——
TEMPERATURE: — — — — —

LEGEND: * 1 = 2528 psia
14 2527

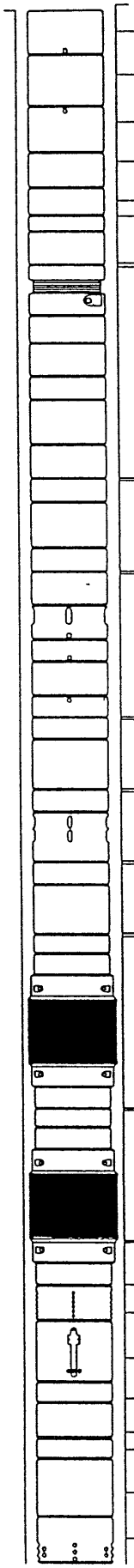
RECORDER: 1273A



DUNBAR # 1 DST # 2

BOT CONVENTIONAL DST

DWG NO. 869-055-3



DESCRIPTION	LENGTH	O.D.	I.D.	DEPTH
PUMP OUT TYPE REVERSE CIRCULATING SUB	0.42	6.25	3.00	1489.60
DRILL COLLARS	8.61	6.25	2.8125	
IMPACT TYPE REVERSE CIRCULATING SUB	0.42	6.25	3.00	1498.63
DRILL COLLARS	8.92	6.25	2.8125	
CROSS OVER SUB	0.30	6.25	2.25	
INSIDE RECORDER CARRIER	1.37	4.875	1.00	1509.22
ROTATING SHUT IN VALVE	2.59	5.00	1.00	1511.81
POSITIVE CONTROL SAMPLER	1.04	5.00	1.00	
HYDRAULIC MULTIPLE SHUT IN VALVE	1.49	5.00	1.00	
INSIDE RECORDER CARRIER	1.37	4.875	1.00	1515.71
PANEX	3.35	4.75	2.25	1519.06
HYDRAULIC JARS	2.01	5.00	1.25	
SAFETY JOINT	0.69	5.00	2.25	
PACKER SECTION	2.88	7.50	1.00	
PACKER SECTION STICK UP AND ELEMENT	1.36	7.50	1.00	1526.00
PACKER SECTION STICK DOWN	1.33	7.50	1.00	
PERFORATED ANCHOR PIPE	4.57	4.75	2.25	
OUTSIDE RECORDER CARRIER	2.06	5.00	1.25	1533.96
CROSS OVER SUB	0.70	6.25	2.25	
DRILL COLLARS	19.01	6.25	2.8125	
SPACING SECTIONS	2.44	4.75	2.25	
ANCHOR SHOE	0.91	5.00	-	1557.02

DUNBAR # 1 DST # 2

TEST TOOL AND PIPE RECORD (CONVENTIONAL).

DESCRIPTION.	LENGTH	OD	ID
TOTAL STRING BELOW PACKER SEAL	31.02	-	-
TOTAL TOOLS BETWEEN PACKER SEALS	-	-	-
TOTAL TOOLS ABOVE PACKER SEAL	22.23	-	-
TOTAL DRILL COLLARS ABOVE INTERVAL	142.96	6.25	2.8125
TOTAL HEVI-WATE ABOVE INTERVAL	55.18	4.50	2.8750
TOTAL DRILL PIPE ABOVE INTERVAL	1310.65	4.50	3.8260
TOTAL STRING	1562.04	-	-
TOTAL DEPTH	1557.00	-	-
TOP SINGLE ABOVE TABLE	5.04	-	-

GAS AND FUEL

SCIENTIFIC SERVICES - LABORATORY REPORT

1136 Nepean Highway, Highett, Victoria 3190
Tel. 556 6222 Fax 555 7616

Subject: Analysis of Exploration Sample Dunbar No.1 - DST #2 @1340 Hr. - 18/03/1995

Requested by: Kevin Lanigan, GFE Resources Ltd

Report Reference: 95/0428

Date: March 21 1995

Received: March 19, 1995

Author: I. Strudwick

Approved by: P. Roga

Distribution: Kevin Lanigan
Explorationist
GFE Resources Limited
Level 6, 6 Riverside Quay
South Melbourne 3205

Gas Quality and Environment (2)

Master File

Keywords: Exploration, Natural, Gas, Analysis

Disc Reference: A2:\95\GFE0428.DOC

Job Order Number: 10031140

Master Report Number: 95/0428/C

43:ILS:ils

GAS AND FUEL

SCIENTIFIC SERVICES - LABORATORY REPORT

1136 Nepean Highway, Highett, Victoria 3190
Tel. 556 6222 Fax 555 7616

Subject: Analysis of Exploration Sample Dunbar No.1 - DST #2 @ 1340 Hr. - 18/03/1995

Requested by: Kevin Lanigan, GFE Resources Ltd

Report Reference: 95/0428

Component	Mole Percent Concentration
Methane	88.3
Ethane	4.53
Propane	2.19
Iso-Butane	0.513
Normal-Butane	0.599
Neo-Pentane	0.008
Iso-Pentane	0.215
Normal-Pentane	0.180
Hexanes	0.327
Heptanes+	0.295
Carbon Dioxide	0.14
Oxygen+Argon	0.14
Nitrogen	2.56
Helium	0.022

Calculated Characteristics for the dry gas at MSC

Gross Heating Value	41.6 MJ/m^3
Wobbe Index	51.5 MJ/m3
Relative Density	0.652

Method References: SSS-11-006, ISO 6974

Analyst: I. Strudwick **Date:** 21/03/1995

Approved Signatory: I Strudwick

GAS AND FUEL

SCIENTIFIC SERVICES - LABORATORY REPORT

1136 Nepean Highway, Highett, Victoria 3190
Tel. 556 6222 Fax 555 7616

Subject: Analysis of Exploration Sample Dunbar No.1 – DST #2 @1426 Hr. - 18/03/1995

Requested by: Kevin Lanigan, GFE Resources Ltd

Report Reference: 95/0427

Date: March 21 1995

Received: March 19, 1995

Author: I. Strudwick

Approved by: P. Roga

Distribution: Kevin Lanigan
Explorationist
GFE Resources Limited
Level 6, 6 Riverside Quay
South Melbourne 3205

Gas Quality and Environment (2)

Master File

Keywords: Exploration, Natural, Gas, Analysis

Disc Reference: A2:\95\GFE0427.DOC

Job Order Number: 10031140

Master Report Number: 95/0427/C

43:ILS:ils

APPENDIX 7

APPENDIX 7

RFT PRESSURE TEST REPORT SHEET

GFE RESOURCES LTD

RFT - PRESSURE TEST REPORT SHEET

WELL NAME: DUNBAR-1	PERMIT: PPL1	OBSERVER: Dean Grant	DATE: 22 / 3 / 95

TEST NO	FILE NO	DEPTH (mKB)	SEAT Y	SEAT N	HYDROSTATIC PRESSURE INITIAL	HYDROSTATIC PRESSURE FINAL	FORMATION PRESSURE (PSIA) QUARTZ GAUGE	FORMATION PRESSURE (PSIA) STRAIN GAUGE	TIME TO STABILISATION (secs)	SAMPLE Y	SAMPLE N	FORMATION/REMARKS
1	1	1534.0	✓		2504.3	2505.1	2135.7		843		✓	
2	2	1536.0	✓		2508.8	2510.2	2145.2		1535		✓	Still unstabilised
3	3	1540.5	✓		2518.0	2518.1	2147.3		1431		✓	Close to stabilised
4	4	1542.5	✓		2512.2	2521.5					✓	Superchaged and tight
5	5	1535.5	✓		2511.2	2511.4	2130.9		65		✓	
6		1540.0		✓	2518.5	2518.7						Seal failure
7	6	1536.5	✓		2513.5	2513.7	2132.9		1437		✓	Close to stabilised
8	7	1542.3	✓		2523.2	2523.6	2217.0		732		✓	Supercharged?
9	8	1597.5	✓		2612.4	2612.2						Tool plugged
10		1607.0		✓	2627.4	2627.5						Seal failure
11		1607.0		✓	2627.7	2627.7						Seal failure
12	9	1644.5	✓		2689.1	2689.2						Tight
13		1482.5		✓	2427.2	2426.5						Seal failure
14	10	1482.2	✓		2426.0	2426.2						Suspect tool plugged
15	11	1482.4	✓		2426.9	2427.4						Suspect tool plugged
16	12	1483.2	✓		2428.6	2427.7						Suspect tool plugged
17	13	1484.0	✓		2429.1	2429.6						Suspect tool plugged

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GFE RESOURCES LTD

RFT - PRESSURE TEST REPORT SHEET

WELL NAME: DUNBAR-1	PERMIT: PPL1	OBSERVER: Dean Grant	DATE: 22 / 3 / 95

TEST NO	FILE NO	DEPTH (mKB)	SEAT Y	SEAT N	HYDROSTATIC PRESSURE INITIAL	HYDROSTATIC PRESSURE FINAL	FORMATION PRESSURE (PSIA) QUARTZ GAUGE	FORMATION PRESSURE (PSIA) STRAIN GAUGE	TIME TO STABILISATION (secs)	SAMPLE Y	SAMPLE N	FORMATION/REMARKS
18	14	1515.0	✓		2479.2	2479.9	-	-			✓	Plugging test, tool plugged
					P.O.H. and Inspect Tool							
19	-	1482.5		✓	2424.6	2425.1	-	-			✓	Seal failure
20	-	1482.6		✓	2426.1	2426.4	-	-			✓	Seal failure
21	15	1483.5		✓	2429.2	2429.5	-	-			✓	Seal failure
22	16	1483.8	✓		2430.6	2431.0	2044.5	458			✓	Built to 2635.5 quickly, nearly stabilised andstarted building again.
23	17	1486.5	✓		2435.9	2436.5	2044.5	126			✓	
24	18	1488.5	✓		2440.2	2440.7	2049.6	64			✓	
25	19	1491.5	✓		2445.5	2446.1	2053.4	355			✓	
26	20	1495.5	✓		2452.4	2451.4	-	-			✓	Supercharged?
27	-	1500.2		✓	2460.0	2459.9	-	-			✓	Seal failure
28	-	1500.3		✓	2459.6	2459.2	-	-			✓	Seal failure
29	21	1515.0	✓		2484.2	2484.1	2085.1	122			✓	
30	-	1518.0		✓			-	-			✓	Seal failure
31		1517.5		✓			-	-			✓	Seal failure
32	-	1518.5		✓			-	-			✓	Seal failure
33	-	1518.7		✓			-	-			✓	Seal failure

techstaf/vb:b3688

GFE RESOURCES LTD

RFT - PRESSURE TEST REPORT SHEET

WELL NAME: DUNBAR-1	PERMIT: PPL1	OBSERVER: Dean Grant	DATE: 22 / 3 / 95

TEST NO	FILE NO	DEPTH (mKB)	SEAT Y	SEAT N	HYDROSTATIC PRESSURE INITIAL	HYDROSTATIC PRESSURE FINAL	FORMATION PRESSURE (PSIA) QUARTZ GAUGE	FORMATION PRESSURE (PSIA) STRAIN GAUGE	TIME TO STABILISATION (secs)	SAMPLE Y	SAMPLE N	FORMATION/REMARKS
34	-	1510.0		✓	-	-	-	-	-		✓	Tool not set
35	22	1510.0	✓		2473.8	2474.3	2070.7	-	-		✓	
36	-	1500.0		✓	-	-	-	-	-		✓	Seal failure
37	-	1496.0		✓	-	-	-	-	-		✓	Seal failure
38	23	1488.0		✓	2443.4	2443.9	-	-	-	✓		Sample failed. Seal failure
39	24	1488.3	✓		2444.5	2444.5	2044.2	-	320		✓	

techstaf vb:b3688

APPENDIX 8

APPENDIX 8

VELOCITY SURVEY

Velocity Data

VELOCITY SURVEY

DUNBAR No. 1

VICTORIA

AUSTRALIA

for

GFE RESOURCES

recorded by

VELOCITY DATA PTY. LTD.

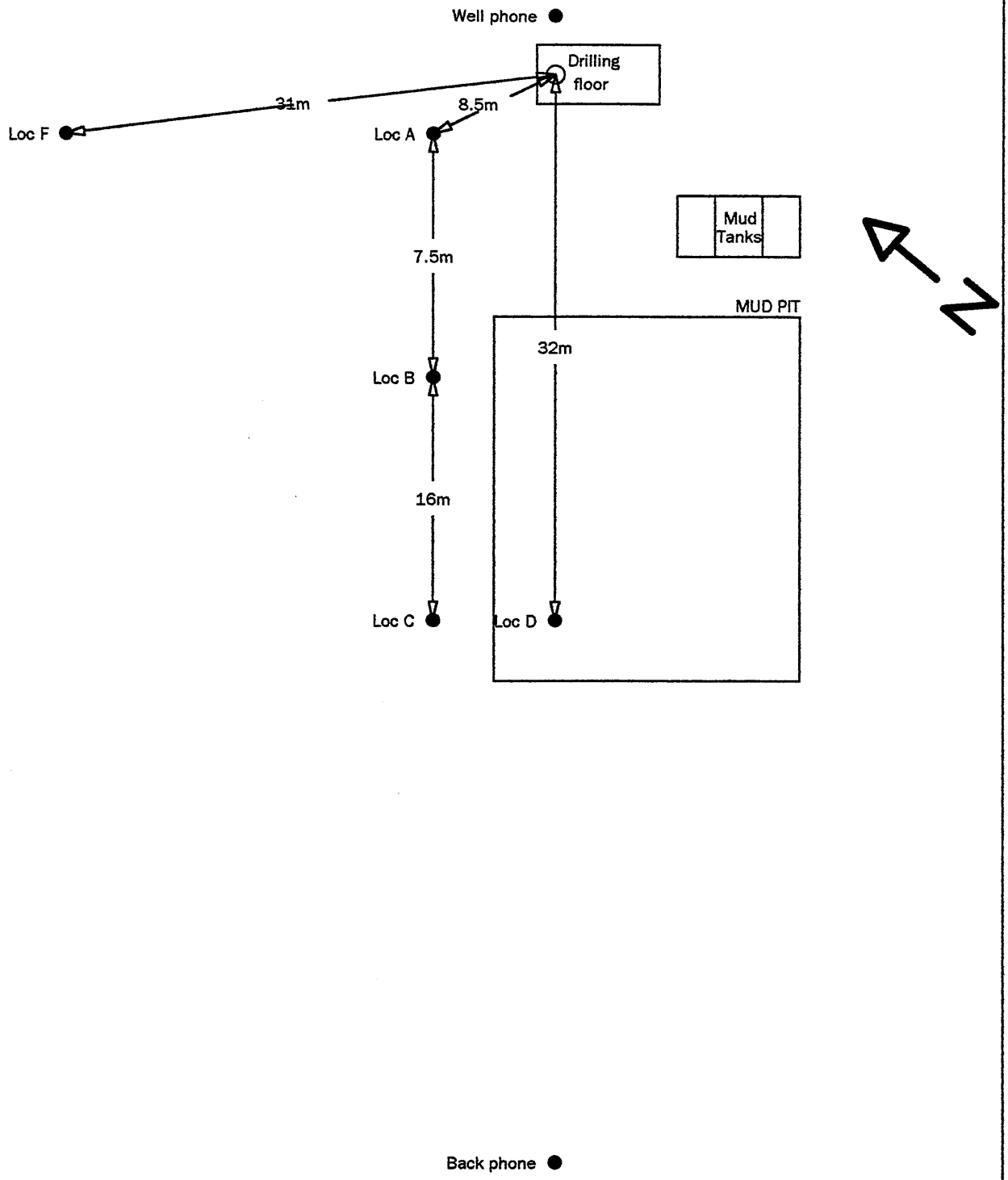
processed by

VELSEIS PTY LTD

Integrated Seismic Technologies

Brisbane, Australia
19 July, 1995

CONTENTS



DUNBAR-1

SHOT POINT LOCATION SKETCH

GFE RESOURCES LTD

Figure 1

SUMMARY

Velocity Data Pty Ltd conducted a velocity survey for GFE Resources in the Dunbar No. 1 well, Victoria, Australia. The date of the survey was the 21st March 1995.

Explosives were used as an energy source with shots being fired in the mud pit in the majority of instances.

GENERAL INFORMATION

Name of Well	: Dunbar No. 1
Location	: Victoria - PPL 1
Coordinates	: Latitude 38 32 54.09 S : Longitude 142 54 23.8E
Date of Survey	: 21st March 1995
Weather	: Showers
Operational Base	: Brisbane
Operator	: J. Larsen
Shooter	: D. Blick
Client Representative	: Mr. D. Horner

EQUIPMENT

Downhole Tool

Veldata Camlock 100 (90 mm)

Sensors:

6 HSI 4.5 Hz 215 ohm, high temperature (300 degrees F) detectors connected in series parallel. Frequency response 8-300 Hz within 3 dB.

Preamplifier:

48 dB fixed gain.
Frequency response 5-200 Hz within 3 dB.

Reference Geophone

Mark Products L1 4.5 Hz

Recording Instruments

System VDL 16

Windows based high resolution seismic acquisition instruments

Computer :	386 Portable computer
Resolution :	A/D conversion 16 bits
Dynamic Range :	96dB
Total Gain :	136dB
Data channels :	8
Display :	A4 Bubble Jet Printer 300 D.P.I.

RECORDING

Energy Source	: Explosive, Powergel
Shot Location	: Mud pit
Charge Size	: .2/3.0 sticks
Average Shot Depth	: .7 metres
Mud Pit Shot Offset	: 32.0 metres
Recording Geometry	: Figure 1

Acquisition of the survey was carried out using the VDLS 16 recording system.

Shots were recorded on $3^1/_2$" floppy disc. The sample rate was 0.5 msec for the entire survey.

The scale of the graphic display varies with signal strength and is noted on each playout.
The times were picked from a sample by sample screen plot, a full set of these trace displays can be seen at the rear of the report.

PROCESSING

Elevation Data

Elevation of KB	: 82.7m above sea level
Elevation of Ground	: 77.0m above sea level
Elevation of Seismic Datum	: 0.0m above sea level
Depth Surveyed	: 1752.0m below KB
Depth of Casing	: 312.0m below KB

PROCESSING

Recorded Data

Number of Shots Used : 30

Number of Levels Recorded : 20

Data Quality : Excellent

Noise Level : Low

Corrections to Obtain Vertically Corrected Time

The 'corrected' times shown on the calculation sheet have been obtained by:

(1) Subtraction of the instrument delay (2msec) from the recorded arrival times.

(2) Geometric correction for non-verticality of ray paths resulting from shot offset.

(3) Addition of an Uphole correction time which corrects for the depth of shot below ground level for shots external to the pit using an uphole time (2.0msec) determined from surface channel information.

(4) Replacement velocity to correct for variation in elevation between the ground level of the shot and ground level of the well head.

(5) re-addition of the instrument delay (2msec).

Mud Pit Calibration

Due to a variation in shooting conditions between shots discharged within the pit to those external to the pit, It is necessary to tie the mud pit shots to the external shots. Thus a bulk shift of 2.0msec has been applied which has been calculated from the difference in corrected vertical time for pit and external shots at the 82.7m below KB level.

Correction to Datum

The datum chosen was 0.0 metres ASL that is 82.7 metres below KB. This level was shot eight times during the survey, all of which have been used to calculate an effective datum correction time of 47.4msec. Please note this time includes a 2msec instrument delay which must be subtracted to obtain the raw pick time.

Calibration of Sonic Log - Method

A sonic log was not provided by GFE Resources. As a result all values appearing on the calculation sheet are un-calibrated.

PROCESSING

Trace Playouts (Figure 3)

Figure 3A is a plot of all raw data traces used.

Figure 3B is a plot to scale in depth and time of selected traces.

Figure 3C is a plot of selected surface traces. .

Troy Peters
Geophysicist.

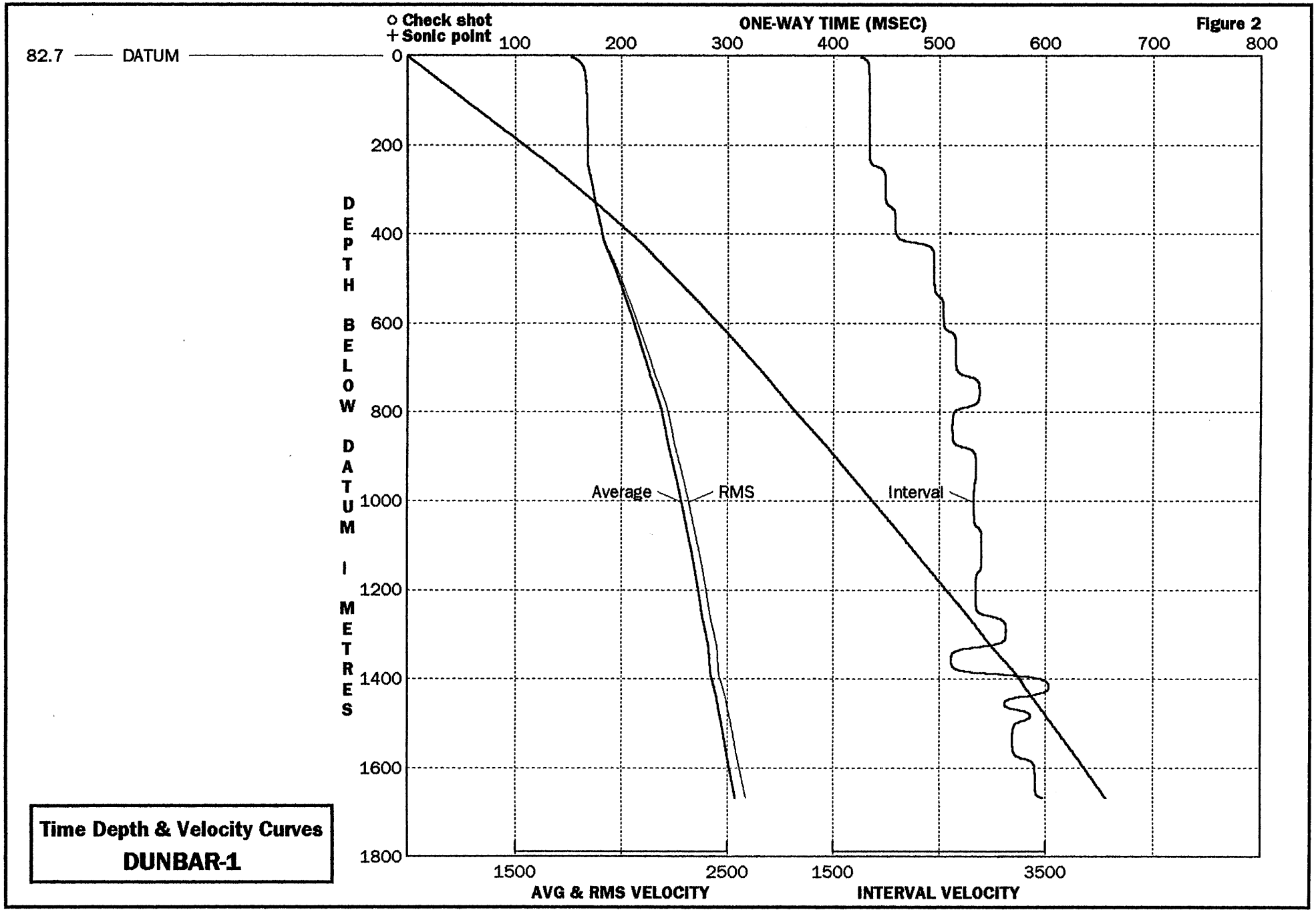
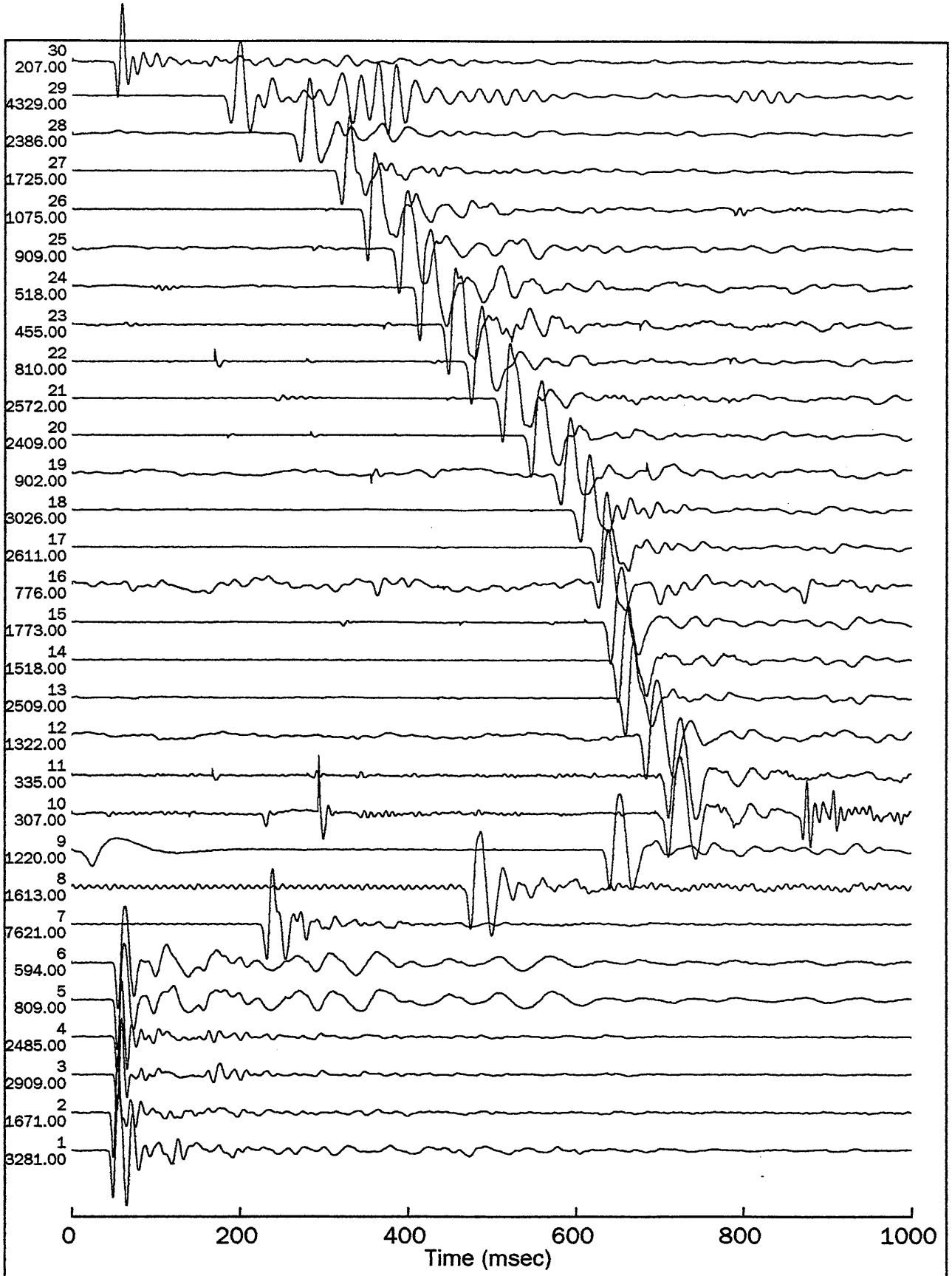


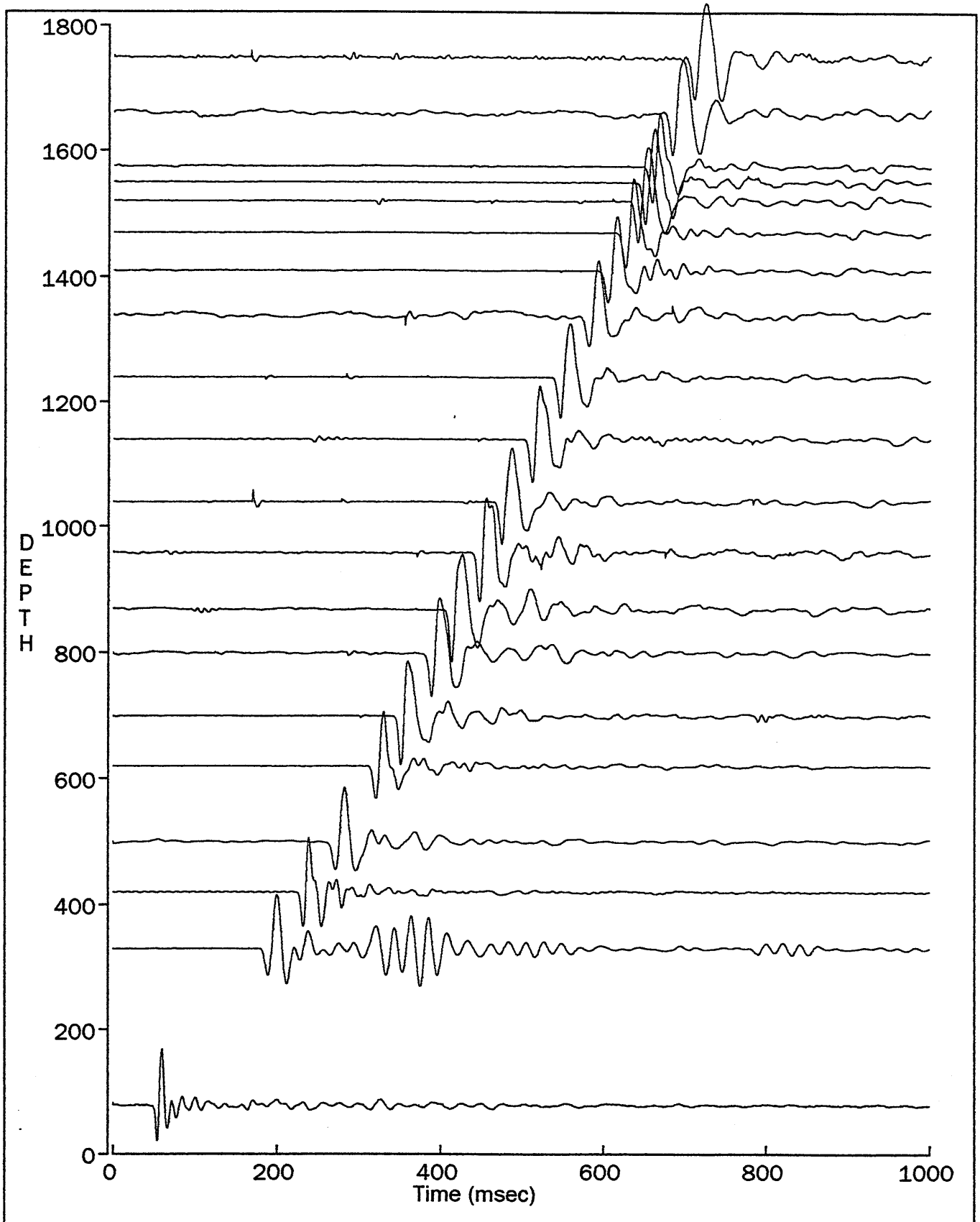
Figure 2
82.7 DATUM
o Check shot
+ Sonic point
ONE-WAY TIME (MSEC)
100
200
300
400
500
600
700
800
0
200
400
600
800
1000
1200
1400
1600
1800
DEPTH BELOW DATUM IN METRES
Average
RMS
Interval
1500
2500
AVG & RMS VELOCITY
1500
3500
INTERVAL VELOCITY
Time Depth & Velocity Curves
DUNBAR-1



DUNBAR-1

VELOCITY SURVEY TRACE DISPLAY

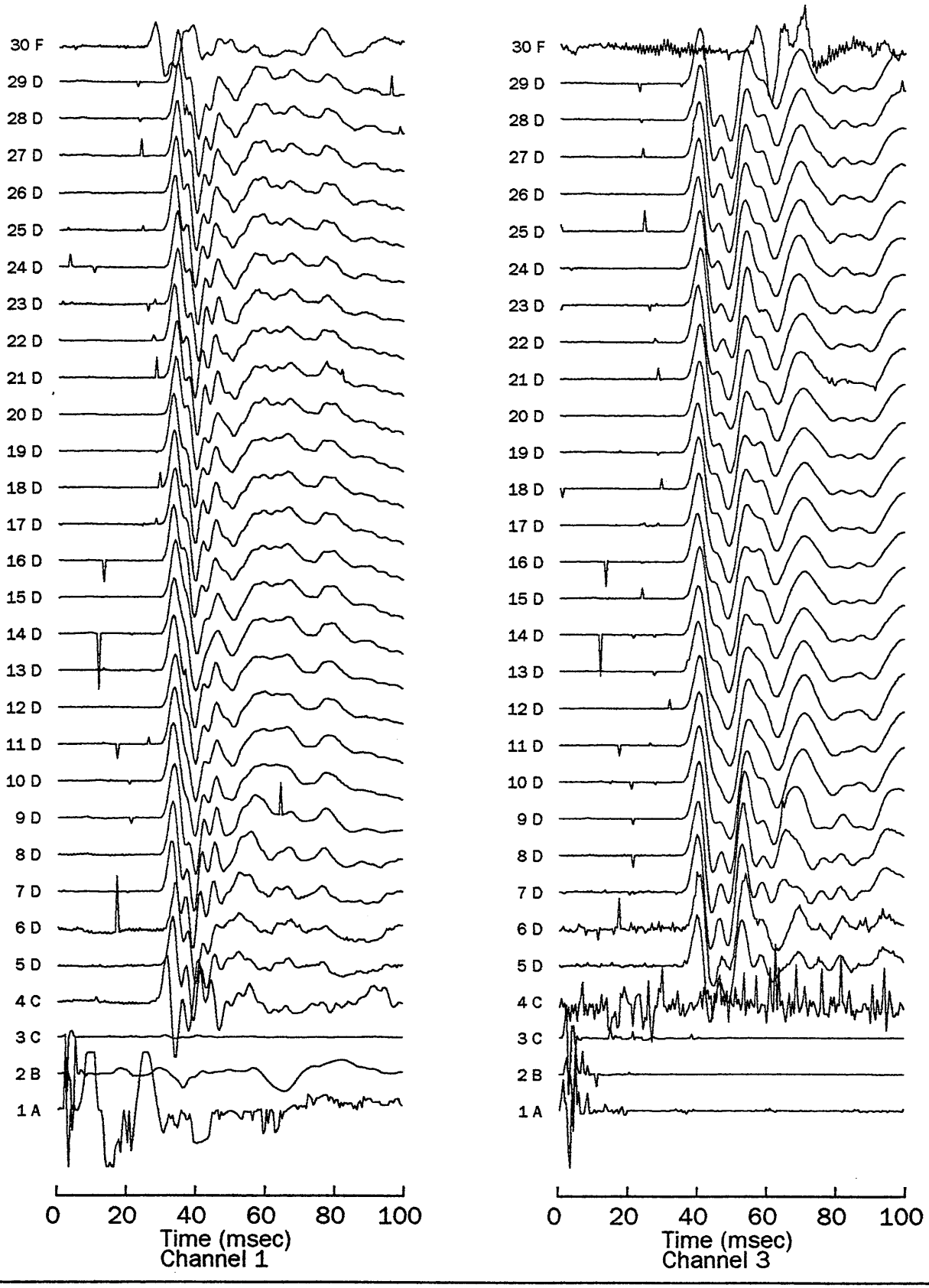
Figure 3A



DUNBAR-1

VELOCITY SURVEY TRACE DISPLAY

Figure 3B



DUNBAR-1

VELOCITY SURVEY TRACE DISPLAY
AUXILIARY CHANNELS

Figure 3C

COMPANY : GFE RESOURCES LTD
WELL : DUNBAR-1

Latitude : 38 32 54.097S Longitude : 142 54 23.82E Survey date : 21-Mar-95 Survey units : METRES
Elevations : Datum : 0 Ground : 77 Kelly : 82.7 Times : MILLISECONDS

Shot data : Location Elevation Offset

A	77.0	8.5
B	77.0	16.0
C	76.3	32.0
D	76.1	32.0
F	77.8	31.0

Rig identification : CENTURY 11
Energy source : POWERGEL
Logger : BPB
Elevation velocity for shot statics : 1700
Instrument delay : 2.0 msec

SHOT CALCULATIONS :

Shot no.	Geophone depth Kelly	Geophone depth Datum	Shot Locn	Shot Depth	TIMES Record	TIMES Corr.	TIMES Avg.	TIMES Datum	Check shot interval distance	Check shot interval time	Velocities Average	Velocities RMS	Velocities Interval
DATUM													
1	82.7	0.0	A	0.5	44.5	46.2							
2	82.7	0.0	B	0.5	45.0	46.1							
3	82.7	0.0	C	0.5	49.0	47.7							
4	82.7	0.0	C	0.5	49.0	47.7							
5	82.7	0.0	D	0.5	49.0	47.8							
6	82.7	0.0	D	0.5	49.5	48.3							
30	82.7	0.0	F	0.5	50.0	48.1	47.4	0.0					
									247.3	134.2			1842.8
29	330.0	247.3	D	0.7	180.0	181.6	181.6	134.2			1842.8	1842.8	
									90.0	45.2			1991.2
7	420.0	337.3	D	0.5	225.0	226.8	226.8	179.4			1880.2	1881.3	
									80.0	38.2			2094.2
28	500.0	417.3	D	0.7	263.0	265.0	265.0	217.6			1917.7	1920.4	
									120.0	49.1			2444.0
27	620.0	537.3	D	0.7	312.0	314.1	314.1	266.7			2014.6	2026.9	
									80.0	31.5			2539.7
26	700.0	617.3	D	0.7	343.5	345.6	345.6	298.2			2070.1	2087.1	
									100.0	37.6			2659.6
25	800.0	717.3	D	0.7	381.0	383.2	383.2	335.8			2136.1	2158.7	

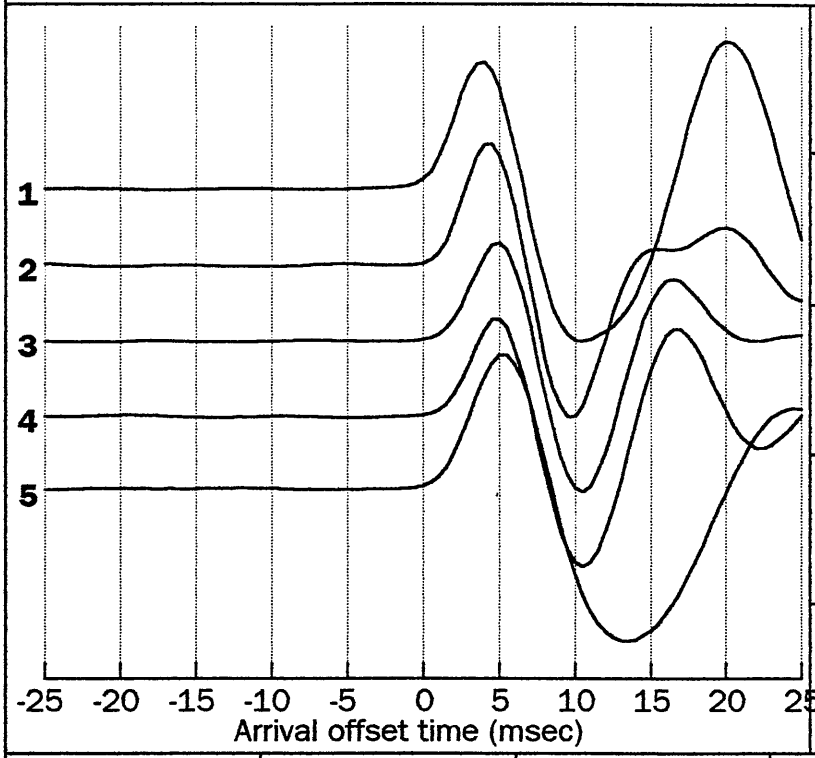
SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth Kelly	Datum	Shot Locn	Shot Depth	TIMES Record	Corr.	Avg.	Datum	Check shot interval distance	time	Velocities Average	RMS	Interval
									70.0	24.5			2857.1
24	870.0	787.3	D	0.7	405.5	407.7	407.7	360.3			2185.1	2213.2	
									90.0	34.1			2639.3
23	960.0	877.3	D	0.7	439.5	441.8	441.8	394.4			2224.4	2253.2	
8	1040.0	957.3	D	0.5	468.5	470.8			80.0	28.2			2836.9
22	1040.0	957.3	D	0.7	467.0	469.3	470.0	422.6			2265.3	2296.8	
									100.0	35.3			2832.9
21	1140.0	1057.3	D	0.7	503.0	505.3	505.3	457.9			2309.0	2342.5	
									100.0	34.5			2898.6
20	1240.0	1157.3	D	0.7	537.5	539.8	539.8	492.4			2350.3	2385.7	
									100.0	35.0			2857.1
19	1340.0	1257.3	D	0.7	572.5	574.8	574.8	527.4			2384.0	2419.8	
									70.0	22.6			3097.3
18	1410.0	1327.3	D	0.7	595.0	597.4	597.4	550.0			2413.3	2451.4	
16	1470.0	1387.3	D	0.7	618.0	620.4			60.0	22.5			2666.7
17	1470.0	1387.3	D	0.7	617.0	619.4	619.9	572.5			2423.2	2460.2	
9	1520.0	1437.3	D	0.5	632.0	634.4			50.0	14.5			3448.3
15	1520.0	1437.3	D	0.7	632.0	634.4	634.4	587.0			2448.6	2489.3	
									30.0	9.5			3157.9
14	1550.0	1467.3	D	0.7	641.5	643.9	643.9	596.5			2459.8	2501.4	
									25.0	7.5			3333.3
13	1575.0	1492.3	D	0.7	649.0	651.4	651.4	604.0			2470.7	2513.4	
									85.0	26.5			3207.5
12	1660.0	1577.3	D	0.5	675.5	677.9	677.9	630.5			2501.7	2546.4	
10	1752.0	1669.3	D	0.5	702.5	704.9							

SHOT CALCULATIONS : (cont)

Shot no.	Geophone depth Kelly	Geophone depth Datum	Shot Locn	Shot Depth	TIMES Record	TIMES Corr.	TIMES Avg.	TIMES Datum	Check shot interval distance	Check shot interval time	Velocities Average	Velocities RMS	Velocities Interval
									92.0	27.0			3407.4
11	1752.0	1669.3	D	0.5	702.5	704.9	704.9	657.5			2538.9	2587.4	

First arrivals plot : DUNBAR-1



Shot 1 Location : A
Charge depth .5 Size .2
Phone depth : 82.7
Arrival time : 44.5 msec

Shot 2 Location : B
Charge depth .5 Size .2
Phone depth : 82.7
Arrival time : 45.0 msec

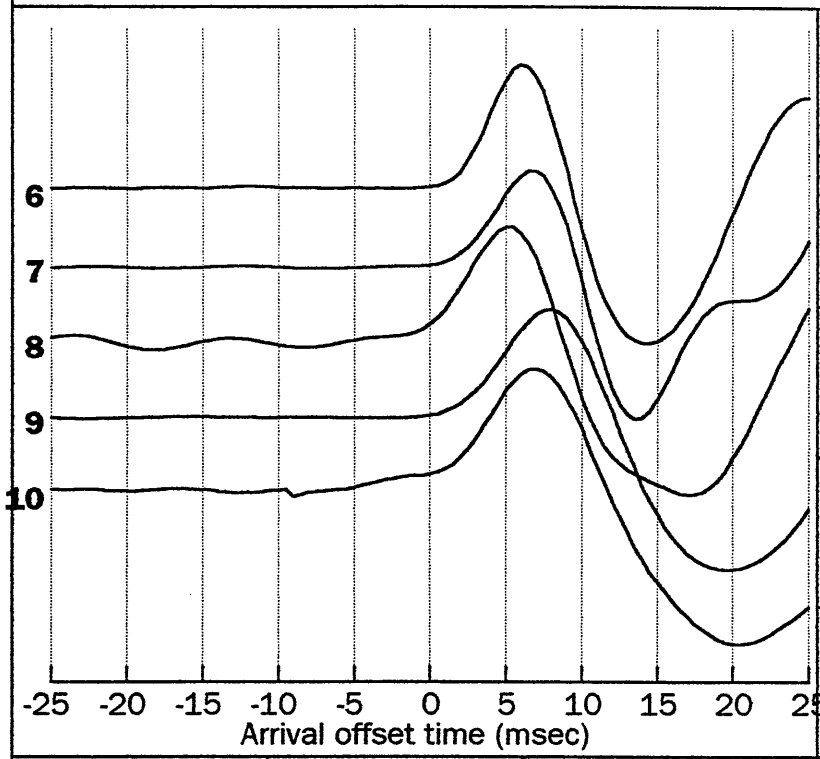
Shot 3 Location : C
Charge depth .5 Size .3
Phone depth : 82.7
Arrival time : 49.0 msec

Shot 4 Location : C
Charge depth .5 Size .3
Phone depth : 82.7
Arrival time : 49.0 msec

Shot 5 Location : D
Charge depth .5 Size .3
Phone depth : 82.7
Arrival time : 49.0 msec

SHOT 1		SHOT 2		SHOT 3		SHOT 4		SHOT 5	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
34.0	-22.00	34.0	5.00	38.0	-11.00	38.0	-8.00	38.0	-18.00
34.5	-19.00	34.5	4.00	38.5	-14.00	38.5	-14.00	38.5	-18.00
35.0	-18.00	35.0	3.00	39.0	-18.00	39.0	-15.00	39.0	-17.00
35.5	-15.00	35.5	1.00	39.5	-24.00	39.5	-16.00	39.5	-16.00
36.0	-10.00	36.0	-4.00	40.0	-24.00	40.0	-16.00	40.0	-15.00
36.5	-9.00	36.5	-6.00	40.5	-31.00	40.5	-15.00	40.5	-14.00
37.0	-8.00	37.0	-11.00	41.0	-34.00	41.0	-14.00	41.0	-12.00
37.5	-6.00	37.5	-17.00	41.5	-34.00	41.5	-10.00	41.5	-13.00
38.0	-7.00	38.0	-22.00	42.0	-34.00	42.0	-6.00	42.0	-12.00
38.5	-8.00	38.5	-24.00	42.5	-31.00	42.5	-3.00	42.5	-10.00
39.0	-13.00	39.0	-25.00	43.0	-30.00	43.0	0.00	43.0	-11.00
39.5	-13.00	39.5	-26.00	43.5	-25.00	43.5	4.00	43.5	-12.00
40.0	-18.00	40.0	-27.00	44.0	-24.00	44.0	4.00	44.0	-13.00
40.5	-23.00	40.5	-26.00	44.5	-20.00	44.5	4.00	44.5	-12.00
41.0	-29.00	41.0	-24.00	45.0	-18.00	45.0	5.00	45.0	-13.00
41.5	-36.00	41.5	-17.00	45.5	-16.00	45.5	5.00	45.5	-13.00
42.0	-43.00	42.0	-16.00	46.0	-14.00	46.0	3.00	46.0	-13.00
42.5	-48.00	42.5	-11.00	46.5	-13.00	46.5	-2.00	46.5	-14.00
43.0	-55.00	43.0	-11.00	47.0	-14.00	47.0	-6.00	47.0	-13.00
43.5	-67.00	43.5	-9.00	47.5	-16.00	47.5	-10.00	47.5	-17.00
44.0	-88.00	44.0	-13.00	48.0	-23.00	48.0	-17.00	48.0	-18.00
44.5	**-135.00**	44.5	-19.00	48.5	-29.00	48.5	-22.00	48.5	-22.00
45.0	-238.00	**45.0**	**-35.00**	**49.0**	**-52.00**	**49.0**	**-36.00**	**49.0**	**-31.00**
45.5	-407.00	45.5	-77.00	49.5	-85.00	49.5	-66.00	49.5	-52.00
46.0	-732.00	46.0	-150.00	50.0	-147.00	50.0	-117.00	50.0	-81.00
46.5	-1113.00	46.5	-273.00	50.5	-277.00	50.5	-209.00	50.5	-131.00
47.0	-1563.00	47.0	-492.00	51.0	-454.00	51.0	-389.00	51.0	-212.00
47.5	-2118.00	47.5	-721.00	51.5	-692.00	51.5	-601.00	51.5	-301.00
48.0	-2510.00	48.0	-966.00	52.0	-1048.00	52.0	-861.00	52.0	-403.00
48.5	-2762.00	48.5	-1215.00	52.5	-1361.00	52.5	-1196.00	52.5	-528.00
49.0	-2815.00	49.0	-1335.00	53.0	-1641.00	53.0	-1437.00	53.0	-621.00
49.5	-2628.00	49.5	-1348.00	53.5	-1864.00	53.5	-1615.00	53.5	-696.00
50.0	-2248.00	50.0	-1212.00	54.0	-1899.00	54.0	-1623.00	54.0	-743.00
50.5	-1586.00	50.5	-978.00	54.5	-1773.00	54.5	-1484.00	54.5	-739.00
51.0	-921.00	51.0	-663.00	55.0	-1407.00	55.0	-1135.00	55.0	-690.00
51.5	-202.00	51.5	-212.00	55.5	-945.00	55.5	-720.00	55.5	-604.00
52.0	663.00	52.0	193.00	56.0	-380.00	56.0	-231.00	56.0	-489.00
52.5	1338.00	52.5	592.00	56.5	374.00	56.5	407.00	56.5	-322.00
53.0	1939.00	53.0	1033.00	57.0	1015.00	57.0	931.00	57.0	-167.00
53.5	2523.00	53.5	1332.00	57.5	1613.00	57.5	1419.00	57.5	-4.00
54.0	2878.00	54.0	1548.00	58.0	2224.00	58.0	1912.00	58.0	182.00
54.5	3109.00	54.5	1671.00	58.5	2602.00	58.5	2219.00	58.5	325.00
55.0	3240.00	55.0	1656.00	59.0	2836.00	59.0	2415.00	59.0	450.00
55.5	3255.00	55.5	1543.00	59.5	2909.00	59.5	2485.00	59.5	564.00
56.0	3218.00	56.0	1305.00	60.0	2803.00	60.0	2409.00	60.0	647.00

First arrivals plot : DUNBAR-1



Shot 6 Location : D
Charge depth .5 Size .3
Phone depth : 82.7
Arrival time : 49.5 msec

Shot 7 Location : D
Charge depth .5 Size .8
Phone depth : 420.0
Arrival time : 225.0 msec

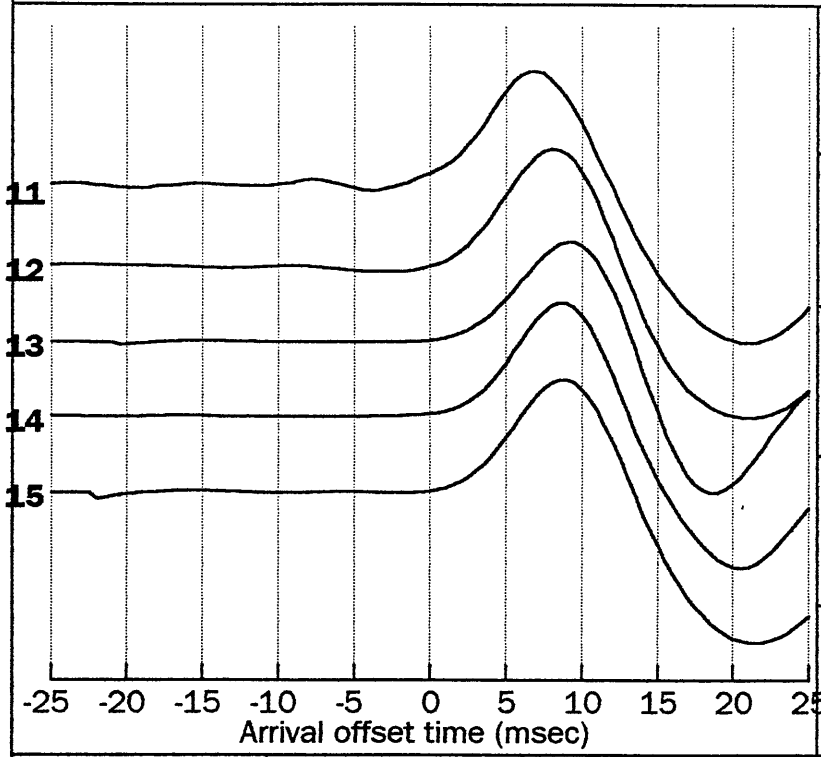
Shot 8 Location : D
Charge depth .5 Size 1
Phone depth : 1040.0
Arrival time : 468.5 msec

Shot 9 Location : D
Charge depth .5 Size 2
Phone depth : 1520.0
Arrival time : 632.0 msec

Shot 10 Location : D
Charge depth .5 Size 4
Phone depth : 1752.0
Arrival time : 702.5 msec

SHOT 6		SHOT 7		SHOT 8		SHOT 9		SHOT 10	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
38.0	-21.00	214.0	-55.00	458.0	-9.00	621.0	-11.00	692.0	-6.00
38.5	-20.00	214.5	-36.00	458.5	5.00	621.5	-11.00	692.5	-8.00
39.0	-19.00	215.0	-20.00	459.0	22.00	622.0	-12.00	693.0	-8.00
39.5	-17.00	215.5	-6.00	459.5	33.00	622.5	-13.00	693.5	-10.00
40.0	-19.00	216.0	12.00	460.0	39.00	623.0	-14.00	694.0	4.00
40.5	-17.00	216.5	25.00	460.5	43.00	623.5	-14.00	694.5	0.00
41.0	-17.00	217.0	36.00	461.0	42.00	624.0	-14.00	695.0	-5.00
41.5	-16.00	217.5	43.00	461.5	36.00	624.5	-14.00	695.5	-6.00
42.0	-14.00	218.0	43.00	462.0	25.00	625.0	-13.00	696.0	-7.00
42.5	-14.00	218.5	39.00	462.5	13.00	625.5	-13.00	696.5	-9.00
43.0	-15.00	219.0	31.00	463.0	-4.00	626.0	-11.00	697.0	-11.00
43.5	-16.00	219.5	21.00	463.5	-20.00	626.5	-9.00	697.5	-11.00
44.0	-16.00	220.0	4.00	464.0	-33.00	627.0	-9.00	698.0	-15.00
44.5	-16.00	220.5	-11.00	464.5	-50.00	627.5	-9.00	698.5	-19.00
45.0	-15.00	221.0	-29.00	465.0	-60.00	628.0	-8.00	699.0	-22.00
45.5	-16.00	221.5	-46.00	465.5	-66.00	628.5	-7.00	699.5	-26.00
46.0	-14.00	222.0	-56.00	466.0	-70.00	629.0	-8.00	700.0	-30.00
46.5	-16.00	222.5	-62.00	466.5	-74.00	629.5	-9.00	700.5	-32.00
47.0	-15.00	223.0	-66.00	467.0	-80.00	630.0	-9.00	701.0	-35.00
47.5	-15.00	223.5	-69.00	467.5	-93.00	630.5	-12.00	701.5	-37.00
48.0	-16.00	224.0	-74.00	468.0	-115.00	631.0	-15.00	702.0	-39.00
48.5	-19.00	224.5	-91.00	**468.5**	**-148.00**	631.5	-20.00	**702.5**	**-38.00**
49.0	-20.00	**225.0**	**-124.00**	469.0	-207.00	**632.0**	**-30.00**	703.0	-42.00
49.5	**-24.00**	225.5	-182.00	469.5	-273.00	632.5	-41.00	703.5	-46.00
50.0	-35.00	226.0	-304.00	470.0	-359.00	633.0	-63.00	704.0	-52.00
50.5	-53.00	226.5	-462.00	470.5	-482.00	633.5	-89.00	704.5	-61.00
51.0	-78.00	227.0	-739.00	471.0	-598.00	634.0	-121.00	705.0	-76.00
51.5	-127.00	227.5	-1048.00	471.5	-726.00	634.5	-173.00	705.5	-92.00
52.0	-178.00	228.0	-1438.00	472.0	-882.00	635.0	-226.00	706.0	-111.00
52.5	-240.00	228.5	-2001.00	472.5	-1005.00	635.5	-289.00	706.5	-138.00
53.0	-321.00	229.0	-2531.00	473.0	-1111.00	636.0	-376.00	707.0	-159.00
53.5	-387.00	229.5	-3091.00	473.5	-1205.00	636.5	-456.00	707.5	-183.00
54.0	-443.00	230.0	-3752.00	474.0	-1244.00	637.0	-539.00	708.0	-209.00
54.5	-492.00	230.5	-4241.00	474.5	-1241.00	637.5	-640.00	708.5	-226.00
55.0	-508.00	231.0	-4625.00	475.0	-1174.00	638.0	-719.00	709.0	-241.00
55.5	-498.00	231.5	-4879.00	475.5	-1063.00	638.5	-787.00	709.5	-251.00
56.0	-458.00	232.0	-4868.00	476.0	-912.00	639.0	-848.00	710.0	-252.00
56.5	-397.00	232.5	-4623.00	476.5	-678.00	639.5	-878.00	710.5	-247.00
57.0	-298.00	233.0	-3994.00	477.0	-452.00	640.0	-885.00	711.0	-235.00
57.5	-199.00	233.5	-3199.00	477.5	-160.00	640.5	-861.00	711.5	-218.00
58.0	-92.00	234.0	-2178.00	478.0	88.00	641.0	-815.00	712.0	-190.00
58.5	41.00	234.5	-718.00	478.5	327.00	641.5	-725.00	712.5	-164.00
59.0	147.00	235.0	628.00	479.0	590.00	642.0	-626.00	713.0	-133.00
59.5	245.00	235.5	2294.00	479.5	783.00	642.5	-511.00	713.5	-92.00
60.0	349.00	236.0	3641.00	480.0	947.00	643.0	-353.00	714.0	-58.00

First arrivals plot : DUNBAR-1



Shot 11 Location : D
Charge depth .5 Size 4
Phone depth : 1752.0
Arrival time : 702.5 msec

Shot 12 Location : D
Charge depth .5 Size 3
Phone depth : 1660.0
Arrival time : 675.5 msec

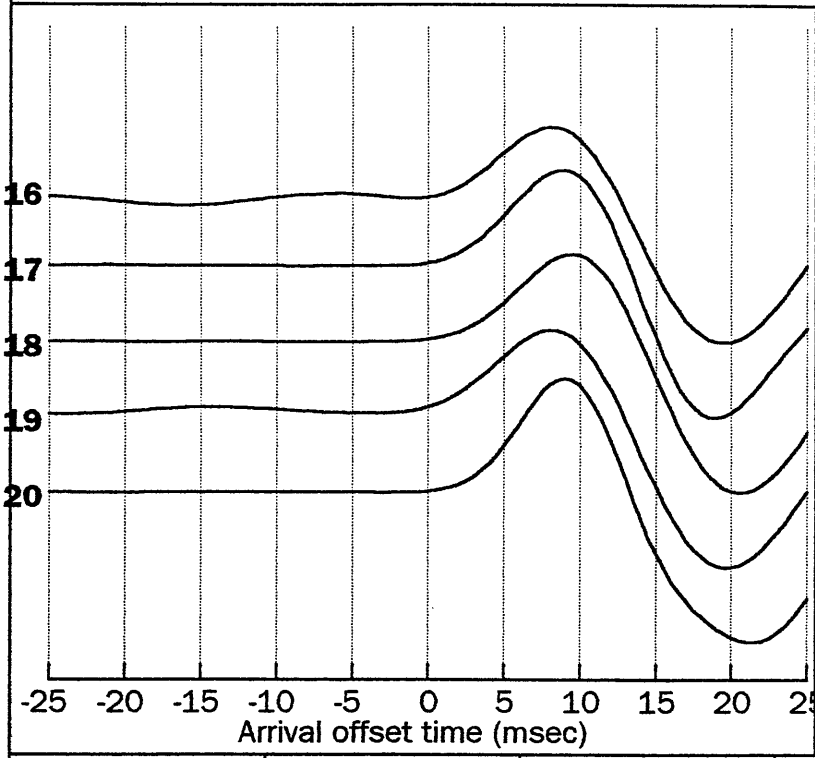
Shot 13 Location : D
Charge depth .7 Size 3
Phone depth : 1575.0
Arrival time : 649.0 msec

Shot 14 Location : D
Charge depth .7 Size 3
Phone depth : 1550.0
Arrival time : 641.5 msec

Shot 15 Location : D
Charge depth .7 Size 3
Phone depth : 1520.0
Arrival time : 632.0 msec

SHOT 11		SHOT 12		SHOT 13		SHOT 14		SHOT 15	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
692.0	-9.00	664.0	-1.00	638.0	-15.00	630.0	-9.00	621.0	-2.00
692.5	-11.00	664.5	-5.00	638.5	-14.00	630.5	-9.00	621.5	1.00
693.0	-13.00	665.0	-7.00	639.0	-13.00	631.0	-11.00	622.0	1.00
693.5	-15.00	665.5	-9.00	639.5	-13.00	631.5	-13.00	622.5	-1.00
694.0	-17.00	666.0	-9.00	640.0	-13.00	632.0	-13.00	623.0	-1.00
694.5	-21.00	666.5	-9.00	640.5	-14.00	632.5	-13.00	623.5	-2.00
695.0	-24.00	667.0	-6.00	641.0	-14.00	633.0	-14.00	624.0	-3.00
695.5	-24.00	667.5	-2.00	641.5	-14.00	633.5	-14.00	624.5	-5.00
696.0	-21.00	668.0	5.00	642.0	-16.00	634.0	-13.00	625.0	-8.00
696.5	-18.00	668.5	11.00	642.5	-16.00	634.5	-14.00	625.5	-10.00
697.0	-14.00	669.0	17.00	643.0	-15.00	635.0	-13.00	626.0	-9.00
697.5	-9.00	669.5	24.00	643.5	-16.00	635.5	-13.00	626.5	-10.00
698.0	-5.00	670.0	30.00	644.0	-15.00	636.0	-14.00	627.0	-11.00
698.5	-1.00	670.5	35.00	644.5	-15.00	636.5	-14.00	627.5	-9.00
699.0	0.00	671.0	38.00	645.0	-14.00	637.0	-16.00	628.0	-7.00
699.5	1.00	671.5	40.00	645.5	-15.00	637.5	-17.00	628.5	-5.00
700.0	-3.00	672.0	40.00	646.0	-14.00	638.0	-19.00	629.0	-2.00
700.5	-7.00	672.5	40.00	646.5	-14.00	638.5	-19.00	629.5	0.00
701.0	-12.00	673.0	37.00	647.0	-16.00	639.0	-23.00	630.0	1.00
701.5	-17.00	673.5	32.00	647.5	-18.00	639.5	-27.00	630.5	1.00
702.0	-25.00	674.0	23.00	648.0	-22.00	640.0	-29.00	631.0	-3.00
702.5	**-32.00**	674.5	13.00	648.5	-28.00	640.5	-33.00	631.5	-8.00
703.0	-38.00	675.0	-6.00	**649.0**	**-38.00**	641.0	-41.00	**632.0**	**-20.00**
703.5	-46.00	**675.5**	**-25.00**	649.5	-56.00	**641.5**	**-50.00**	632.5	-35.00
704.0	-55.00	676.0	-52.00	650.0	-81.00	642.0	-67.00	633.0	-57.00
704.5	-66.00	676.5	-93.00	650.5	-118.00	642.5	-88.00	633.5	-92.00
705.0	-81.00	677.0	-137.00	651.0	-159.00	643.0	-117.00	634.0	-132.00
705.5	-101.00	677.5	-190.00	651.5	-213.00	643.5	-163.00	634.5	-181.00
706.0	-121.00	678.0	-267.00	652.0	-293.00	644.0	-213.00	635.0	-257.00
706.5	-144.00	678.5	-340.00	652.5	-373.00	644.5	-273.00	635.5	-332.00
707.0	-173.00	679.0	-423.00	653.0	-470.00	645.0	-362.00	636.0	-422.00
707.5	-198.00	679.5	-528.00	653.5	-602.00	645.5	-450.00	636.5	-543.00
708.0	-221.00	680.0	-620.00	654.0	-726.00	646.0	-547.00	637.0	-654.00
708.5	-243.00	680.5	-718.00	654.5	-858.00	646.5	-673.00	637.5	-771.00
709.0	-257.00	681.0	-816.00	655.0	-1026.00	647.0	-779.00	638.0	-915.00
709.5	-266.00	681.5	-891.00	655.5	-1165.00	647.5	-902.00	638.5	-1029.00
710.0	-266.00	682.0	-964.00	656.0	-1321.00	648.0	-995.00	639.0	-1152.00
710.5	-262.00	682.5	-1005.00	656.5	-1446.00	648.5	-1073.00	639.5	-1238.00
711.0	-247.00	683.0	-1025.00	657.0	-1546.00	649.0	-1138.00	640.0	-1302.00
711.5	-229.00	683.5	-1016.00	657.5	-1632.00	649.5	-1163.00	640.5	-1340.00
712.0	-207.00	684.0	-982.00	658.0	-1669.00	650.0	-1160.00	641.0	-1339.00
712.5	-180.00	684.5	-923.00	658.5	-1665.00	650.5	-1111.00	641.5	-1305.00
713.0	-150.00	685.0	-819.00	659.0	-1605.00	651.0	-1036.00	642.0	-1219.00
713.5	-116.00	685.5	-710.00	659.5	-1506.00	651.5	-932.00	642.5	-1114.00
714.0	-76.00	686.0	-583.00	660.0	-1359.00	652.0	-775.00	643.0	-982.00

First arrivals plot : DUNBAR-1



Shot 16 Location : D
Charge depth .7 Size 3
Phone depth : 1470.0
Arrival time : 618.0 msec

Shot 17 Location : D
Charge depth .7 Size 3
Phone depth : 1470.0
Arrival time : 617.0 msec

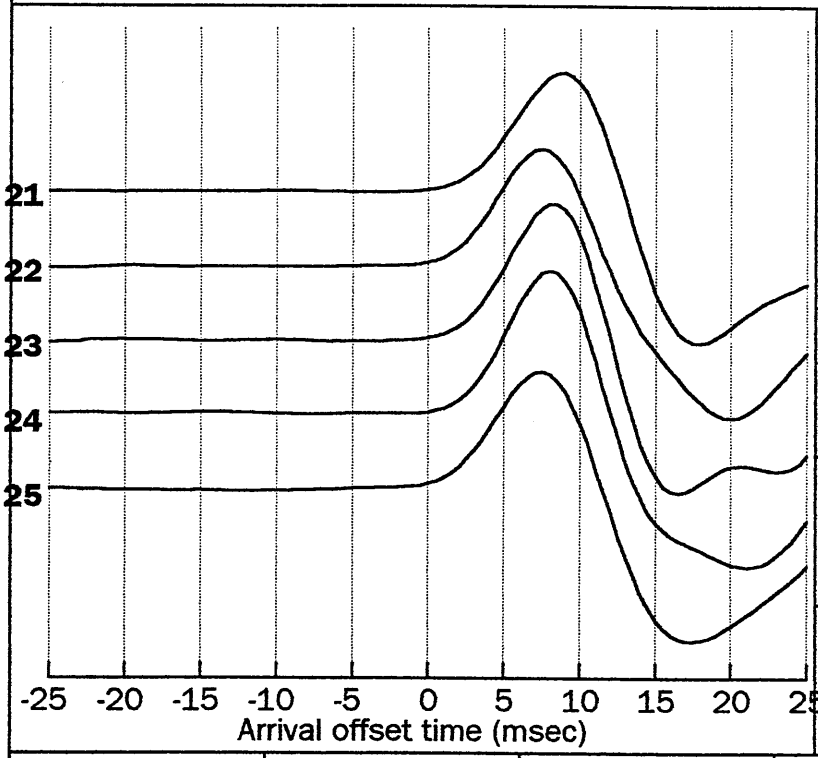
Shot 18 Location : D
Charge depth .7 Size 3
Phone depth : 1410.0
Arrival time : 595.0 msec

Shot 19 Location : D
Charge depth .7 Size 3
Phone depth : 1340.0
Arrival time : 572.5 msec

Shot 20 Location : D
Charge depth .7 Size 2
Phone depth : 1240.0
Arrival time : 537.5 msec

SHOT 16		SHOT 17		SHOT 18		SHOT 19		SHOT 20	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
607.0	43.00	606.0	-12.00	584.0	-12.00	562.0	-51.00	526.0	-7.00
607.5	37.00	606.5	-12.00	584.5	-9.00	562.5	-50.00	526.5	-10.00
608.0	33.00	607.0	-12.00	585.0	-6.00	563.0	-47.00	527.0	-11.00
608.5	29.00	607.5	-11.00	585.5	-4.00	563.5	-44.00	527.5	-11.00
609.0	26.00	608.0	-10.00	586.0	-1.00	564.0	-42.00	528.0	-12.00
609.5	23.00	608.5	-11.00	586.5	0.00	564.5	-40.00	528.5	-11.00
610.0	21.00	609.0	-10.00	587.0	1.00	565.0	-36.00	529.0	-12.00
610.5	19.00	609.5	-11.00	587.5	1.00	565.5	-35.00	529.5	-11.00
611.0	16.00	610.0	-11.00	588.0	-1.00	566.0	-32.00	530.0	-10.00
611.5	16.00	610.5	-13.00	588.5	-1.00	566.5	-29.00	530.5	-9.00
612.0	15.00	611.0	-14.00	589.0	-3.00	567.0	-29.00	531.0	-7.00
612.5	15.00	611.5	-15.00	589.5	-5.00	567.5	-28.00	531.5	-5.00
613.0	17.00	612.0	-16.00	590.0	-7.00	568.0	-27.00	532.0	-5.00
613.5	19.00	612.5	-16.00	590.5	-9.00	568.5	-26.00	532.5	-4.00
614.0	23.00	613.0	-17.00	591.0	-10.00	569.0	-26.00	533.0	-3.00
614.5	25.00	613.5	-17.00	591.5	-12.00	569.5	-26.00	533.5	-3.00
615.0	29.00	614.0	-17.00	592.0	-16.00	570.0	-26.00	534.0	-2.00
615.5	33.00	614.5	-19.00	592.5	-17.00	570.5	-29.00	534.5	-4.00
616.0	36.00	615.0	-21.00	593.0	-23.00	571.0	-32.00	535.0	-5.00
616.5	39.00	615.5	-26.00	593.5	-28.00	571.5	-36.00	535.5	-7.00
617.0	39.00	616.0	-34.00	594.0	-35.00	572.0	-43.00	536.0	-11.00
617.5	39.00	616.5	-45.00	594.5	-46.00	**572.5**	**-50.00**	536.5	-17.00
618.0	**34.00**	**617.0**	**-66.00**	**595.0**	**-64.00**	573.0	-64.00	537.0	-27.00
618.5	27.00	617.5	-91.00	595.5	-85.00	573.5	-79.00	**537.5**	**-43.00**
619.0	17.00	618.0	-123.00	596.0	-120.00	574.0	-96.00	538.0	-63.00
619.5	0.00	618.5	-177.00	596.5	-159.00	574.5	-121.00	538.5	-89.00
620.0	-17.00	619.0	-234.00	597.0	-208.00	575.0	-146.00	539.0	-136.00
620.5	-39.00	619.5	-318.00	597.5	-279.00	575.5	-175.00	539.5	-189.00
621.0	-69.00	620.0	-402.00	598.0	-353.00	576.0	-213.00	540.0	-256.00
621.5	-98.00	620.5	-498.00	598.5	-440.00	576.5	-247.00	540.5	-361.00
622.0	-127.00	621.0	-629.00	599.0	-560.00	577.0	-283.00	541.0	-468.00
622.5	-166.00	621.5	-749.00	599.5	-672.00	577.5	-329.00	541.5	-592.00
623.0	-197.00	622.0	-878.00	600.0	-795.00	578.0	-367.00	542.0	-763.00
623.5	-227.00	622.5	-1037.00	600.5	-952.00	578.5	-403.00	542.5	-924.00
624.0	-260.00	623.0	-1169.00	601.0	-1090.00	579.0	-445.00	543.0	-1090.00
624.5	-286.00	623.5	-1297.00	601.5	-1236.00	579.5	-475.00	543.5	-1291.00
625.0	-305.00	624.0	-1435.00	602.0	-1383.00	580.0	-504.00	544.0	-1451.00
625.5	-322.00	624.5	-1532.00	602.5	-1501.00	580.5	-518.00	544.5	-1620.00
626.0	-329.00	625.0	-1606.00	603.0	-1623.00	581.0	-527.00	545.0	-1730.00
626.5	-325.00	625.5	-1659.00	603.5	-1701.00	581.5	-523.00	545.5	-1803.00
627.0	-314.00	626.0	-1665.00	604.0	-1751.00	582.0	-507.00	546.0	-1834.00
627.5	-295.00	626.5	-1625.00	604.5	-1769.00	582.5	-484.00	546.5	-1804.00
628.0	-259.00	627.0	-1548.00	605.0	-1745.00	583.0	-439.00	547.0	-1724.00
628.5	-220.00	627.5	-1428.00	605.5	-1681.00	583.5	-390.00	547.5	-1560.00
629.0	-173.00	628.0	-1232.00	606.0	-1551.00	584.0	-332.00	548.0	-1369.00

First arrivals plot : DUNBAR-1



Shot 21 Location : D
Charge depth .7 Size 2
Phone depth : 1140.0
Arrival time : 503.0 msec

Shot 22 Location : D
Charge depth .7 Size 2
Phone depth : 1040.0
Arrival time : 467.0 msec

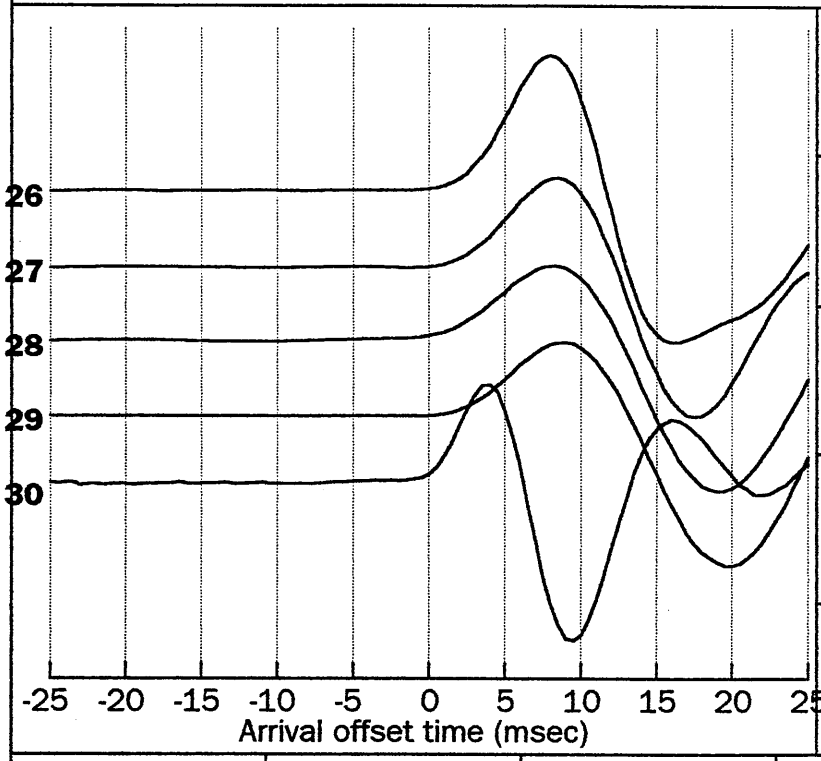
Shot 23 Location : D
Charge depth .7 Size 1
Phone depth : 960.0
Arrival time : 439.5 msec

Shot 24 Location : D
Charge depth .7 Size 1
Phone depth : 870.0
Arrival time : 405.5 msec

Shot 25 Location : D
Charge depth .7 Size 1
Phone depth : 800.0
Arrival time : 381.0 msec

SHOT 21		SHOT 22		SHOT 23		SHOT 24		SHOT 25	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
492.0	-14.00	456.0	-8.00	428.0	-9.00	394.0	-17.00	370.0	-11.00
492.5	-15.00	456.5	-8.00	428.5	-10.00	394.5	-17.00	370.5	-12.00
493.0	-15.00	457.0	-7.00	429.0	-10.00	395.0	-15.00	371.0	-12.00
493.5	-17.00	457.5	-8.00	429.5	-10.00	395.5	-14.00	371.5	-12.00
494.0	-17.00	458.0	-8.00	430.0	-9.00	396.0	-14.00	372.0	-15.00
494.5	-17.00	458.5	-9.00	430.5	-9.00	396.5	-13.00	372.5	-16.00
495.0	-17.00	459.0	-8.00	431.0	-8.00	397.0	-13.00	373.0	-17.00
495.5	-14.00	459.5	-8.00	431.5	-6.00	397.5	-13.00	373.5	-19.00
496.0	-11.00	460.0	-8.00	432.0	-7.00	398.0	-13.00	374.0	-19.00
496.5	-10.00	460.5	-9.00	432.5	-4.00	398.5	-14.00	374.5	-20.00
497.0	-7.00	461.0	-10.00	433.0	-7.00	399.0	-15.00	375.0	-23.00
497.5	-5.00	461.5	-10.00	433.5	-5.00	399.5	-16.00	375.5	-24.00
498.0	-3.00	462.0	-10.00	434.0	-5.00	400.0	-17.00	376.0	-27.00
498.5	-2.00	462.5	-12.00	434.5	-6.00	400.5	-17.00	376.5	-27.00
499.0	0.00	463.0	-12.00	435.0	-6.00	401.0	-17.00	377.0	-29.00
499.5	0.00	463.5	-12.00	435.5	-6.00	401.5	-17.00	377.5	-30.00
500.0	-1.00	464.0	-13.00	436.0	-6.00	402.0	-17.00	378.0	-31.00
500.5	-2.00	464.5	-13.00	436.5	-8.00	402.5	-17.00	378.5	-32.00
501.0	-5.00	465.0	-15.00	437.0	-8.00	403.0	-16.00	379.0	-34.00
501.5	-10.00	465.5	-15.00	437.5	-10.00	403.5	-17.00	379.5	-37.00
502.0	-17.00	466.0	-18.00	438.0	-10.00	404.0	-17.00	380.0	-40.00
502.5	-28.00	466.5	-24.00	438.5	-13.00	404.5	-19.00	380.5	-46.00
503.0	**-43.00**	**467.0**	**-33.00**	439.0	-17.00	405.0	-21.00	**381.0**	**-56.00**
503.5	-62.00	467.5	-42.00	**439.5**	**-22.00**	**405.5**	**-27.00**	381.5	-70.00
504.0	-94.00	468.0	-57.00	440.0	-28.00	406.0	-34.00	382.0	-93.00
504.5	-134.00	468.5	-81.00	440.5	-39.00	406.5	-45.00	382.5	-119.00
505.0	-184.00	469.0	-109.00	441.0	-51.00	407.0	-61.00	383.0	-152.00
505.5	-266.00	469.5	-142.00	441.5	-67.00	407.5	-83.00	383.5	-204.00
506.0	-352.00	470.0	-194.00	442.0	-91.00	408.0	-108.00	384.0	-256.00
506.5	-456.00	470.5	-245.00	442.5	-118.00	408.5	-146.00	384.5	-313.00
507.0	-607.00	471.0	-301.00	443.0	-154.00	409.0	-184.00	385.0	-389.00
507.5	-754.00	471.5	-373.00	443.5	-188.00	409.5	-229.00	385.5	-458.00
508.0	-952.00	472.0	-434.00	444.0	-225.00	410.0	-287.00	386.0	-522.00
508.5	-1129.00	472.5	-505.00	444.5	-274.00	410.5	-336.00	386.5	-598.00
509.0	-1312.00	473.0	-557.00	445.0	-311.00	411.0	-394.00	387.0	-653.00
509.5	-1529.00	473.5	-598.00	445.5	-348.00	411.5	-437.00	387.5	-698.00
510.0	-1697.00	474.0	-630.00	446.0	-386.00	412.0	-473.00	388.0	-730.00
510.5	-1843.00	474.5	-638.00	446.5	-407.00	412.5	-502.00	388.5	-738.00
511.0	-1976.00	475.0	-627.00	447.0	-421.00	413.0	-510.00	389.0	-720.00
511.5	-2041.00	475.5	-592.00	447.5	-420.00	413.5	-504.00	389.5	-680.00
512.0	-2055.00	476.0	-541.00	448.0	-404.00	414.0	-474.00	390.0	-619.00
512.5	-1998.00	476.5	-475.00	448.5	-376.00	414.5	-432.00	390.5	-519.00
513.0	-1881.00	477.0	-380.00	449.0	-325.00	415.0	-374.00	391.0	-419.00
513.5	-1702.00	477.5	-289.00	449.5	-265.00	415.5	-288.00	391.5	-303.00
514.0	-1412.00	478.0	-194.00	450.0	-181.00	416.0	-208.00	392.0	-150.00

First arrivals plot : DUNBAR-1



Shot 26 Location : D
Charge depth .7 Size 1
Phone depth : 700.0
Arrival time : 343.5 msec

Shot 27 Location : D
Charge depth .7 Size 1
Phone depth : 620.0
Arrival time : 312.0 msec

Shot 28 Location : D
Charge depth .7 Size 1
Phone depth : 500.0
Arrival time : 263.0 msec

Shot 29 Location : D
Charge depth .7 Size .7
Phone depth : 330.0
Arrival time : 180.0 msec

Shot 30 Location : F
Charge depth .5 Size .3
Phone depth : 82.7
Arrival time : 50.0 msec

SHOT 26		SHOT 27		SHOT 28		SHOT 29		SHOT 30	
Time	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**	**Time**	**Ampl**
332.0	-13.00	301.0	-4.00	252.0	-12.00	169.0	-19.00	39.0	-12.00
332.5	-14.00	301.5	-4.00	252.5	-12.00	169.5	-18.00	39.5	-10.00
333.0	-13.00	302.0	-5.00	253.0	-14.00	170.0	-18.00	40.0	-11.00
333.5	-12.00	302.5	-6.00	253.5	-17.00	170.5	-17.00	40.5	-10.00
334.0	-13.00	303.0	-8.00	254.0	-20.00	171.0	-17.00	41.0	-10.00
334.5	-12.00	303.5	-8.00	254.5	-22.00	171.5	-17.00	41.5	-11.00
335.0	-12.00	304.0	-10.00	255.0	-26.00	172.0	-17.00	42.0	-10.00
335.5	-12.00	304.5	-13.00	255.5	-30.00	172.5	-16.00	42.5	-11.00
336.0	-13.00	305.0	-14.00	256.0	-34.00	173.0	-16.00	43.0	-11.00
336.5	-14.00	305.5	-17.00	256.5	-37.00	173.5	-14.00	43.5	-12.00
337.0	-15.00	306.0	-17.00	257.0	-41.00	174.0	-15.00	44.0	-13.00
337.5	-14.00	306.5	-18.00	257.5	-45.00	174.5	-13.00	44.5	-12.00
338.0	-15.00	307.0	-18.00	258.0	-49.00	175.0	-12.00	45.0	-14.00
338.5	-15.00	307.5	-18.00	258.5	-51.00	175.5	-13.00	45.5	-14.00
339.0	-16.00	308.0	-16.00	259.0	-55.00	176.0	-12.00	46.0	-14.00
339.5	-16.00	308.5	-15.00	259.5	-57.00	176.5	-11.00	46.5	-15.00
340.0	-15.00	309.0	-14.00	260.0	-60.00	177.0	-10.00	47.0	-14.00
340.5	-15.00	309.5	-11.00	260.5	-61.00	177.5	-13.00	47.5	-15.00
341.0	-16.00	310.0	-9.00	261.0	-65.00	178.0	-11.00	48.0	-14.00
341.5	-16.00	310.5	-7.00	261.5	-70.00	178.5	-14.00	48.5	-15.00
342.0	-18.00	311.0	-9.00	262.0	-78.00	179.0	-18.00	49.0	-17.00
342.5	-21.00	311.5	-11.00	262.5	-90.00	179.5	-23.00	49.5	-18.00
343.0	-27.00	**312.0**	**-17.00**	**263.0**	**-111.00**	**180.0**	**-34.00**	**50.0**	**-23.00**
343.5	**-35.00**	312.5	-30.00	263.5	-134.00	180.5	-55.00	50.5	-33.00
344.0	-49.00	313.0	-47.00	264.0	-167.00	181.0	-85.00	51.0	-49.00
344.5	-71.00	313.5	-79.00	264.5	-217.00	181.5	-130.00	51.5	-67.00
345.0	-100.00	314.0	-115.00	265.0	-270.00	182.0	-204.00	52.0	-91.00
345.5	-138.00	314.5	-159.00	265.5	-345.00	182.5	-288.00	52.5	-113.00
346.0	-199.00	315.0	-224.00	266.0	-424.00	183.0	-414.00	53.0	-133.00
346.5	-262.00	315.5	-289.00	266.5	-507.00	183.5	-548.00	53.5	-147.00
347.0	-335.00	316.0	-364.00	267.0	-617.00	184.0	-699.00	54.0	-148.00
347.5	-439.00	316.5	-465.00	267.5	-715.00	184.5	-904.00	54.5	-139.00
348.0	-532.00	317.0	-556.00	268.0	-811.00	185.0	-1088.00	55.0	-112.00
348.5	-630.00	317.5	-648.00	268.5	-925.00	185.5	-1279.00	55.5	-78.00
349.0	-745.00	318.0	-757.00	269.0	-1014.00	186.0	-1507.00	56.0	-37.00
349.5	-834.00	318.5	-843.00	269.5	-1093.00	186.5	-1687.00	56.5	20.00
350.0	-920.00	319.0	-917.00	270.0	-1169.00	187.0	-1848.00	57.0	67.00
350.5	-967.00	319.5	-986.00	270.5	-1213.00	187.5	-2008.00	57.5	119.00
351.0	-985.00	320.0	-1022.00	271.0	-1234.00	188.0	-2104.00	58.0	156.00
351.5	-965.00	320.5	-1032.00	271.5	-1232.00	188.5	-2160.00	58.5	184.00
352.0	-908.00	321.0	-1008.00	272.0	-1200.00	189.0	-2167.00	59.0	204.00
352.5	-816.00	321.5	-955.00	272.5	-1125.00	189.5	-2121.00	59.5	207.00
353.0	-661.00	322.0	-849.00	273.0	-1032.00	190.0	-1998.00	60.0	199.00
353.5	-501.00	322.5	-728.00	273.5	-910.00	190.5	-1837.00	60.5	178.00
354.0	-317.00	323.0	-576.00	274.0	-728.00	191.0	-1626.00	61.0	152.00

APPENDIX 9

APPENDIX 9

GEOCHEMISTRY REPORT

GEOTECH GEOTECHNICAL SERVICES PTY LTD
41-45 Furnace Road, Welshpool, Western Australia. 6106
Locked Bag 27, Cannington, Western Australia. 6107

Telephone: (09) 458 8877
Facsimile: (09) 458 8857

4 April, 1995

Mr. K. Lanigan
GFE Resources Ltd
Level 6
6 Riverside Quay
South Melbourne VIC 3205

Dear Kevin,

Please find enclosed saturate GC and branched/cyclic GC-MS data for Dunbar-1 DST 2, as well as an invoice for this work.

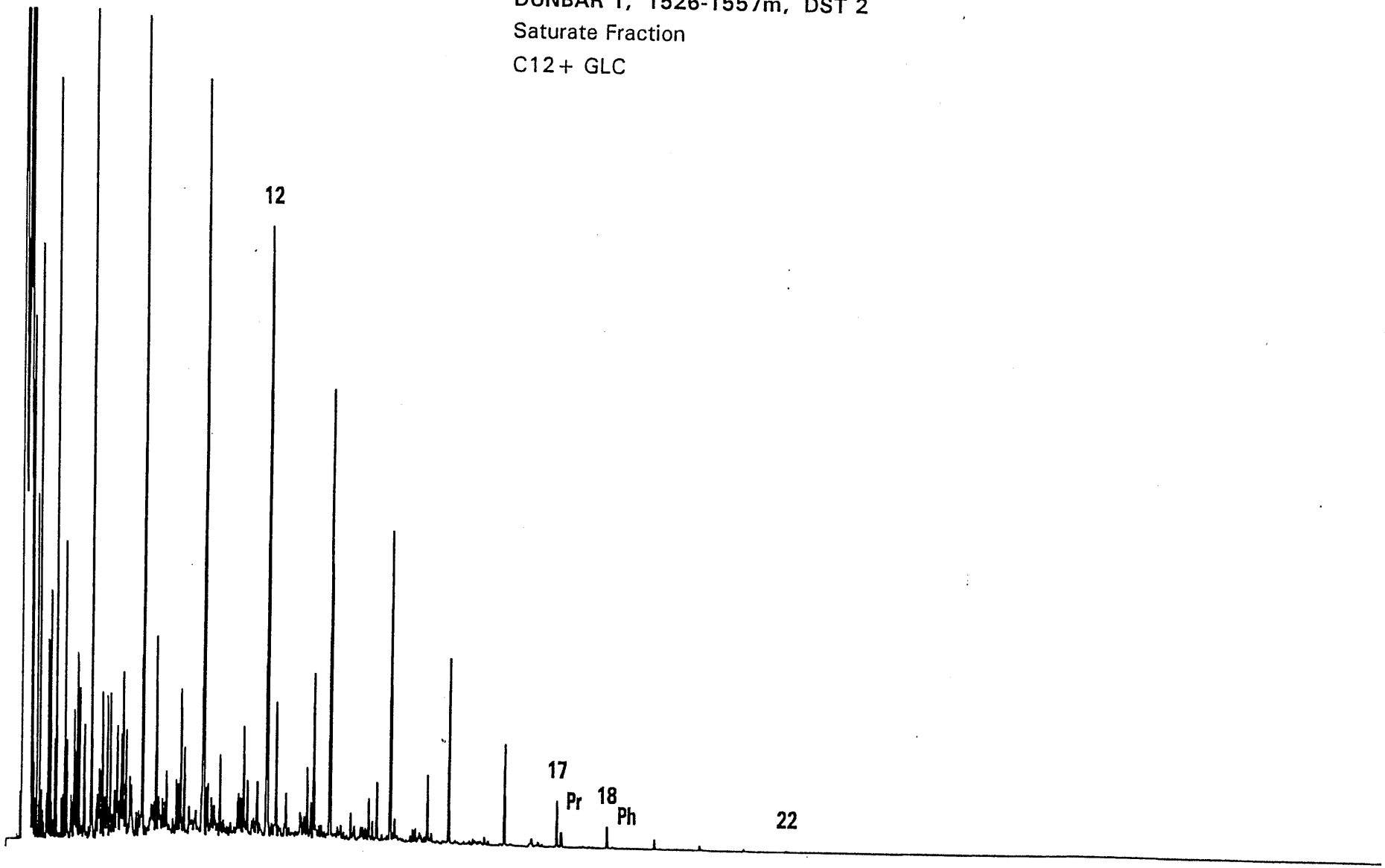
If you have further queries or if we can be of any assistance to you, please do not hesitate to contact us.

Yours sincerely,

B. A Hart

Dr. Birgitta Hartung-Kagi
Managing Director

DUNBAR 1, 1526-1557m, DST 2
Saturate Fraction
C12+ GLC



2154D1

GEOTECHNICAL SERVICES PTY LTD

TABLE 1

Summary of Physical Property and Sulphur Data

DUNBAR 1

Mar-95

SAMPLES	API GRAVITY	%SULPHUR (W/W)	VISCOSITY at 25°C (cSt)	VISCOSITY at 60°C (cSt)
DST 2	nd	nd	nd	nd

TABLE 1

Summary of Liquid Chromatography (Compositional data),

DUNBAR 1

Mar-95

	---Hydrocarbons----			---Nonhydrocarbons-----			SAT / AROM	ASPH / NSO	HC / Non HC
SAMPLES	%SAT	%AROM	%HC's	%NSO's	%ASPH	%Non HC's	AROM	NSO	Non HC
DST 2	96.5	1.6	98.2	1.8	nd	1.8	59.3	nd	53.6

nd = no data

TABLE 2

Summary of Gas Chromatography Data

DUNBAR 1

A. Alkane Compositional Data

SAMPLES	Prist./Phyt.	Prist./n-C17	Phyt./n-C18	CPI(1)	CPI(2)	(C21 + C22)/(C28 + C2
DST 2	10.1	0.44	0.09	nd	nd	nd

TABLE 2

Summary of Gas Chromatography Data

DUNBAR 1

B. n-Alkane Distributions

SAMPLES	nC12	nC13	nC14	nC15	nC16	nC17	iC19	nC18	iC20	nC19	nC20	nC21	nC22	nC23	nC24	nC25	nC26	nC27	nC28	nC29	nC30	nC
DST 2	39.5	26.0	15.7	8.9	4.5	2.3	1.0	1.1	0.1	0.5	0.2	0.1	0.0	-	-	-	-	-	-	-	-	-

nd = no data

TABLE 3

SELECTED AROMATIC PARAMETERS

DUNBAR 1

Apr-95

DEPTH	TYPE	DNR-1	DNR-5	DNR-6	TNR-1	TNR-5	TNR-6	MPR-1	MPI-1	MPI-2	Rc(a)	Rc(b)
1526-1557m	DST 2	7.60	nd	3.64	0.52	0.67	nd	2.63	0.79	0.88	0.88	1.82

response factors have been applied to DNR 6, TNR 1, TNR 5, MPI 1 and MPI 2

TABLE 3

SELECTED AROMATIC PARAMETERS CONT.

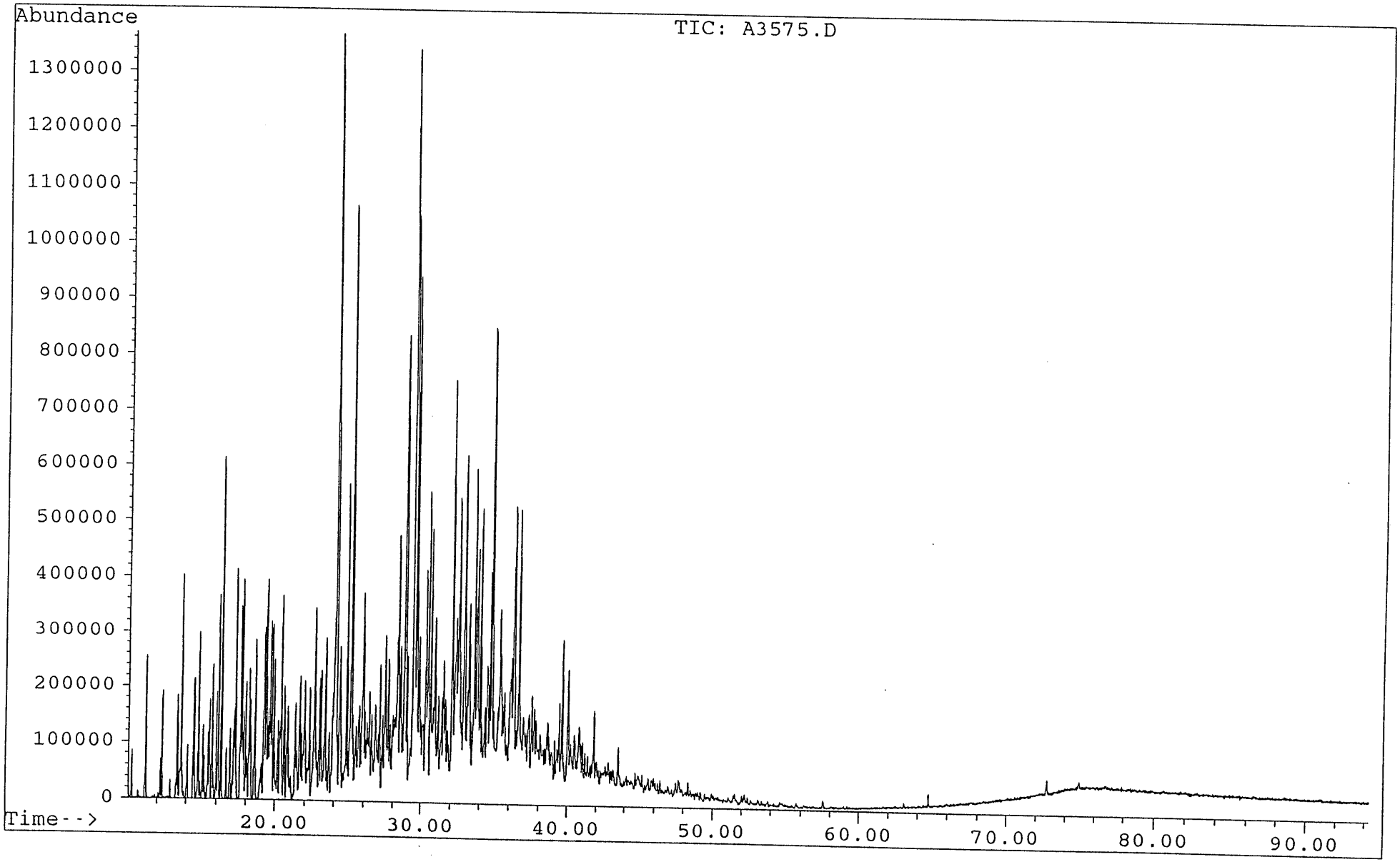
DUNBAR 1

Apr-95

DEPTH	TYPE	1,7-DMP/X (m/z 206)	RETENE/9-MP (m/z 219,192)	1MP/9MP
1526-1557m	DST 2	0.50	0.28	0.81

nd = no data

File : A3575.D
Sample : DUNBAR-1 DST#2 AF
Misc. Info : COL#155. 12-4-95. DJ



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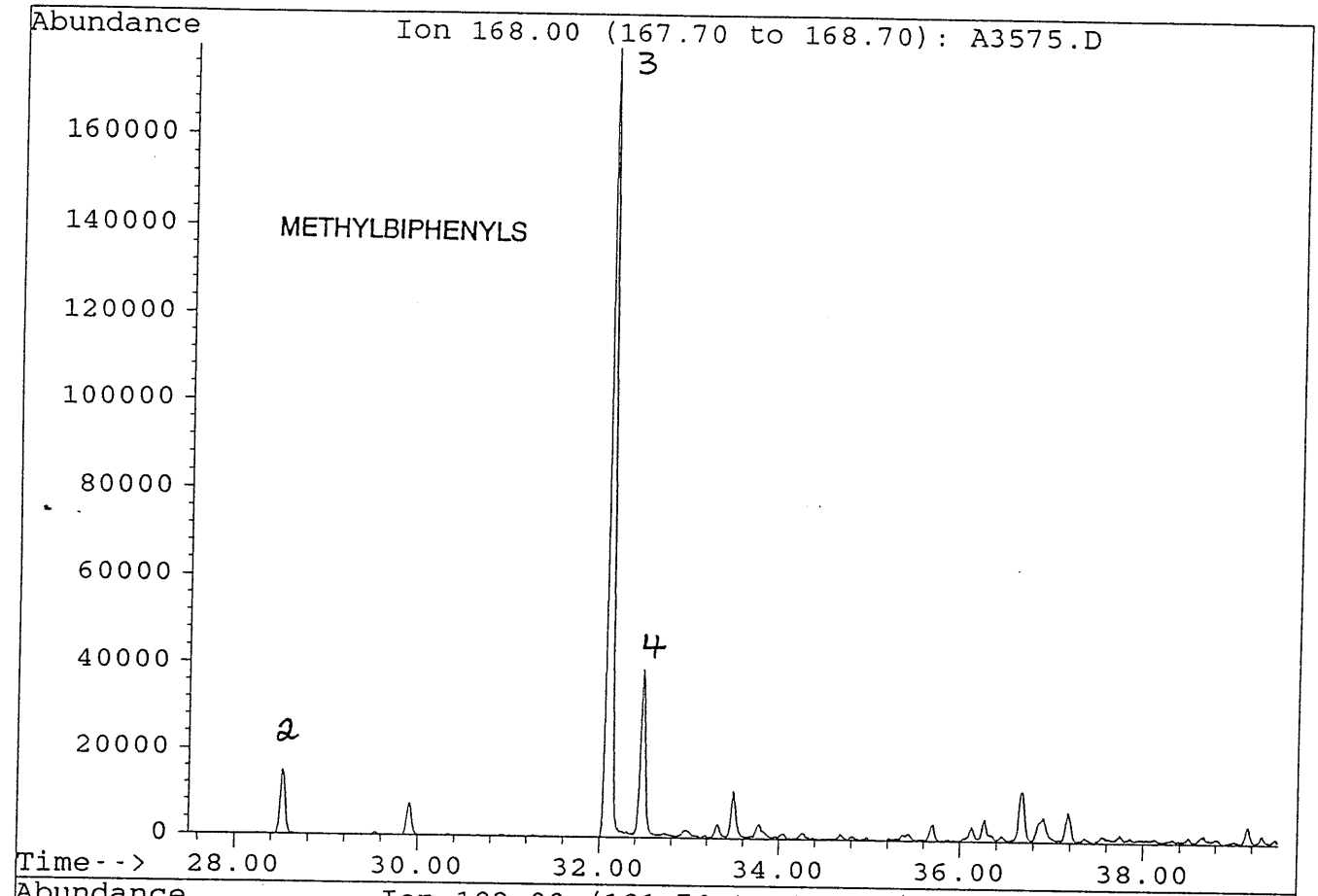
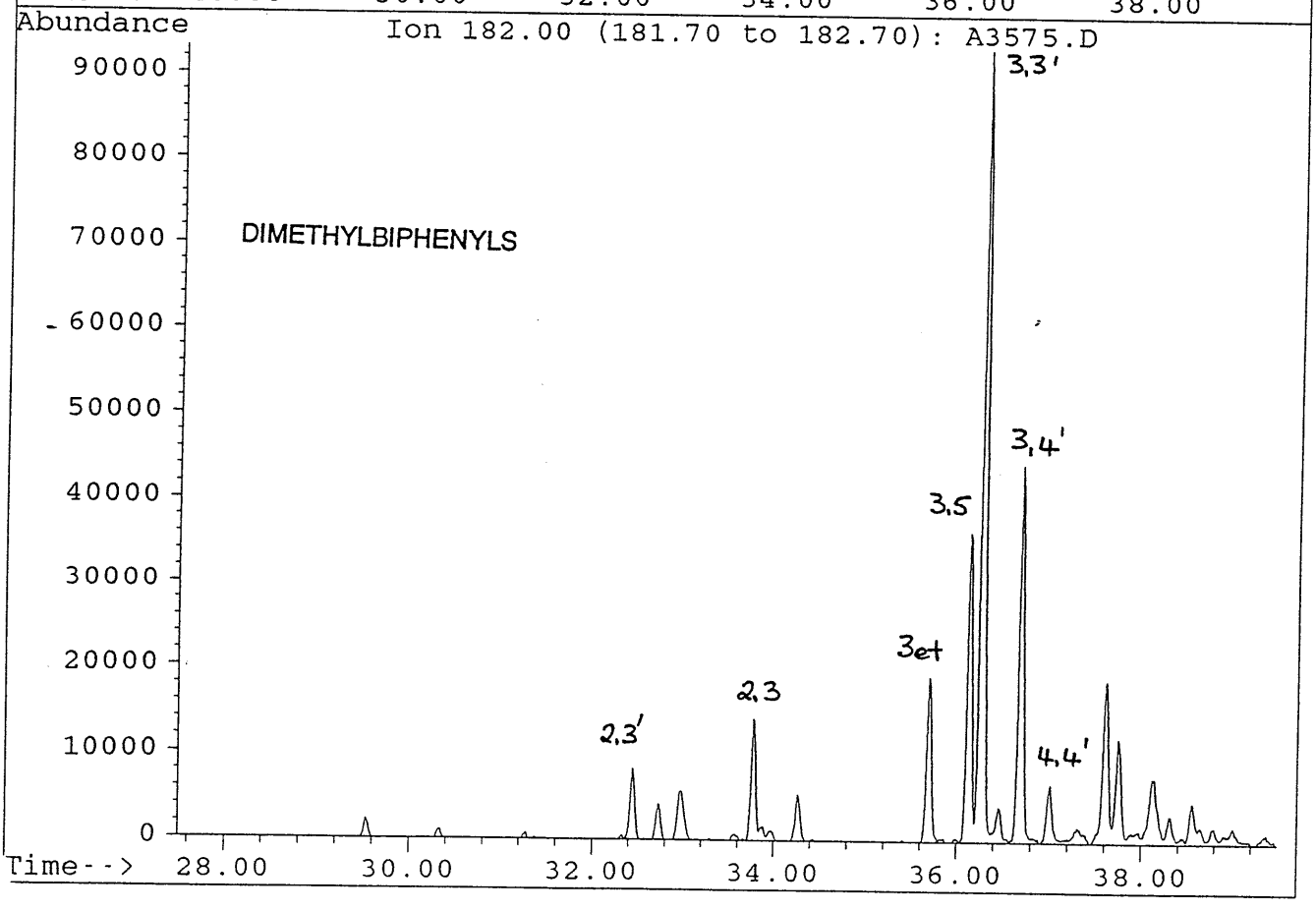
Misc. Info : COL#155. 12-4-95. DJ





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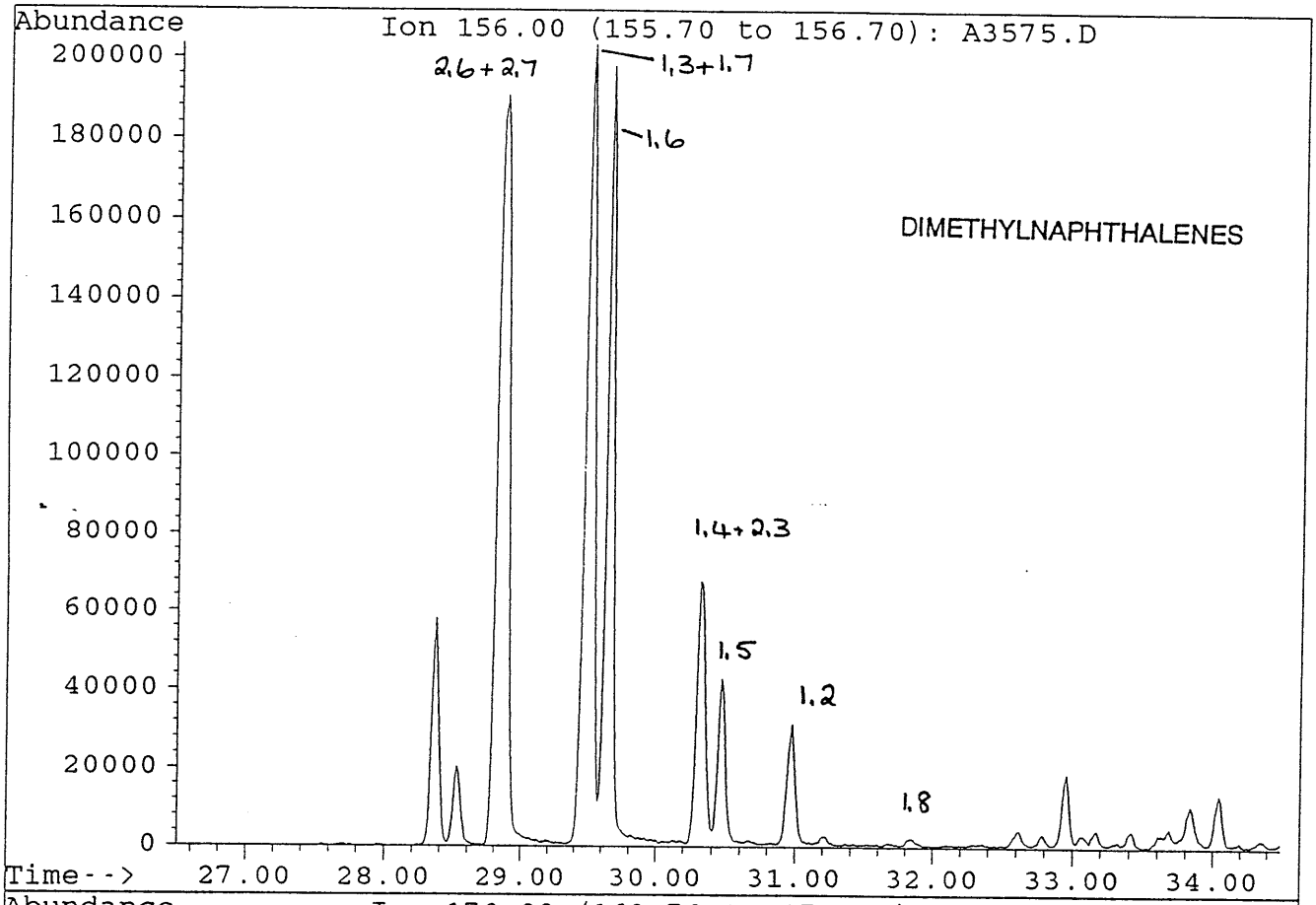
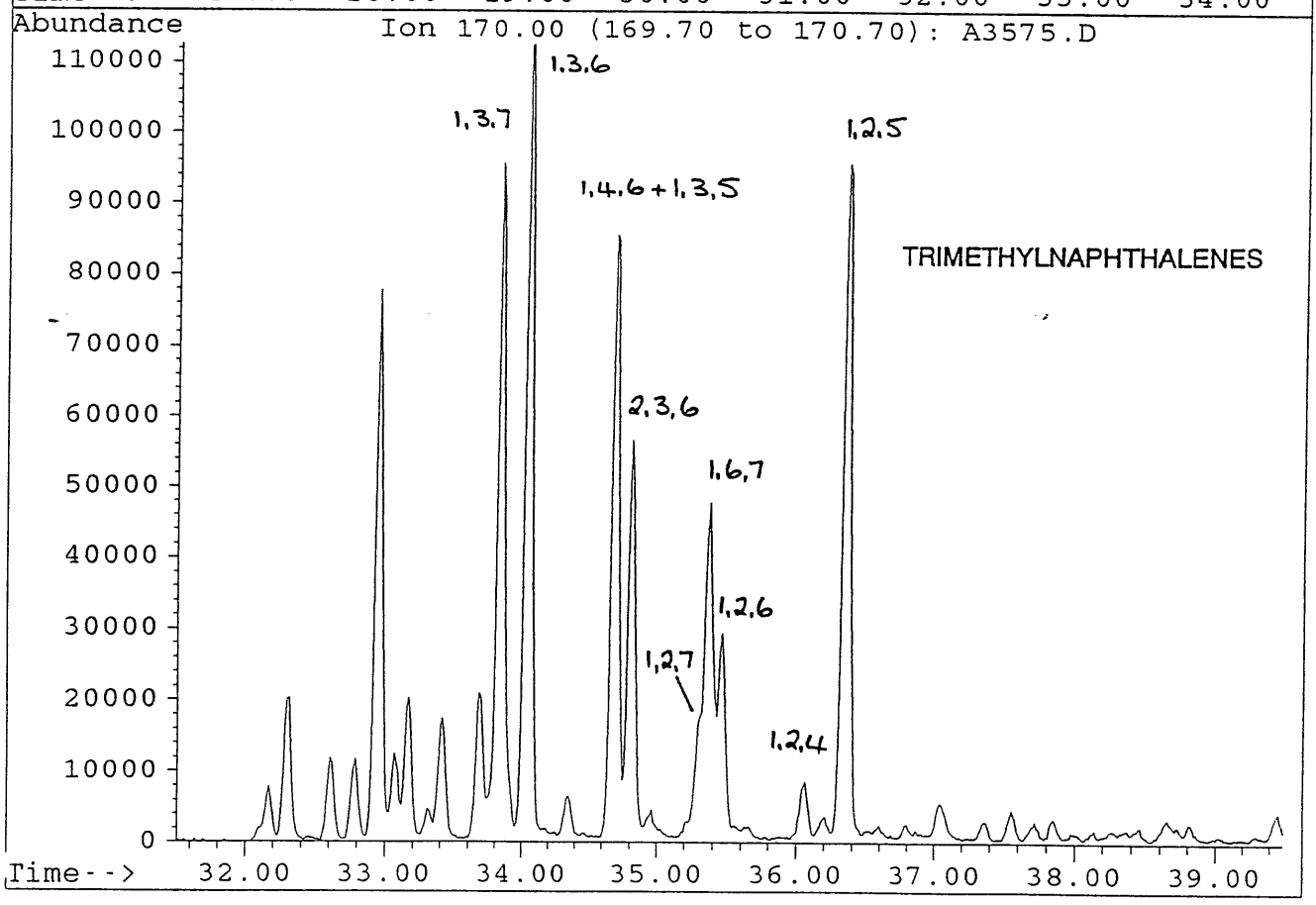
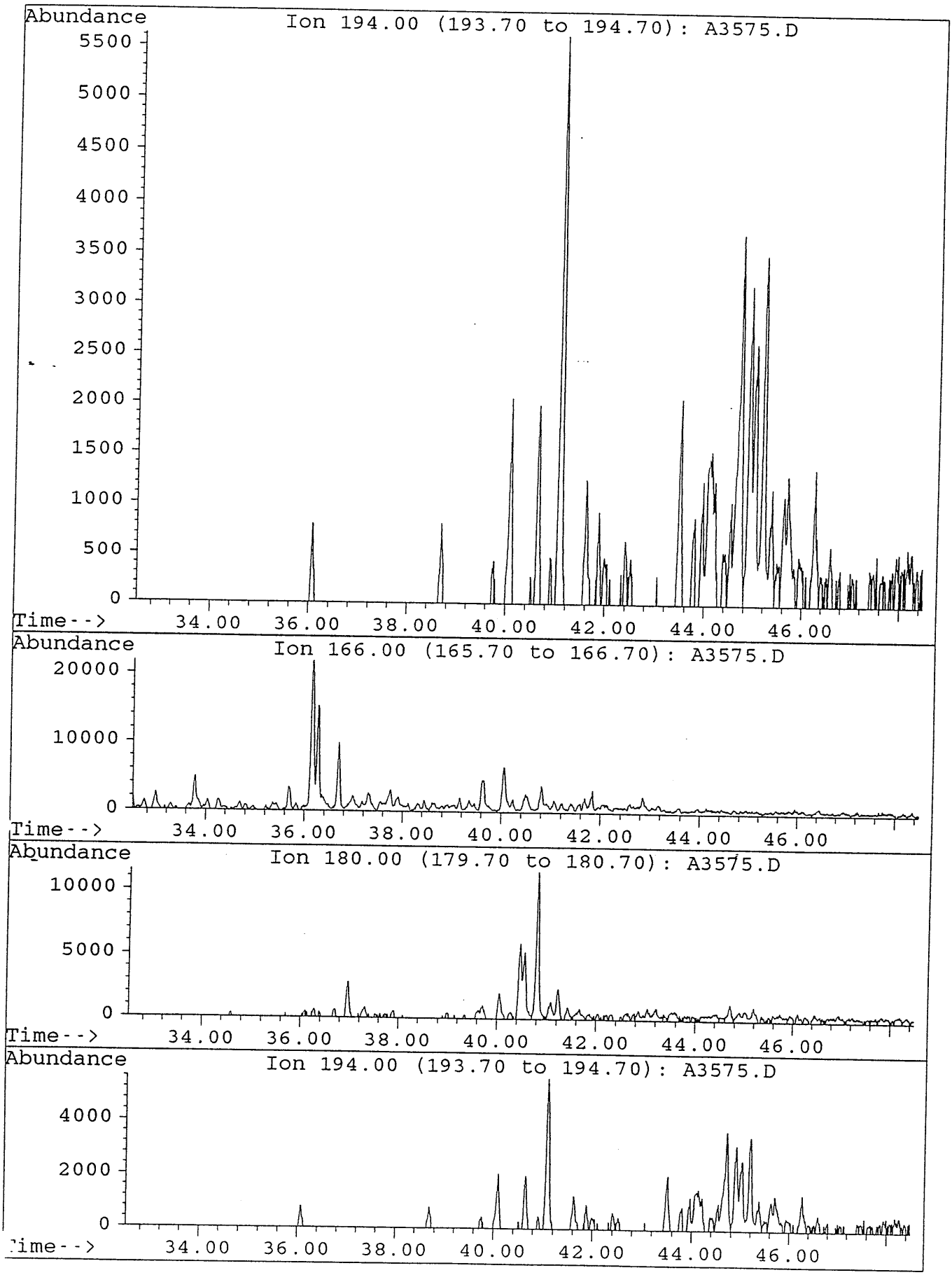
Misc. Info : COL#155. 12-4-95. DJ





File : A3575.D
Sample : DUNBAR-1 DST#2 AROS
Misc. Info : COL#155. 12-4-95. DJ

FLUORENES



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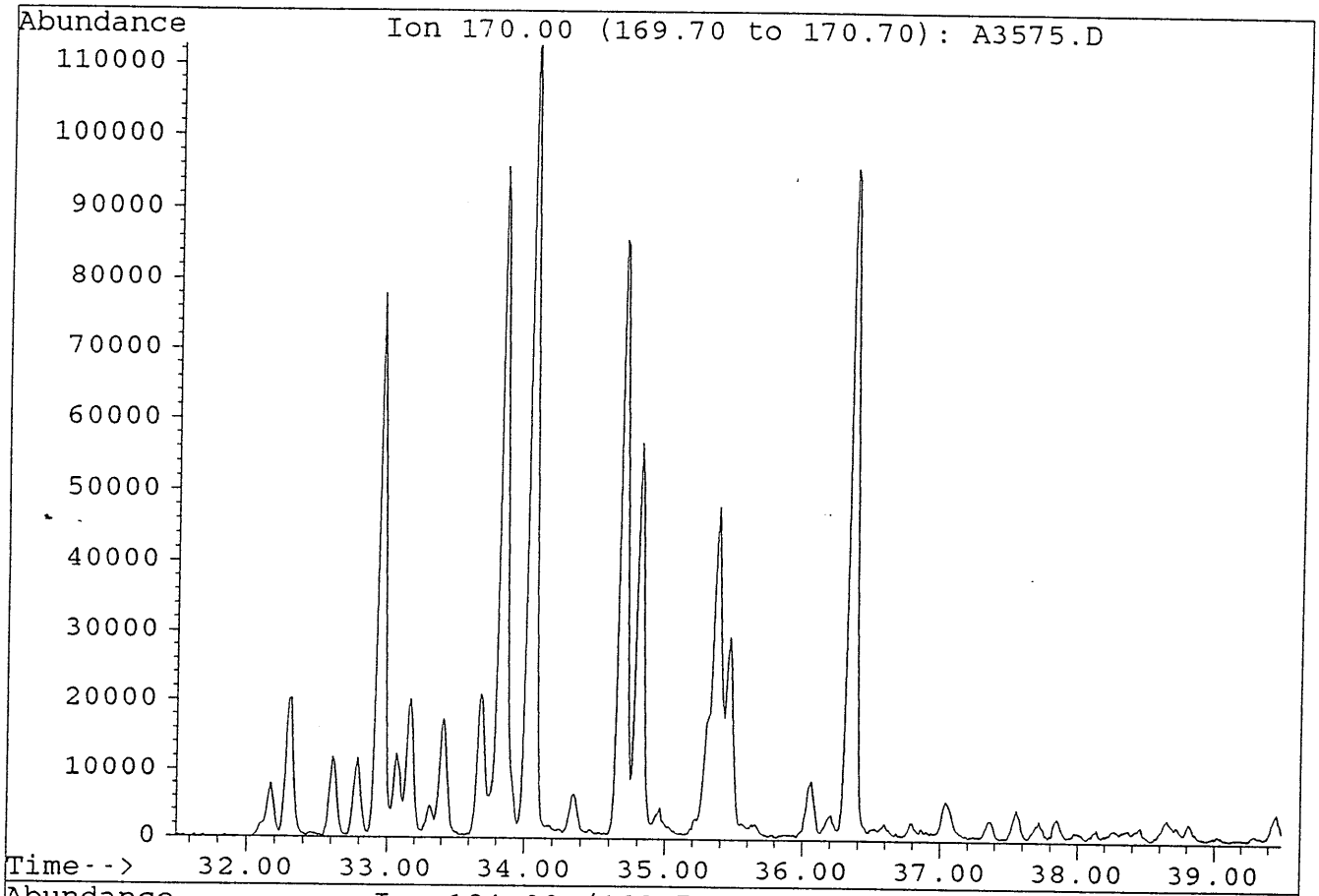

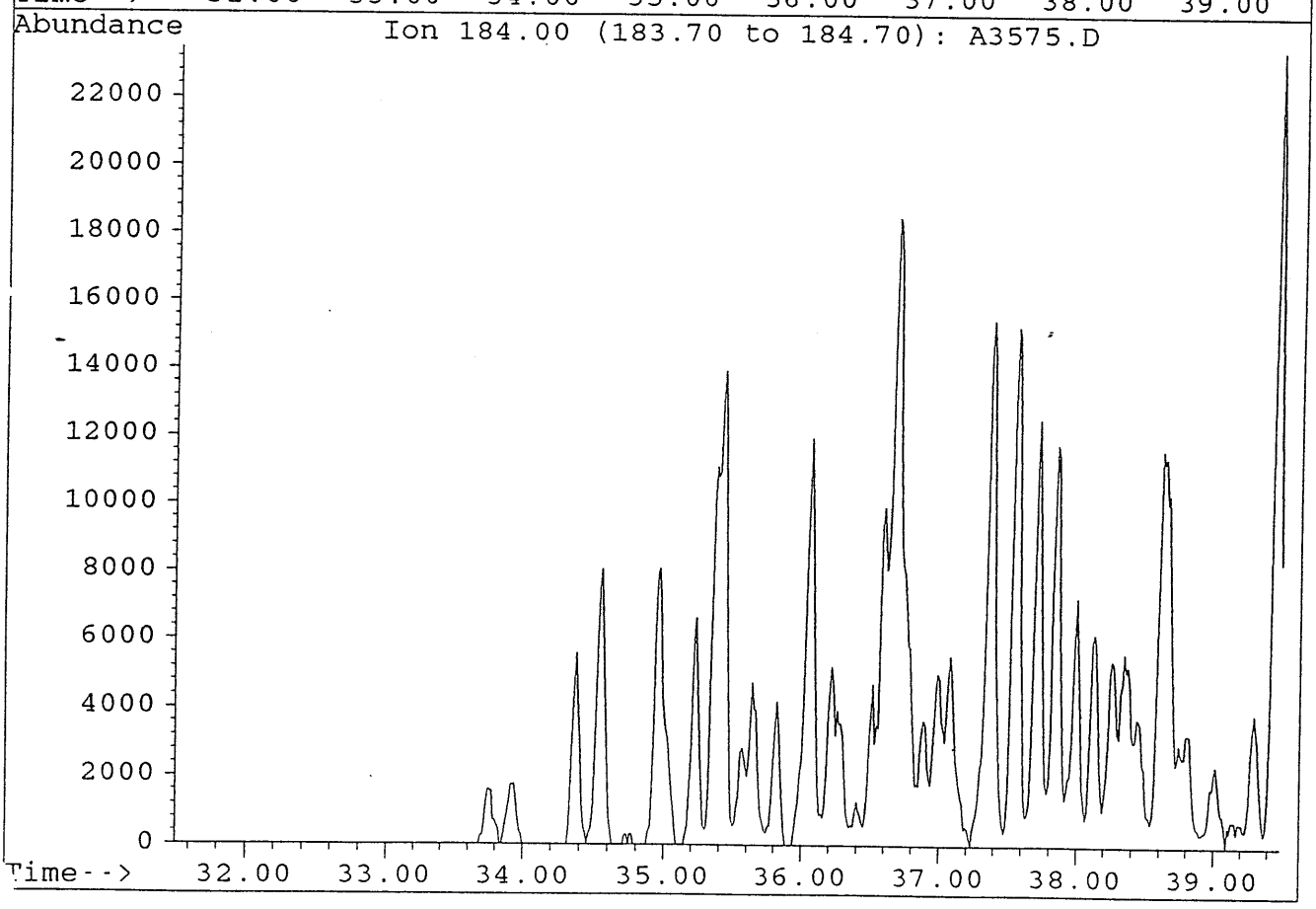

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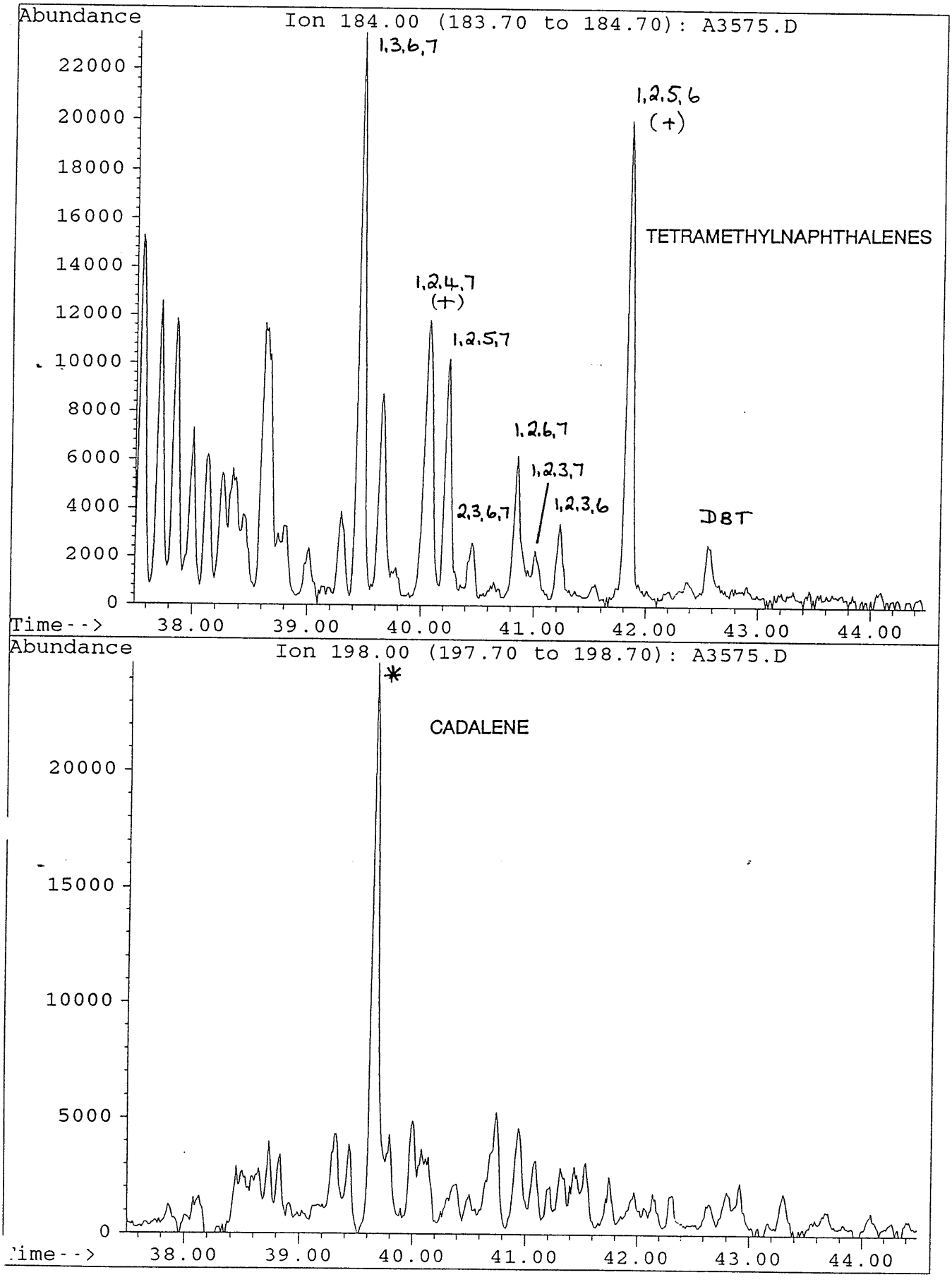

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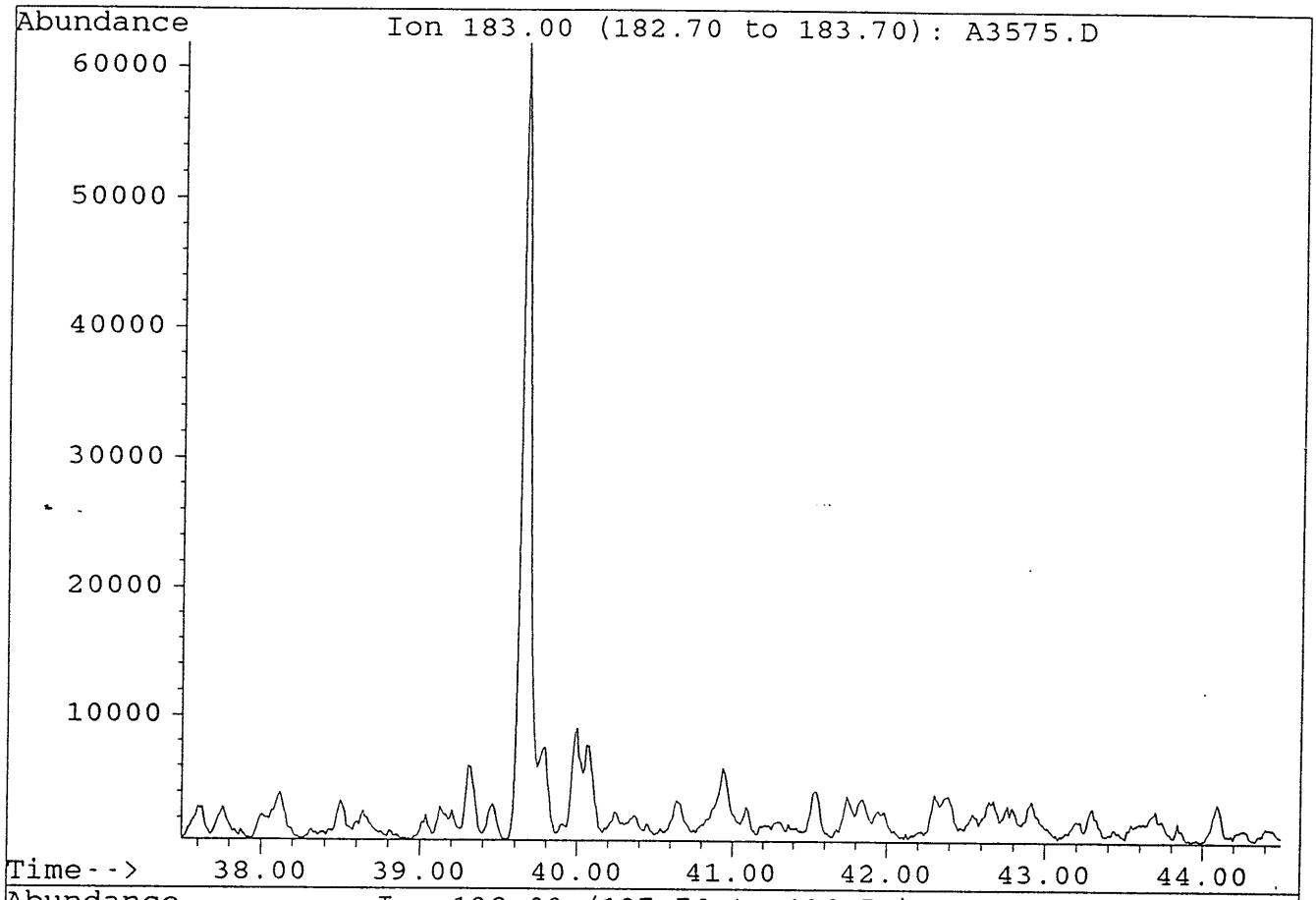

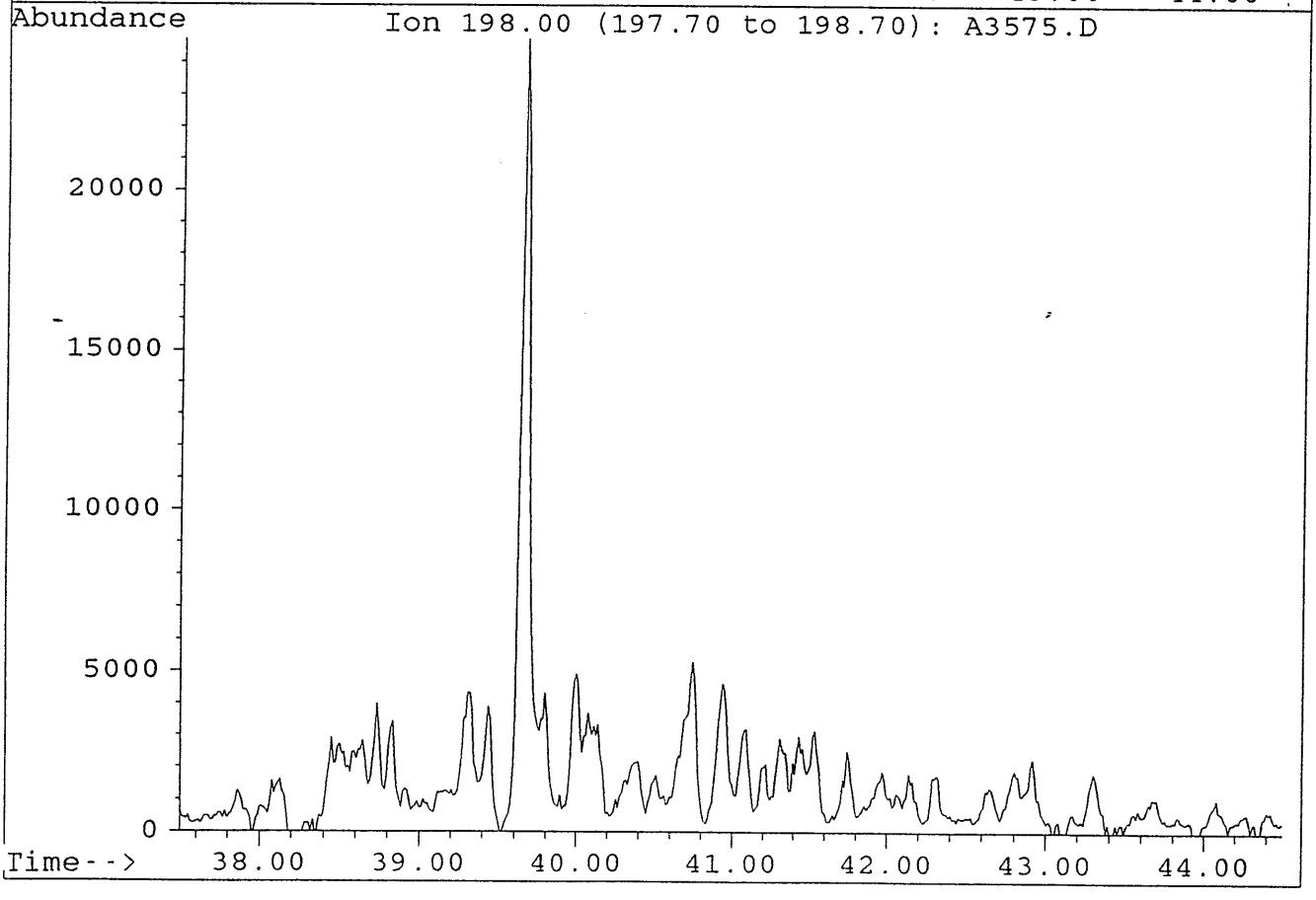

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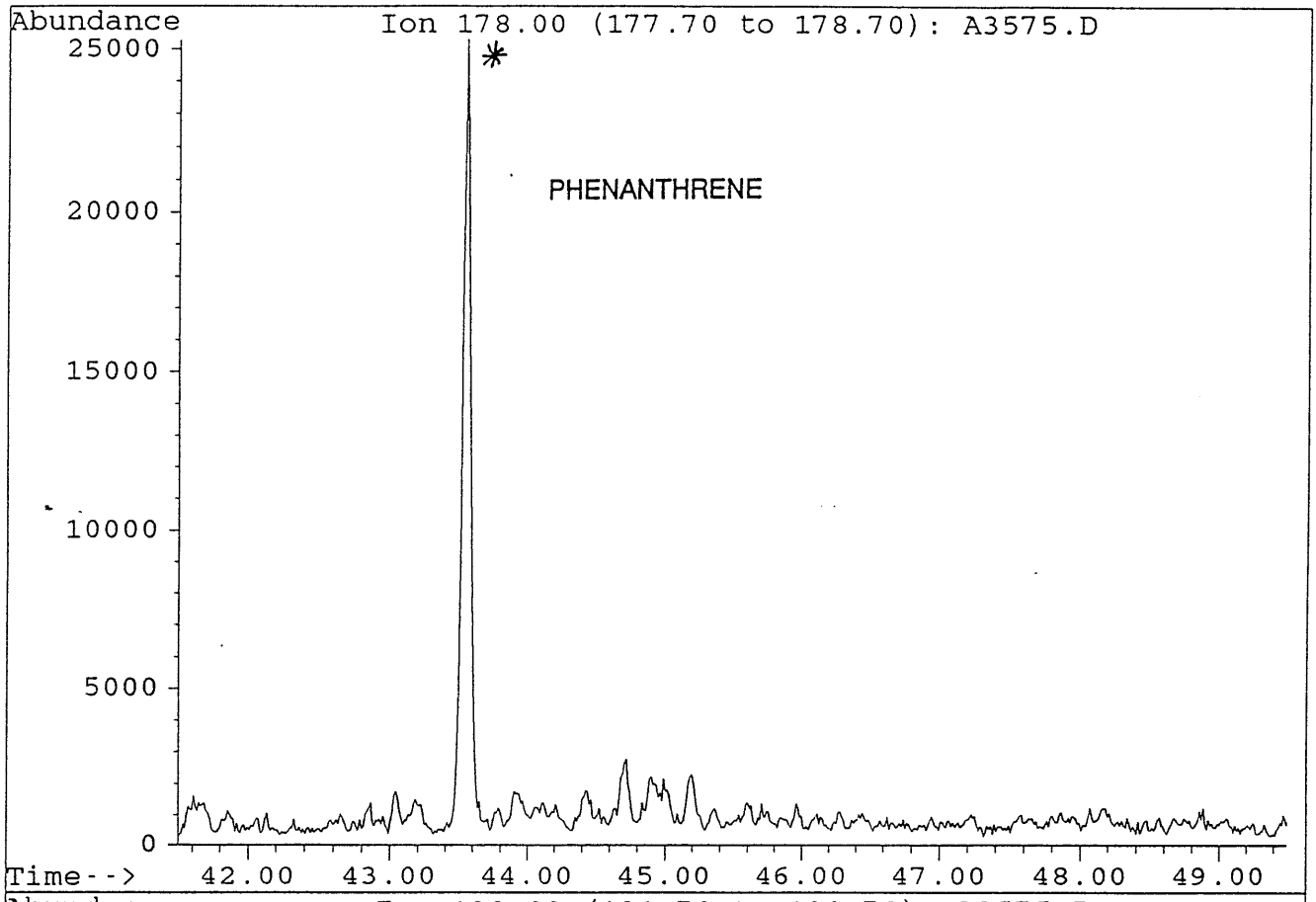

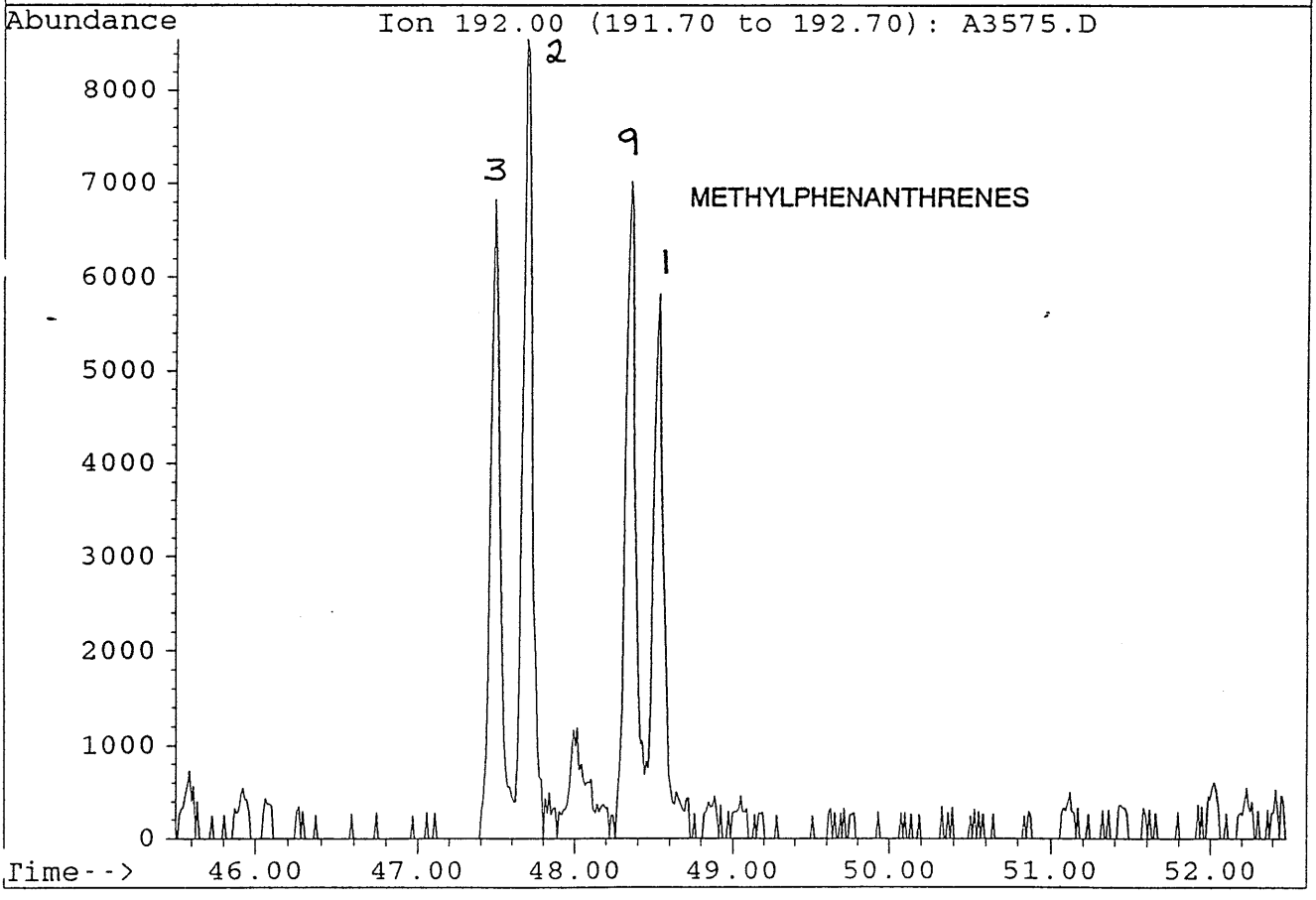

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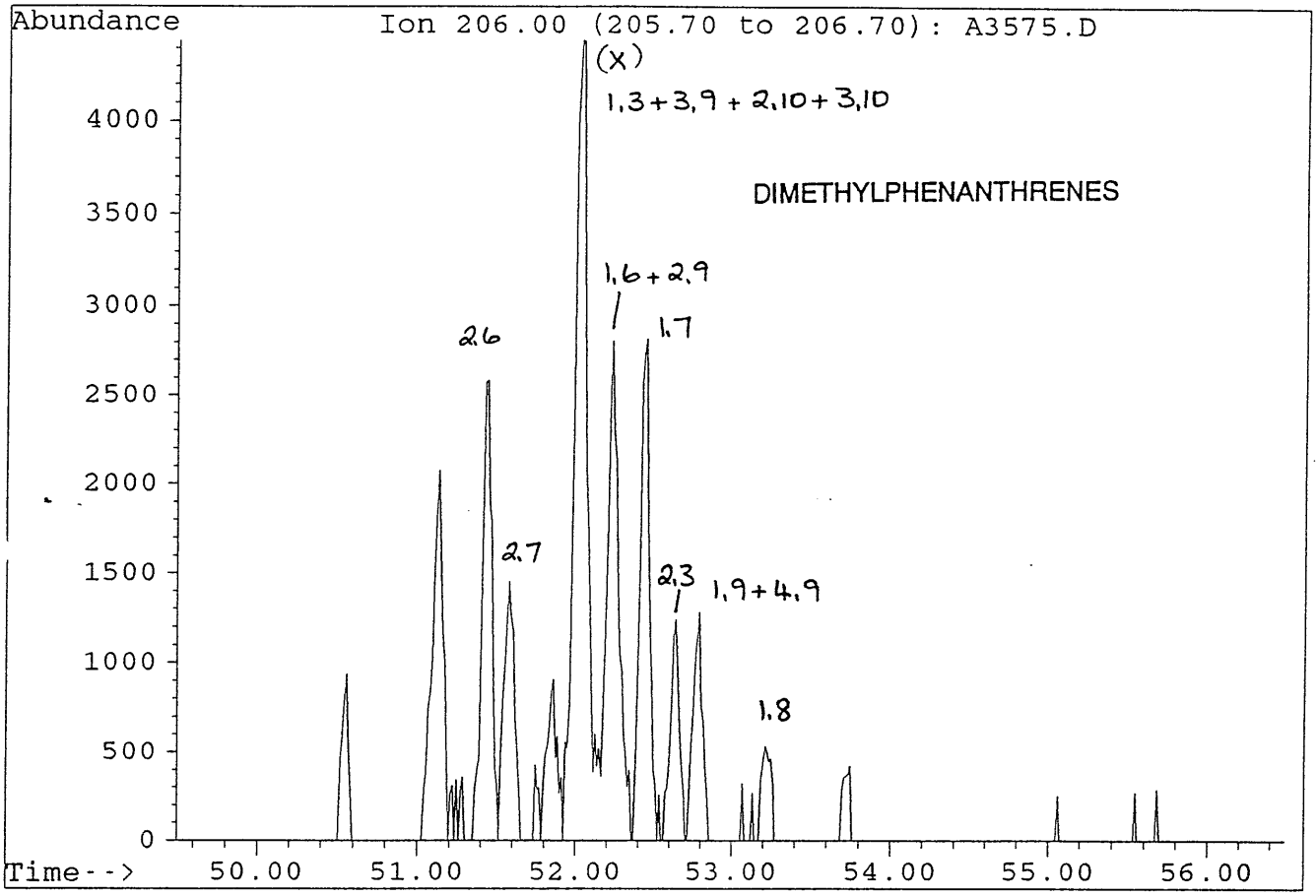

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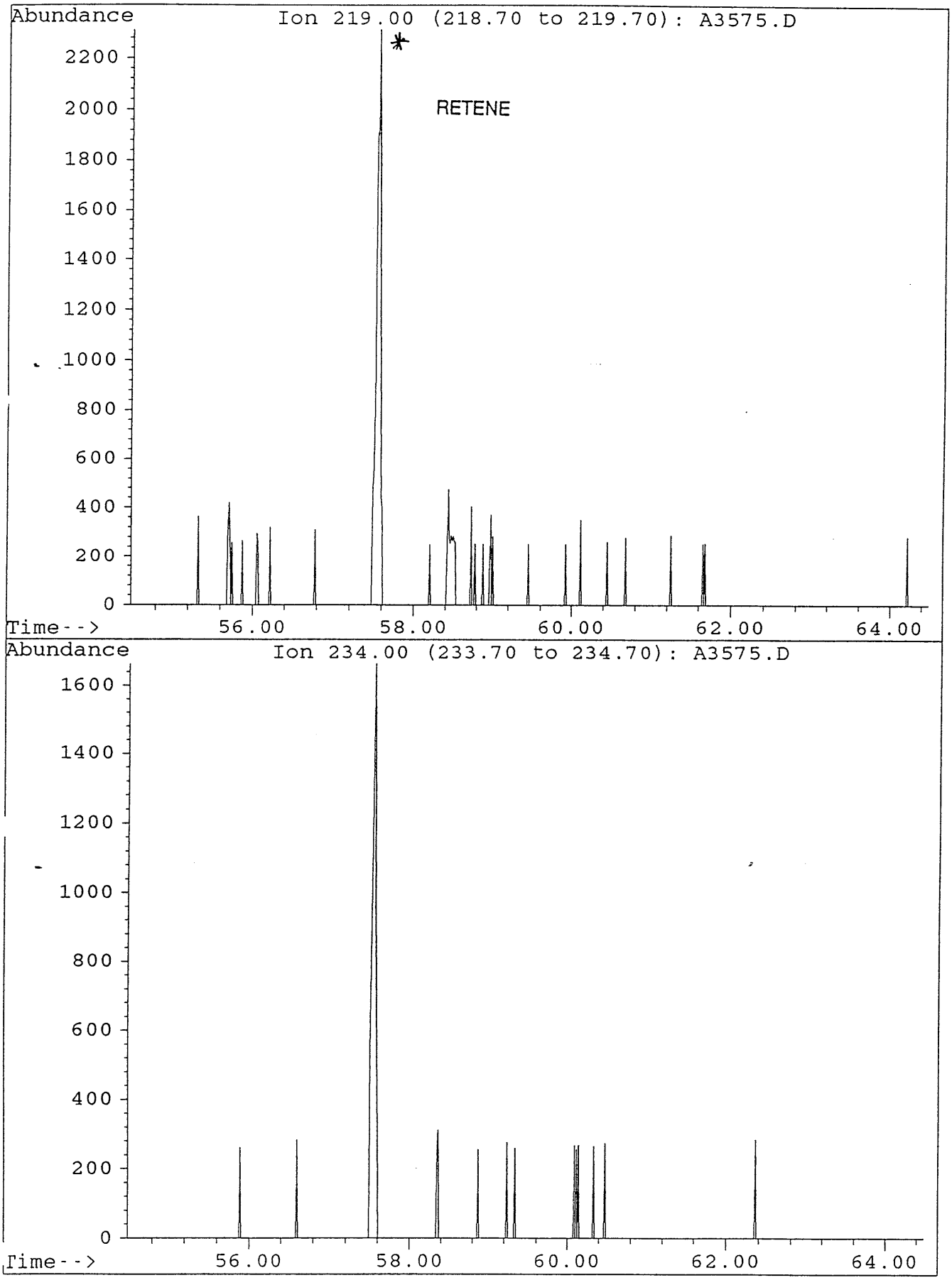

TABLE 3

SELECTED PARAMETERS FROM GC/MS ANALYSIS

DUNBAR 1, DST 2, Condensate

	Parameter	Ion(s)	Value
1.	18 α (H)- hopane/17 α (H)-hopane (Ts/Tm)	191	nd
2.	C30 hopane/C30 moretane	191	nd
3.	C31 22S hopane/C31 22R hopane	191	nd
4.	C32 22S hopane/C32 22R hopane	191	nd
5.	C29 20S $\alpha\alpha\alpha$ sterane/C29 20R $\alpha\alpha\alpha$ sterane	217	nd
6.	C29 $\alpha\alpha\alpha$ steranes (20S / 20S+20R)	217	nd
7.	C29 $\alpha\beta\beta$ steranes / C29 $\alpha\alpha\alpha$ steranes + C29 $\alpha\beta\beta$ steranes	217	nd
8.	C27/C29 diasteranes	259	nd
9.	C27/C29 steranes	217	nd
10.	18 α (H)-oleanane/C30 hopane	191	nd
11.	C29 diasteranes / C29 $\alpha\alpha\alpha$ steranes + C29 $\alpha\beta\beta$ steranes	217	nd
12.	C30 (hopane + moretane) / C29 (steranes + diasteranes)	191/217	nd
13.	C15 drimane/C16 homodrimane	123	1.26
14.	Rearranged drimanes/normal drimanes	123	1.33

nd = not detectable

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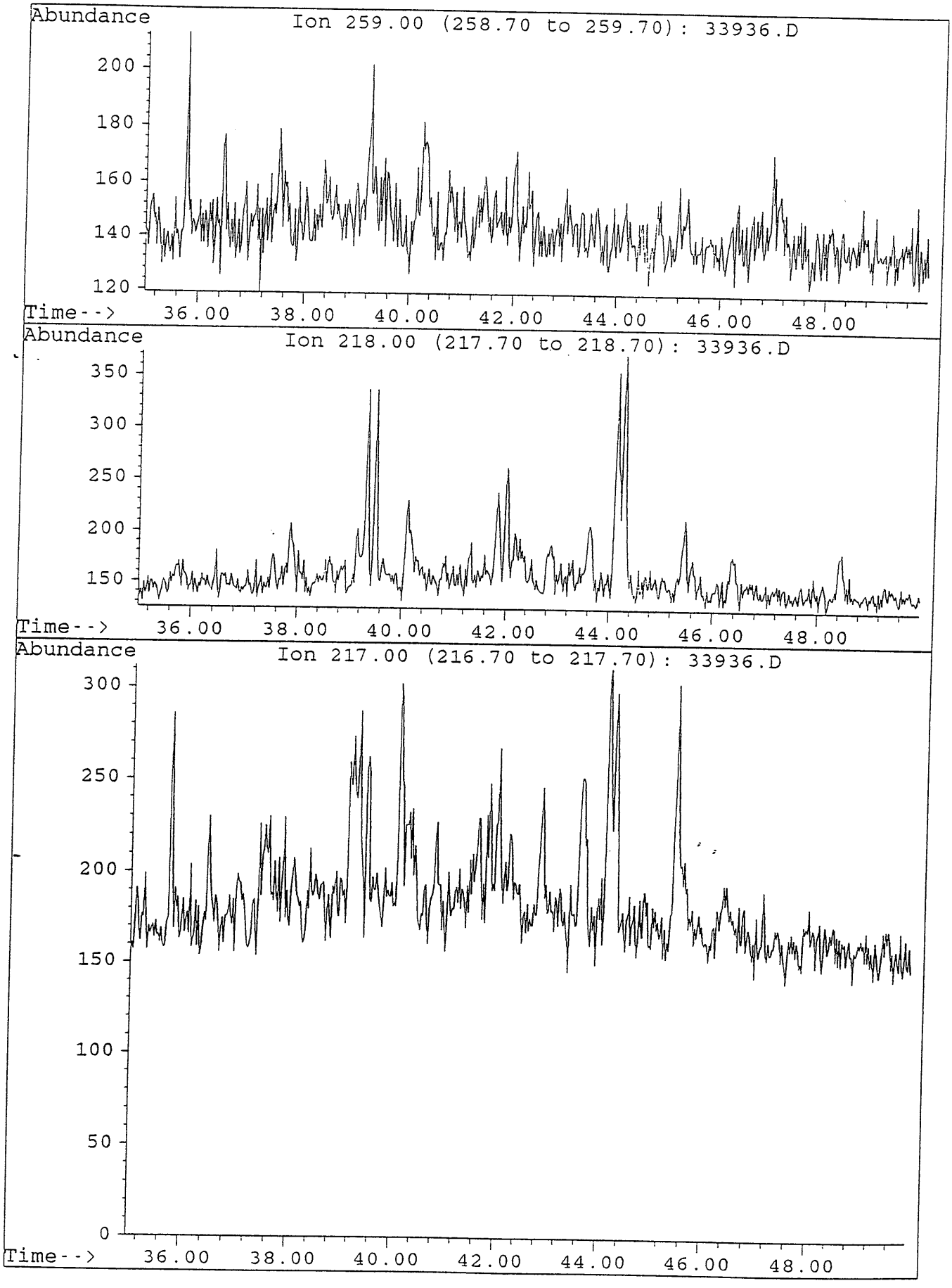

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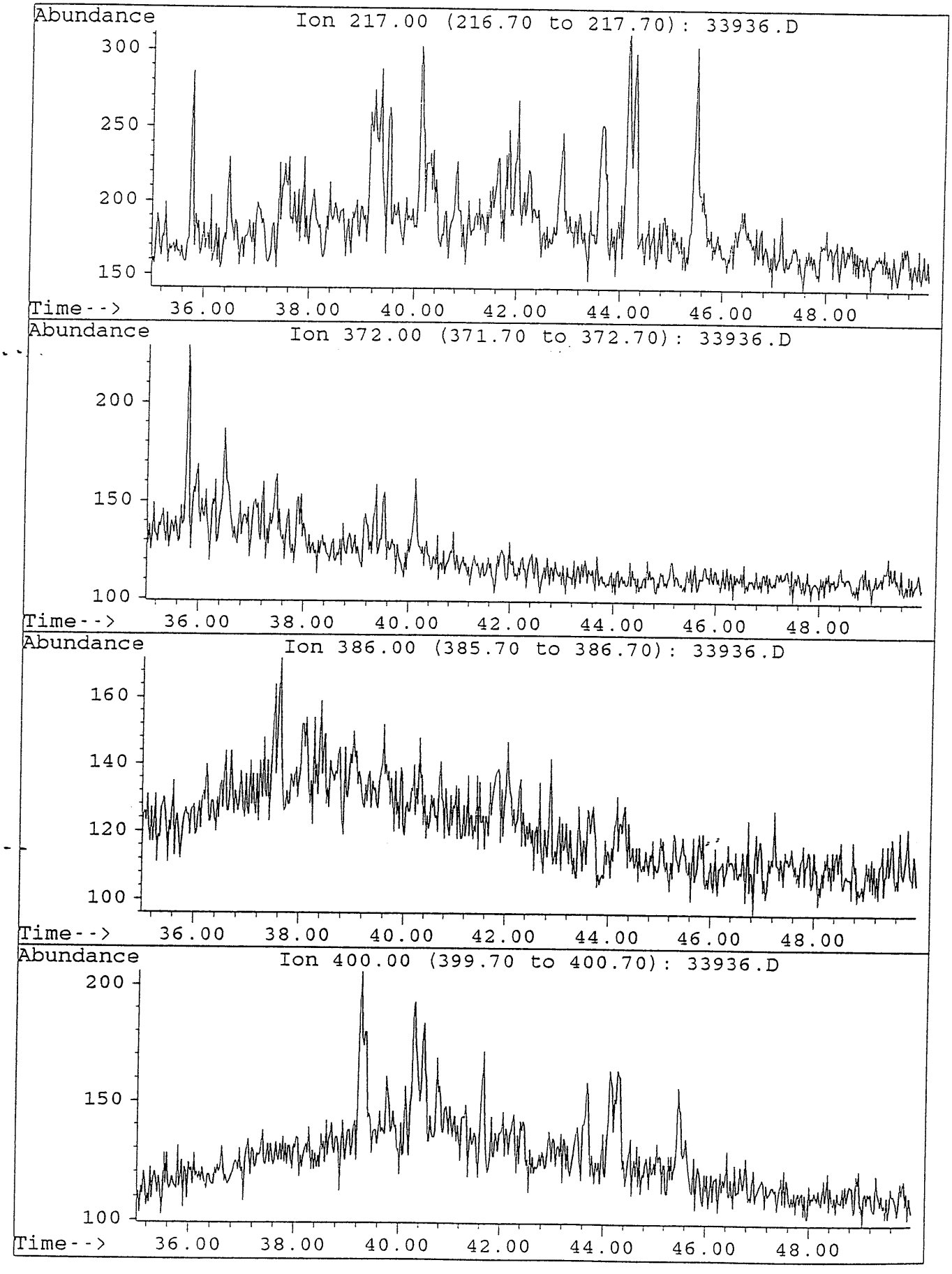

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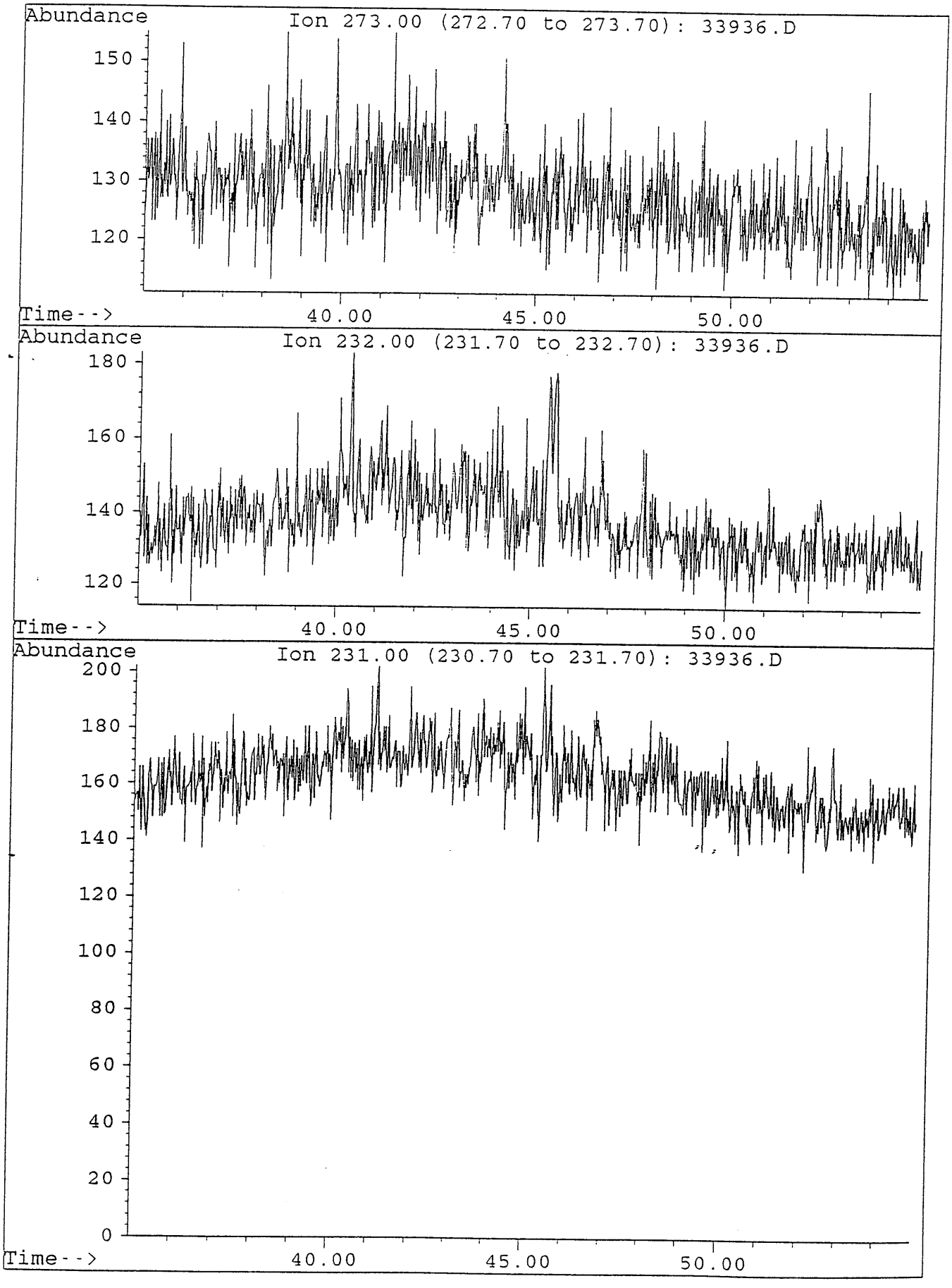

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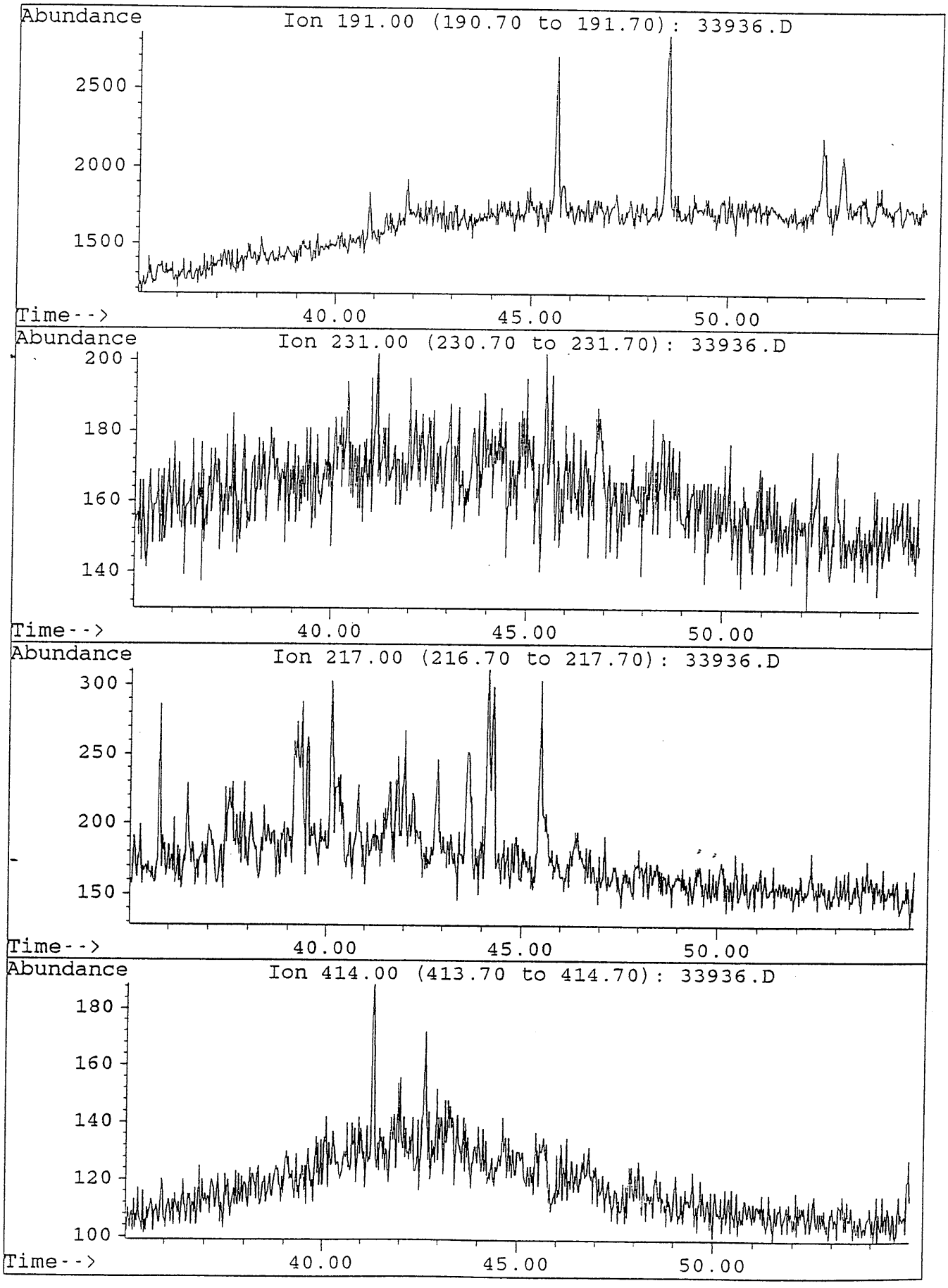

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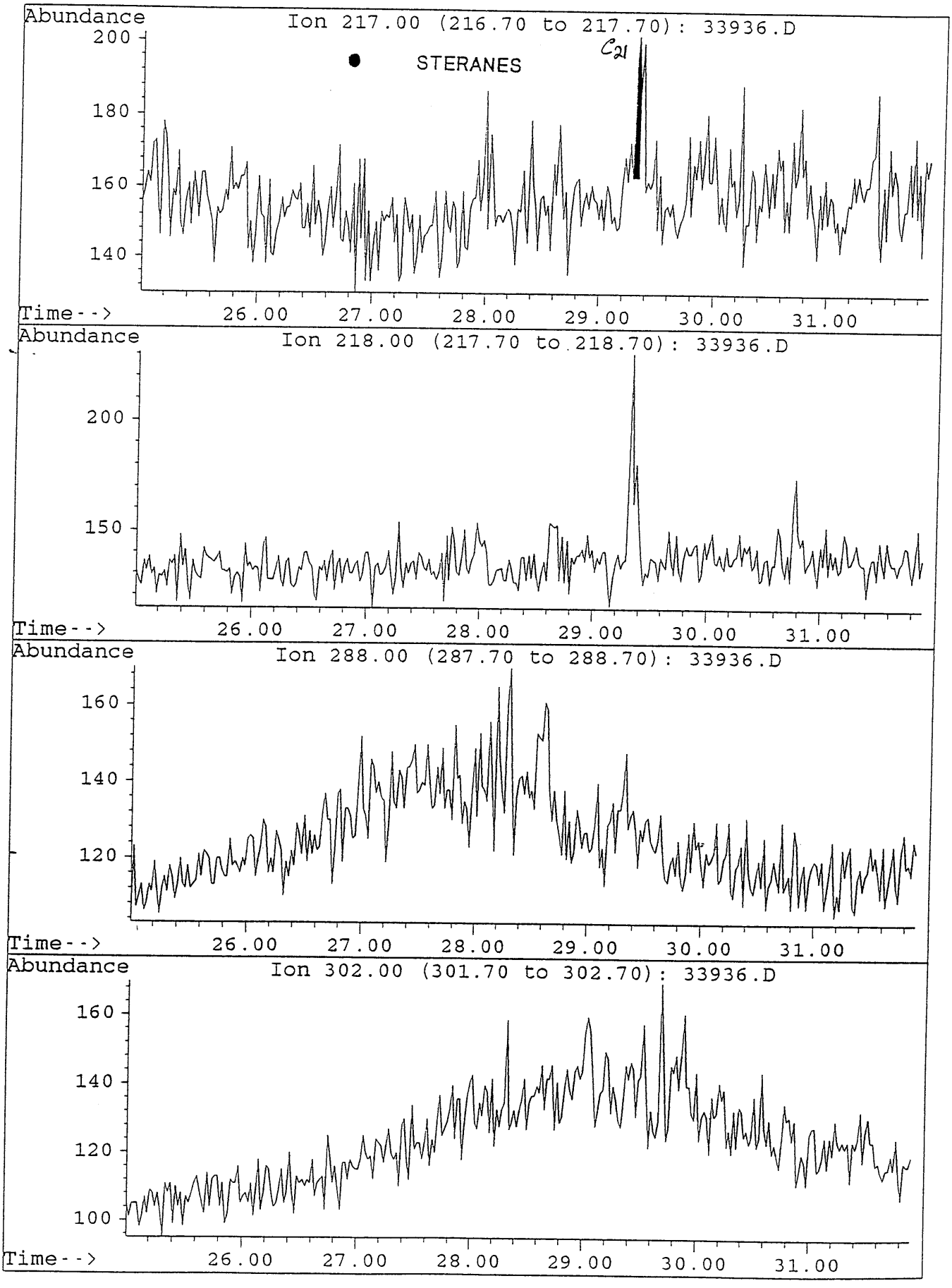

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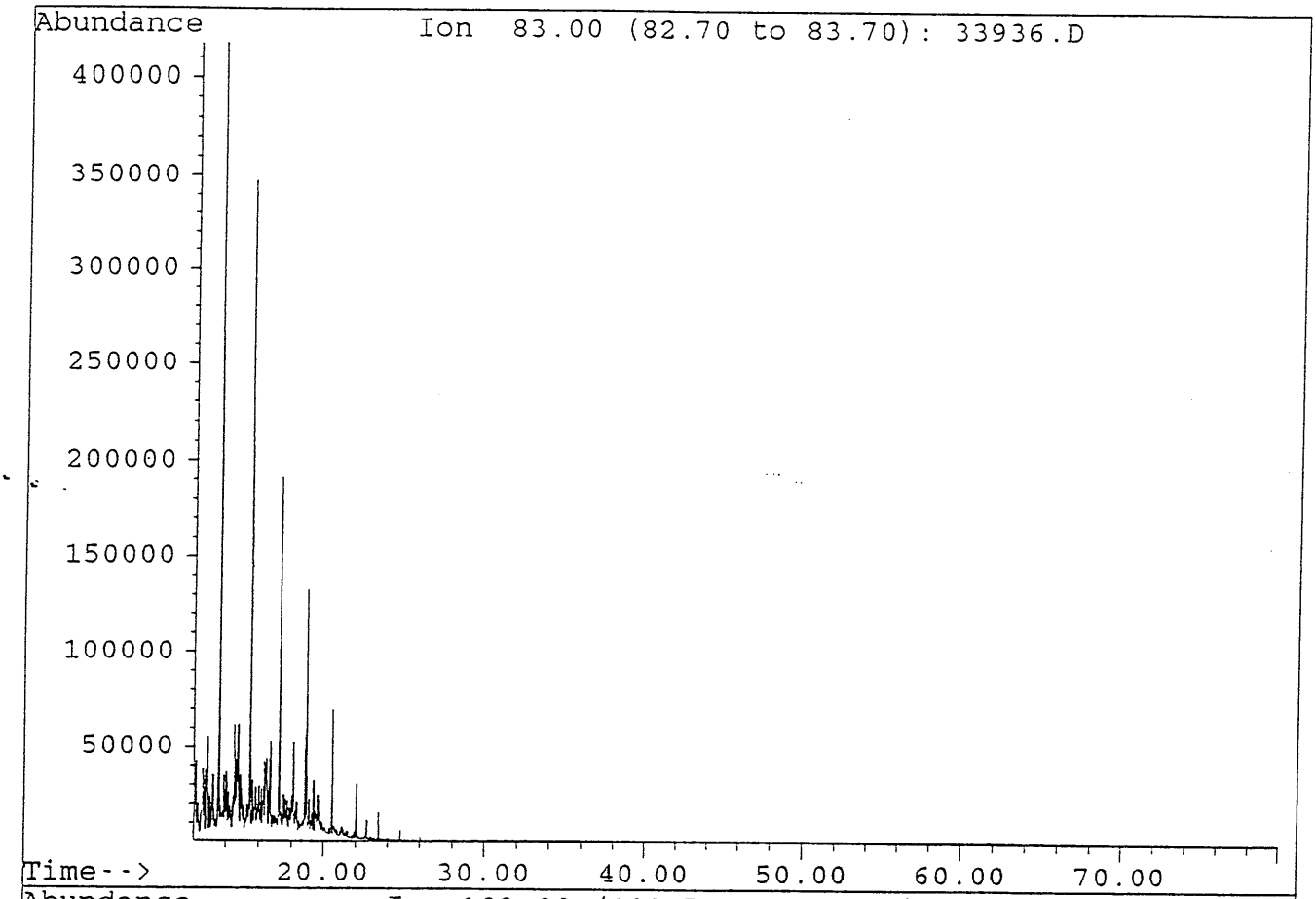

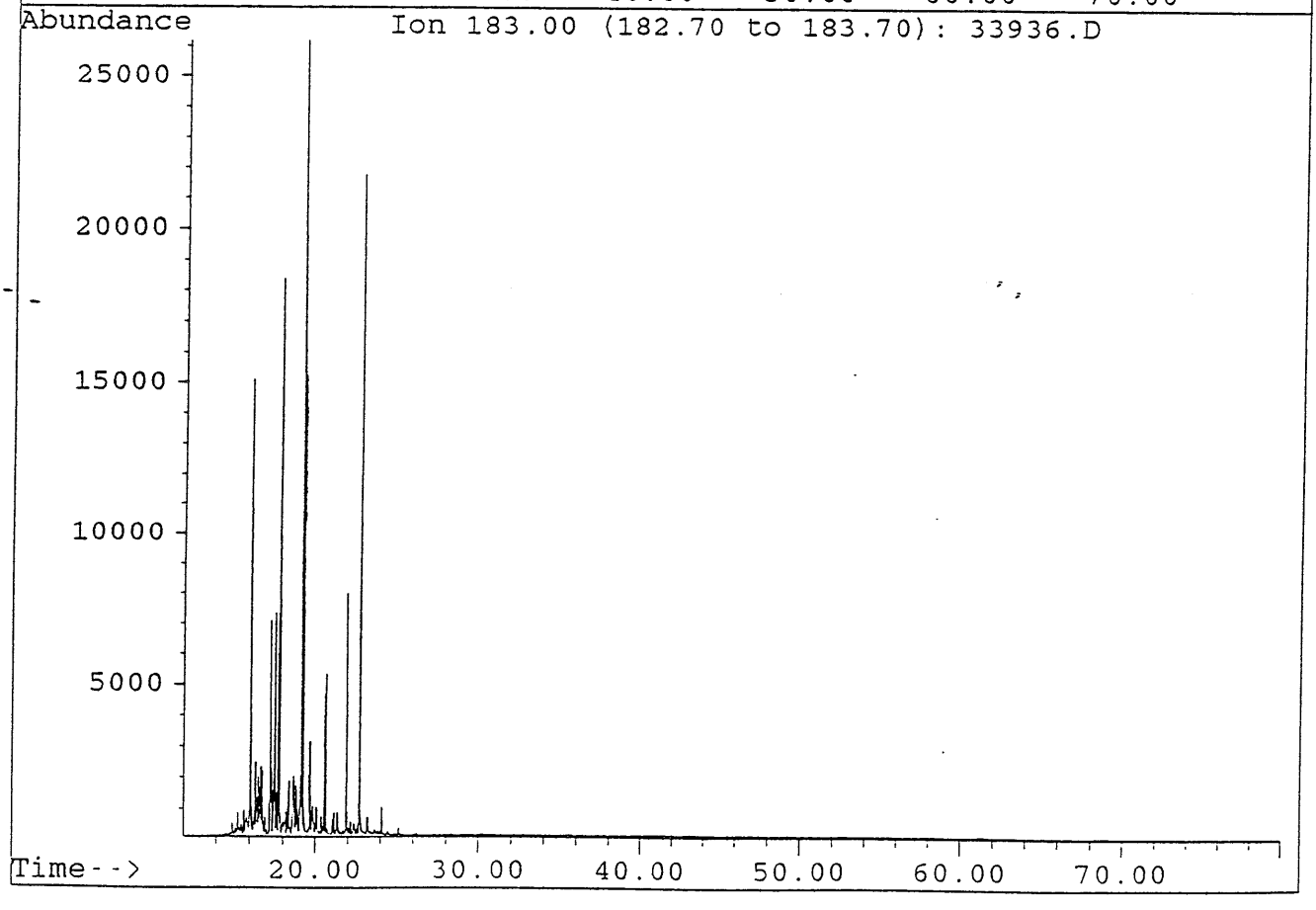

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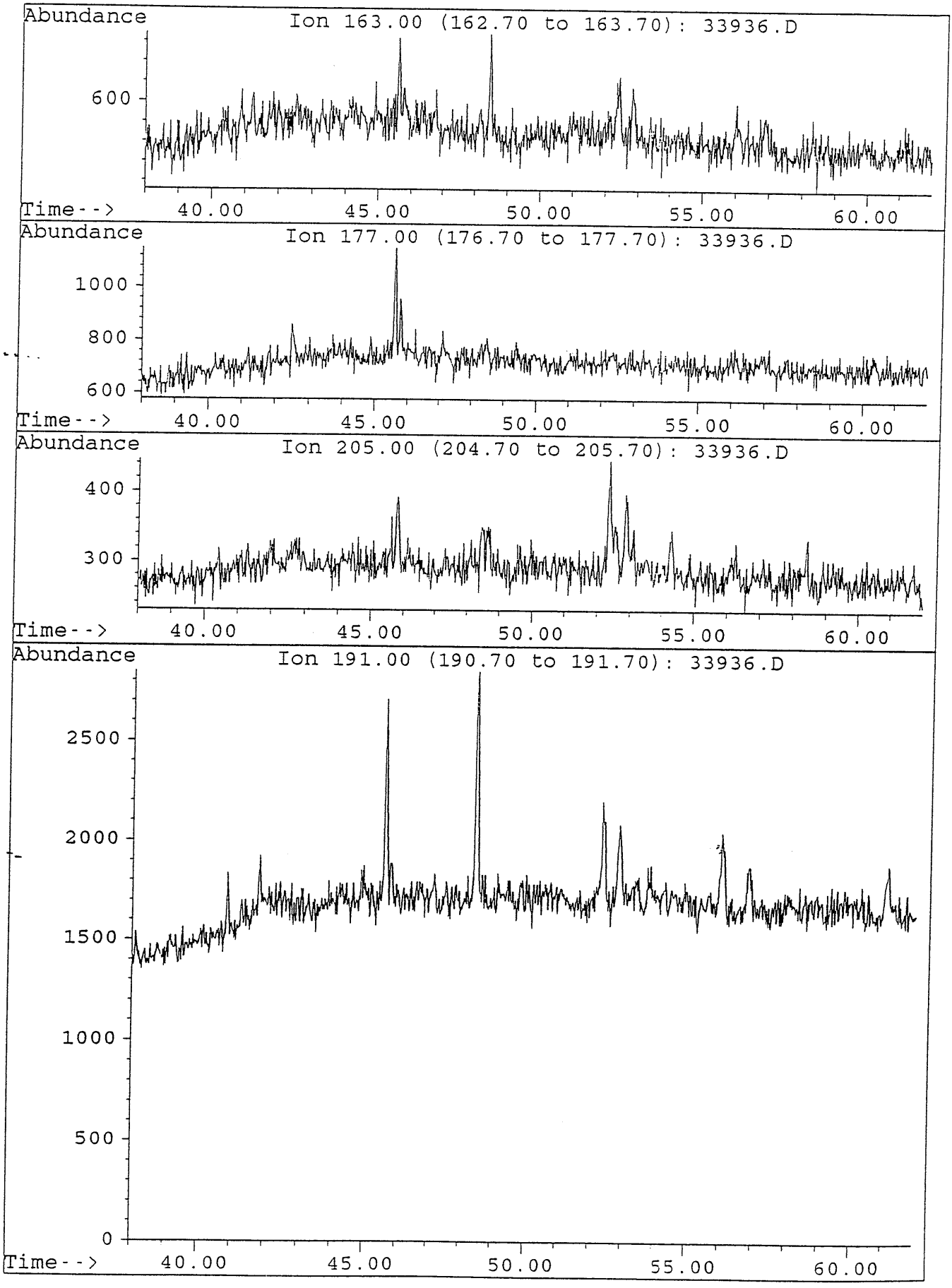

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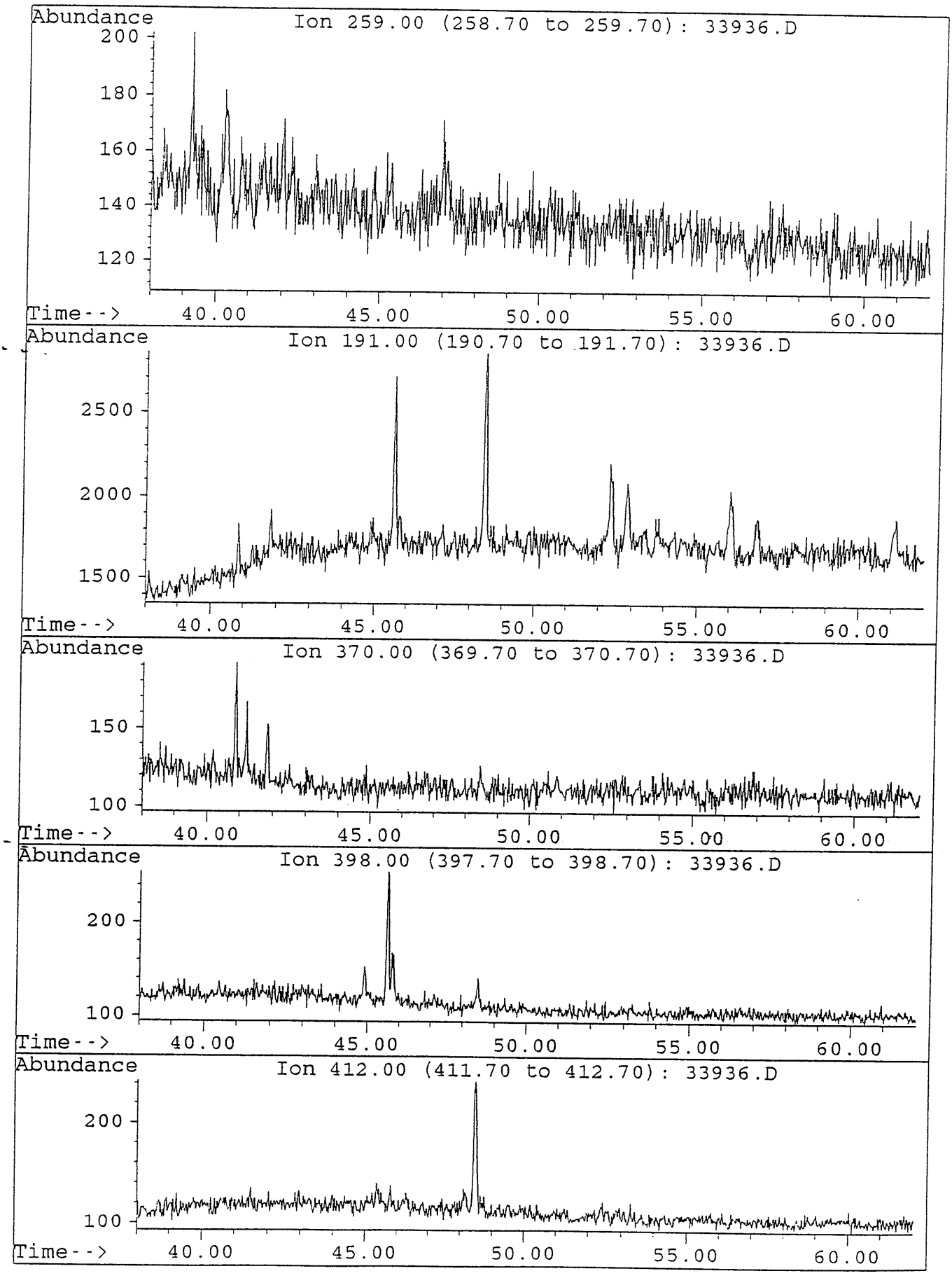

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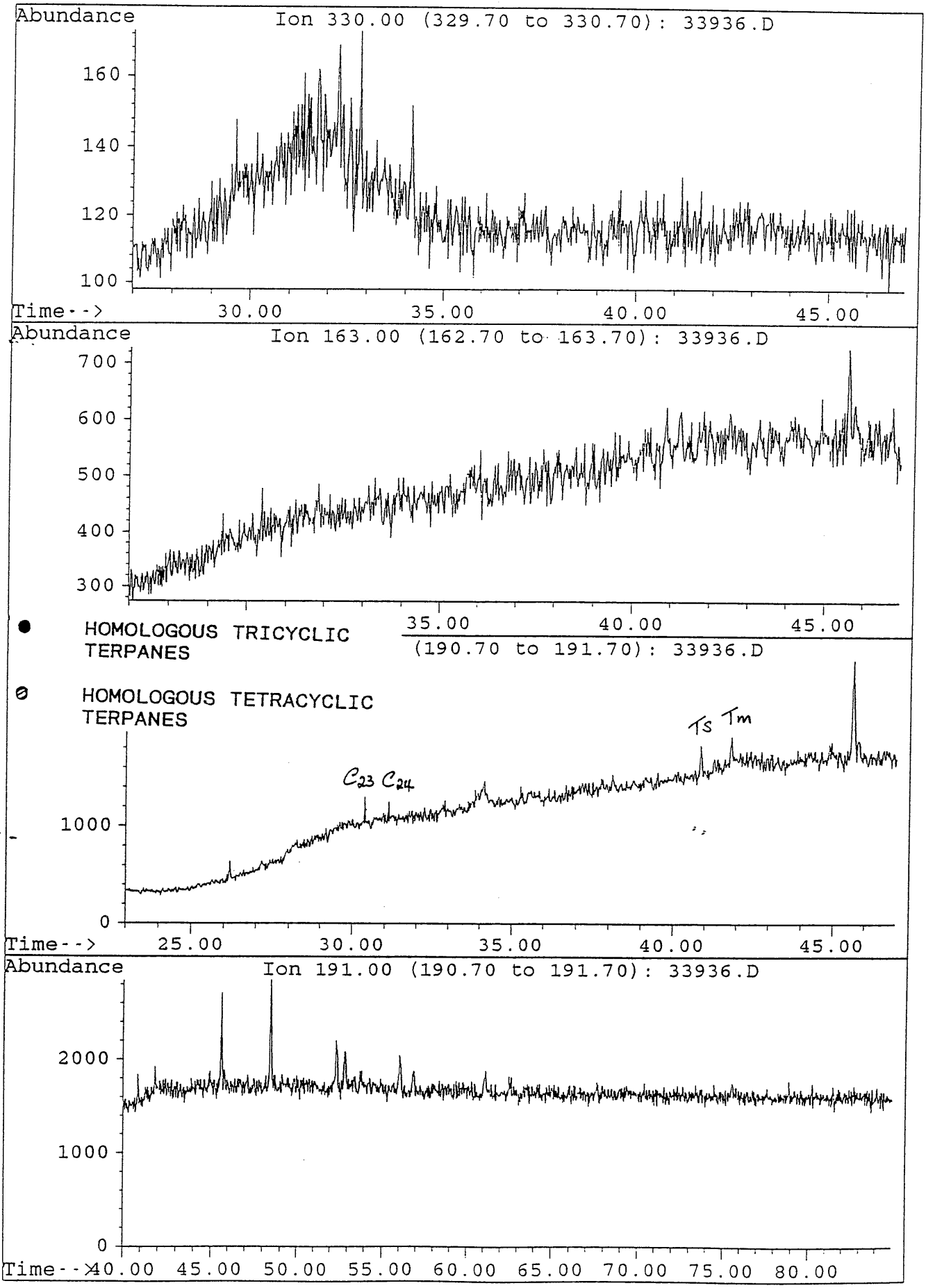

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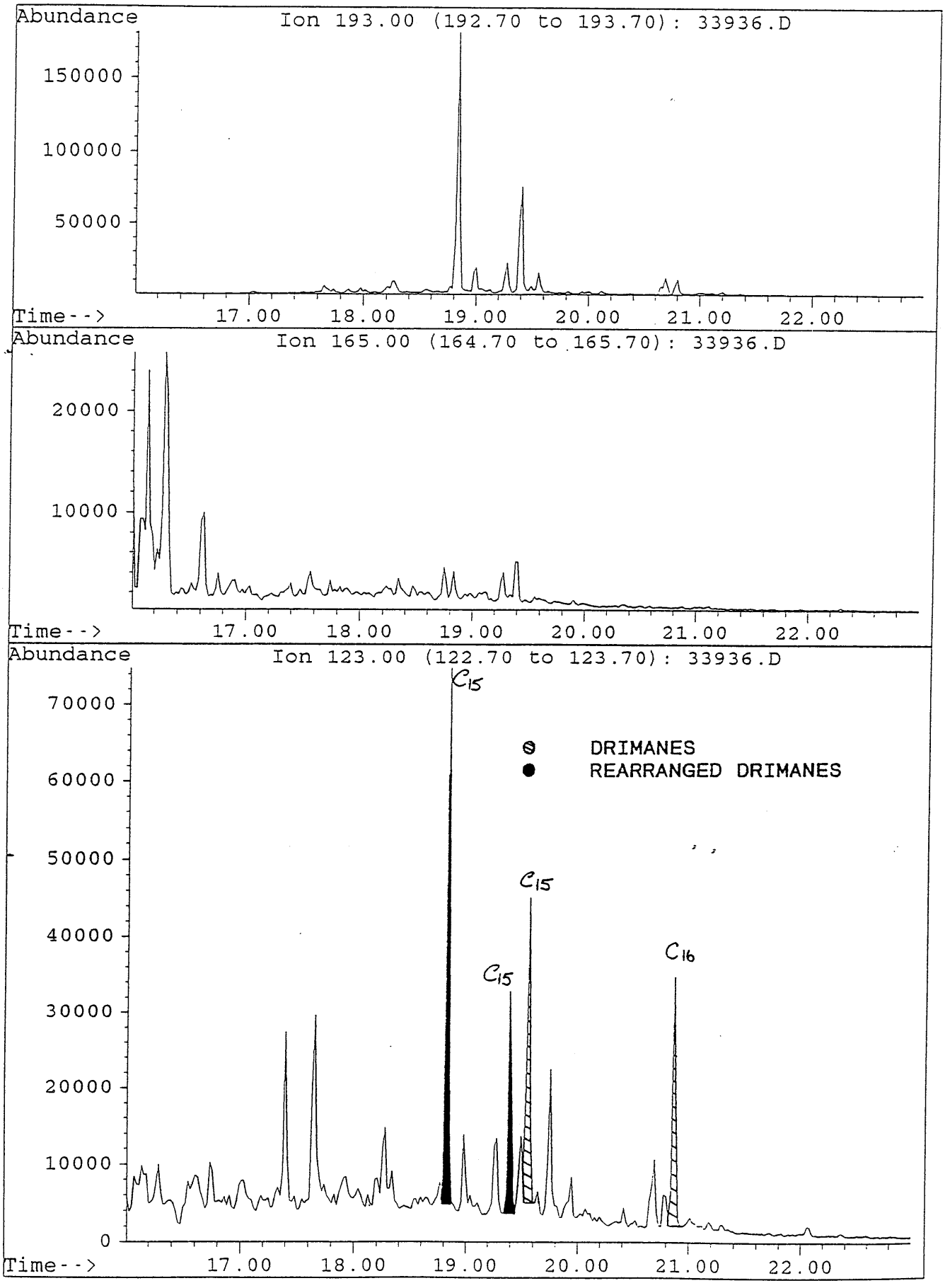

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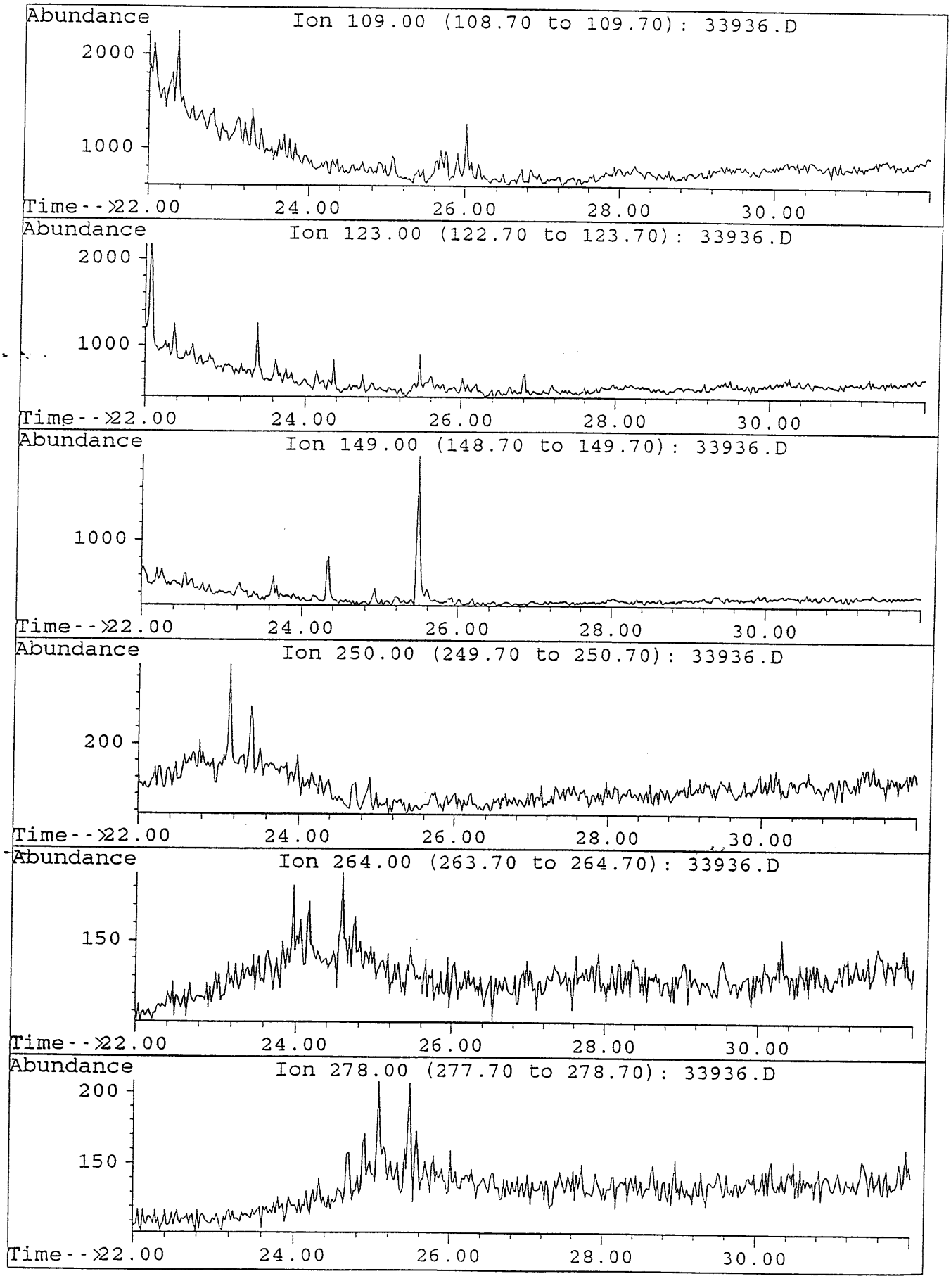

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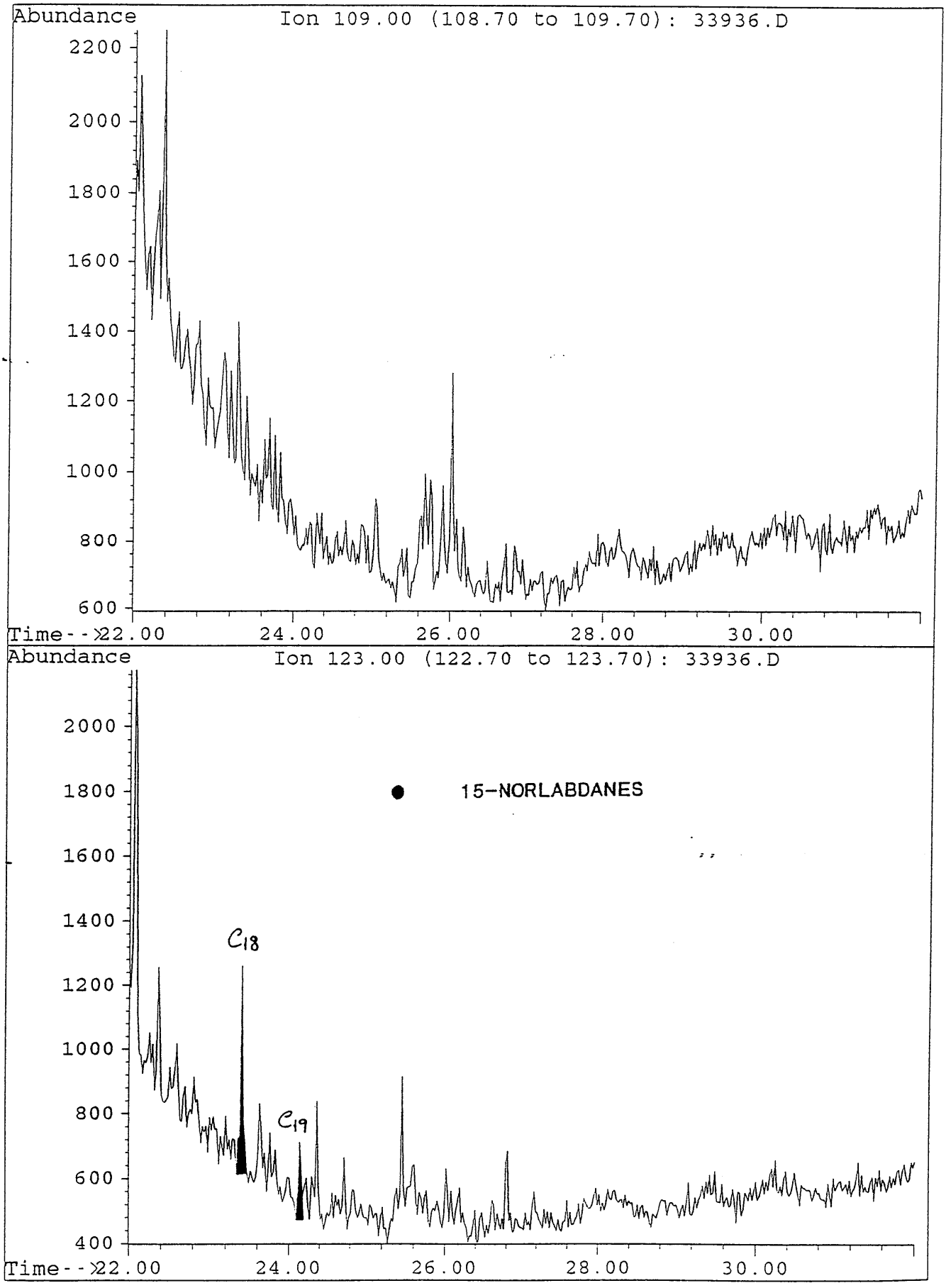

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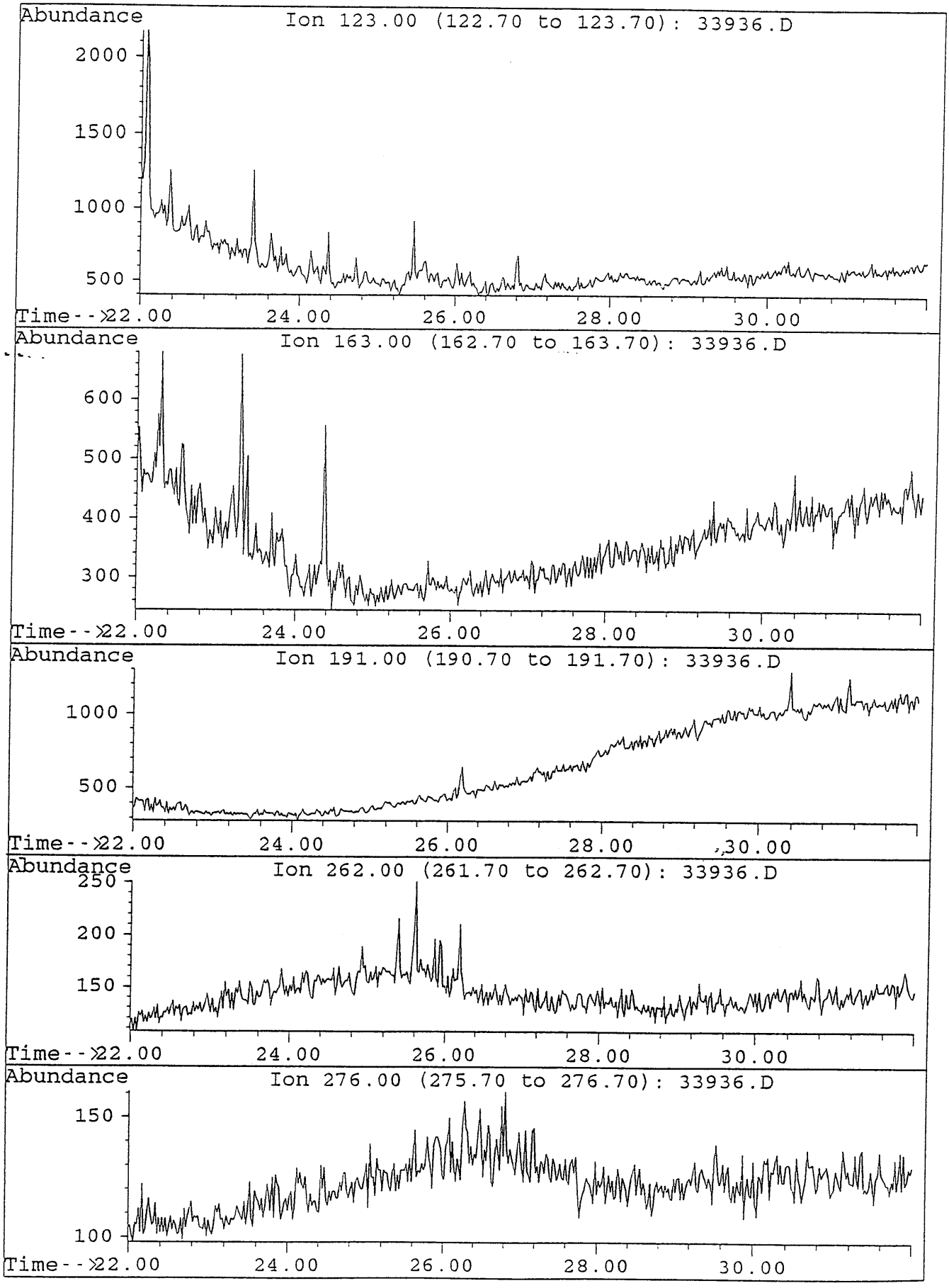

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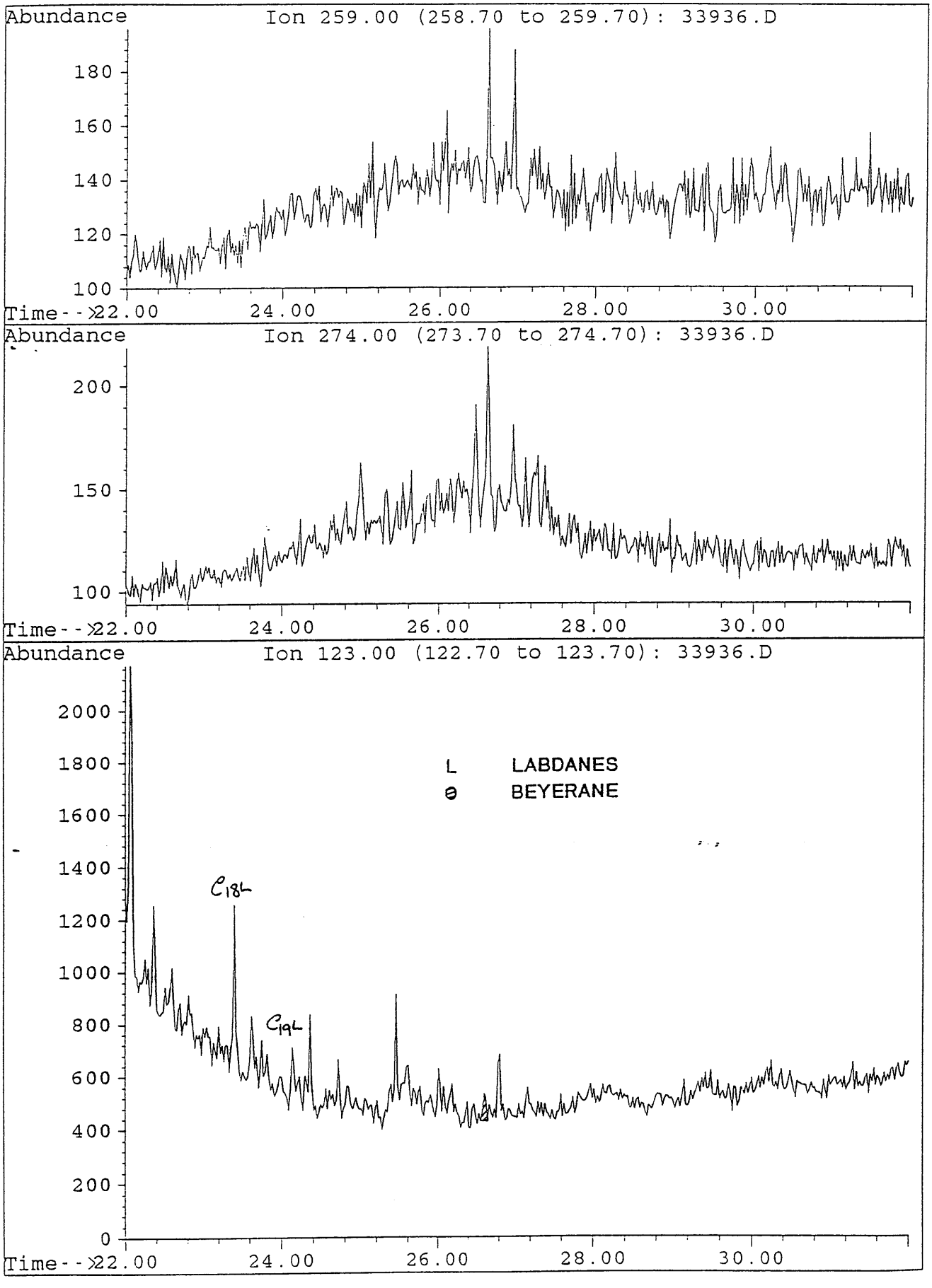

TABLE 3S

SELECTED PARAMETERS FROM GC/MS ANALYSIS

DUNBAR 1, DST 2, Condensate
Special SIM

	Parameter	Ion(s)	Value
1.	18 α (H)- hopane/17 α (H)-hopane (Ts/Tm)	191	0.99
2.	C30 hopane/C30 moretane	191	13.01
3.	C31 22S hopane/C31 22R hopane	191	1.38
4.	C32 22S hopane/C32 22R hopane	191	1.37
5.	C29 20S $\alpha\alpha\alpha$ sterane/C29 20R $\alpha\alpha\alpha$ sterane	217	0.73
6.	C29 $\alpha\alpha\alpha$ steranes (20S / 20S+20R)	217	0.42
7.	C29 $\alpha\beta\beta$ steranes / C29 $\alpha\alpha\alpha$ steranes + C29 $\alpha\beta\beta$ steranes	217	0.55
8.	C27/C29 diasteranes	259	1.38
9.	C27/C29 steranes	217	1.04
10.	18 α (H)-oleanane/C30 hopane	191	nd
11.	C29 diasteranes / C29 $\alpha\alpha\alpha$ steranes + C29 $\alpha\beta\beta$ steranes	217	0.37
12.	C30 (hopane + moretane) / C29 (steranes + diasteranes)	191/217	1.79
13.	C15 drimane/C16 homodrimane	123	nd
14.	Rearranged drimanes/normal drimanes	123	nd

nd = not detectable

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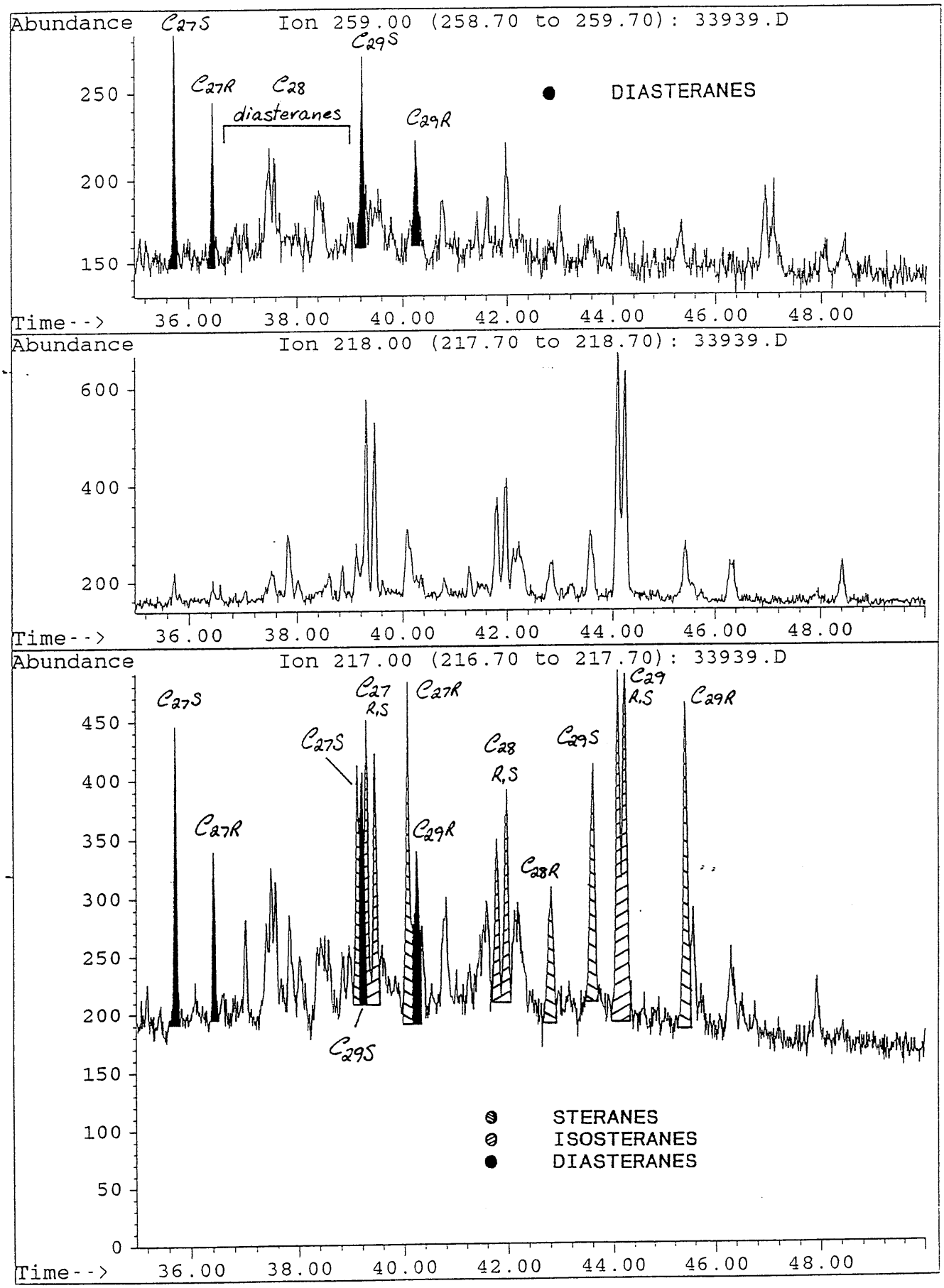

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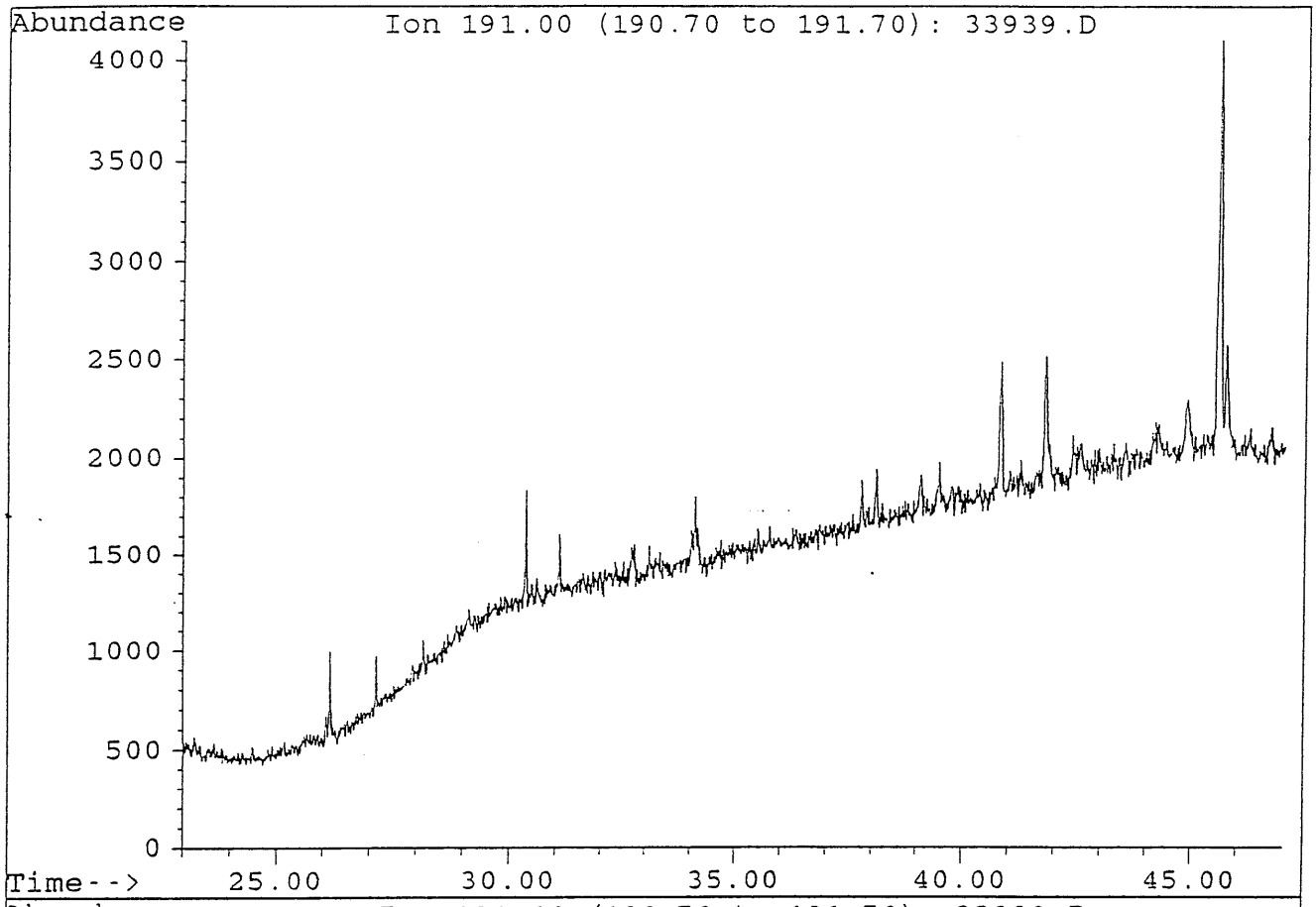

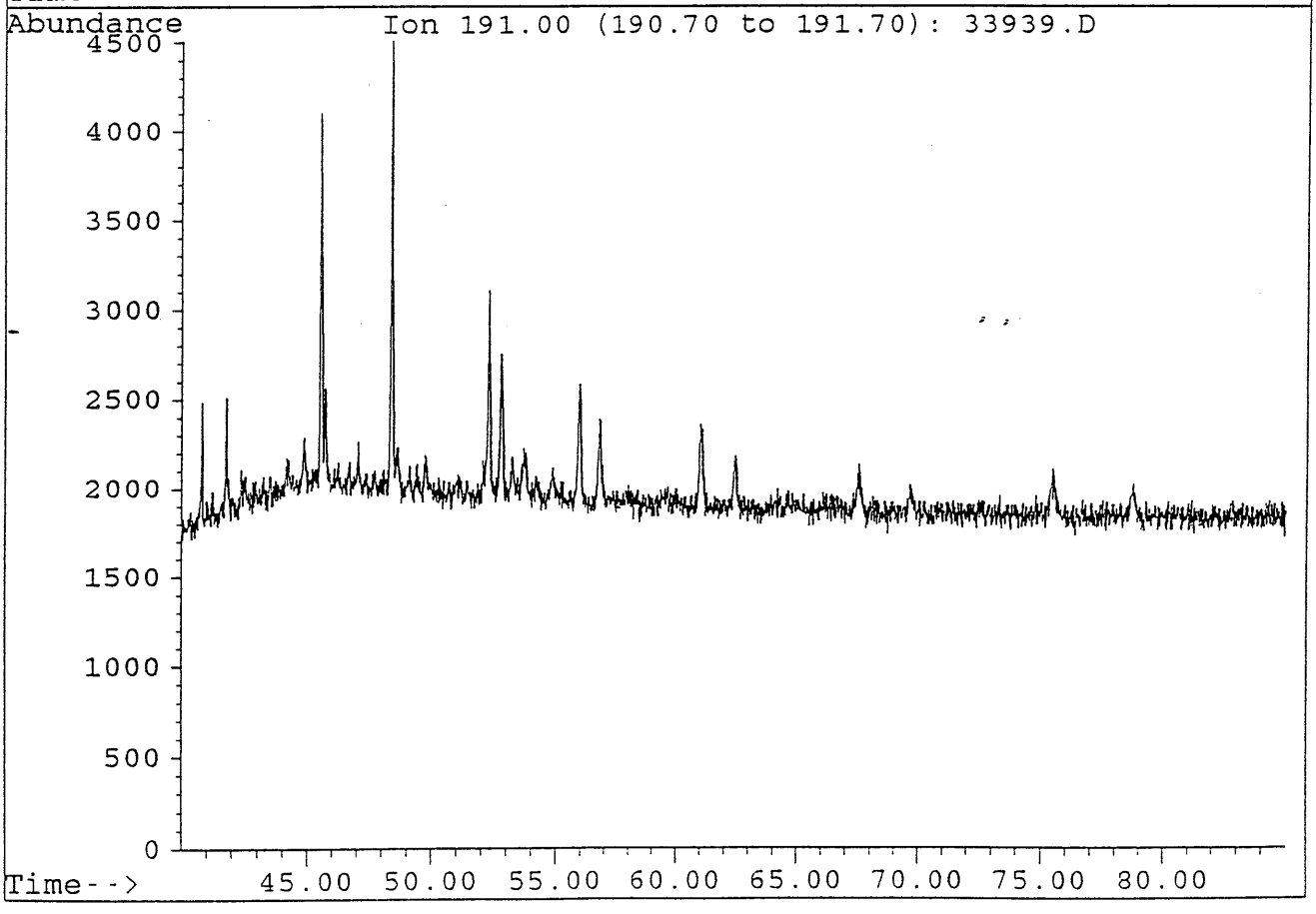

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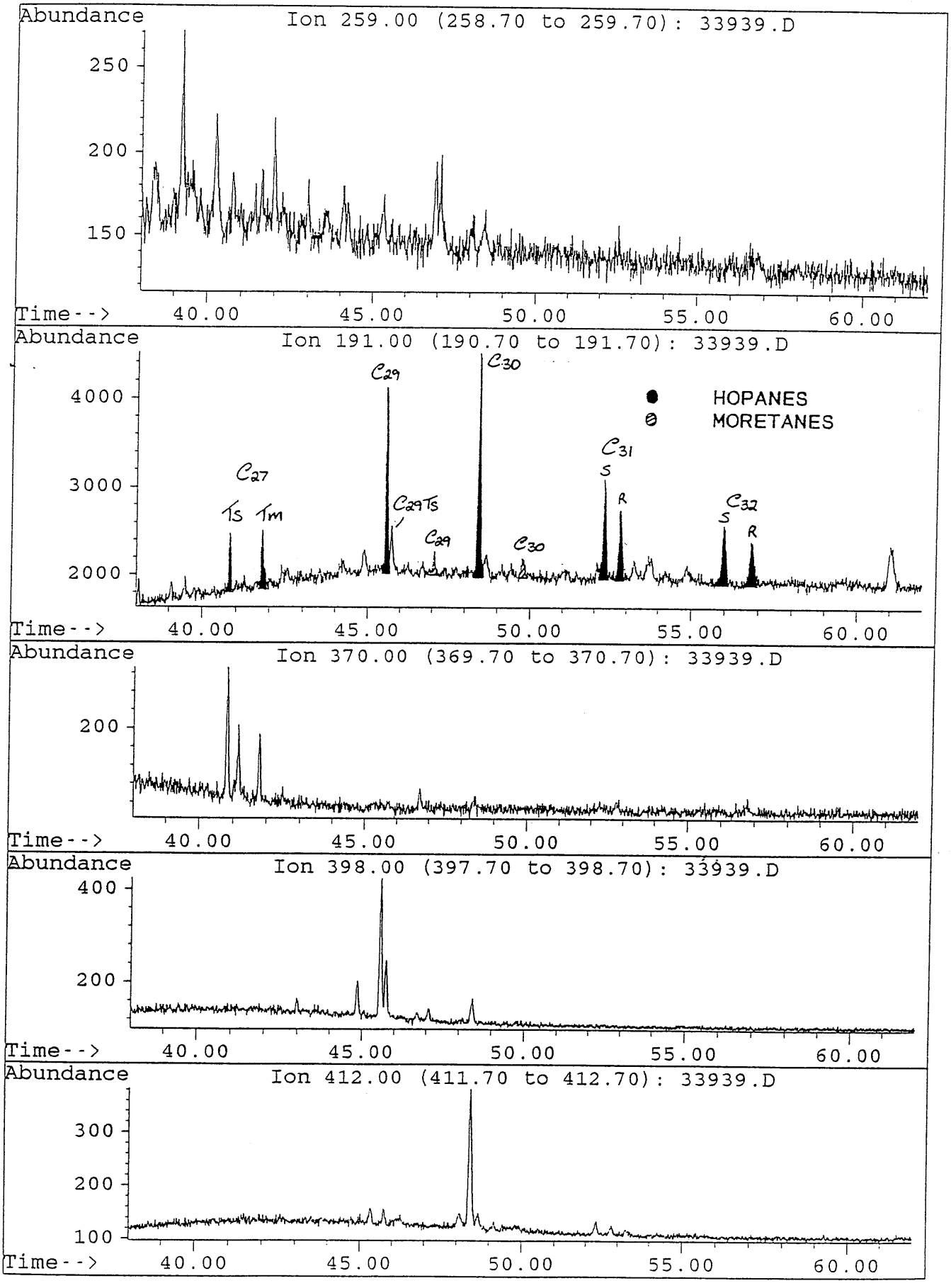

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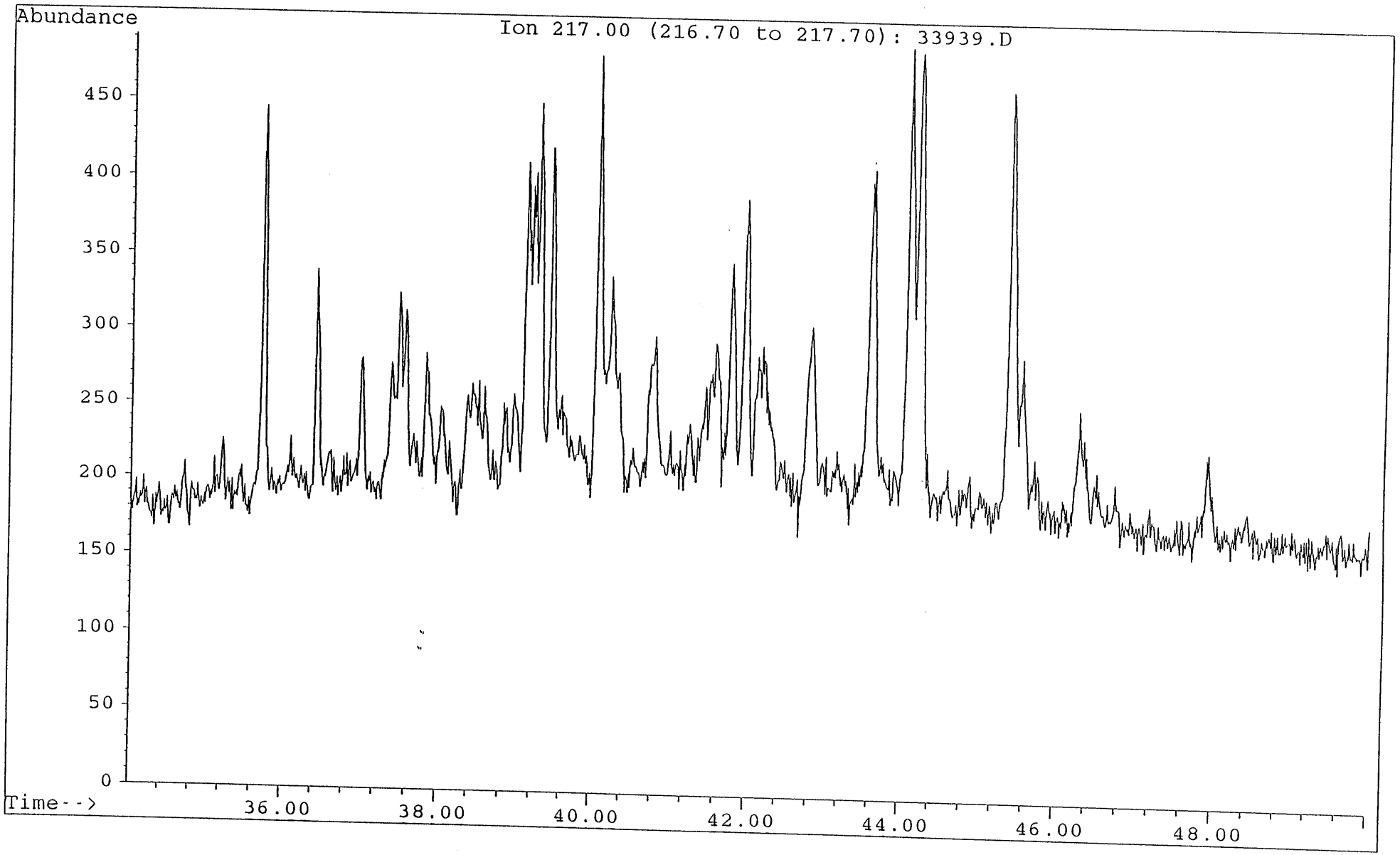

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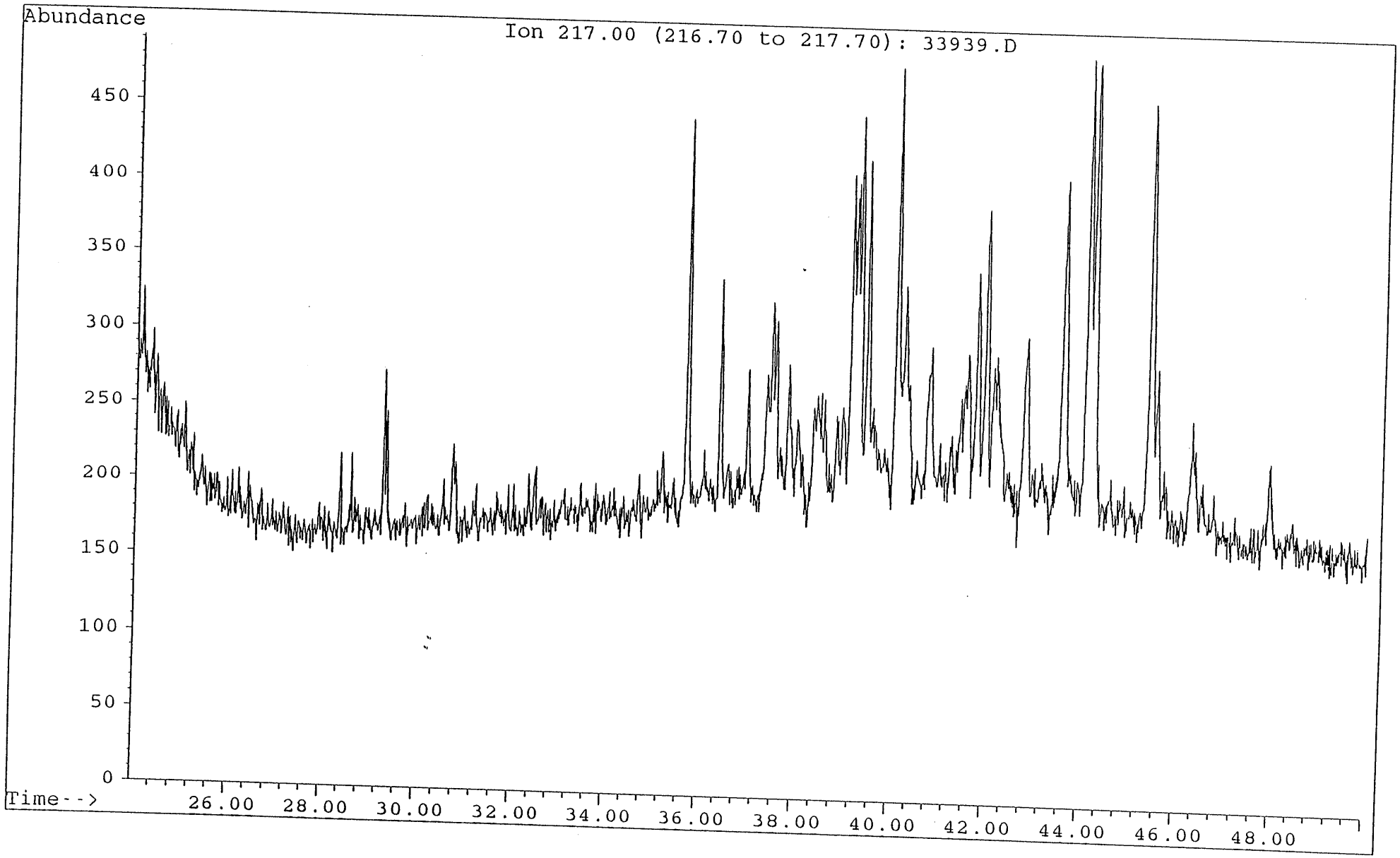

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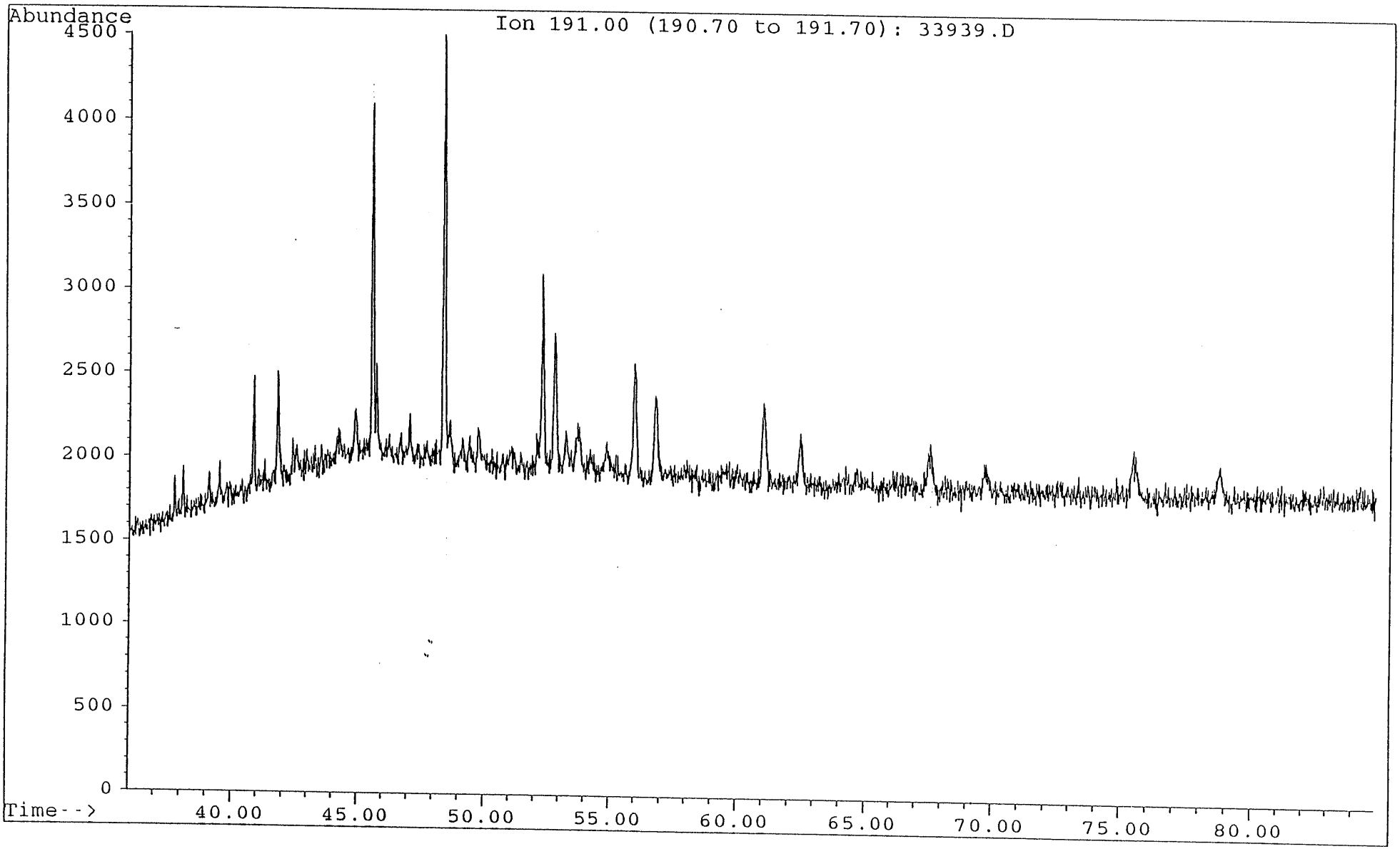

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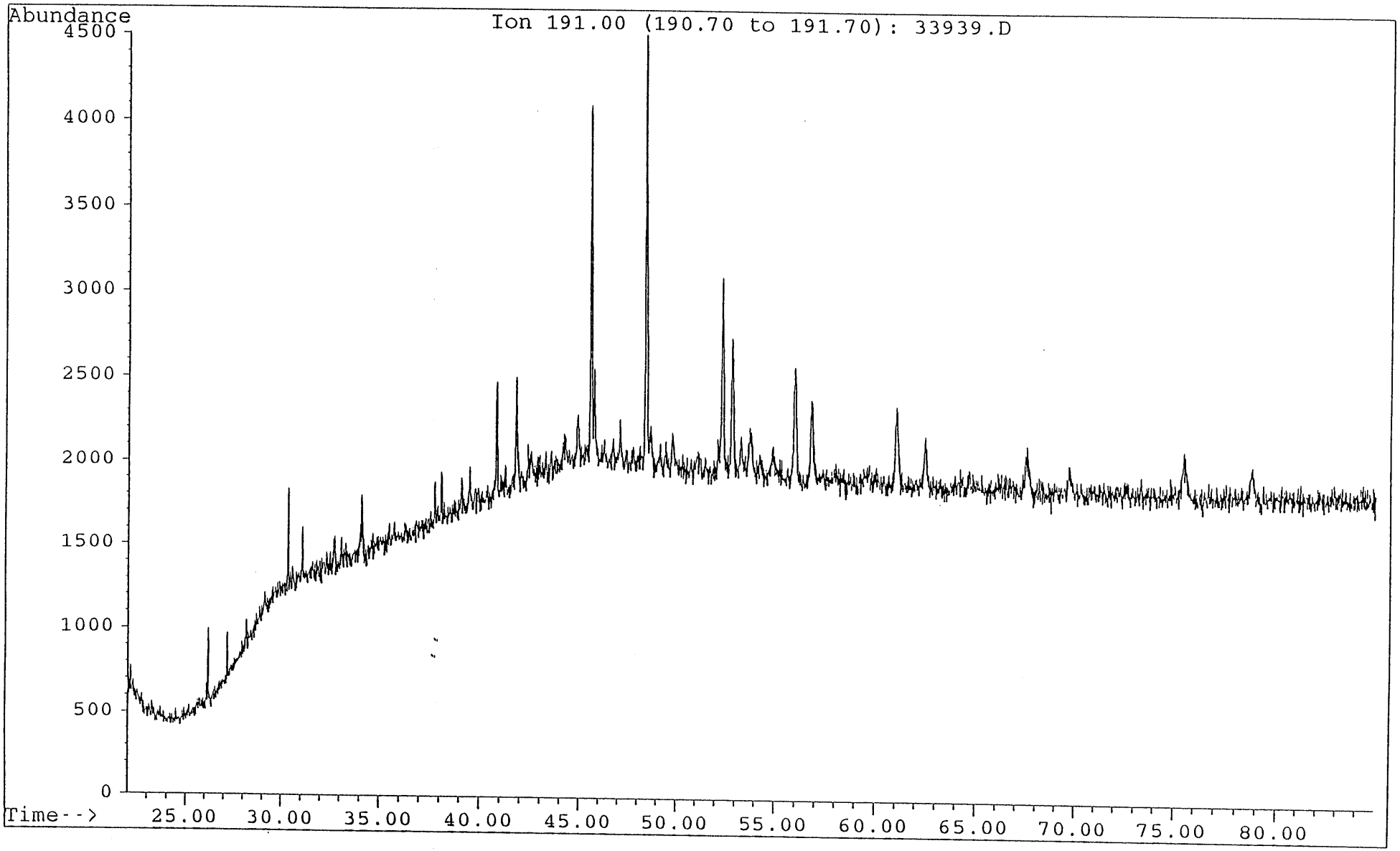

APPENDIX 10

APPENDIX 10

PALYNOLOGY REPORT

Palynological Analysis of Dunbar-1, Port Campbell Embayment, Otway Basin.

by

Alan D. Partridge

Biostrata Pty Ltd
A.C.N. 053 800 945

Biostrata Report 1995/7

21 June 1995

CONTENTS

INTERPRETATIVE DATA

BASIC DATA

INTERPRETATIVE DATA

Introduction

Fourteen sidewall cores samples were analysed in Dunbar-1 with the focus of the palynological investigation concentrated on the Waarre Formation and basal Belfast Mudstone. Age dating is provided for only a short 167 metres interval of the well extending from 1401.0m within the Belfast Mudstone to 1568.0m within the Eumeralla Formation. The palynological zones and ages identified and their correlations to formations or units identified in the well are summarised in Table 1 below. Additional interpretative data with zone identification and Confidence Ratings are recorded in Table 3, whilst basic data on sidewall core lithologies, sample quality and quantities, residue yields, preservation and diversity are recorded on Tables 4 and 5. All species which have been identified with binomial names are tabulated on a composite range chart for both spore-pollen and microplankton which presents the recorded assemblages in order of lowest appearances.

Table 1: Palynological Summary Dunbar-1.

AGE	UNIT	SPORE-POLLEN ZONES	MICROPLANKTON ZONES (SUBZONES)
SANTONIAN	BELFAST MUDSTONE 1349*-1476m	*T. apoxyexinus* 1401.0m	*I. cretaceum* 1401.0m
CONIACIAN		*P. mawsonii* 1467.2-1472.3m	*C. striatoconus* 1467.2-1472.3m
TURONIAN	WAARRE FORMATION UNIT D 1476-1482m	*P. mawsonii* 1477.0-1480.2m	*P. infusorioides* 1477.0-1480.2m
	WAARRE FORMATION UNIT C 1482-1520m	*P. mawsonii* 1501.2-1505.8m	*P. infusorioides* 1501.2-1505.8m (*C. edwardsii*) 1505.8m
	WAARRE FORMATION UNITS A/B 1520-1548m	*P. mawsonii* 1520.6-1544.4m	*P. infusorioides* 1520.6-1544.4m
ALBIAN	EUMERALLA FORMATION 1548-1758m (T.D.)	*C. paradoxa* or younger 1552.7-1568.0m	NO ZONES PRESENT

* Top of Belfast Mudstone in Dunbar-1 is a fault contact.

Between 3.8 to 12.4 grams (average 8 g) of the sidewall cores were cleaned and split by the author then forwarded them to Laola Pty Ltd in Perth for processing. Moderated to high residue yields were extracted from most samples. Kerogen slides were prepared with filtered and unfiltered fractions, and where sufficient

residue was recovered separate oxidised slides were prepared from fractions concentrated from the residues using 8 and 15 micron filters. Palynomorph concentrations on the palynological slides were mostly low to moderate, while palynomorph preservation was poor to fair and only very occasionally good.

Overall spore-pollen diversity was high averaging 26+ species per sample (Table 5). Microplankton diversity was moderate averaging 13+ species per sample in the Belfast Mudstone and Unit D of the Waarre Formation between 1401-1480.2m. But diversity was low from the rest of the Waarre and underlying Eumeralla Formation where it ranged from zero to 12 species per sample with an average of less than 5 species per sample. The microplankton abundance data presented in Table 2 was obtained from counts made on slides prepared using 8 microns filter cloth.

Geological Comments

1. The short sequence analysed from Dunbar-1 spans the time interval of Late Albian to Santonian, and except for some minor modifications most samples can be readily assigned to the Mesozoic spore-pollen and microplankton zones defined by Helby, Morgan & Partridge (1987).

2. The spore-pollen succession analysed commences with two assemblages from the Eumeralla Formation which are no older than the *C. paradoxa* Zone and no younger than the *P. pannosus* Zone. These assemblages are overlain by the *P. mawsonii* Zone which includes all samples from Waarre Formation and basal Belfast Mudstone between 1544.4m and 1467.2m. As has been found in the recently analysed Iona-2, Langley-1, Howmains-1 and the nearby Vaughan-1 wells (Partridge 1994a, b, c, 1995) the Cenomanian *A. distocarinatus* Zone as redefined by Helby Morgan & Partridge (1987) is considered to be absent in Dunbar-1 at the unconformity between the Waarre and Eumeralla Formations. Above the *P. mawsonii* Zone there is a 66-metre gap to the shallowest sample analysed from the middle of the Belfast Mudstone which is assigned to the *T. apoxyexinus* Zone.

3. Marine microplankton were recorded in all but one of the twelve samples from the Waarre Formation and overlying Belfast Mudstone (Table 5). However, as observed in the nearby Vaughan-1 well, the microplankton abundances in Units A to C of the Waarre are notably less than found in either Langley-1 or Howmains-1 suggesting that Dunbar-1, like Vaughan-1, is located closer to the palaeoshoreline. The abundances and diversity of microplankton from the overlying Unit D of the Waarre and the Belfast

Mudstone are, in contrast, interpreted to represent open marine environments.

Table-2: Microplankton Abundance in Selected Samples in Dunbar-1

SAMPLE TYPE	DEPTH (Metres)	Microplankton Zone and (Subzone)	Microplankton Abundance as % Relative to total Spore-pollen and Microplankton Count	Most abundant microplankton species as % of total Microplankton Count
SWC 24	1401.0	*I. cretaceum*	11%	*Heterosphaeridium* spp. >60%.
SWC 23	1467.2	*C. striatoconus*	12%	*Amosopollis cruciformis* ~20%.
SWC 22	1472.3	*C. striatoconus*	12%	*Heterosphaeridium* spp. >50%.
SWC 20	1477.0	*P. infusorioides*	22%	*Heterosphaeridium* spp. >25%. *Cribroperidinium* spp. >25%. *Amosopollis cruciformis* >20%.
SWC 19	1480.2	*P. infusorioides*	12%	*Amosopollis cruciformis* ~40%.
SWC 15	1505.8	(*C. edwardsii*)	10%	No species dominant in low count.
SWC 14	1520.6	Indeterminate	«1%	Microplankton too rare to count.
SWC 12	1531.5	*P. infusorioides*	<3%	No species dominant in low count.
SWC 4	1544.4	*P. infusorioides*	29%	*Exochosphaeridium* sp. ~35%. *Cyclonephelium* spp. ~20%.

4. Subdivision of the Waarre Formation into the units proposed by Buffin (1989) is provisionally suggested as follows:

Waarre Unit D:	1476-1482m
Waarre Unit C:	1482-1520m
Waarre Unit B:	1520-1534m
Waarre Unit A:	1534-1548m

These picks are consistent with palynomorph ranges recorded and units picked in Langley-1 and Vaughan-1. Like in Vaughan-1, the sidewall cores at 1501.5m and 1505.8m are considered to be no younger than the sample from core 1 at 1750m in Langley-1.

5. In Dunbar-1 the Waarre Unit D is taken as the interval below the lowest occurrence of the *C. striatoconus* Zone (or younger zones if the former is missing) to the top of the first clean sand of Unit C. On the electric logs in Dunbar-1 the top is picked at 1476m at the point of increase in the resistivity and sonic logs and at what is considered the best log break above the sample at 1477m. On the gamma ray log the top could be picked slightly lower at 1478m to correspond to a decline in the gamma ray readings. On either pick Unit D is very thin being represented by only 4 to

6 metres of section in contrast to a thickness 15 metres in Langley-1 (Partridge, 1994b) and 20 metres in Iona-2. In the nearby Vaughan-1 well a thickness of 9.5 metres was assigned to Unit D based on the comparison of the distinct spike on the sonic log at 1594m, which was correlated to a similar spike at 1479m in Dunbar-1. Unfortunately, the top of Unit D in Vaughan-1 could not be confirmed by the palynology because the most likely position for the *C. striatoconus* Zone could not be sampled by sidewall cores owing to severe caving problems at the base of the Belfast Mudstone.

6. The oldest unit penetrated in Dunbar-1 is the Eumeralla Formation between 1548-1758m (T.D.). Of the three sidewall cores over this interval only the deeper two were considered suitable to process (Table 4), but the spore-pollen assemblages extracted were poor and provide only an age range from the *C. paradoxa* to the *P. pannosus* Zones.

Biostratigraphy

The zone and age determinations are based on the Australia wide Mesozoic spore-pollen and microplankton zonation schemes described by Helby, Morgan & Partridge (1987). Author citations for most spore-pollen species can be sourced from Helby, Morgan & Partridge (1987), Dettmann (1963), Stover & Partridge (1973) or other references cited herein, whilst author citations for dinoflagellates can be found in the index of Lentin & Williams (1993). Species names followed by "ms" are unpublished manuscript names.

***Tricolporites apoxyexinus* spore-pollen Zone**
and
***Isabelidinium cretaceum* microplankton Zone.**
Interval: 1401.0 metres.
Age: Santonian.

The shallowest sample analysed is assigned to this zone on the presence of the eponymous species *Tricolporites apoxyexinus* and the associated secondary index species *Latrobosporites amplus* and *L. ohaiensis*. In composition the sample is characterised by the incoming of significant angiosperm pollen comprising >19% of the spore-pollen count. The most abundant angiosperms are small varieties of *Proteacidites* spp. at 9% and *Australopollis obscurus* at 5%. The sample also contains common microplankton which are assigned to the *I. cretaceum* Zone on the presence of frequent specimens of both *Amphidiadema denticulata* and *Isabelidinium rotundatum* ms and rare specimens of *Isabelidinium thomasii* in an assemblage dominated by *Heterosphaeridium* spp.

***Phyllocladidites mawsonii* spore-pollen Zone**

(formerly the *Clavifera triplex* Zone).

Interval: 1467.2-1544.4 metres (77+ metres).

Age: Turonian-Coniacian.

The eleven samples assigned to the *P. mawsonii* Zone can be subdivided into two subzones based mainly on the range of *Hoegisporis trinalis* ms.

The lower subzone is represented by the six samples between 1505.8-1544.4m and probably should also include the sample at 1501.2m, which gave a high residue yield with unfortunately only a very low concentration of palynomorphs. The subzone is characterised by the consistent and occasionally frequent occurrence of *Hoegisporis trinalis* ms and *Appendicisporites distocarinatus* associated with rare *Stoverisporites microverrucatus*. Other species considered diagnostic of this lower subzone were either rare or not recorded in Dunbar-1. Although the eponymous species *Phyllocladidites mawsonii* was not recorded to overlap with *H. trinalis* ms this is not of concern as the occurrence of *P. mawsonii* near the base of its range is both very rare and variable. The same comments are true for the base range of *Clavifera triplex* in the Otway Basin which in this well was found as deep as 1535.9m before the deepest occurrence of *P. mawsonii* at 1477m. As this is the reverse of the situation in the other wells recently analysed it would surely be refuted if additional slides were prepared and examined.

The upper subzone is characterised by the extension of the ranges of *Rugulatisporites admirabilis* ms and *Laevigatosporites musa* ms above the last occurrence of *H. trinalis* ms and an increase in abundance of the gymnosperm pollen *Cupressacites* sp. and *Dilwynites* spp. The occurrence of the distinctive spore *Clavifera vultuosus* ms at the top of the zone in the two samples containing the dinoflagellate *Conosphaeridium striatoconus* suggests that a further subdivision of the *P. mawsonii* Zone may be possible.

Overall the *P. mawsonii* Zone assemblages are very similar those recorded in other recent wells examined (*loc. cit.*). A character which distinguishes all assemblages from the *P. mawsonii* Zone from those in the underlying Eumeralla Formation is the consistent and common occurrence of *Gleicheniidites circinidites* in nearly all samples.

***Conosphaeridium striatoconus* microplankton Zone.**
Interval: 1467.2-1472.3 metres (5+ metres).
Age: Coniacian.

Two samples are assigned to this zone on the occurrence of the eponymous species *C. striatoconus* and absence of both *Kiokansium polypes*, characteristic of the underlying *P. infusorioides* Zone, and species of *Odontochitina* and *Isabelidinium* diagnostic of the immediately younger zones. The moderate diversity assemblages recorded from the two samples are dominated by *Heterosphaeridium* spp. and *Amosopollis cruciformis* and lack other species considered diagnostic of the zone.

***Palaeohystrichophora infusorioides* microplankton Zone.**
Interval: 1477.0-1544.4 metres (67+ metres).
Age: Turonian.

The samples identified as belonging to the *P. infusorioides* Zone, like others recently analysed from the Port Campbell Embayment (Partridge, 1994a, b, c; 1995), are assigned to the zone on negative evidence. All lack the key index species of the underlying *D. multispinum* Zone, yet lie below the FAD (First Appearance Datum) for *Conosphaeridium striatoconus* which defines the next youngest zone. In Dunbar-1 the total assemblage recorded from the zone is comprised of 25+ dinoflagellate and 6+ algal or acritarch species, all of which are known to have long ranges extending into both older and younger zones. Confidence in the zone assignment is therefore dependant, firstly, on the fact that the composite assemblage from the zone can be considered to have a high diversity yet still lack older or younger index species and, secondly, because it reproduces similar results obtained the other recently analysed wells.

***Cribroperidinium edwardsii* Subzone.**
Interval: 1505.8.0 metres
Age: Turonian.

The *Cribroperidinium edwardsii* Subzone was originally recognised and defined with the concept of an acme zone in the Iona-2 and Langley-1 wells (Partridge 1994a, b). However, in Dunbar-1 the zone is not clearly identified. Although *C. edwardsii* occurs as the most prominent *Cribroperidinium* species at 1505.8m, it is not the dominant or even the most conspicuous species in the sample. Nevertheless, this sample is the best candidate for the zone. Other occurrences include only a tentative identification of *C. edwardsii* at 1531.5m and its presence as rare specimens amongst a similar but non-verrucate *Cribroperidinium*

species at 1477m. This latter sample is not typical of concept the *C. edwardsii* acme in Iona-2 and Langley-1 as it contains abundances of both *Heterosphaeridium* spp. and *Amosopollis cruciformis*, which in other wells occur above the *C. edwardsii* acme. Similar difficulties with identification of the subzone were reported from the nearby Vaughan-1 (Partridge, 1995). It would appear the difficulty with identifying the subzone is related to the overall reduction in abundance of microplankton through the lower part of the Waarre Formation in these two wells.

***Coptospora paradoxa* spore-pollen Zone or younger.**
Interval: 1552.7?-1568.0 metres.
Age: Late Albian.

The two samples analysed from the Eumeralla Formation are no older than the *C. paradoxa* Zone on presence of the eponymous species in the deeper sample, but could just as easily belong to the younger *P. pannosus* Zone as both assemblages are poor. The lithological character supports the assignment along with the frequent occurrence of *Corallina torosa* in the shallower sample, as this is a typical character of Eumeralla assemblages analysed from the *P. pannosus* Zone.

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Table-3: Interpretative Palynological Data for Dunbar-1, Otway Basin.

Sample	Depth Metres	Spore-Pollen Zone	*CR	Microplankton Zones and (Subzone)	*CR	Comments and Key Species
SWC 24	1401.0	*T. apoxyexinus*	B4	*I. cretaceum*	B3	FADs for *Isabelidinium rotundatum* ms and *Amphidiadema denticulata*.
SWC 23	1467.2	*P. mawsonii*	B2	*C. striatoconus*	B3	LAD of *C. striatoconus* with *Clavifera vultuosus* ms
SWC 22	1472.3	*P. mawsonii*	B2	*C. striatoconus*	B2	FADs for *Conosphaeridium striatoconus* & *C. vultuosus* ms.
SWC 20	1477.0	*P. mawsonii*	B4	*P. infusorioides*	B3	LADs of *Kiokansium polypes* and *Rugulatisporites admirabilis* ms. Assemblage contains common *Cribroperidinium* sp.
SWC 19	1480.2	*P. mawsonii*	B2	*P. infusorioides*	B4	LAD of *Laevigatisporites musa* ms.
SWC 16	1501.2	*P. mawsonii*	B4			LAD of *Appendicisporites distocarinatus* in sample with low fossil concentration.
SWC 15	1505.8	*P. mawsonii (H. trinalis)*	B2	*P. infusorioides (C. edwardsii)*	B3	LAD of *Hoegisporis trinalis* ms
SWC 14	1520.6	*P. mawsonii (H. trinalis)*	B3			Similar to overlying sample, but lacking key microplankton.
SWC 12	1531.5	*P. mawsonii (H. trinalis)*	B2	*P. infusorioides*	B4	*Cribroperidinium edwardsii* possibly present.
SWC 9	1535.9	*P. mawsonii (H. trinalis)*	B3			Very low yield with *H. trinalis* present.
SWC 8	1538.3	*P. mawsonii*	B5			Low yield sample lacking key index species.
SWC 4	1544.4	*P. mawsonii (H. trinalis)*	B2	*P. infusorioides*	B2	Typical basal Waarre microplankton assemblage. FAD *H. trinalis* ms and *R. admirabilis* ms.
SWC 2	1552.7	Indeterminate				Frequent *Corallina torosa* and marked jump in maturation suggests sample is from Eumeralla Formation
SWC 1	1568.0	*C. paradoxa* or younger.				*Coptospora paradoxa* frequent without younger index species.

*CR = Confidence Ratings
LAD = Last Appearance Datum
FAD = First Appearance Datum

Confidence Ratings

The Confidence Ratings assigned to the zone identifications on Table-4 are quality codes used in the STRATDAT relational database being developed by the Australian Geological Survey Organisation (AGSO) as a National Database for interpretive biostratigraphic data. Their purpose is to provide a simple relative comparison of the quality of the zone assignments. The alpha and numeric components of the codes have been assigned the following meanings:

Alpha codes: Linked to sample type

- **A** Core
- **B** Sidewall core
- **C** Coal cuttings
- **D** Ditch cuttings
- **E** Junk basket
- **F** Miscellaneous/unknown
- **G** Outcrop

Numeric codes: Linked to fossil assemblage

1	**Excellent confidence:**	High diversity assemblage recorded with key zone species.
2	**Good confidence:**	Moderately diverse assemblage recorded with key zone species.
3	**Fair confidence:**	Low diversity assemblage recorded with key zone species.
4	**Poor confidence:**	Moderate to high diversity assemblage recorded without key zone species.
5	**Very low confidence:**	Low diversity assemblage recorded without key zone species.

BASIC DATA

Table 4: Basic Sample Data - Dunbar-1, Otway Basin.

SAMPLE TYPE	DEPTH (Metres)	REC (cm)	LITHOLOGY	SAMPLE WT (g)	RESIDUE YIELD
SWC 24	1401.0	4.1	Dark brown-grey mainly homogeneous claystone. Well cleaned	11.1	High
SWC 23	1467.2	4.0	Dark brown homogeneous claystone. No obvious glauconite. Well cleaned	10.2	High
SWC 22	1472.3	4.2	Dark brown grey homogeneous claystone. No obvious glauconite. Well cleaned	11.8	High
SWC 20	1477.0	3.4	Dark brown grey claystone, trace glauconite and pyrite, very fine. Small shark tooth observed on broken surface. Well cleaned.	12.4	Moderate
SWC 19	1480.2	2.3	Medium grey to brown pyritic claystone. Pyrite nodule 7mm diam. and shelly fossil fragments present. Well cleaned.	6.9	Moderate
SWC 16	1501.3	3.4	Light grey very coarse sandstone with 2mm thick carbonaceous laminae. Moderately well cleaned.	7.6	High
SWC 15	1505.8	2.3	Medium grey claystone. Sample soft, mud penetrated. Poorly cleaned.	7.1	High
SWC 14	1520.6	3.0	Dark grey claystone with minor <2mm white sandstone laminae. Moderately well cleaned, some mud penetration.	8.4	High
SWC 12	1531.5	<2.0	Medium brown soft claystone badly mud contaminated. Not cleaned.	5.4	High
SWC 9	1535.9	3.0	Light brown grey fine grained sandstone with argillaceous matrix and lithic grains. Sample very soft but well cleaned.	7.6	Low
SWC 8	1538.3	2.6	Light brown grey very fine sandstone. Similar to SWC 9. Sample soft but well cleaned.	7.0	Low
SWC 4	1544.4	2.5	Dark brown grey homogeneous claystone with 3mm laminae of medium grey sandstone. Well cleaned.	8.4	Moderate
SWC 3	1548.2	3.0	Light grey fine grained sandstone with white argillaceous matrix. Not processed.		
SWC 2	1552.7	2.0	Medium grey fine grained sandstone with argillaceous matrix with irregular clasts of medium grey claystone. Moderately well cleaned.	3.8	Low
SWC 1	1568.0	<1.5	Medium grey brown subfissil claystone. Mud penetrated. Poorly cleaned.	4.3	High

Table-5: Basic Palynomorph Data for Dunbar-1, Otway Basin.

SAMPLE TYPE	DEPTH (Metres)	Palynomorph Concentration	Palynomorph Preservation	Number S-P Species*	Microplankton Abundance	Number MP Species*
SWC 24	1401.0	Moderate	Fair	32+	Common	11+
SWC 23	1467.2	Moderate	Fair	33+	Common	9+
SWC 22	1472.3	Moderate	Poor-fair	40+	Common	16+
SWC 20	1477.0	Moderate	Fair	34+	Abundant	20+
SWC 19	1480.2	Low	Poor-fair	29+	Common	11+
SWC 16	1501.3	Very low	Fair	11+	NR	
SWC 15	1505.8	Low	Fair	31+	Common	10+
SWC 14	1520.6	Moderate	Fair-good	34+	Very rare	2+
SWC 12	1531.5	Moderate	Fair-good	32+	Frequent	6+
SWC 9	1535.9	Low	Poor-good	16+	Very rare	1+
SWC 8	1538.3	Low	Poor	19+	Very rare	1+
SWC 4	1544.4	High	Poor	31+	Abundant	12+
SWC 2	1552.7	Low	Very poor	11+	NR	
SWC 1	1568.0	Moderate	Very poor	15+	Frequent	2+

***Diversity:**

Very low	=	1-5 species
Low	=	6-10 species
Moderate	=	11-25 species
High	=	26-74 species
Very high	=	75+ species
NR	=	Not recorded in sample

PE900752

This is an enclosure indicator page.
The enclosure PE900752 is enclosed within the container PE900923 at this location in this document.

The enclosure PE900752 has the following characteristics:

ITEM_BARCODE	= PE900752
CONTAINER_BARCODE	= PE900923
NAME	= Palynomorph Range Chart
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= DIAGRAM
DESCRIPTION	= Palynomorph Range Chart, Relative Abundance by Lowest Appearance, (enclosure from Well Completion Report) for Dunbar-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	=
CLIENT_OP_CO	= GFE Resources

(Inserted by DNRE - Vic Govt Mines Dept)

ENCLOSURES

PE600732

This is an enclosure indicator page.
The enclosure PE600732 is enclosed within the container PE900923 at this location in this document.

The enclosure PE600732 has the following characteristics:

ITEM_BARCODE	= PE600732
CONTAINER_BARCODE	= PE900923
NAME	= Composite Well log
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= COMPOSITE_LOG
DESCRIPTION	= Composite Well log (enclosure from WCR) for Dunbar-1
REMARKS	=
DATE_CREATED	= 1/04/95
DATE_RECEIVED	=
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	= GFE Resources
CLIENT_OP_CO	=

(Inserted by DNRE - Vic Govt Mines Dept)

PE604390

This is an enclosure indicator page.
The enclosure PE604390 is enclosed within the container PE900923 at this location in this document.

The enclosure PE604390 has the following characteristics:

ITEM_BARCODE	= PE604390
CONTAINER_BARCODE	= PE900923
NAME	= Formation Evaluation Log
BASIN	= OTWAY BASIN
PERMIT	= PP/L1
TYPE	= WELL
SUBTYPE	= MUD_LOG
DESCRIPTION	= Formation Evaluation Log (enclosure 2 from WCR) for Dunbar-1
REMARKS	=
DATE_CREATED	= 26/03/95
DATE_RECEIVED	=
W_NO	= W1119
WELL_NAME	= DUNBAR-1
CONTRACTOR	= BAKER HUGHS INTEQ
CLIENT_OP_CO	= GFE RESOURCES LTD

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PE600734

This is an enclosure indicator page.
The enclosure PE600734 is enclosed within the container PE900923 at this location in this document.

The enclosure PE600734 has the following characteristics:

ITEM_BARCODE	= PE600734
CONTAINER_BARCODE	= PE900923
NAME	= Gas Ratio Analysis Log
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Gas Ratio Analysis Log (enclosure from WCR) for Dunbar-1
REMARKS	=
DATE_CREATED	=
DATE_RECEIVED	=
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	= Baker Hughes Inteq
CLIENT_OP_CO	= GFE Resources

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PE600735

This is an enclosure indicator page.
The enclosure PE600735 is enclosed within the container PE900923 at this location in this document.

The enclosure PE600735 has the following characteristics:

ITEM_BARCODE	= PE600735
CONTAINER_BARCODE	= PE900923
NAME	= Complex Lithology Model
BASIN	= OTWAY
PERMIT	= PPL/1
TYPE	= WELL
SUBTYPE	= WELL_LOG
DESCRIPTION	= Complex Lithology Model (enclosure from WCR) for Dunbar-1
REMARKS	=
DATE_CREATED	= 18/01/96
DATE_RECEIVED	=
W_NO	= W1119
WELL_NAME	= Dunbar-1
CONTRACTOR	= GFE Resources
CLIENT_OP_CO	= GFE Resources

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