AUTHORITY TO DRILL A WELL

CANADA

Exploratory ☒
Development ☐

Delineation ☐
Service ☐

AUTHORITY TO DRILL A WELL

APPLICATION

This application is submitted with Section 82 of the Canada Oil and Gas Drilling Regulations. When approved under Section 83 of the Regulations, it is the requisite authority for the commencement of drilling operations.

Well Name in Full: Paramount et al Arrowhead 015 60° 30' 123° 00'

Operator: Paramount Resources Ltd. Drilling Program No.:

Contractor: Precision Drilling Permit or Lease No.: EL~~369~~ 333

Drilling Rig or Unit: 622 Estimated Well Cost: $3,500,000

Location-Unit: 0 Section: 15 Grid Area: 60° 30' 123° 00'

Coordinates: Lat.: 60° 24' 53.694" Long.: 123° 02' 31.174"

Area: Ft. Liard NWT Field/Pool: N/A

Elevation-RT/KB: Approx. 387 m (ASL) Seafloor: (BRT)

Approx. Spud Date: January 20, 1998 Estimated Days on Location: 64

Anticipated Total Depth: 3000 m Target Horizon(s) Tetcho and Nahanni

EVALUATION PROGRAM

Ten-metre sample intervals N/A

Five-metre sample intervals As specified from under surface casing to total depth

Canned sample intervals N/A

Conventional cores at N/A

Logs and Tests GR-DSI-CAL
LDT-CNL-NGT-MLT-EDAC-DLT-MSFL-EMS
Zone of interest being drilled underbalanced.

CASING AND CEMENTING PROGRAM

Setting Depth

O.D.	Weight:	Grade:	Below Seafloor:	Cementing Program (Volumes):
339	81.1	K55	500	60T 'G' + 1% $CaCl_2$
244.5	64.74	L80	2000	150 m inside sfc
177.8	38.69	L80	2695	150 m inside sfc

B.O.P. Equipment: 35 mPa Class IV stack and manifold with one (1) annular preventer and three (3) gates - 1 double and 1 single and double choke to kill.

Other Information:

Signed: A. Marskant Title: Drilling and Completions Consultant

Date: November 7, 1997 Company: Paramount Resources Ltd.

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Signed: Jerry Baker
Engineering Branch

Date: Dec 22/97

File: 9211-P33-9-2, WID 1834
UWI 3000156030123000

Canada

WELL TERMINATION RECORD (with attachment)

CANADA

WELL TERMINATION RECORD

This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

WELL DATA

Well Name: Paramount et al Arrowhead O-15 Area: Fort Liard

Grid Area: 60° 30', 123° 00' Field/Pool: N/A

Permit or Lease No.: EL~~369~~ 383 Final Coordinates: Lat.: 60° 24' 53.694" Long: 123° 02' 31.174"

Drilling Unit: Precision 622 Elevations-RT/KB: 387 m SF/GL: 380 m

Spud Date: February 14, 1998 Rig Released: March 24, 1998 Total Depth: 1455 mKB

CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
339.7	81.1	K-55	499.9	58 T
244.5	64.74	L-80	1196	50 T

PLUGGING PROGRAM

Approval of the following program was obtained by (person) Harvey Parcels from (person) Ed Reyven by means of verbal on March 22 1998.

Type of Plug:	Interval:	Felt:	Cement and Additives:
SUSPENSION	1455 - 1255	YES	4 T THERMAL
SUSPENSION	1196 - 996		3.5 T THERMAL
BRIDGE PLUG	903	PRESSURE TESTED TO 20 000 kPa.	

Lost Circulation/Overpressure Zones: N/A

Equipment left on Seafloor (Describe): Wellhead

Provision for Re-entry (Describe and attach sketch): Complete drilling program in 1998 / 1999.

Cores: Type: N/A Intervals:

Other Downhole Completion/Suspension Equipment: Bridge Plug at 903 m.

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: S Maaskant CET ~~P. Eng.~~ Title: Drilling and Completions Consultant

Name: Shirley Maaskant Date: May 6, 1998

Acknowledged by: [signature] Engineering Branch

Date: June 30/98

File: 9211-P33-9-2, WID 1834

UWI 3000156030123000

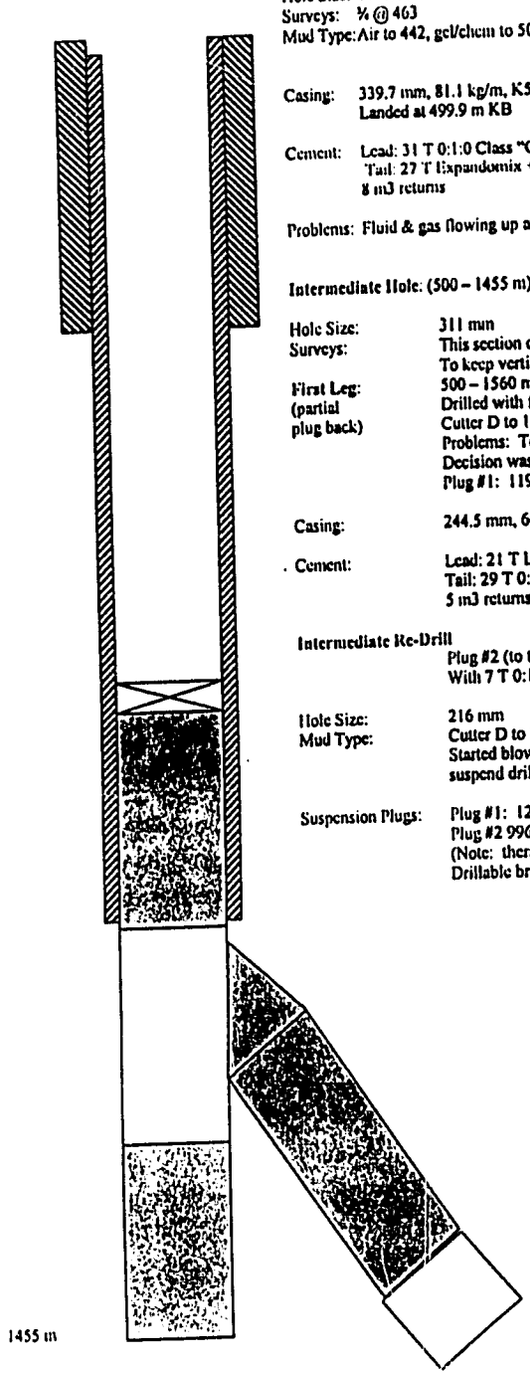
Well Status
Suspended ☒
Completed ☐
Abandoned ☐

Canada

Well Schematic/As Is / April, 1998
Paramount Berkley Arrowhead O15

Well Name:	Paramount Berkley Arrowhead O15	**Surface Coordinates:**	
Latitude:	60 ° 24' 53,694"	**Downhole Coordinates:**	
Longitude:	123 ° 02' 31.174"	**AFE NO.:**	13577
Vertical Test Total Depth:	1930m	**Plug Back Depth:**	903 m
Well Type:	Exploration	**D&C Cost Estimate:**	
Primary Target:	Nahanni	**D&A Cost Estimate:**	
Tight Hole Status:	YES	**Date:**	April 28, 1998

All depths are in mKB unless otherwise specified



Surface Hole: (surface – 500)
Hole Size: 444 mm
Surveys: ¼ @ 463
Mud Type: Air to 442, gel/chem to 500

Casing: 339.7 mm, 81.1 kg/m, K55
Landed at 499.9 m KB

Cement: Lead: 31 T 0:1:0 Class "G" + 1% $CaCl_2$
Tail: 27 T Expandomix + 2% $CaCl_2$
8 m3 returns

Problems: Fluid & gas flowing up around conductor, had to mud up

Intermediate Hole: (500 – 1455 m)

Hole Size: 311 mm
Surveys: This section originally kicked out to 15° so was plugged back and re-drilled To keep vertical

First Leg: (partial plug back) 500 – 1560 m KB
Drilled with foam and air hammer to 867 m, well watered out. Drill with Cutter D to 1560 m MD.
Problems: Totco surveys indicated 7°, directional survey read 15°,
Decision was made to plug back and redrill
Plug #1: 1195 – 1350 m w/ 16 T 0:1:0 High Density G + 1% CFR + 1% LTR

Casing: 244.5 mm, 64.74 kg/m, L80 landed at 1196 m

Cement: Lead: 21 T LW14 + 2% CaCl2 + 2% LWA + 2% SMS
Tail: 29 T 0:1:0 G + 0.4% CFL3 + 1% CFLH + 2% SPC 2
5 m3 returns

Intermediate Re-Drill
Plug #2 (to top up plug #1 that did not set properly (1100 – 1250 m)
With 7 T 0:1:0 high density G + 1% CFR + 0.6% LTR

Hole Size: 216 mm
Mud Type: Cutter D to 1455 m (to get away from old wellbore
Started blowing well dry to drill with air (road bans were put on and had to suspend drilling)

Suspension Plugs: Plug #1: 1255 – 1455 m with 4 T thermal
Plug #2 996 – 1196 m with 3.5 T thermal
(Note: thermal blend was used because it was already mixed and in the area)
Drillable bridge plug set at 903 m

APPROVAL TO ALTER CONDITION OF A WELL

National Energy Board | Office national de l'énergie

APPROVAL TO ALTER CONDITION OF A WELL

This application is to be submitted to the Chief Conservation Officer at least 45 days before commencement of operations.

Well Name: Paramount Berkley Arrowhead O-15 Area: Fort Liard

Operator: Paramount Resources Ltd. Contractor: Precision Drilling

Drilling Rig or Unit: 507 Depth: 1455 m

Coordinates: Lat: 60° 24' 53.694" Long: 123° 02' 31.174"

Date ADW Issued: December 22, 1997 Date of last Operation: March 24, 1998

Elevation KB/RT: 387 m (ASL) GL Seafloor: 380.5m

TYPE OF OPERATION

Finish drilling well

SUMMARY OF PROPOSED OPERATIONS

Drill out intermediate set al 1196 m KB, perform leak off test
Drill ahead with Invert to top of Slave Point

Run 177.8 mm casing 0 - 2681 m KB

Rig in closed system and continue drilling with Invert to TD

Run 114.3 mm liner

Signed: P Christie
Responsible Officer

Title: Drilling Manager

Name: Phil Christie

Company: Paramount Resources Ltd.

Date: December 7, 1998

Phone: (403) 290-3617

APPROVAL

An approved copy of this notice is to be posted at each wellsite.

Date: Dec. 11/98

Signed: for Chief Conservation Officer

File: 9211-P33-9-2RE

WID: 1834, UWI 300015603012301

Well Status

Suspended ☒

Completed ☐

Abandoned ☐

WELL TERMINATION RECORD (with attachment)

CANADA

WELL TERMINATION RECORD

This record is submitted in triplicate in compliance with Section 184 of the Canada Oil and Gas Drilling Regulations.

Re- Entry **WELL DATA**

Well Name: Paramount Berkley Arrowhead O-15 Area: Fort Liard

Grid Area: 60° 30' 123° 00' Field/Pool: N/A

Permit or Lease No.: EL383 Final Coordinates: Lat. 60° 24' 53.694" Long: 123° 02' 31.174"

Drilling Unit: Precision 507 Elevations-RT/KB: 386.7 SF/GL: 380.5

Date: January 19, 1999 Rig Released: March 06, 1999 Total Depth: 3301

CASING AND CEMENTING

O.D.:	Weight:	Grade:	Depth Set:	Cement and Additives:
339.7	81.1	K-55	500	58 Tonnes
244.5	64.74	L-80	1186	50 Tonnes
177.8	38.69	L-80	2805	24.6 Tonnes 1:1:2G+.5%T10
				17 TonnesThermal 40F+.5%T10 +.3%D24

PLUGGING PROGRAM

Approval of the following program was obtained by (person) Willbart Callihoo from (person) unknown by means of ..... on ..... 19 .

Type of Plug:	Interval:	Feit:	Cement and Additives:
Cement	3301-3135	3191	3.9m³ Thermal 40
Cement	3005-2820	2780	3.49m³ Thermal 40
Bridge Plug	2306	2306	8m Cement on BP

Lost Circulation/Overpressure Zones: none

Equipment left on Seafloor (Describe): N/A

Provision for Re-entry (Describe and attach sketch): Well Suspended for Completion

Cores: Type: none Intervals:

Other Downhole Completion/Suspension Equipment:

CERTIFICATION

I certify on the basis of personal knowledge of operations undertaken at the above named well that the above information is accurate.

Signed: ..... P. Eng. Title: Sr. Drilling & Completions Engineer

Name: Wayne R. Tomm Date: September 20, 2000

Acknowledged by: ..... Engineering Branch

Date: Oct. 13/00

File: 9211-P33-9-2

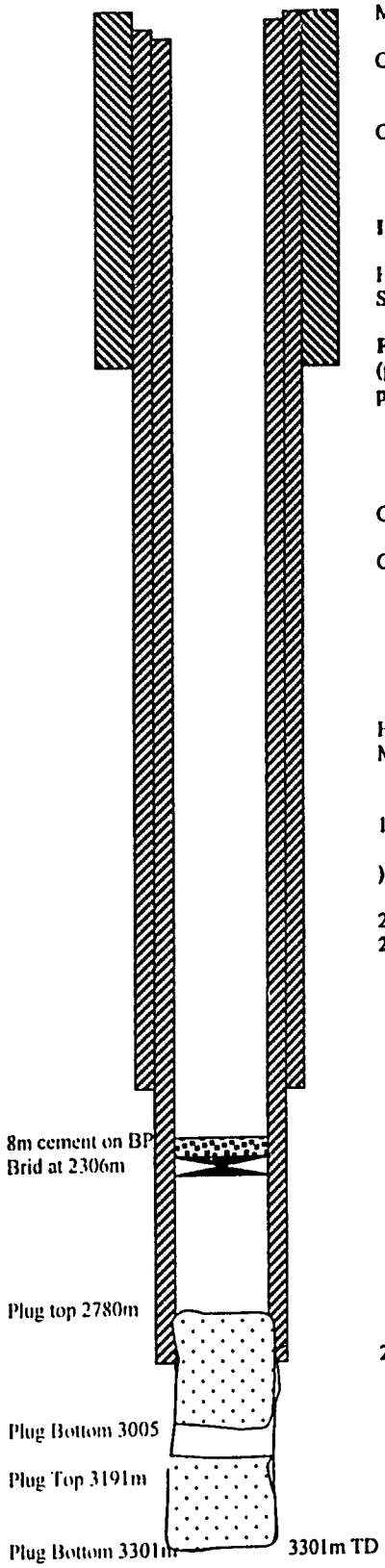
WID: 1834

UWI: 3000156030123001

Well Status
Suspended ☒
Completed ☐
Abandoned ☐

Canada

Well Schematic
Paramount Berkley Arrowhead O15
As Drilled March 06, 1999



Surface Hole: (surface – 500)
Hole Size: 444 mm
Surveys: ¾ @ 463
Mud Type: Air to 442, gel/chem to 500

Casing: 339.7 mm, 81.1 kg/m, K55
Landed at 499.9 m KB

Cement: Lead: 31 T 0:1:0 Class "G" + 1% $CaCl_2$
Tail: 27 T Expandomix + 2% $CaCl_2$
8 m3 returns

Intermediate Hole: (500 – 1455 m)

Hole Size: 311 mm
Surveys: This section originally kicked out to 15° so was plugged back and re-drilled To keep vertical

First Leg: (partial plug back) 500 – 1560 m KB
Drilled with foam and air hammer to 867 m, well watered out. Drill with Cutter D to 1560 m MD.
Problems: Totco surveys indicated 7°, directional survey read 15°, Decision was made to plug back and redrill
Plug #1: 1195 – 1350 m w/ 16 T 0:1:0 High Density G + 1% CFR + 1% LTR

Casing: 244.5 mm, 64.74 kg/m, L80 landed at 1196 m

Cement: Lead: 21 T LW14 + 2% CaCl2 + 2% LWA + 2% SMS
Tail: 29 T 0:1:0 G + 0.4% CFL3 + 1% CFLH + 2% SPC 2
5 m3 returns

Hole Size: 216 mm
Mud Type: Invert

1196m

)

2nd Intermediate Re-Entry (spud January 19, 1999)
2nd Intermediate hole :drill 216 mm 1196 m to 2805 m KB
Casing: 177.8 mm, 38.69 kg/m IL-80 - 0 - 2681 m KB
Cement: 24.6 Tonnes 1:1:2 G fill plus 17 Tonnes Thermal 40 tail

Main hole: drill 156 mm hole 2805 - 3301 m KB
Mud: Invert
Open Hole

FINAL WELL REPORT

1834

FINAL WELL REPORT
PARAMOUNT ARROWHEAD BERKLEY
O-15

60^0 30' 123^0 00'

1998/1999

N.E.B. COPY

Paramount Resources Ltd.

FINAL WELL REPORT

PARAMOUNT BERKLEY ARROWHEAD O-15

60^0 30' 123^0 00'

Latitude 60^0 24' 53.694" Longitude 123^0 02' 31.174"

NATIONAL ENERGY BOARD
ENGINEERING BRANCH
OCT 2 4 2000

Prepared By: Wayne Tomm
Date: September 26, 2000

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1. INTRODUCTION

Summary

Surface Hole:
The well was spud February 14, 1998 with 445.0mm surface hole drilled to a total depth of 500m. 339mm K-55 casing was run and cemented with 31 tonnes of 0:1:0 "G" andv27 Tonnes of Expandomix

1st Intermediate Hole:
311mm hole was drilled to 1560m. Deviation walked out to 15^0 and well was plugged back to 1195m and 244.5mm x 64.74kg/m L-80 casing run to a depth of 1186m. Casing was cemented with 21 tonnes LW14 and 29 Tonnes 0:1:0 "G".

2nd Intermediate Hole:
216mm hole was drilled to 1455m using a mud motor to combat deviation. Due to time constraints associated with spring break-up, the well was plugged back as follows: (to be finish drilled next winter)

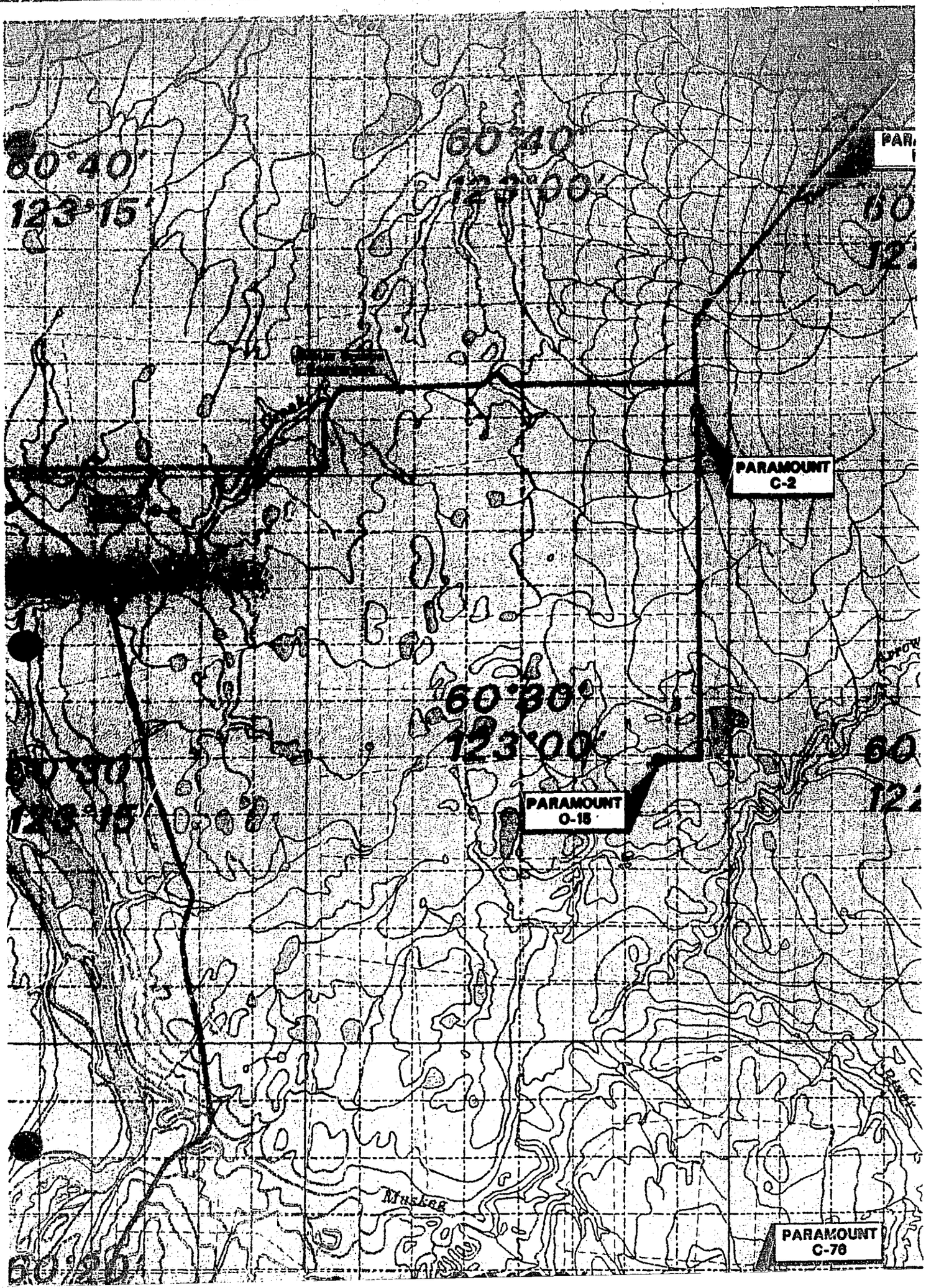
Plug #1: 1255-1455m , 4 tonnes Thermal 40
Plug #2: 996-1196m , 3.5 tonnes Thermal 40
Drillable Bridge Plug set at 903m

Rig released March 24, 1998.
Precision Rig #507 was moved in and Spud January 19, 1999 to finish drilling well.
216 hole was drilled to 2805m and 177.8mm x 38.69kg/m, L-80 casing run and cemented with 24.6 tonnes 1:1:2 fill cement and 17 tonnes Thermal 40.

Main Hole:
156mm hloe was drilled to a depth of 3301m. The well eas logged and three DST's were run.
The well was suspended with the following plugs:

Plug #1: 3301-3191m , $3.9m^3$ Thermal 40
Plug #2: 3005-2820m , $3.49m^3$ Thermal 40
Drillable Bridge Plug set at 2306m topped with 8m cement.

Location Map (Following Page)


60°40'
123°15'
60°40'
123°00'
PARAMOUNT
C-2
60°30'
123°00'
PARAMOUNT
O-15
PARAMOUNT
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2. GENERAL DATA

WELL NAME:	Paramount Berkley Arrowhead O-15
EXPLORATION AGREEMENT:	EL 383
DRILLING AUTHORITY:	1834 Issued December 22, 1997
GRID AREA:	60^0 30' 123^0 00'
CO-ORDINATES:	Latitude 60^0 24' 53.694" Longitude 123^0 02' 31.174"
UNIQUE WELL IDENTIFIER:	300O156030123000
LESSOR:	Paramount Resources Ltd.
OPERATOR:	Paramount Resources Ltd. 4000, 350 – 7 Ave. S.W. Calgary, Alberta T2P 3W5
DRILLING CONTRACTOR:	Precision Drilling Limited 1000, 112 - 4 Ave. S.W. Calgary, Alberta
DRILLING RIG:	Precision 622 Feb 15 - March 24, 1998 Precision 507 Jan. 18 - Mar 6, 1999
POSITION KEEPING:	N/A
SUPPORT CRAFT:	N/A
DRILLING UNIT PERFORMANCE	N/A
DIFFICULTIES & DELAYS:	N/A

3. SUMMARY OF DRILLING OPERATIONS

ELEVATIONS: G.L.: 387 m
K.B.: 380 m

TOTAL DEPTH: Drilled: 3301 m
Logged: 3299 m
Plug Back: 2298 m

NOTE: This well was spudded and drilled to 1455 m, then plugged back and suspended due to break-up. A different rig moved in the following season and finished drilling the well to total depth.

SPUD DATE: February 15, 1998 - 2215 hrs

SUSPEND DRILLING DATE: March 24, 1998 (first rig released)

RESUME DRILLING DATE: January 18, 1998 (second spud date)

COMPLETED DRILLING DATE: February 25, 1999

RIG RELEASE: March 6, 1999 - 2359 hrs

WELL STATUS: Suspended

HOLE SIZES: Also See Attached Bit Record

	HOLE SIZE mm	CSG SIZE mm	WT Kg/m	GRADE	LANDED M
Surface	444	339.7	81.1	K 55, ST&C	499.9
Intermediate	311	244.5	64.74	L80, LT&C	1196
2nd Intermediate	216	177	38.69	L80, LT&C	2805
		177	34.2	L80, LT&C	1426.85
		177	38.69	L80, LT&C	1399.77
Main Hole	156	Open Hole			3301

CASING & CEMENTING: See Casing & Cementing Reports, and Wellhead diagram on following pages

SIDETRACKED HOLE: While drilling first intermediate hole, the well kicked out to 15 ^{0} at a depth of 1560 m MD. The well was cemented back to 1195 m MD and casing run in the vertical well to 1186 m MD. Drilling continued on the vertical wellbore.

DRILLING FLUID: See Attached Drilling Fluid Summary

Surface Hole: Air to 442 m, Gel Chemical to 500 m

1st Intermediate:
Foam and air hammer to 867 m KB, Cutter D to 1455 m

2nd Intermediate:
Calcium Chloride Invert

Main Hole: Nitrified Calcium Chloride Invert to 2936 m KB, then stopped nitrogen

FISHING: When running suspension plugs in main hole, drill pipe had to be backed off because it was stuck in the cement

WELL KICKS: N/A
(Note: A short section at the start of the main hole was drilled underbalanced.)

LEAK-OFF TESTS: Gradient at 509 m 17.04 kPa/m, no breakdown

TIME DISTRIBUTION: See Daily Well Reports

DEVIATION SURVEY: See Attached within this Section

SUSPENSION PLUGS PLUGS: A.Suspension Plugs: (Suspended well Mar.24, 1998 to be finished drilling in 1999)
-Plug #1: 1455-1255 m KB
Cemented with 4 tonnes Thermo/40F + 0.4% R6 + 3% D24 + 0.5% T10
-Plug #2: 1196-996 m KB
Cemented with 3.5 tonnes Thermo/40F + 0.4% R6 + 3% D24 + 0.5% T10
-Bridge Plug set at 903m and pressure tested to 20,000 kPa.

B. Suspension Plugs: (Suspended well Mar.16, 1999 finished drilling in 1999)

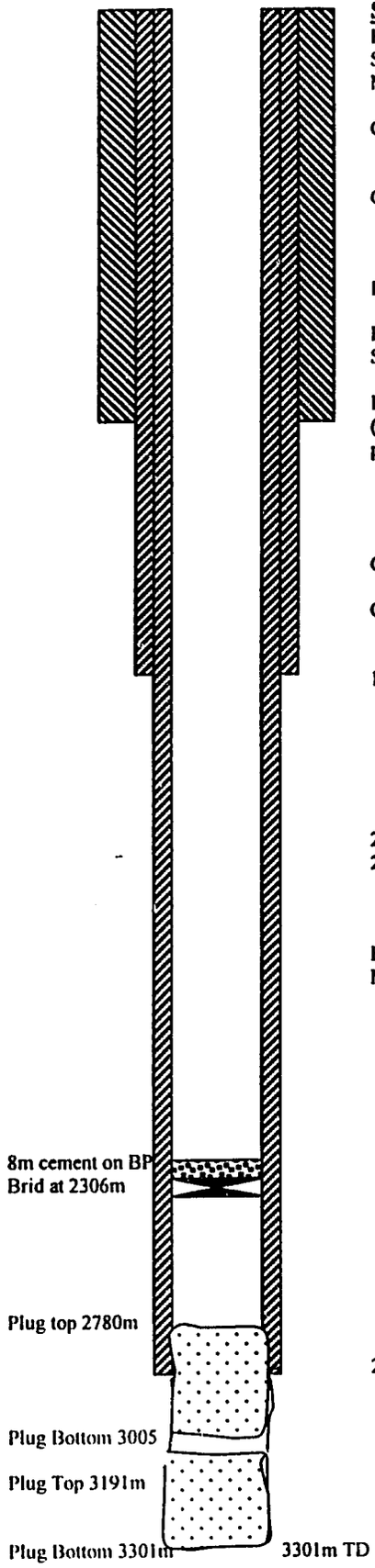
-Plug #1: 3301-3135m, 3.9m^3 Thermal 40 Felt at 3191mKB

-Plug #2: 3005-2820m, 3.49m^3 Thermal 40 Felt at 2780mKB

-Bridge Plug set at 2306m, 8m cement on top of BP

COMPOSITE WELL RECORD: See attached in the pouch at the end of this section

Well Schematic
Paramount Berkley Arrowhead O15
As Drilled March 06, 1999



Surface Hole: (surface – 500)
Hole Size: 444 mm
Surveys: ¾ @ 463
Mud Type: Air to 442, gel/chem to 500

Casing: 339.7 mm, 81.1 kg/m, K55
Landed at 499.9 m KB

Cement: Lead: 31 T 0:1:0 Class "G" + 1% $CaCl_2$
Tail: 27 T Expandomix + 2% $CaCl_2$
8 m3 returns

Intermediate Hole: (500 – 1455 m)

Hole Size: 311 mm
Surveys: This section originally kicked out to 15° so was plugged back and re-drilled To keep vertical
First Leg: (partial plug back) 500 – 1560 m KB
Drilled with foam and air hammer to 867 m, well watered out. Drill with Cutter D to 1560 m MD.
Problems: Totco surveys indicated 7°, directional survey read 15°, Decision was made to plug back and redrill
Plug #1: 1195 – 1350 m w/ 16 T 0:1:0 High Density G + 1% CFR + 1% LTR

Casing: 244.5 mm, 64.74 kg/m, L80 landed at 1196 m

Cement: Lead: 21 T LW14 + 2% CaCl2 + 2% LWA + 2% SMS
Tail: 29 T 0:1:0 G + 0.4% CFL3 + 1% CFLH + 2% SPC 2
5 m3 returns

1196m

2nd Intermediate Re-Entry (spud January 19, 1999)
2nd Intermediate hole :drill 216 mm 1196 m to 2805 m KB
Casing: 177.8 mm, 38.69 kg/m IL-80 - 0 - 2805 m KB
Cement: 24.6 Tonnes 1:1:2 G fill plus 17 Tonnes Thermal 40 tail

Hole Size: 216 mm
Mud Type: Invert

Main hole: drill 156 mm hole 2805 - 3301 m KB
Mud: Invert
Open Hole

PARAMOUNT RESOURCES LTD.

WELL SUMMARY

DATE March-8-1999

WELL NAME Paramount Berkley Arrowhead LOCATION 0-15-60-30-123-02

ELEVATIONS: KB 6.84 m GL 380.5 m CF 6.60 m

HISTORY: Spud Date 99-01-12 RR Date 99-03-06 TD 3301 m PBTD 2306 m Bridge Plug + 8m Cmt

STATUS: Abandoned Producing zone(s) ✓

A. DRILLING DETAILS

Hole Size	444.5	mm Depth	500	m	Logs	STT-SPED-CNL-BHC-SONIC	
Hole Size	311.2	mm Depth	1557	m	Logs	Platform Express-DIL-CD-CN-ML-SONIC	
Hole Size	216.0	mm Depth	2805	m	Logs		
Hole Size	156	mm Depth	3301	m	Logs	HDIP-GR, 2DL-CN-GR-XY + HDIL-GR, MAC-GR-XY	
Csg Size	339.7	mm Grade	K-55	Depth	500	m Cmt Vol.	
Csg Size	244.5	mm Grade	L-80	Depth	1186	m Cmt Vol.	29T-0:1:0G-21.95m³
Csg Size	177.8	mm Grade	L-80	Depth	2805	m Cmt Vol.	
Csg Size		mm Grade		Depth		m Cmt Vol.	

DST No.	1	Interval	3245-3270	m	Zone	Landry	
DST No.	2	Interval	3251-3270	m	Zone	Landry	
DST No.	3	Interval	3033-3044	m	Zone	Horn River	
DST No.		Interval		m	Zone		
DST No.		Interval		m	Zone		
Core No.		Interval		m	Zone		Rec.
Core No.		Interval		m	Zone		Rec.
Core No.		Interval		m	Zone		Rec.

Plug No.	1	Interval	3301-3135	m	Cmt Vol	3.9m³ Thermal 40 (.3%R6-.5%T10)	Felt 3191
Plug No.	2	Interval	3005-2820	m	Cmt Vol	3.49m³ Thermal 40 (.3%R6+.5%T10)	Felt 2780
Plug No.	3	Interval	2306	m	Cmt Vol	Bridge Plug	Felt 8m Cement
Plug No.		Interval		m	Cmt Vol		Felt Bridge Plug

B. COMPLETION DETAILS

COMPLETION DATE

Perforations: Interval m Zone Type

Interval m Zone Type

Interval m Zone Type

Stimulations: Formation

Tubing Details

Anchor/Packer Details

Pumping Equipment

Remarks

NOTE: See specific forms for more details!

Supervisor Wilbert Callihoo

PARA-WELL_SUM.xls

PIPE TALLY

Date 15-Feb-98 Page no one

Well name and location Paramount Berkley Arrowhead O15

Contractor Precision 622E

Pipe Description

Size: 339.7 Wt: 81.1 Grade: K55 Range: 3 Cplg: STC

Thread 8 rd Mfr: TAMSA, Mexico

Type of String: Surface

Tallied By: Stew Ward

No	Length	No		No		No		No	
1	11.71	21	14.16	41		61		81	
2	13.94	22	14.4	42		62		82	
3	12.75	23	14.32	43		63		83	
4	14.22	24	14.02	44		64		84	
5	14.27	25	14.44	45		65		85	
6	13.91	26	14.04	46		66		86	
7	14.2	27	14.19	47		67		87	
8	14.31	28	12.95	48		68		88	
9	14.36	29	13.88	49		69		89	
10	13.9	30	14.11	50		70		90	
Total	137.57		140.51		0		0		0
11	14.05	31	14.34	51		71		91	
12	13.61	32	13.79	52		72		92	
13	13.73	33	14.36	53		73		93	
14	14.08	34	12.83	54		74		94	
15	14.3	35	14.26	55		75		95	
16	14.29	36	13.61	56		76		96	
17	13.35	37	13.16out	57		77		97	
18	14.5	38		58		78		98	
19	14.14	39		59		79		99	
20	13.78	40		60		80		100	
Total	139.83		83.19		0		0		0
Total 1-20	277.4	Total 21-40	223.7	Total 41-60	0	Total 61-80	0	Total 81-100	0

TOTALS		TOTALS		TOTALS	
1-20	277.4	101-120			
21-40	223.7	121-140			
41-60	0	141-160			
61-80	0	161-180			
81-100	0	181-200			
TOTAL	501.1	TOTAL	0	TOTAL	501.1

Total joints on location 37 Length of cutoff

Remarks:

Float shoe and float collar included in first joint tally.

Centralizers on jts. 1,3,5,7,34,36

CEMENTING

Well Name:	Paramount Berkley Arrowhead 015	Date:	2-Feb-98
Type of Casing	Surface		
Cementing Company	Sanjel Cementers		
Station:	Ft. Nelson	Rep.:	

Hole Size:	444.5	Casing Size	339.7	Depth:	500

Cement Volume Required, m3: 48 Excess: 50%

Type of Cement and Additives Lead - 31T 0:1:0 + 1% CaCl2, Tail-in - 27T Expandomix + 2% CaCl2

Start Flush	855	Start Cement	908	Start Disp	954
End Flush	-905	End Cement	951	End Disp.	1057

Flush ahead	10 m3 water	Displace with	39.2 m3 water
Total water :	79 m3	Total cement pumped:	58T
Max pump press:	6000 kPa	Bumped plug: no/yes	yes
Cement returns:	8 m3	Floats held:	yes

Work casing 4-5 m, while circulating
4-5 m, while cementing

Remarks

Good returns throughout the job. No apparent losses.
Seepage around conductor pipe diminished to nil by the end of the job

.SING SUMMARY

WELL NAME: **Paramount Berkley Arrowhead 015** DATE: **98-02-20**

Size	Wgt	Gr	Rge	Thd	Cplg	Make	Tot. Jts	Jts Run	Depth	Total M
339.7	81.1	K55	3	8rd	STC	TAMSA	37	36	500	500.28

Shoe:	Make	Weatherford	Type	Float	Length, m		0.48
Collar:	Make	Weatherford	Type	Float	Length, m		0.34
Liner Hanger:		Make:			Length, m		
				Landing jt.(if used)	Length,m		
			Overall length of csg string		Length, m		501.10
			Meters up from K.B. (subtract)				1.2
			Setting depth (if diff. from TD)		Tally, m		499.90
				Shoe joint (subtract), m			11.71
				Top of float collar, m			488.19

KB to CF, m Length of cut off, m

Centralizers- Make: **Weatherford** Number **6** Position **1,3,5,7,34,36**

Catchers Make: Number Position

Time/date pipe started **2130 hrs, 98/02/19** Time/date pipe on bottom **0615 hrs, 98/02/20**

Time circulated **90** min. Reciprocated **180** min. with **4-5** m strokes

Make/size of casing bowl **ABB Vetco Gray 13 5/8 x 5000# x 13 3/8**

H2S rating (PSL0-3) **PSL 0 on bowl**

PSL1 on valves

Additional Information

PARAMOUNT RESOURCES LTD.

PRODUCTION CASING REPORT

O.D.: 177.8 MM

WELL NAME: PARA ETAL ARROWHEAD LOC: 6-15 DATE: 98-02-10

JTS ON LOC	M ON LOC	CASING WT.	GRADE	RANGE	THREAD	T & C	MAKE	JTS. RUN	DEPTH LANDED	M RUN IN WELL
101	1377.44	38.69	L80	1	8RD	LT&C	IPSCO	101	2805	1377.44
2	67.23	34.20	L80	1	8RD	LT&C	IPSCO	2	1426.85	27.08
104	1427.41	38.69	L80	1	8RD	LT&C	IPSCO	104	1399.77	1401.80

SHOE: MAKE: WEATHERFORD TYPE: FLOAT LENGTH, M .40

COLLAR: MAKE: WEATHERFORD TYPE: FLOAT LENGTH, M .35

LANDING JOINT (WHEN USED) LENGTH, M LENGTH, M

OVERALL LENGTH OF CASING STRING, M TOTAL, M 2807.03

METERS UP FROM K.B. (SUBTRACT) 2.03 M -2.03

SETTING DEPTH: LOG: 2804.7 DRILLER: 2805.00 2805.03

SHOE JOINT: OVERALL: 14.45 M (SUBTRACT) SHOE JOINT 14.45

FLOAT COLLAR: LOG: M DRILLER: 2796.55 M 2796.55

K.B. TO CASING FLG: 6.57 M CUT OFF: 8.60 M

CENTRALIZERS & TURBOLIZERS:

MAKE: WEATHERFORD NUMBER 10

POSITIONS:

2797m 2777m 2750m 2723m
1610m 1592m 1565m 1537m 1510m
1483m

SCRATCHERS:

MAKE: NUMBER 0

POSITIONS:

OF JOINTS WELDED: NIL

REMARKS:

RAN 101 JTS 38.69 kg/m L80 RGE 1 8RD LTC IPSCO 1377.44 m.
RAN 2 JTS 34.20 kg/m L80 RGE 1 8RD LTC IPSCO 27.08 m
RAN 104 JTS 38.69 kg/m L80 RGE 1 8RD LTC IPSCO 1401.80 m
LEFT OUT 3 JTS 34.2 kg/m & 2 JTS 38.69 kg/m L80 8RD LTC IPSCO 66.11 m
OVERALL LENGTH

OPERATORS REP: G. SANDERS

PROD CSG RPT

PARAMOUNT RESOURCES LTD.

RUNNING AND CEMENTING

PRODUCTION CASING

O.D.: 177.8 MM

WELL NAME: PARA ETAL ARROW HEAD LOC: 0-15 DATE: 99.02.10

K.B. ELEVATION _____ CSG. FLG _____ TOTAL DEPTH (DRILLER) 2805.m

HOLE SIZE	216	#REF!	
DEPTH M	2805	#REF!	

CSG IN HOLE	2801.07	#REF!	
DEPTH SET	2805.00	#REF!	

MUD TYPE: INVERT WT: 1015 KG/M3 VISC: 48 WL: _____

BOP'S 35000 kpa

RUNNING

POWER TONGS 7040 TORQUE: MAX: 8890 NM NOM 7040 NM MIN 5270
TIME PIPE STARD: 2200 TIME ON BOTTOM 1200 TIME CIRCULATED 5.25 HRS
FILL UP POINTS: EVERY 10 JTS BOTTOM BY CSG 2805m UP FROM KB: 2.m

REMARKS: CSG STUCK ON BTM. PULLED 50000 daN OVER STRING WT OF 80000 daN WORKED PIPE 2HRS NO LOCK
CEMENTED CSG ON BTM CIRC PRESS SEEMED UNUSAL OVER CIRC TIME BY ADDING 1 SX SAWDUST & CIRC TIME WITHIN 4 MIN OFF THEORETICAL

CEMENTING

CEMENT CO: NOWSCO OPERATOR: KEN DICKSON AR. TIME: 0600.
TYPES & QUANTITY OF CEMENT: 24.6 T 1-1-26 + .1% R6 .5% T10 17T THERMOL 40F + .1% R6 + .3% D24 + .5% T10 + 1% SEPIOLITE HEIGHT TO BE CEMENTED 1186m
FLUSH: 3m³ DIESEL 3m³ NOWFLUSH MIX TIME: START: 19:31 FIN: 2014 WT: 16.83 kg/m³ 1876 kg/m³
CALCULATED DISP 57.32 m³ MEASURED DISP. 57.3 m³ START: 2021 FIN: 2121
DISPLACING FLUID INVERT MAX. PRESS 19000 kpa BUMP W/ 3000 kpa
CEMENT RETURNS NIL FLOAT OK. WORKED CSG WHILE CMT NO

REMARKS:

LANDING

TIME LANDED: 0430 DATE: 99-02-11 WT. STRING (LESS BLOCKS)daN 85000
WT. LANDED IN SLIPS: 95000 daN BOWL: 13 5/8 VRTCO SIZE: 13 5/8
SERIES EG1 SLIP & SEAL ASS: V-G 100 AUTOMATIC VGOF.

REMARK:

AGENT OF OPERATOR: G. SANDERS

RUN & CMT PROD

PARAMOUNT RESOURCES LTD.

PIPE TALLY

DATE: 99-02-09 PAGE 1 1 OF 2

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15

CONTRACTOR PRECISION 507

PIPE DESCRIPTION 177.8 mm. 38.69 KG/M GRADE L80 RANGE 1

CPLG LTC THREAD 34.2 MFG. IPSCO NEW OR USED NEW

TYPE OF STRING 2ND INTERMEDIATE TALLIED THREADS OFF

	LENGTH		LENGTH		LENGTH		LENGTH		LENGTH		LENGTH
1	1370	21	1364	41	1370	61	1406	81	1320	101	1404
2	1368	22	1370	42	1419	62	1388	82	1392	34.2 102	1354
3	1370	23	1370	43	1286	63	1315	83	1374	KG/M 103	1354
4	1370	24	1366	44	1369	64	1394	84	1394	out 104	1357
5	1383	25	1371	45	1364	65	1371	85	1371	out 105	1359
6	1375	26	1290	46	1371	66	1390	86	1340	out 106	1299
7	1372	27	1372	47	1372	67	1388	87	1369	107	1364
8	1333	28	1346	48	1329	68	1369	88	1320	108	1357
9	1356	29	1363	49	1300	69	1292	89	1370	109	1357
10	1385	30	1386	50	1382	70	1390	90	1370	110	1360
TTL 1-10	136.82	TTL 21-30	135.98	TTL 41-50	135.62	TTL 61-70	137.06	TTL 81-90	136.70	TTL 101-110	135.65
11	1401	31	1368	51	1356	71	1360	91	1398	111	1310
12	1394	32	1330	52	1390	72	1380	92	1403	out 112	1316
13	1368	33	1354	53	1371	73	1364	93	1218	113	1257
14	1368	34	1384	54	1380	74	1379	94	1148	114	1360
15	1387	35	1369	55	1369	75	1360	95	1387	115	1361
16	1371	36	1370	56	1384	76	1349	96	1400	116	1361
17	1365	37	1327	57	1370	77	1361	97	1373	117	1360
18	1367	38	1366	58	1376	78	1360	98	1370	118	1337
19	1369	39	1372	59	1370	79	1381	99	1369	119	1360
20	1310	40	1384	60	1362	80	1307	100	1403	120	1361
TTL 11-20	137.00	TTL 31-40	136.24	TTL 51-60	137.28	TTL 71-80	136.61	TTL 91-100	134.69	TTL 111-120	133.82
TTL 01-20		TTL 21-40		TTL 41-60		TTL 61-80		TTL 81-100		TTL 101-120	

TOTAL 1-20	136.82	PAGE 1 TOTAL	1632.51
	137.00		
TOTAL 21-40	135.98	PAGE 2 TOTAL	
	136.24		
TOTAL 41-60	135.62	FLOAT & SHOE	
	137.28		
TOTAL 61-80	137.06	GRAND TOTAL:	
	136.61		
TOTAL 81-100	136.70		
	134.69		
TOTAL 100-120	135.65		
	133.82		
TOTAL 1-120	1632.87		

Shoe=

Float=

Shoe jt.=

TOTAL JOINTS ON LOCATION

REMARKS:

AGENT OF OPERATOR: G. SANDERS

PROD TALLY 2

PARAMOUNT RESOURCES LTD.

PIPE TALLY

DATE: 99-02-09 PAGE 2 OF 2

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15

CONTRACTOR PRECISION 507

PIPE DESCRIPTION 177.8 mm. 38.69 KG/M GRADE L80 RANGE 1

CPLG LTC THREAD 3½ 8RD MFG. IPSCO NEW OR USED NEW

TYPE OF STRING 2ND INTERMEDIATE TALLIED THREADS OFF

	LENGTH		LENGTH		LENGTH		LENGTH		LENGTH		LENGTH
1	1360	21	1360	41	1360	61	1113	81	1326	101	
2	1312	22	1361	42	1360	62	1379	82	1347	102	
3	1360	23	1357	43	1249	63	1380	83	1313	103	
4	1361	24	1340	44	1363	64	1349	84	1369	104	
5	1362	25	1357	45	1360	65	1360	85	1331	105	
6	1361	26	1360	46	1361	66	1374	86	1382	106	
7	1362	27	1335	47	1362	67	1399	87	1371	107	
8	1358	28	1362	OUT 48	1245	68	1370	88	1375	108	
9	1358	29	1355	49	1361	69	1368	89	1370	109	
10	1361	30	1359	50	1358	70	1312	90	1368	110	
TTL 1-10	13555	TTL 21-30	13546	TTL 41-50	13379	TTL 61-70	13404	TTL 81-90	135.52	TTL 101-110	
11	1359	31	1364	51	1180	71	1343	91	1385	111	
12	1356	32	1360	52	1361	72	1307	92	1365	112	
13	1361	33	1361	53	1361	73	1390	93		113	
14	1359	34	1361	54	1361	74	1073	94		114	
15	1360	35	1357	55	1362	75	1386	95		115	
16	1360	36	1358	56	1362	76	1369	96		116	
17	1361	37	1361	57	1360	77	1371	97		117	
18	1361	38	1360	58	1360	78	1394	98		118	
19	1360	39	1359	59	1362	79	1367	99		119	
20	1360	40	1359	60	1028	80	1381	100		120	
TTL 11-20	135.91	TTL 31-40	136.00	TTL 51-60	130.91	TTL 71-80	1.381	TTL 91-100	27.50	TTL 111-120	
TTL 01-20		TTL 21-40		TTL 41-60		TTL 61-80		TTL 81-100		TTL 101-120	

TOTAL 1-20	13555	PAGE 1 TOTAL	163287	Shoe=	.40
	13597			Float=	.35
TOTAL 21-40	135.46	PAGE 2 TOTAL	1238.61	Shoe jt.=	13.54
	136 00				
TOTAL 41-60	133 79	FLOAT & SHOE	.75	TOTAL JOINTS ON LOCATION	
	130.91				
TOTAL 61-80	134.04	GRAND TOTAL:	2872.23	REMARKS:	
	133 81				
TOTAL 81-100	135 52				
	27.50				
TOTAL 100-120					
TOTAL 1 - 120					

JOINTS # 1 THROUGH 101 ARE 38.69 kg/m L80 LTC 8RD
JOINTS # 102, 103, 104, 105, 106, ARE 34.2 kg/m L80 LTC 8RD.
JOINTS # 107 THROUGH 212 ARE 38.6 kg/m L80 LTC 8RD
LEFT OUT JTS # 104, 105, 106, 113 168. USUAL LENGTH 66.11m

AGENT OF OPERATOR: G. SANDERS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-07-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 50 Depth ✓ Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Tear out and Move Camp @ 08:00 Hrs.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out	24	
21.		
TOTAL	24	

COSTS

DAILY 24000

CUMMULATIVE 2648000

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-07-24:00 Yr-Mon-Day-Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Tear out Rig and Equipment - Clean all Tanks - Lay Down Derrick - Unspool Drilling Line thru Blocks - Drain and Wash Boiler - Clean out Shale Sloop and Send out to Land Farm at Beatton River - Clean out 400 Bbl Slop Tank and Send to Ft St. John - Get Wellsite Units ready For Rig Move Order out Rig Move Trucks - Will Move Camp in Morning.

1 - Green Box For MWD Tools
6 - 1" X 8' Bars For MWD Drilling
1 - White Box MWD Tools

WANT LIST: 2 - Down Hole Drilling Motors - 4 3/4"
2 - 4 3/4" Non Magnetic Drill Collars
1 - 4 3/4" Short Non Magnetic Drill Collar

WEATHER: Cloudy - Wind - N@15 Km/H - Cold - 22°C ROAD: Snow Covered - Hiway & to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

Return to Paramount Base Camp -

11 X 4 1/2" Casing	2 - 8' X 40' Mats For Invert Tanks
9 X 3 1/2" E Drill Pipe	1 - 13 5/8" - 5000 X 11" - 5000 DSA Flange
2 X 3 1/2" Hevi Wate Pipe	2 - 400 Bbl Tanks

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-06-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 49 Depth 2306 m Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Test out Rig to Move

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service	1/4	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging Bridge Plug	5 3/4	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's	13	
19. Plug & Abandon		
20. Rig up - Tear out	5	
21.		
TOTAL	24	

COSTS

DAILY 42500
CUMMULATIVE 2624000

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-06-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Lay Down Drill Pipe - Run in 8 Stands Hevi Wate From Derrick Lay down Hevi Wate Pipe - Rig out Lay Down Machine - Rig in Computalog Wire Line & Run in Gauge Ring on Wire Line Get Down to 2334 m with Gauge Ring and Hung up in Casing - Not able to Work Gauge Ring any Deeper - Pull out Gauge Ring and Ring was Jammed with Pieces of Rubber From Packers Make up Bridge Plug and Run in on Wire Line - Bridge Plug Hung up at 2306 m - Not able to Work Plug any Deeper - Set Bridge Plug @ 2306 m - Pull out Wire Line - Make up Dump Bailer and Fill with Cement - Run in and Drop 8 m Cement Plug on Top of Bridge Plug - Rig out Wire Line - Nipple Down and Tear out BOP Stack - Install Wellhead - Tear out Rig.

Rig Released at - 1999-03-06 - 23:59 Hrs.

WANT LIST:

WEATHER: Cloud - Snow - Breeze - [illegible] - 20°C ROAD: Heavy Snow on Hiway & Lease Road

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-05-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-128-02

Day 48 Depth 2730 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Run Gauge Ring Prior to Running Bridge Plug @ 07:00

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service	1/4	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging Free Point & Backoff	10 1/4	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Waiton Weatherford	9 1/4	
18. Laying Down DP - Rig in Layout	3 1/4	
19. Plug & Abandon		
20. Rig up - Tear out		
21. Safety Meetings	1/2	
TOTAL	24	

COSTS

DAILY 73000

CUMMULATIVE 2581500

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-05-24:00
Yr-Mon-Day-Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Wait on Weather Ford Operator with Free Point and Back off Tools to Arrive - Make up Free Point onto Computalog Wire Line Run in Free Point Tools - Found Pipe Free @ 2723 - Stuck @ 2733m Pull out Free Point - Make up & Run in w/ 980 Grain String Shot - Did not Back off Pipe - Pull out - Run in with 1400 Gr String Shot - Got back off - Pull out and Lay Down Wire Line & Tool - Pull out and Lay Down 1 Jt Hevi Wate Drill Pipe - Rig in Lay Down Machine - Laying Down Drill Pipe at Midnite

Since Midnite - All Pipe Layed Down - Rig in and Run in Gauge Ring on Wire Line @ 07:00 Hrs.
Running Gauge Ring Prior to Running Wire Line Bridge Plug

Left 30 Jts 89mm - Grade E Pipe in Hole

WANT LIST:

WEATHER: Clear - Cold - Wind - N15KmH - 20°C ROAD: Snowy on Hiway & to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-04
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 47 Depth ✓ Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Wait on Weather Ford Fisherman

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

CRW/32F Inhibitor - 40 litres
1500 litres Diesel Fuel

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	1 1/4	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.0	
8. Rig Repair		
9. Waiton Backoff Tools	6 1/4	
10. Fishing		
11. Logging Free Point & Backoff	10	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Backoff Pipe	1 1/2	
18. Laying Down DP & BOP's		
19. Plug & Abandon	1/2	
20. Work Stuck Pipe	1 1/4	
21. Safety Meetings	3/4	
TOTAL	24	

COSTS

DAILY 49000

CUMMULATIVE 2508500

SUPERVISOR Wilbert Callibee

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-04-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Wait on Weatherford Operator to Arrive w/ Free Point Tools and String Shot Equipment - Rig in Free Point on Computalog Wire Line - Run in to Find Free Point - Found Free Point at 3005 M - Pipe was Stuck @ 3014 M - Calculated Cement Top was to have been @ 3115 M - Made up String Shot - Ran in and Backed off Pipe @ 3004 M - Pull out of Stuck Pipe - Lay Down String Shot Tools and Wire Line - Pick up Kelly - Break Circ - Displace Hole and Casing to Inhibited Water - Pull out 3 Stds & 1 Single Pipe - Rig in Cementers - Run 3 Stands Pipe back in Hole - Rig in Newsco Cementers - Ran Cement Abandonment Plug #2 - 4.6 Tonnes Thermal 40 Cement - 3.49 m³ Cement Slurry Which would be 180 M Plug Length in 152 mm Hole - Displaced with 9.6 m³ Water - Broke off Cementing Lines - Pull out 8 Stands Pipe or 225 M Pipe - Pipe Dry - Rig in Wire Line and Run in to Log Plug Top - Found Cement Top @ 2780 M - Rig in Cementers - Not able to Circ - Not able to Move Pipe - Work Pipe and not Moving - Phone Weatherford Man to come back in From Ft Nelson -

Wait on Weatherford Operator @ 07:00 Hrs.

WANT LIST:

WEATHER: Cloudy - Cold - Wind - N @ 20 Km/H - 18°C ROAD: Snow Covered on Hiway & to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-03-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al ~~[illegible]~~ Wheat LOCATION 0-15-60-30-123-02

Day 46 Depth 3195 PBTD Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 54 WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
314-Drill Pipe		89	2097.54	
32-Heavy Wate DP		89	294.61	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	6	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2 1/4	
8. Rig Repair		
9. Run Casing & Cement Plug	3/4	
10. Fishing		
11. Logging Log Plug Depth	2	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Work Stuck Pipe	1 1/4	
20. Wait on Fishing Tools	11	
21. Safety Meeting	1/4	
TOTAL	24	

COSTS

DAILY 35000

CUMMULATIVE 2459500

SUPERVISOR Wilbert Callihoo

PARA_DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-03-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Lay Down and Move Drill Collars - Measure Hevi Wate Drill Pipe - Pickup and Rack in Derrick - Run in Hole Open End - Pickup Kelly - Break Circ @ 3292 M - Circ - Clean to Bottom - Held Safety Meeting w/ Nowsco Cementers - Rig up & Run Plug #1 - 3301-3135 M
⇒ Displace Plug w/ Invert - Break off Cementing Swadge - Pull Pipe out of Hole - Pulled 2 Stands out of Hole - Pulling Very Tight - Work Pipe - Pulled out 1 Single & Broke off - Pickup Kelly - Notable to Circ - Unable to Pull or Move Pipe - Phone Weatherford in Ft St John to get out Charge to Sever Pipe - Notable to Fly out Explosives - Will have to get Charge out From Grande Prairie through Ft St John by Pickup - Wait on Weather Ford Fisherman to Arrive

Since Midnite - Weather Ford Fisherman Arrived @ 2:30 AM Rig Weather Ford Electronic Panel into Computalog Wire Line Truck - Rig in Free Point Tools & Wire Line Sheaves - Ran in with Free Point Locator - Tool quit Working - Pull out & Lay Down - Run in with another Free Point Tool - Running Free Point Locator @ 07:00 Hrs.

WANT LIST:

WEATHER: O'cast - Cold - Wind - 20 Km H-N - 18°C ROAD: Snow on Hiway & to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-02-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 45 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Run Cement Abandonment Plug @ 07:00

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1075 Vis 68 WL 13.5 Gels 30/45 Solids 14.2 % PV 29 YP 44 pH
Oil 88.6 % Sand .003 % Cake 1 PPMCL 211111 PPMCa 82888

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
RR7	156	Reed-EHP51H	M09771	✓	✓		Clean out Trip							

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
RR7	15.9	15.9	15.9	203	105	114	.64	50	84	30		9000

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

Barite - 153 sx

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT MaN
1-Bit		156	.20	
1-Bit Sub		120	.78	
21-Drill Collars		89	194.16	
12-Heavi Wate DP		89	110.32	
312-Drill Pipe		89	2886.44	
1-Kelly		89	7.30	

COSTS

DAILY	40000
CUMMULATIVE	2424500

SUPERVISOR Wilbert Callihoo

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	1 1/4	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	3 3/4	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	5	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. BOP Drill	1/4	
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip and Cut Line	1/2	
TOTAL	24	

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-08-02-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arnwhead LOCATION 0-15-66-30-123-02

OPERATIONS DETAIL: 14

Finish Reverse Circ out Test Fluid and Invert Circulate From Drill Pipe - Recovered 3m³ Very Gassified Salt Water testing @ 142,000 PPM Salinity - Rig out Reverse Circ lines - Pump Weight Material Pill - Pull out of Hole - Recover Recorders and Read Pressures - Break Down and Lay Down Test Tools - Had Plugged Drill Collar between Reverse Circ Pumpout Sub plus Top Recorder Carrier - Pumpout Sub and Cross Over Sub - Total of 11-12m Tool Plugged with Formation Material - Make up Bit and BHA - Run in for Clean out Trip - Load out Test Tools and Release Tester - Run in - Break Circ - Clean out to Bottom - Circ to Cond Mud and Clean Hole - Pushed Packer Rubbers to Bottom - Pump Weight Material Pill - Pull out of Hole - Lay Down Drill Collars -

Ordered out Nowsco Cementers and Cement along with Computalog Plug Loggers - Will be Running Cement Abandonment Plugs

WANT LIST:

WEATHER: Coast - Cool - Wind - 20 Km/H - 14°c ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA MOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-03-01-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 44 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Make up BHA to Run in For Cleanout Trip

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL DP	DC	JET VEL	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

Barite - 25 sx

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	8 1/4	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	13 1/2	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Waiting on Orders	1 1/4	
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip & Cut Line	1/2	
TOTAL	24	

COSTS

DAILY 40500

CUMULATIVE 2394[illegible]

SUPERVISOR Wilbert Callihoo

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-01-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Break Down DST #2 - Recover Recorders - Read Charts and get Pressures - Change Packer Rubbers - Both Rubbers were left Down Hole - Make up DST Tools changing Interval From 19M to 11M - Run in with Tools For DST #3 - Measure in Hole Position Packers - Head up Test String - Pump up and Set Packers Open Tool - Good Air Blow building to Strong at Bottom of Pail after 4 Mins holding at Strong For Rest of 10 Min Pre Flow Shut in For 60 mins - Want to Open Tool and did not get any Blow thru Hose - Close and Re-open Tool 3 Times and not able to get Tool to Open - Shut in Tools - Pull Loose and Pull out of Hole - Hit Fluid at 1700M Pipe left in Hole - Had put 870M Invert Cushion in For Test - Had increase of 830M Fluid in Pipe - Drop Bar & Reverse Circ Out - Recovered 3.18m³ Fluid above Cushion amount - Mostly Very Gassified Salt Water - Salinity of Water Tests @ 142000 PPM Make up Bit & BHA to Run in For Clean out Trip.

Since Midnite

WANT LIST:

WEATHER: O'cast - Wind - 20KmH - N - Cool - 14°C ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-28-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-20-W3-02

Day 43 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Run in with Tools For DST #3.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	16 1/4	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	7 1/4	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 54000

CUMMULATIVE 2344000

SUPERVISOR Wilbert Callihoo

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-28-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-128-02

OPERATIONS DETAIL:

Finish Pulling out of Hole with Clean out String - Pickup - Make up and Run in Test Tools For DST #3 - Different Interval 3251-3220M - Installed Different Electronic Recorders Supposed to Work under High Temperature - Ran Tools in Hole Less Problems getting Packers down to Seating area - Did not have to wash stuff to get down - Position Packers - Pump up and set Packers - Open Tool - Bottom Air Blow than DST #1 - Hose went into Water in Pail 1/4" - Shut in after 10 Mins For 60 Min Shut in - Opened Tool and set Packer Seat after 40 Secs Tool Opened - Pull up to Close Tool - Pulled out of Hole - Hit Fluid at 77 Stds out of Hole - Fluid Level was 200M Higher than Invert Cushion Put in on way in Hole - Drop Bar - Reverse Circ out Fluid - Indications of Salt Water in Recovery - Pulling out of Hole @ Midnite

Since Midnite - Have pulled out of Hole - Recover Recorders and Read Pressures - Electronic Recorders did not give Readings again - Had 2 Bottom Hole Samplers Down Hole and will be able to get Fluid Recovery Checked on Contents of Samplers - Both Packer Rubbers Stripped off again.

WANT LIST:

WEATHER: Clear - Calm - Cool - 12° C ROAD: Good on Hiway - Fair to location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-27-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 42 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Make up - Run in with DST #2

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1070 Vis 54 WL 13.5 Gels 3/4.5 Solids 16.6 % PV 29 YP 1.44 pH

Oil 88.7 % Sand .003 % Cake 1 PPMCL 133333 PPMCa 66666

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
RR#7	156	Reed-EHP51H	MM9771	2-3	60-70	Clean out Packer Rubber						3	3	In

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
RR#7	15.9	15.9	15.9	203	100	114	.67	51	86	3.1		8500

DEVIATION SURVEYS

___ °	at ___ m	___ °	at ___ m
___ °	at ___ m	___ °	at ___ m
___ °	at ___ m	___ °	at ___ m
___ °	at ___ m	___ °	at ___ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		156	.20	
1-Bit Sub		120	.78	
21-Drill Collars		120	194.16	
12-Heavi Water DP		89	110.32	
104-Drill Pipe		89	2988.44	
1-Kelly		89	7.30	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11 1/4	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole Clean Rubber	2	
6. Mix & Cond. Mud		
7. Circulation	3 3/4	
8. Rig Repair Master Clutch	1/2	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	5 1/2	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip & Cut Drlg Line	1/2	
TOTAL	24	

COSTS

DAILY 30100

CUMMULATIVE 2290,000

SUPERVISOR Wilbert Callihan

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-27-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Pull out Test Tools - Had to Pull out slow to Allow Hole Fill Fluid to get by Packers and Drop Down to Fill Hole - Hit Fluid at 76 stands out and had Filled Pipe with Invert Cushion at 81 Stands out - Gained 5 Stands - 142 M - .46 m³ Fluid on Test No visible Signs of Water in Recovery in Invert Fluid - Invert had thickened up in Cushion which is an Indication of Water Contamination - Pulled out of Hole after Reverse Circ Fluid out of Pipe - Recover Recorders - 2 Electronic Recorders did not Work due to High Bottom Hole Temperature (150°C) Both Mechanical Recorders worked and were able to get Pressures off Charts - Tools also showed Signs of Plugging - Both Packer Rubbers came off and were left Downhole - Broke Down and Layed Down Test Tools - Faxed Test Results and Pressures to Calgary Made up Re-Run Bit and Run in Hole - Hit Packer Rubber @ 3245 M Pickup Kelly - Break Circ - Clean out to Bottom @ 3301 M - Had only Packer Rubbers and Not Wire Braid Core left Downhole so were able to Clean Out with no Problems - Circ - Work Pipe - Cond Mud and Hole For DST #2 over same Zone - Ordered out 2 Hi-Temp Electronic Recorders From Grande Prairie and also more Ammonia and Inhibitor For Safety Boss on Same Trip Circ till 22:00 Hrs. - Pump Wt Material Pill - Pull out of Hole

Since Midnite - Get out of Hole - Made up Test Tools with 19 m vs 25 M Interval - Install Higher Temp Electronic Recorders Run in Hole - Fill Pipe with Invert Cushion

WANT LIST:

WEATHER: Clear - Calm - Cold - 22°C ROAD: Good on Highway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-26-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-20-W2-00

Day 41 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Break Down Test Tools @ 07:00 Hrs

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11½	
3. Rig Service	½	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	12	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Flag & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 34300

CUMMULATIVE 2259900

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-26-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-128-02

OPERATIONS DETAIL:

Run in Hole w/ Inflate Straddle Test Tools - Measure in Hole - Work Packers Down last 50M to Setting Depth - Had to Pick up and Work Down Test Tools - Position Packers over Test Interval - Pump up and Set Packers - Open Tool - Had Very Weak Air Blow - Shut in Tool after 10min Pre Flow - Leave Shut in For 60mins - Re-Open Tool - Still have Very Weak Air Blow - Hose has Bubbles on Surface of Water in Pail and increased to Bubbles at 2" Below Surface of Water by End of 90min Value Open - Shut in Tool For 270mins (3 Times Value Open) Deflate Packers & Pull Loose - Break Down Test Head and Lay Down - Pull out of Hole - First 5 Stands Swabbed Fluid out of Hole - Took Flow Check - Well Stable - Pulled 5 more Stands and Fluid staying Stable in Hole - Fluid not Swabbing but also not Dropping in Hole - Pulled 18 Stands to get up into Casing - Close Pipe Rams and Pump through Kill Line to push Fluid Past Packer Rubbers and down Hole - Hole Took Correct Amount of Fluid For Pipe Pulled out of Hole - Continue Pulling out and Stopped every 12-15 Stands to Pump Fluid past Packer Rubbers - Had to Pull Pipe Very Slow to Keep From Swabbing Fluid out of Hole - After Pulling 56 Stands Mud in Hole started to go Past Rubbers and Hole was Taking Correct Amount of Fluid - Pull Pipe Slow till Midnite

Since Midnite - Get out of Hole - Reversed Circ to Pump out Invert Cushion @ 76 Stands out - No Gas Bubble. Followed Packers out of Hole - Break Down Test Tools - Recovered and Read Recorders Fax Results to Calgary - Electronic Recorders Failed due to High

WANT LIST: Temperature - Tool Partially Plugged - Lost Both Packer Rubbers Down Hole -

WEATHER: Coast - Snow - Wind - Windy - 12°C ROAD: Good on Highway - Rough to location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-26-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-20-123-02

Day 41 Depth 3301 m Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Break Down Test Tools @ 07:00 Hrs

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	11 1/2	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing	12	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 34300

CUMMULATIVE 2259900

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-26-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-128-02

OPERATIONS DETAIL:

Run to Hole w/ Inflate Straddle Test Tools - Measure in Hole - Work Packers Down last 50M to Setting Depth - Had to Pick up and Work Down Test Tools - Position Packers over Test Interval - Pump up and Set Packers - Open Tool - Had very Weak Air Blow - Shut in Tool after 10 min Pre Flow - Leave Shut in For 60 mins - Re-Open Tool - Still have Very Weak Air Blow - Hose has Bubbles on Surface of Water in Pail and increased to Bubbles at 2" Below Surface of Water by End of 90 min Valve Open - Shut in Tool For 270 mins (3 Times Valve Open) Deflate Packers & Pull Loose - Break Down Test Head and lay Down - Pull out of Hole - First 5 Stands Swabbed Fluid out of Hole - Took Flow Check - Well Stable - Pulled 5 more stands and Fluid staying Stable in Hole - Fluid not Swabbing but also not Dropping in Hole - Pulled 18 Stands to get up into Casing - Close Pipe Rams and Pump through Kill Line to push Fluid Past Packer Rubbers and Down Hole - Hole Took Correct Amount of Fluid For Pipe Pulled out of Hole - Continue Pulling out and Stopped every 12-15 Stands to Pump Fluid past Packer Rubbers - Had to Pull Pipe very slow to Keep From Swabbing Fluid out of Hole - After Pulling 56 Stands Mud in Hole started to go Past Rubbers and Hole was Taking Correct Amount of Fluid - Pull Pipe Slow till Midnite

Since Midnite - Got out of Hole - Reversed Circ to Pump out Invert Cushion @ 76 Stands out - No Gas Bubble Followed Packers out of Hole - Broke Down Test Tools - Recovered and Read Recorders Fax Results to Calgary - Electronic Recorders Failed due to High

WANT LIST: Temperature - Tool Partially Plugged - Lost Both Packer Rubbers Down Hole -

WEATHER: Ocast - Snow - Wind - N 10 km/h - 12°C ROAD: Good on Highway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-25-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 40 Depth 3301 Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Drill Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	2	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging	3 1/2	
12. Coring		
13. Formation Testing	3	
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Wait on Orders	3 3/4	
17. Wait on Tester	10 3/4	
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip & Cut Drlg Line	1/2	
TOTAL		

COSTS

DAILY 33600

CUMMULATIVE 2,225,600

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPY.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-08-25-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-100-30-123-02

OPERATIONS DETAIL: 16

Finish Running Logs with Baker Atlas - Tear out and Lay down Logging Tools - Send Logs to Calgary with Comstar System Wait on Orders - Call Tester & Wait on Tester to Arrive From Ft St. John - Pick up - Make up and Run in Test Tools Filling 900M Pipe With Invert For Test Cushion

Since Midnite have Run in with Test Tools - Work Tools down to Test Zone For last 45M - Head up Test Tools - Pump up Packers - Set Packers - Open Tool @ 06:24 Hrs - Had Initial Open For 10 mins till 06:34 - Close in Tool - Had Very Weak Air Blow on Initial Open - Hose Moving Water just below Surface Have 900M Invert Cushion in Pipe to balance Hydrostatic difference between Formation and Pipe - Will open Tool again @ 07:34 Hrs.

WANT LIST:

WEATHER: Overcast - Wind 15KMH SE - Cool 10°C ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-24-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 39 Depth 3301 m Metres last 24 hr ✓ Rotating hrs ✓

Activity at report time Finished Logging - Waiting on orders

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 57 WL 13.2 Gels 2.5/15 Solids 8.1 % PV 19 YP 3.35 pH

Oil 93 % Sand .004 % Cake 1 PPMCL 19164 PPMCa 123333

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	4 3/4	
3. Rig Service	1/4	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging	19	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY	110,000
CUMMULATIVE	2,222,000

SUPERVISOR Wilbert Callitree

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-24-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL: 14

Finish Pulling out of Hole to Run Logs in Hole - Rig in Baker Atlas Logging Tools - Run Logging Tools in Hole - Tools went in to Bottom with no Problems - Had Problems with Density Tool not working - Not able to Repair Tool in Location - Ran Rest of Logs - Brought to Replacement Density Tool and Running Log - Logging all Day - No Hole Problems

Since Midnite - Finished Running Logs and Logging Truck left Location @ 0400 Hrs - Truck going to P-57 Location Precision Rig #399

WANT LIST:

WEATHER: Overcast - Calm - Cool -10°C ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR. PERIOD ENDING 99-02-23-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-120-02

Day 28 Depth 3301 Metres last 24 hr 56 Rotating hrs 12 1/2

Activity at report time Run Logs to Hole with Baker Atlas

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 50 WL 13 Gels 2.5/6.5 Solids 8.1 % PV 19 YP 3.35 pH

Oil 93 % Sand .004 % Cake 1 PPMCL 191666 PPMCa 123333

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
9	156	HC-STR20	X74YF	8-10	80	3101	56	199	17 1/2	56 3/4		3	6	In

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
9	11.1	11.1	11.1	203	110	114	.67	51	86	31		9100

DEVIATION SURVEYS

3 3/4 ° at 3300 m ° at m
° at m ° at m
° at m ° at m
° at m ° at m

MUD & CHEMICALS ADDED

Invert 5m³
Barite - 27 Sax

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		156	.20	
1 - Bit Sub		120	.78	
21 - Drill Collars		120	194.16	
12 - Heavi Wt DP			110.30	
313 - Drill Pipe			2888.44	
1 - Kelly		1	7.30	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	17 1/2	
2. Trips	2 1/2	
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	3 1/2	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 27650
CUMMULATIVE 912000

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-23-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Drill Ahead carrying 7-8000 dan Bit Weight - Increased Bit Weight to 10000 dan From 3288 to T.D. @ 3301M - Drilled past 3300M before getting to Logging Depth - Circ For 1½ Hrs - Make 18 Stand Wiper Trip - Hole O.K. - Circ & Work Pipe For 2 Hrs - Drop Survey - Pump Wt Material Pill - Pull out to Run Logs

Since Midnite - Have Pulled out of Hole - Measured out - Board Tally Deeper - Deviation out to 3¾° - Rigged in Baker Logging Tools - Running Logging Tools in Hole

Meas Tally - 3292.33
Board Tally - 3293.70

WANT LIST:

WEATHER: Clear - Calm - Cool - 12° C ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-22-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60°30'N-123°02'W

Day 37 Depth 3245 Metres last 24 hr 72 Rotating hrs 20 3/4

Activity at report time Drill 156mm Hole @ 3270 @ 07:00 Hrs.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1075 Vis 47 WL 12.8 Gels 2/1 Solids 8.4 % PV 18 YP 2.87 pH

Oil 93.2 % Sand .0035 % Cake 1 PPMCL 189655 PPMCa 127586

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
9	156	HC-ST820	Y74YF	8-10	80		72	143	20 3/4	39 1/4	3.64	Rnng		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
9	11.1	11.1	11.1	203	110	114	.67	51	86	31		9000

DEVIATION SURVEYS

1 ° at 3168 m ° at m

2 ° at 3225 m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

Lime - 11 Sax

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		156	.20	
1 - Bit Sub		119	.78	
21 - Drill Collars		119	194.16	
12 - Hevi Water		89	110.30	
307 - Drill Pipe		89	2930.02	
1 - Kelly		89	9.54	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	20 3/4	
2. Trips		
3. Rig Service	1/2	
4. Deviation Surveys	2	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1/2	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. BOP Drill	1/4	
TOTAL	24	

COSTS

DAILY 27921

CUMMULATIVE 2084350

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-23-24:00
Yr - Mos - Day - time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Drill Ahead 156 mm Hole - Ran Deviation Survey @ 3168m and Hole Angle was 1° - Ran next Survey @ 3225 and Deviation is out to 2° - Held Back on Bit Weight From 14,000 daN to 8,000 daN Hole in Good Shape - Held BOP Drill with Night Crew after Arriving - Computalog did not have Logging truck available to Leave Grande Prairie until this AM - Will Drill ahead until we receive Phone Call informing us that Logging Truck and Crew is on the way - Then will Condition Hole to Log

WANT LIST:

WEATHER: Clear - Calm - Cool -10°C ROAD: Good Highway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02 22 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 60°30'N 123°02'W

Day 36 Depth 3173 m Metres last 24 hr 68 Rotating hrs 22.50

Activity at report time DRILLING 156mm Hole

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1070 Vis 47 WL Gels 20/1.0 Solids 7.6 % PV 17.60 YP 3.35 pH

Oil % Sand .004 % Cake 1.0 PPMCL 183353.3 PPMCa 123333.3

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. C
9	156	HC STR 20	X74YF	10	80		68	71	22.5	24.25	2.9		0	0

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
9	11.1	11.1	11.1	203	110	114	.671	51	86	31		9160

DEVIATION SURVEYS

1½ ° at 3121 m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

H50 600 t 19 L.

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		119	.79	
21 DC		119	194.15	
12 HWDP		89	110.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	22.50	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	1.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 23876

CUMMULATIVE 2056429

SUPERVISOR G. SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99.02.22 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15-60° 30'N 123° 02' W

OPERATIONS DETAIL:

DRILL & SURVEY AHEAD HOLE GOOD
FUNCTION MOTOR KILLS OK
FUNCTION TOP PIPE RAMS 6 SEC

WANT LIST:

WEATHER: O/CAST -10 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MOVED ALPINE EQUIPMENT TO A.01

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02-20 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15-60-30'N 123° 02'W

Day 34 Depth 30.85 Metres last 24 hr 66 Rotating hrs 21.75

Activity at report time SURVEYING

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 47 WL Gels 2.0/6.0 Solids 7.6 % PV 16.00 YP 3.83 pH

Oil 92.5 % Sand .004 % Cake 1.0 PPMCL 149253.7 PPMCa 110447.8

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
8	156	VARELOOSTTYG	126447	12	80		66	149	21.75	54.24	2.74		0	15

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
8	11.9	11.9	11.9	203	110	114	.671	51	86	31		8200 kPa

DEVIATION SURVEYS

1½ ° at 3026 m		° at	m
° at	m	° at	m
° at	m	° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

BARITE 42 SX

LIME 24 SX

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		119	.79	
21-DC		119	194.13	
12 HWDP		89	110.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	21.75	
2. Trips		
3. Rig Service	.25	
4. Deviation Surveys	2.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24.00	

COSTS

DAILY 62700

CUMMULATIVE 1995377

SUPERVISOR G. SANDERS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 95.02.20 1600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 60°30'N 123° 02' W

OPERATIONS DETAIL:

DRILL AND SURVEY AHEAD
FUNCTION TEST 3TM PIPE RAMS 6 SEC.
LONGEST DRILLING BREAK I'VE SEEN

WANT LIST:

WEATHER: O/CAST -16 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

MOVED ENTIRE EQUIPMENT TO A-01 PRECISION 373.

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02 21
YY - Mon - Day - Time

WELL NAME PARA ETAL BERGMAN HEDA LOCATION D-15 60°30'N 123°28'W

Day 35 Depth 3105 Metres last 24 hr 20 Rotating hrs 7.50

Activity at report time DRILLING 156 mm Hole

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1070 Vis 47 WL ____ Gels 2.0/1.0 Solids 7.8 % PV 17.00 YP 7.5 pH
Oil 92.6 % Sand .004 % Cake 1.0 PPMCL 153846.2 PPMCa 113846.2

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
8	156	VARELGOSTIKG	DL447	12	80	3088	17	165	5¾	59¾	2.76	4	6	1
9	156	HC STR 20	X744F	8	80		3	3	1.75	1.75	2.0		8	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
8	11.9	11.9	11.9	203	110	114	.671	51	86	31		8200
9	11.1	11.1	11.1	203	110	114	.671	51	86	31		9100

DEVIATION SURVEYS

1¾ ° at 3071 m		° at	m
2 ° at 3090 m		° at	m
° at m		° at	m
° at m		° at	m

MUD & CHEMICALS ADDED

BARITE 15 SX

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		119	.79	
21 - DRILL COLLARS		119	194.15	
12 - HWDP		89	110.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	7.50	
2. Trips	9.0	
3. Rig Service	.75	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation 3 km up Sample	1.25	
8. Rig Repair Slip & Cut	.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's 2 Hours	5.6	
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 37176
CUMMULATIVE 2 032553

SUPERVISOR G SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 21 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15 - 60° 24'N 123° 02'W

OPERATIONS DETAIL:

DRILLED TO 3102m. ERATIC PENETRATION RATE. DROP SURVEY FLOW ✓
P.O.G.H. FLOW ✓ 2938m 1640m 305m & BANK.
RIG SERVICE FUNCTION TEST BLIND RAM 6 SEC.
TORE OUT ROTATING HEAD - INSTAL FLOW NIPPLE, FLOW LINE.
RAN IN W/ BIT #9, SLIP & CUT DRILLING LINE.
RAN INTO 3080m WASHED 22m TO BTM
DRILLING 156mm HOLE @ 0600 HRS

WANT LIST:

WEATHER: CLEAR -18 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-19 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15-60°30'N 123°02'W

Day 33 Depth 3019 Metres last 24 hr 64 Rotating hrs 22

Activity at report time DRILLING 156 mm Hole

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 48 WL Gels 26/10 Solids 7.5 % PV 16.00 YP 3.83 pH

Oil 92.6 % Sand .003 % Cake 1.0 PPMCL 176470.6 PPMCa 105882.5

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
8	156	PARAL 537 X6	126447	12	80		64	83	22	32.5	1.96	0	3	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
8	11.9	11.9	11.9	203	110	114	.671	51	86	31		8000

DEVIATION SURVEYS

3/8 ° at 2968 m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

BARITE 42 SX

INVERS 10 m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		119	.79	
21- DRILL Collars		118	194.13	
12- HWDP		89	110.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	22	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	1.06	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair Clearing - R. BOP	.25	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. H2S & BOP Drill	.25	
TOTAL	24	

COSTS

DAILY 60201

CUMMULATIVE 19326777

SUPERVISOR G. SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING: 99-02-19 0600
Yr - Mon - Day - Time

WELL NAME Para Etal Arrowhead LOCATION 6-15- 60°30'N 123°02'W

OPERATIONS DETAIL:

Drill & Survey Ahead.
Installed Blank in Rotating Head.
Held B.O.P & H2S Drill w/ Crew in Position well shut in 2 min
Function Tested Annular closed 13 sec Pipe Ram 6 sec
Entest Equipment Ready to move to A01.
Air Equipment & Propane skid & Vaporizer to P57.

WANT LIST:

WEATHER: Clear -15 ROAD: Good

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
Air Equipment to P57. Propane skid & Vaporizer (IGG) sent to P57.

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02-17 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15-60°30'N 123°62'W

Day 32 Depth 2955 Metres last 24 hr 19 Rotating hrs 10.25

Activity at report time DRILLING 156 mm HOLE

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 10.60 Vis 49 WL ____ Gels 2.0/1.0 Solids 9.0 % PV 15.0 YP 38.3 pH ____

Oil 91.8 % Sand .0625 % Cake 1.0 PPMCL 178511 PPMCa 97142.

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
7	156	RTC FHP514	HM9771			2936	0	131	0	23.75	5.5	4	2	1
8	156	VARM 537+6	126417	8/9	80		19	19	10.25	10.25	1.9			

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
7	15.9	15.9	15.9	203	116	114	.686	55	92	19		9800
8	11.9	11.9	11.9	203	110	114	.671	51	86	31		8300

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

OIL 64 45K HS0600 2PAIL
CARBOMUL 2 DRUMS LIME 30 SK
BARBOTEC 5 DRUMS
BARITE 15 SK

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		120	.79	
21-DC		119	194.15	
12 HWDP		89	110.31	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	10.25	
2. Trips	10.50	
3. Rig Service	.50	
4. Deviation Surveys		
5. Ream & Cond. Hole LUBASE 36 BBL	1.0	
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair Slip & Cut	.75	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. ROTATE HEAD	1.0	
TOTAL	24	

COSTS

DAILY 61941
CUMMULATIVE 1872476

SUPERVISOR G SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-17-0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15- 60°30'N 123° 02'W

OPERATIONS DETAIL:

PULL OUT OF HOLE. CHECKED ALL CONNECTIONS FLOW CHECK @ 2783m
2217m 1500m 252m. BANK. FILL UP MEAS. 10.34m³ CALC 10.34m³.
RAN IN HOLE LAYED DOWN 2 BENT HWDP & 6 E PIPE. PICKED UP 8 HWDP
FILL PIPE & FLOW V 908m, 1870m 2710m INSTALLED R.B.O.P.
SLIP & CUT DRILLING LINE.
FUNCTION TEST TOP PIPE RAMS 6 S ANNULAR 12 SEC
WASHED 18m TO 3m.
DRILL AHEAD

SENT 50m³ CONTAMINATED INVERT & SALT WATER TO FT ST JOHN
NEW ALTA FOR DISPOSAL

3 LOADS AIR EQUIPMENT MOVED TO P57

WANT LIST:

WEATHER: O/CAST -12 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-17-0600
Yr - Mon - Day - Time

WELL NAME PARA ESAL ARROWHEAD LOCATION 0-15

Day 31 Depth 2936 m Metres last 24 hr 0 Rotating hrs 0

Activity at report time P.O.H TO CHECK DRILL STRING

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1065 Vis 55 WL Gels 3/20 Solids 6.0 % PV 18 YP 5.27 pH
Oil 93 % Sand 1.0 % Cake 1.0 PPMCL 216666 PPMCa 113335

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	D	G
7	156	RCHPS1V	mm 9771				0	131	0	23.75	5.5	TRIP		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
7	15.9	15.9	15.5	203	116	114	.696	55	92	19		9800

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

SHURFLO 30m³
BASE OIL 10m³
BARITE 225 sk

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT dkN
BIT		156	1.25	
BIT SUB		120	.79	
FLOAT SUB		124	.94	
21 - DRILL COLLARS		119	194.15	
6 - HW DP		89	55.18	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	8.00	
3. Rig Service	.50	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud	5.25	
7. Circulation	3.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing	1.99	
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on: WIRE LINE	2.50	
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. ~~Lost Circ~~ DISPLACE MUD	1.75	
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. MONITOR WELL & SAFETY	1.25	
TOTAL	24	

COSTS

DAILY 73370
CUMMULATIVE 1810535

SUPERVISOR G SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 17 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 8-15

OPERATIONS DETAIL:

WAITED ON WIRELINE & FISHERMAN
BACKED OFF DRILL PIPE MANUALY WHILE WAITING.
BLEED OFF PRESSURE BETWEEN STRING FLOAT & BIT.
PULLED OUT OF HOLE RECOVERED 31 STDS + 1 SINGLE D.F.
LAYED DOWN 1 SINGLE & STRING FLOAT.
RAN IN OPEN ENDED & CIRC ABOVE FISH. FILLED HOLE WATER LEVEL @ 2044m
SCREWED INTO FISH - WORKED PIPE & PRESSURED UP ON DRILLSTRING.
FISH CAME FREE.
CIRC BTMS UP (SALT WATER AND INVERT) CONTAIN CONTAMINATED MUD IN
2 COMPARTMENTS IN MUD TANKS
PULLED 5 STD'S AND RACKED BACK.
CLEANED CONTAMINATED MUD OUT OF MUD TANKS & STORED IN H2S TRIM
400 BBL TANKS WITH VAC TRUCK. HAVE 74m³ IN TANKS.
TRANSFERED 10m³ BASE OIL & 30m³ INVERT FROM TANK FARM TO RIG
TO BRING MUD TANK VOLUME TO 100m³.
MIXED BARITE TO BRING WT TO 1065 kg/m³.
RAN IN 5 STANDS AND DISPLACED HOLE THROUGH ENTEST TO 400 BBL
TANK.
CIRC BTM'S UP & CHECKED FOR FLOW
P.O.O.H TO CHECK DRILLING STRING @ 0600 BU

WANT LIST:

WEATHER: L SNOW - 12 WIND [illegible] ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-16-0600 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 60° 30'N 123° 02'W

Day 30 Depth 2936 Metres last 24 hr 66 Rotating hrs 12.5

Activity at report time WORK STUCK PIPE WAIT ON WIRELINE & TOOLS

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT OIL - BRINE - 90.7 - 9.7%

Wt 10.15 Vis WL Gels 1.0/1.5 Solids 18.0 % PV 14.0 YP 1.82 pH

Oil 90.3 % Sand .007 % Cake 1.0 PPMCL 186666 PPMCa 90666

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
7	156	RTCEHP51H	mm9771	4/6	80		66	131	12.50	23.75	5.5		6B	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
7	15.9	15.9	15.9	203	40	114	.3					4800 Kn

DEVIATION SURVEYS

1¼ ° at 2911 m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT				
BIT SUB				
FLOAT SUB				
21 DRILL COLLAR				
6 HWDP				

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	12.50	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	1.25	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing WORK STUCK PIPE	9.00	
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 43993

CUMMULATIVE 1737165

SUPERVISOR G SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99. 02 1
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15

OPERATIONS DETAIL:

DRILLED AHEAD TO 2925m W/ NITRIFIED INVERT. HOLE CLEANING GOOD
CIRC HOLE CLEAN. DISPLACED DRILL PIPE W/ 6m INVERT. RETRIEVED STRING FLOAT
SURVEYED @ 2911m 1½°
INSTALLED STRING FLOAT AND DRILLED AHEAD TO 2936m.
MADE A QUICK .4m OF HOLE 2935-2936m TABLE TORQUED UP.
STOPPED ROTATING - TRIED TO WORK STRING - ONLY ABLE TO PICK UP
.3m. PIPE STUCK. WORKED PIPE W/ NITRIFIED FLUID HOLE PACKED
OFF COULDN'T CIRCULATE. BLEED OFF PRESS ON D.P SIDE. COULD ONLY
BLEED OFF KELLY & SINGLE. ANNULUS BLED DOWN - HAVE NITROGEN & FLUID
TRAPPED BETWEEN STRING FLOAT & PACKED OFF ANNULUS.
WORKED STUCK PIPE TO ONE HUNDRED AND FIVE daN.
STILL STUCK @ 0600 Hrs
MUD REPORT WOULD INDICATE POSSIBLE WATER INFLOW. WILL HAVE
TO CHECK FURTHER WHEN UNSTUCK.

WANT LIST:

WEATHER: -18 OCAST

ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-15 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15-60°30'N 123°02'W

Day 29 Depth 2870 Metres last 24 hr 65 Rotating hrs 11.25

Activity at report time DRILLING AHEAD

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1010 Vis ____ WL ____ Gels 1.4/1.5 Solids 13.6 % PV 12.0 YP 1.44 pH

Oil ____ % Sand 1.06 % Cake 1.0 PPMCL 45000 PPMCa 36000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
7	156	REED EHPS1H	mm9771	4/7	75/80		65	65	11.25	11.25	5.7		0	8

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
7	15.9	15.9	15.9	207	40	1100	.363					4500

DEVIATION SURVEYS

1½ ° at 2854 m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		156	.20	
BIT SUB		120	.79	
FLOAT SUB		124	.94	
21 - DRILL COLLARS		119	154.15	
6 - HWDP		89	55.18	
1 - STRING FLOAT SUB		123	.94	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	11.25	
2. Trips	.50	
3. Rig Service	.50	
4. Deviation Surveys	2.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud DISPLACE NACL	2.50	
7. Circulation	3.0	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out	3.25	
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. B.O.P Drill	.25	
TOTAL	24	

COSTS

DAILY 35307

CUMMULATIVE 1693172

SUPERVISOR G. SAMMELS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99. 02 15. 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15

OPERATIONS DETAIL: 1c

FINNISH PICKING UP DRILL PIPE.
DRILL OUT FLOAT COLLAR CEMENT & FLOAT SHOE.
DRILL AHEAD TO 2809m.
CIRC HOLE CLEAN. (HELD SAFETY MEETING)
DISPLACED HOLE TO NITROGEN & CHECK ALL EQUIPMENT & FLOW RATES
DRILLED AHEAD W/ NITRIFIED & INVERT SYSTEM TO 2844 M
CIRC HOLE CLEAN & SURVEY. MIS RUN.
DRILLED AHEAD W/ NITROGEN-INVERT TO 2467m CIRC HOLE & DISPLACE DP
SURVEY.
DRILLING AHEAD @ 0600 HRS

WANT LIST:

WEATHER: CLEAR -20 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
SENT 3 JTS 177.8 mm 38.2 kg/m L80 8RD LTC PLUS 2 JTS 177.8 mm 38.6 kg/m
BACK TO STOCK PILE BASE CAMP W/ PICKER TRUCK. (TRANSFERRED)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02 14 66 00
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15 66°30'N 123°02'W

Day 28 Depth 2790 Metres last 24 hr 0 Rotating hrs 0

Activity at report time PICKING UP 89 mm DRILLING STRING

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
7	156	REED EHPS11	mm STII											

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
7	15.9	15.9	15.9									

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service	.25	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair Slip & Cut	.75	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS	6.50	
16. Drilling Out		
17. Lost Circ.		
18. ~~Laying Down~~ Pick Up DP & ~~Pick Up~~ DC	16.25	
19. Plug & Abandon		
20. Rig up - Tear out		
21. SAFETY MEET	.25	
TOTAL	24	

COSTS

DAILY 60643

CUMMULATIVE 1657865

SUPERVISOR G. SANDERS

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 14 0600
Yr - Mon - Day - Time

WELL NAME Para et al Arrowhead LOCATION 8-15- 60° 30'N 123° 02'W

OPERATIONS DETAIL:

PRESSURE TESTED ROTATING HEAD, CHECK VALVES, KILL LINE, 1400 LOW
14000 HIGH 10 MIN OK. PICKED UP 3½ KELLY.
PRESSURE TESTED UPPER & LOWER KELLY COCK 1500 LOW 35000 HIGH
10 MIN OK. PRESSURE TESTED MANIFOLD VALVES & LINES 1500 LOW 35000
HIGH 10 MIN OK. ACCUMULATOR CHECK 10500 PSI LEFT ON SYSTEM
AFTER CLOSING TOP & BTM PIPE RAM, ANNULAR & HCR.
RECHARGE 2 MIN 38 SECS.
CHECK MOTOR KILLS OK.
RIG TO & PICK UP DRILL STRING

WANT LIST:

WEATHER: Cloudy -17 ROAD: Good

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02 13 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15 60°30'N 123°02'W

Day 27 Depth 2790 PBTD Metres last 24 hr 0 Rotating hrs 0

Activity at report time PRESSURE TEST ENTIRE LINE & ROTARY HEAD

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

- at ____ m
- at ____ m
- at ____ m
- at ____ m
- at ____ m
- at ____ m
- at ____ m
- at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Welding on:		
15. Nipple Up & Test BOPS	24	
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 46412

CUMMULATIVE 1597222

SUPERVISOR G. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02 13 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL Arrowhead LOCATION 0-15

OPERATIONS DETAIL:

FINNISHED NIPPLING UP B.O.P STACK & ENTEST LINES.
PRESSURE TESTED BLIND RAMS W/ TEST PLUG. PRESSURED UP TO 1500 KPA LOW AND 35000 KPA HIGH 10 MIN OK.
PULLED OUT TEST PLUG AND MADE UP TEST CUP ON SINGLE AND RAN IN TO TEST TUBING HANGER TO CSG HANGER CONNECTION & BOTTOM PIPE RAM, BOTTOM KILL LINE & BLEED OFF LINE VALVES TO 1500 KPA & 35000 KPA. 10 MIN OK.
TRIED TO PRESSURE TEST TOP PIPE RAMM CUP TESTER FAILED - PULLED TEST CUP. - MADE UP TEST PLUG AND REMOVED CIRC PORT PLUG. RAN IN TO TUBING HANGER - PRESSURED UP TO 1500 KPA LOW OK PRESSURED UP TO 10000 KPA TEST PLUG FAILED PULLED TEST PLUG & ROTATING HEAD CHECKED SEAL OK
RERAN TEST PLUG. SAME RESULTS - DRAINED DOWN B.O.P STACK AND PULLED TEST PLUG - TURNED TEST PLUG OVER & RAN IN.
PRESSURE TESTED TOP PIPE RAM & VALVES TO 1500 KPA LOW 35000 KPA HIGH OK. PRESSURE TESTED ANNULAR 1500 LOW 14000 KPA HIGH OK.
PRESSURE TESTED CHECK VALVES - ROTATING HEAD, END TEST LINES. PRESSURE NOT HOLDING TO ACCEPTABLE RATE. PRESSURE TEST ENTEST LINE SEPERATELY 1500 LOW 14000 HIGH OK PRESSURE TEST CHECK VALVES 1500 KPA LOW 14000 KPA HIGH OK

WANT LIST:

WEATHER: PTLY CLOUDY -20 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
9" DRILLING HARD & SUBS WERE RETURNED FROM PRECISION 379.
SENT 7 STABILIZERS (6-8½ 1-17½) BACK TO BASE CAMP W/ PICKER TRUCK

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02 12 0600
Yr - Mon - Day - Time

WELL NAME PARA EARL ARROWHEAD LOCATION 0-15 60°30'N 123°6'W

Day 26 Depth 2790 PBTD Metres last 24 hr 0 Rotating hrs 0

Activity at report time Nipple up B.O.P.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt ____ Vis ____ WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS	24	
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 38069

CUMMULATIVE 1556809

SUPERVISOR G. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 12 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15

OPERATIONS DETAIL:

NIPPLED DOWN B.O.P. STACK - INSTALLED TUBING HANGER & RIG SPOOL SET STACK DOWN ON SPOOL - ROTATING HEAD OUT GET LINED UP IN MIDDLE OF BEAM ON SUB. 1 INCHE TOO LOW - PICK UP STACK CHANGE OUT SPOOLS - SET STACK BACK DOWN - PICK UP ROTATING HEAD - VERY CLOSE TO ROTARY TABLE. CLEARS BY 3 INCHES. NIPPLE UP VALVES KILL LINES - BLEED OFF LINES - FLOW LINE. HAD TO MODIFY SOME LINES - FLOW LINE - KILL LINE ETC

WOULD MAKE IT A LOT EASIER IF SUB BASE WAS MODIFIED ON TOP SECTION. THERE IS A STUPID CROSSMEMBER THAT IS ALWAYS THE PROBLEM WHEN TRYING TO GET THE FLOW LINE OUT TO MUD TANKS. COULD BE MODIFIED QUITE EASILY - !

WANT LIST: NEW SUB BASE FOR RIG - ONE MOUS FLOOR MOTOR OR PUMPS WITH MOTORS ON THEM

WEATHER: CLOUDY -24 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

GOT DOUBLE ENDED WELDSITE FROM AEC. FOR EXTRA BEDS (MAKHAMISK SHUTTLE DOWN -)

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-11 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROW HEM LOCATION 0-15

Day 25 Depth 2805. PBTD 2740 Metres last 24 hr 0 Rotating hrs 0

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 10.15 Vis 48 WL ____ Gels ____ Solids ____ % PV ____ YP ____ pH ____

Oil ____ % Sand ____ % Cake ____ PPMCL ____ PPMCa ____

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa

DEVIATION SURVEYS

° at ____ m		° at ____ m	
° at ____ m		° at ____ m	
° at ____ m		° at ____ m	
° at ____ m		° at ____ m	

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips		
3. Rig Service		
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	5.25	
8. Rig Repair		
9. Run Casing & Cement	10.50	
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. ~~Lost Circ.~~ SAFETY MEETING	.25	
18. Laying Down DP & BOP's	7.50	
19. Plug & Abandon		
20. Rig up - Tear out		
21. SES Slips	.50	
TOTAL	24.00	

COSTS

DAILY 243471

CUMMULATIVE 1518740

SUPERVISOR G SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-11 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15

OPERATIONS DETAIL:

RAN 207 JTS OF 177.8mm L80 8RD LTC IPSCO CSG TO 2805 m KB. FILLED CSG EVERY 10 JTS.
CSG WENT DOWN OK BUT WHEN NEAR BTM COULDN'T GET CSG TO MOVE UPWARD TAGGED BTM @ 2805m. COULDN'T MOVE PIPE UP OR DOWN.
BROKE CIRC & CIRC w/ 1500 Kpa PRESSURE SEEMED UNUSUALY LOW. MIX 1 SK SAW DUST IN PILL TANK AND PUMPED AROUND.
CIRC TIME & MUD LESS THAN THEORETICAL TIME.
MIXED CEMENT AS PER PROGRAM.
CEMENT JOB WENT WELL. A TRACE OF DIESEL FLUSH TO SURFACE WHEN PLUG DOWN
PLUG DOWN w/ 3000 Kpa OVER BUMPING PRESSURE
PLUG DOWN @ 2120 hrs 99-02-10

WANT LIST:

WEATHER: CLEAR -25 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02 10 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 60°-30'N 123°04'

Day 24 Depth 2805 Metres last 24 hr 0 Rotating hrs 0

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1015 Vis 48 WL 14.0 Gels 1.0/2.5 Solids 7.0 % PV 130 YP 431 pH

Oil 96.4% Sand .05 % Cake 2d PPMCL 266666.7 PPMCa 226666.7

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
6 RR	216	REED HP51A	LG4037	3	30	2508	0	269	0	45.25		1	4	1

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
6RR	11.9	11.9	11.9	203	105	152	1.1	44	84	57		7000

DEVIATION SURVEYS

° at m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

BAULTE 15SX

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	.50	
3. Rig Service	.50	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.50	
8. Rig Repair		
9. Run Casing & Cement	9.50	
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's	10.25	
19. Plug & Abandon		
20. Rig up - Tear out		
21. SAFETY MEETING	.75	
TOTAL	24.00	

COSTS

DAILY 129656

CUMMULATIVE 1275269

SUPERVISOR G. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-10 0600
Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15

OPERATIONS DETAIL:

FINNISHED IN W/ BIT
CIRCULATE HOLE CLEAN.
RIG TO & LAY DOWN DRILL PIPE & D.C. BREAK KELLY.
RIG TO & RUN 177.8mm CSG

RIGGING IN ENTEST & COMMAND AIR

HAD DC ENERGY SOUR SERVICE 2 OF THE TANKS IN TANK FARM.
COMPASS TRANSFERED DIESEL FROM SOUR SERVICE TANK TO NON SOUR SERVICE TANK.
HAVE TANKS SET UP TO PRODUCE INTO SOUR SERVICE AND TO CIRCULATE FROM ENTEST TO SOUR SERVICE INVERT TANKS TO SUCTION OF MUD PUMPS

WANT LIST:

WEATHER: CLEAR. -29 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99. 02 09 0600 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 66°-30'N 123° 0'W

Day 23 Depth 2805 Metres last 24 hr 0 Rotating hrs 0

Activity at report time RUN IN HOLE W/ BIT TO LAY DOWN D.P. & DC.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1015 Vis 48 WL 140 Gels 1.0/2.5 Solids 7.0 % PV 13.0 YP 4.31 pH

Oil 96.4 % Sand .05 % Cake 2.0 PPMCL 266666.7 PPMCa 226666.7

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
6RR	216	REED HP6W	L94037	3	76									

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
6RR	11.9	11.9	11.9	203	105	152	1.1	44	84	57		

DEVIATION SURVEYS

° at m ° at m
° at m ° at m
° at m ° at m
° at m ° at m

MUD & CHEMICALS ADDED

Oil Gel 4 sx

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		216	.25	
BIT SUB		170	1.06	
3-DC		177	28.75	
1-DRILLING JAR		170	3.86	
3-DC		171	28.33	
1.40 SUB		163	.58	
6 HWDP		114	54.98	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling		
2. Trips	8.25	
3. Rig Service	.25	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	6.50	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging	8.50	
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip & Cut	.50	
TOTAL	24.00	

COSTS

DAILY 32763

CUMMULATIVE 1145613

SUPERVISOR G SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-09 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARRAWHEAD LOCATION 0-15

OPERATIONS DETAIL:

CIRC & COND MUD.
P.O.O.H TO LOG HOLE GOOD ON TRIP OUT
RIG UP & LOG W/ WESTERN ATLAS.
RAN DAL - GR - XY - ZDL - CN - GR - XY CUL TVD. 2805m TO 1185m.
RIG OUT LOGGERS -
R.I.H. W/ BIT TO LAY DOWN D.P. & DC.

ENTERT & CANADIAN AIR RIGGING IN EQUIPMENT

WANT LIST:

WEATHER: CLEAR -27 ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
MOVED IN 3 AIR DRILLING UNITS.

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-08 0600 (Yr - Mon - Day - Time)

WELL NAME Para Ftn Arrowhead LOCATION 0-15 60° 24' 123°-02'

Day 22 Depth 2805 Metres last 24 hr 7 Rotating hrs 1.25

Activity at report time Circ & Cond mud to Log.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1010 Vis 51 WL 15 Gels 10/20 Solids 6.6 % PV 13.0 YP 96 pH

Oil 97.5 % Sand 0.5 % Cake 2.0 PPMCL 41000 PPMCa 36000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
6	216	Reed HP51A	LQ4077	14/16	30/75	2805	7	269	1.25	45.25	5.9	1	3	1

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
6	11.9	11.9	11.9	203	105	152	1.1	44	84	57		7000

DEVIATION SURVEYS

°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m
°	at	m	°	at	m

MUD & CHEMICALS ADDED

Oil Gel 5 sx
Carbomul 1 BBL
Barite 15 sx

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
Bit		216	.25	
Bit Sub		17[illegible]	1.06	
3-DC		177	28.75	
1-Drilling Jar		170	3.86	
3 DC		171	28.33	
6-HWDP		114	54.98	
140		168	.55	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	1.25	
2. Trips	14.75	
3. Rig Service	.50	
4. Deviation Surveys	.25	
5. Ream & Cond. Hole Tight Conn	.25	
6. Mix & Cond. Mud	1.75	
7. Circulation	3.50	
8. Rig Repair Slip & Cut	.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Hdl Dir Tools	1.25	
TOTAL	24.00	

COSTS

DAILY 43707

CUMMULATIVE 1112850

SUPERVISOR G. Sanders

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING: 99 02 08 0600
Yr Mon Day time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15-60'-24' 122'-2°

OPERATIONS DETAIL:

Circ Btm Hole Sample - Drilled to 2805 m.
Circ Hole clean.
P.O.O.H Pumped out 14 singles - Rest of Trip Fair Hole
Drag 10-20000 daN.
Layed down Directional tools.
Left out 3 stds Drill Collars
RIH w/ Bit Picked up 26 singles No Fill on Btm
Hole Drag the same as before
Circ & Condition mud prior to logging

Directional Personnel Left for Edmonton last night

WANT LIST:

WEATHER: Light Snow -22 ROAD: Good

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)
Hauled in Air Equipment. Spotted Entest Equipment. Stood up
Flare Stack. Brought in 2 SSSR Service 400 BBL Tanks.

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02 07 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROW HRZ LOCATION 0-15-60-14 W5

Day 21 Depth 2798 m Metres last 24 hr 126m Rotating hrs 19

Activity at report time CIRC BTM HOLE SAMPLE - 2798 m

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1010 Vis 50 WL 15 Gels 10/20 Solids 6.6 % PV 13.0 YP 96 pH

Oil 97.5 % Sand .005 % Cake 2.0 PPMCL 41000 PPMCa

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	D	G
6	216	REED HP51A	194037	4/19	30/75		126	262	19.00	44.00	3.8		0	13

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS kPa
6	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9200

DEVIATION SURVEYS

° at m	° at m		
° at m	° at m		
° at m	° at m		
° at m	° at m		

MUD & CHEMICALS ADDED

BASE OIL 10m³ 1120 m³
SOLUFLAKE F 8 SK
CACO CL 8 SK
TORQUE ROL 2 GAL

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 BIT		216	.23	
1 - DRILLING MOTOR		167	6.66	
1 - FLOAT SUB		167	.67	
1 - MWD NMDC		167	9.44	
1 - PULSE SUB		167	1.14	
1 - NM DC		158	9.39	
1 - XO SUB		176	.44	
3 - DC		176	28.75	
1 - DRILLING JAR		176	3.86	
12 - DC		176	113.56	
1 - XO SUB		163	.58	
6 - HWDP		114	54.98	
	TOTAL		229.52	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	19.00	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	2.00	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	.75	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. WORK TIGHT HOLE	1.75	
TOTAL	24.00	

COSTS

DAILY	48100
CUMMULATIVE	1069143

SUPERVISOR G SANDERS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-02-07 0600
Yr - Mon - Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION O-15

OPERATIONS DETAIL:

DIRECTIONAL DRILL & SURVEY AHEAD.
CONNECTIONS STILL TIGHT 9-27-00 DRAG HAVE TO BACK REAM
C. ON EVERY CONNECTION.
HOLE ANGLE HOLDING REASONABLY GOOD 65°-65° THE LAST 200m
FUNCTION TEST ANNULAR B.O.P. 14 SEC TOP PIPE RAM 6 SECS
HOLE SEEMS TO BE CLEANING OK.

HAD PICKER COME IN AND STAND FRONT END LOADED BACK ON ITS
WHEELS - NO SIGNS OF DAMAGE.

WANT LIST:

WEATHER: ROAD:

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

HAULED IN 21-120mm DC & PICK UP SUPS FROM F36 LOCATION.
SENT 1 400 DBL TANK FROM O-15 TO A 01.
SENT 2 BASKETS FISHING TOOL BACK TO BASE CAMP
SENT COYOTE VACUUM CLEANER BACK TO BASE CAMP TO BE SENT TO NEBO ON 1 [illegible]

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02 06 0600 (Yr - Mon - Day - Time)

WELL NAME Para Etal Arrow Head LOCATION 0-15 60°24' 123°02'

Day 20 Depth 2672 Metres last 24 hr 103 Rotating hrs 19

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1000 Vis 48 WL 16 Gels 10/20 Solids 7.5 % PV 13 YP 44 pH

Oil 98.1 % Sand .005 % Cake 2.0 PPMCL 413333.3 PPMCa 480000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
6	216	Reed HP51A	LQ4037	14/19	70/75		163	154	19.0	25	5.36		0	8

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
6	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9200

DEVIATION SURVEYS

° at m ° at m

° at m ° at m

° at m ° at m

° at m ° at m

MUD & CHEMICALS ADDED

Base oil 10 m³ Torque mul 3 BBL

Carbo mul 1 BBL

Solu Plate 6 SX

Cal Carb 6 SX

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		216	.25	
1-Drilling motor		161	6.66	
1-Flush Sub		164	.67	
1-MWD NMDC		167	9.44	
1-Pulse Sub		161	1.14	
1-NMDC		158	9.39	
1-XO Sub		171	.44	
3-DC		176	28.75	
1-Drilling Jar		176	3.86	
12-DC		176	113.36	
1-XO Sub		163	.58	
6 HWDP		138/114	54.98	
	TOTAL		229.52	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	19	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	3.0	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Work High Hole	1.50	
TOTAL	24.00	

COSTS

DAILY

CUMMULATIVE

SUPERVISOR

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 06 0600
Yr - Mon - Day - Time

WELL NAME Para et al Arrowhead LOCATION 0-15- 60°24' 123°02'

OPERATIONS DETAIL:

DIRECTIONAL DRILL & SURVEY AHEAD. CONNECTIONS ARE GETTING VERY TIGHT. STUCK FOR HALF HOUR IN LAST 24 HRS - BACK REPAIRING ON CONNECTIONS TO PICK UP.
ADDED 3 BBLS TORQUE TROL HELPS PENETRATION BUT NOT MUCH HELP ON CONNECTIONS
FUNCTION TEST TOP PIPE RAMS 6 SEC TO CLOSE
DEVIATION HAS DROPPED BACK TO 45 DEGREES.
HOPE TO BE AT TD TODAY-

LAYED FRONT END LOADER ON THE SHALE BIN.
MOVING SHALE FROM SHAKER TO SHALE BIN W/ PAILS -

WANT LIST:

WEATHER: O/CAST WINDS W.W @ 5 TEMP -20 ROAD: GOOD

IN DETAIL - MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-05 0600
Yr - Mon - Day - Time

WELL NAME PARA FEAL ARROWHEAD LOCATION 0-15-60°24' 123°02'

Day 19 Depth 2569 Metres last 24 hr 40 Rotating hrs 7.25

Activity at report time

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 10.0 Vis 56 WL 16 Gels 1.0/20 Solids 7.5 % PV 13 YP 1.44 pH
Oil 98.1 % Sand .005 % Cake 2.0 PPMCL 413333.1 PPMCa 48000

BIT RECORD

BIT NO	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. I	B	G
5	216	STL MF2P	LT1582	14/18	30/75	2538	9	337	1.25	72½	4.6	1	4	01
6	216	REED HP51A	LG4637	14/18	30/75		31	31	6.0	6	5.1		0	8

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
5	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9200
6	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9200

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

Solu Flake 25x
CM Chrg 2 sx
Barite 15 sx
Mi Circ 1 3x

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		216	.25	
1-Drilling motor		161	6.66	
1-Float Sub		164	.67	
1-MWD NMDC		167	9.44	
1-Pulser Sub		161	1.14	
1-NMDC		158	9.39	
1-XO		171	.44	
3-DC		176	28.75	
1-Drilling Jar		170	3.86	
12-DC		176	113.36	
1-XO Sub		163	.58	
6-HWDP		158/114	54.88	
			229.52 m	

COSTS

DAILY	42135
CUMMULATIVE	1008893

SUPERVISOR G. SANDERS

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	7.25	
2. Trips	10.00	
3. Rig Service	.50	
4. Deviation Surveys	.75	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2.60	
8. Rig Repair Slip & Cut	.50	
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Hdl Dip Tools	2.50	
TOTAL	24	

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 05 6bw
Yr - Mon - Day - Time

WELL NAME Para Etal Arrow Head LOCATION 0-15 60°-24' 123°-0'

OPERATIONS DETAIL:

Drilled to 2538m. P.O.O.H to change motors & trip thru-o hole. - Hole drag 6-25. to Csg Point.
Changed out motor. R.I.H to 256m test mwd
Slipped & Cut Drilling Line.
R.I.H. Fill pipe @ 1345m 1916m 2517m. No noticeable change in hole drag on trip in. No fill on btm.
Hole angle dropping back. Hole drag holding steady
Added 1 BBL mildrain. Seams to have helped on drag.
Will add some torque trol. to help w/ drag.

WANT LIST:

WEATHER: O/cast Calm - 25° C ROAD: Good.

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 oc 07 00 Yr - Mon - Day - Time

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15-60°-24' 123° 02'

Day 18 Depth 2529 Metres last 24 hr 98 Rotating hrs 19

Activity at report time DIRECTIONAL DRILL 216 mm Hole

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1006 Vis 52 WL ____ Gels 1-0/20 Solids ____ % PV 11 YP 1 92 pH

Oil 980 % Sand .005 % Cake 2.0 PPMCL 433333.3 PPMCa 373333.3

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
5	216	SR MF2P	LJ1582	14/18	30/45		98	328	19	71.25	4.6		0	3

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
5	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9200

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

Solu Flake 4 sx

Cal Carb 4 sx

Base oil 10 m

H2O 1 m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
Bit		216	.24	
1- Motor		166	6.18	
1- Float Sub		160	.48	
1- Mwd Non Mag		168	9.44	
1 Pulser Sub		160	1.14	
1 Non Mag DC		158	9.40	
1- Xo Sub		170	.44	
3- DC		170	28.76	
1- Drilling Jar		170	3.86	
12- DC		170	113.36	
1- Xo Sub		164	.58	
6- HWDP		114	54.98	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling Directional	19.00	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	2.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Jack Rig	2.0	
TOTAL		

COSTS

DAILY 40 436

CUMMULATIVE 966 758

SUPERVISOR G. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99 02 04 06
Yr Mon Day Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 6-15-60°-24' 123°-02'

OPERATIONS DETAIL:

DIRECTIONAL DRILL & SURVEY 216 mm HOLE.
DEVIATION HELD GOOD FOR 50 m THEN STARTED DRIFTING AGAIN. HOLE DRAG STILL INCREASING. GETTING CLOSE TO D.F. LIMIT.
HAD N.E.B. INSPECTION - NO BAD COMMENTS.
RIG JACKERS IN & LEVELED RIG.

WANT LIST:

WEATHER: O/CAST WIND CALM TEMP -24 ROAD: GOOD

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

HAULED IN TS [illegible] 177 mm C[illegible]

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-02-03 00:00 (Yr - Mon - Day - Time)

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15-60 30' 125 02

Day 17 Depth 2431 Metres last 24 hr 95 Rotating hrs 21

Activity at report time DIRECTIONAL DRILLING 216mm Hole @ 2431m [illegible]

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1000 Vis 53 WL Gels 1.0/2.0 Solids 8.0 % PV 9.0 YP 1.44 pH

Oil 90.5 % Sand .005 % Cake 2. PPMCL 4666667 PPMCa 2666667

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond T	Dull Cond B	Dull Cond G
5	216	STC MF2P	LT1582	14/18	30/75		95	230	21	52¼	4.4	0	0	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
5	11.9	11.9	11.9	203	105	152	1.1	44	84	57		9260

DEVIATION SURVEYS

___ ° at ___ m	___ ° at ___ m		
___ ° at ___ m	___ ° at ___ m		
___ ° at ___ m	___ ° at ___ m		
___ ° at ___ m	___ ° at ___ m		

MUD & CHEMICALS ADDED

SOLU FLAKE F 9sx
GAL CARB 9sx
CARBO TECH 1BL

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
BIT		216	24	
1- MOTOR		166	6.18	
1 FLOAT SUB		160	.48	
1 MWD NON MAG		168	9.44	
1 PULSER SUB.		166	1.14	
1 NON MAG DC		158	9.40	
1 XO SUB		170	.44	
3 DRILL COLLARS		170	28.76	
1 DRILLING JAR		170	3.86	
12- DRILL COLLARS		170	113.36	
1 XO SUB		164	.58	
6 HWDP		114	54.98	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling DIRECTIONAL	21	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	2.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 43211

CUMMULATIVE 926322

SUPERVISOR C. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING: 99 02 03 24
Yr - Mon Day - Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15-60°-50' 123°-08'

OPERATIONS DETAIL:

DIRECTIONAL DRILL & SURVEY AHEAD -
HOLE STILL SEARCHING FOR HYDROCARBONS. SET THINGS UP
IS TO THE N.E.
RIG SERVICES & FUNCTION TEST PIPE RAMS & SEC ANNULAR 15 SEC
MOTOR KILLS FUNCTION OK.

HOLE DRAG IS STILL INCREASING - HAS NO CONSISTANT DRAG.
MORE LIKE WHAT YOU'D FIND ON FIRST TRIP OUT OF HOLE W/ BIT.

WANT LIST:

WEATHER: O/CAST WINDS SW @ 6 km ROAD: GOOD.

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99 02 01 24 00
Yr Mon Day Time

WELL NAME PARA ETAL ARROWHEAD LOCATION 0-15 60-30.123.02

Day 16 Depth 2336 m Metres last 24 hr 117 Rotating hrs 21

Activity at report time DRILLING

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 1000 Vis 50 WL ____ Gels 14/30 Solids 6.5 % PV 10 YP 44 pH

Oil 91 % Sand 1005 % Cake 2 PPMCL ____ PPMCa 224000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond T	Dull Cond B	Dull Cond G
5	216	STC MF2P	LT1582	14/17	30/75		117	135	21	39	3.5	0	8	

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
5	11.9	11.9	11.9	203	105	152		46	78			9200

DEVIATION SURVEYS

____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m
____ ° at ____ m ____ ° at ____ m

MUD & CHEMICALS ADDED

Solu Flake F 5 sx Water 5 m³
Cal Carb 5 sx
Calc 30 sx
Invert 10 m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
Bit		216	.24	
1 - Motor		166	6.18	
1 - Float Sub		160	.48	
1 - MWD Non Mag		168	9.44	
1 - Pulser Sub		160	1.14	
1 Non Mag DC		158	9.40	
1 - XO Sub		170	.44	
3 - Drill Collars		170	28.76	
1 - Drilling Jars		170	3.86	
12 - Drill Collars		170	113.36	
1 - XO Sub		164	.58	
6 - Heviwan DP		114	54.98	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	21.00	
2. Trips		
3. Rig Service	.50	
4. Deviation Surveys	2.50	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig-up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 40611

CUMMULATIVE 883111

SUPERVISOR G. SANDERS

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-03-01

WELL NAME PARA ET AL ARROWHEAD LOCATION 0-15 - 60°38' 123°02'

OPERATIONS DETAIL:

DIRECTIONAL DRILL AHEAD TO 2264m. HOLE MAINTAINING DIR AND ANGLE STEADY. TOOK NOSE DIVS @ 2277 DROPPED ANGLE AND PICKED DIRECTION. PUT IN PRETTY GOOD DOPLEC. @ 2274m

WANT LIST:

WEATHER: CLEAR - CALM - -29 ROAD: FAIR

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARA-DRL_RPT2.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-31-24:00 (Yr-Mon-Day-Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 15 Depth 2219 Metres last 24 hr 47 Rotating hrs 10

Activity at report time Directional Drill 216mm Hole @ 2244 @ 07:00 Hrs.

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 985 Vis 51 WL 14 Gels 60/2.5 Solids 7.3 % PV 10 YP 1.44 pH

Oil 90 % Sand .005 % Cake 2 PPMCL 188000 PPMCa 225000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	Dull Cond. B	Dull Cond. G
4	216	HC-GT18M	Y6/CV	14-17 000	30-75	2201	29	514	5 1/2	84	6.12	2-3	4	TN
5	216	STC-MF2P	LT1582	14-17 000	30-75		18	18	4 1/2	4 1/2	4	Rand		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	JETS - mm 2	JETS - mm 3	PUMP STROKE	PUMP SPM	PUMP LINER	PUMP m³/MIN	ANN. VEL. DP	ANN. VEL. DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	105	152	1.15	46	78			9200
5	11.9	11.9	11.9	203	105	152	1.15	46	78			9200

DEVIATION SURVEYS

° at m	° at m	° at m	° at m
° at m	° at m	° at m	° at m
° at m	° at m	° at m	° at m

MUD & CHEMICALS ADDED

Soluflake - 2 Sax Water - .159 m³

CalCarb - 2 Sax

CaCl2 - 5 Sax

Barite - 15 Sax

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		216	.24	
1 - Drilling Water		166	6.18	
1 - Float Sub		160	.48	
1 - MWD - Non Mag DC		168	9.44	
1 - Pulser Sub		160	1.14	
1 - Non Mag DC		158	9.40	
1 - XO Sub		170	.44	
3 - Drill Collars		170	28.76	
1 - Drilling Jars		170	3.86	
12 - Drill Collars		170	113.36	
1 - XO Sub		164	.58	
6 - Heavi Water Pipe		114	54.98	
205 - Drill Pipe		114	1978.68	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	10	
2. Trips	8 1/4	
3. Rig Service	1/2	
4. Deviation Surveys Directional	2 3/4	
5. Ream & Cond. Hole Clean to Bott	1/4	
6. Mix & Cond. Mud		
7. Circulation	1 1/4	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. ~~Rig up Tear out~~ BOP Drills	1/2	
21. Slip & Cut Line	1/2	
TOTAL	24	

COSTS

DAILY 41000

CUMMULATIVE 842500

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-31-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-W2-02

OPERATIONS DETAIL:

Drill 216mm Hole Directionally to 2201M at 05:45 Hrs - Circ up Bottom Hole Sample - Pull out of Hole to Change out Down Hole Motor and Bit - Had 84 Hrs use on each - Both Came out in Good Shape - Lay Down Mud Motor - Pick Up and Run in with New Mud Motor and Smith MF2 Bit - Went in Hole with No Problems - Mud Motor set @ 1.83° - Same as Last Motor Moved Drilling Jars down 1 Stand in BHA - Break Circ - Clean and Wash 130m to Bottom - Directional Drill Ahead - Dropping Angle Down Hole and Direction Dropping Back From Programmed Angles - Slide 3-4m per Single to build up Angle

Lots of Snow Yesterday Afternoon and Evening

WANT LIST:

WEATHER: O'cast - Calm - Cold - 22°C ROAD: Good on Hiway - Fair to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-30-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-W3-02

Day 14 Depth 2172 Metres last 24 hr 107 Rotating hrs 20 3/4

Activity at report time Circ Bottoms up Prior to Trip out @ 2201M @ 07:00

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 975 Vis 49 WL 19 Gels 1.5/2.5 Solids 7.8 % PV 10 YP 96 pH

Oil 90 % Sand .005 % Cake 2 PPMCL 25000 PPMCa 200000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
4	216	HC-GT78M	X61CV	12-16	30-75	✓	107	485	20 3/4	78 1/2	5.16	Rpog		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	105	152	1.15	46	78			9100

DEVIATION SURVEYS

° at m ° at m
° at m ° at m
° at m ° at m
° at m ° at m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		216	.24	
1-Drilling Motor		165	6.18	
1-Float Sub		160	.48	
1-MWD-Non Mag DC		168	9.44	
1-Pulser Sub		160	1.14	
1-Non Mag DC		158	9.40	
1-XO Sub		170	.44	
6-Drill Collars		170	57.08	
1-Drilling Jar		170	3.86	
9-Drill Collars		170	85.04	
1-XO Sub		164	.58	
6-Heavi Wate Pipe		114	54.98	
200-Drill Pipe		114		

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	20 3/4	
2. Trips		
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Directional Surveys	2 3/4	
TOTAL	24	

COSTS

DAILY 34500
CUMMULATIVE 801500

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-30-24:00 Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

OPERATIONS DETAIL:

Directional Drill Ahead in 216mm Hole - Using Both Mud Motor and Some Rotating When Drilling - Have Hole Angle built up in the 4-5° Range and Direction in the 240-245° Area Starting to go as per Program
Since Midnite have Drilled to 2201M - Circ Bottoms up Sample prior to Tripout - Tripping due to Hours on Mud Motor and Bit - Will bring in another Mud Motor to Keep on Location as standby

WANT LIST:

WEATHER: Overcast - Calm - Cold - 26° C. ROAD: Good on Hiway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-29-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-00

Day 13 Depth 2065 Metres last 24 hr 74 Rotating hrs 12 1/2

Activity at report time Directional Drill Hole @ 2092m @ 07:00 Hrs

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 52 WL 20 Gels 1.5/2.5 Solids 9.8 % PV 10 YP 1.5 pH

Oil 88 % Sand .005 % Cake 2 PPMCL 240000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Bull Cond. T	B	G
4	216	HC-GT18M	X61CV	12-16	30/75		74	378	12 1/2	57 3/4	5.92	Run		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	105	152	1.15	46	78			9100

DEVIATION SURVEYS

° at m	° at m	° at m	° at m
° at m	° at m	° at m	° at m
° at m	° at m	° at m	° at m

MUD & CHEMICALS ADDED

Barite - 15 Sax
Cutter "D" - 13m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		216	.24	
1 - Drilling Motor		165	6.18	
1 - Float Sub		160	.48	
1 - MWD - Nanologic		168	9.44	
1 - Pulser Sub		160	1.14	
1 - Nanolog DC		158	9.40	
1 - XO Sub		170	.44	
6 - Drill Collars		170	57.08	
1 - Drilling Jar		170	3.86	
9 - Drill Collars		170	85.04	
1 - XO Sub		164	.58	
6 - Hevi Water Pipe		114	54.98	
189 - Drill Pipe		114	1823.96	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	12 1/2	
2. Trips	7	
3. Rig Service	1/2	
4. Deviation Surveys - Directional	2 1/4	
5. Ream & Cond. Hole - Clean to Bott	1/4	
6. Mix & Cond. Mud		
7. Circulation	1	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Slip and Cut Line	1/2	
TOTAL	24	

COSTS

DAILY 43500

CUMMULATIVE 767000

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-29-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-20-123-00

OPERATIONS DETAIL:

Directional Drill Ahead - Hole Angle came back in to 1° From Vertical and Direction turning the wrong way - At 195 and need 240° - Circ Bottoms up - Pull out of Hole - Change Angle on Mud Motor From 1.15° to 1.55° - Run Back in Hole - Test Mud Motor and Clean out 20m to Bottom - Drill Ahead - Mud Motor has built up more Hole Angle and Direction has turned to 247° - Getting back to Program Requirements - Since Midnite have Drilled Ahead with no Problems - Brought in 90m³ Invert Mud From Storage at Base Camp - Sent out Load of Solids to Ft St John

Weather getting Colder - No Wind but Lower Temp

Bit and Mud Motor that were Pulled out of Hole looked both in Good Shape - Ran both back in Hole

WANT LIST:

WEATHER: Good on Highway - Rough to Location ROAD: Clear - Calm - Cold -28°C

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-28-24:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-30-123-02

Day 12 Depth 1991 Metres last 24 hr 143 Rotating hrs 19 3/4

Activity at report time Trip back in Hole after drilling Motor Angle change

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 52 WL 20 Gels 1.5/2.5 Solids 9.8 % PV 10.0 YP 1.44 pH

Oil 88 % Sand .005 % Cake 2 PPMCL 240000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond T	B	G
4	216	HC-GT18M	X61CV	12-16	30/75		143	304	19 3/4	45 1/4	7.24	Rmg		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	105	140	.98	46	78			9100

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1- Bit		216	.24	
1-Drilling Motor		165	6.18	
1-Float Sub		160	.48	
1-MWD-NonMagDC		168	9.44	
1-Pulser Sub		160	1.14	
1-NonMagDC		158	9.40	
1-XO Sub		170	.44	
6-Drill Collars		170	57.08	
1-Drilling Jar		170	3.86	
9-Drill Collars		170	172.38	
1-XO Sub		164	.58	
6-Heavi Wate Pipe		114	54.98	
182-Drill Pipe		114	1756.62	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	19 3/4	
2. Trips		
3. Rig Service	1/2	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Directional Surveys	3 3/4	
TOTAL	24	

COSTS

DAILY	43500
CUMMULATIVE	723500

SUPERVISOR Wilbert Callihoo

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-28-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-20-W2-02

OPERATIONS DETAIL:

Directional Drill 216mm Hole - Dropping Hole Angle and turning Hole direction toward 240° as per Program - Going Good until 1950m - Start to Drop Hole Angle and losing direction - At 1950m - Able to get Hole Direction to Change and Bring Hole Angle back up - Since Midnite have Drilled to 1998m - Circ to Clean Hole - Trip out - Change Mud Motor Angle From 1.15° to 1.83° - Rabbit in with Same Mud Motor and Bit - Both were in Good Shape - Slip and Cut Line at Report time.

WANT LIST:

WEATHER: Overcast - Wind 25KmH - Cold - 24°C ROAD: Good on Hi Way - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-27-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-5W-123-02

Day 11 Depth 1848 Metres last 24 hr 13.2 Rotating hrs 20

Activity at report time Directional Drill 216mm Hole @ 1890 M

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 980 Vis 52 WL 20 Gels 1.5/2.5 Solids 10 % PV 10 YP 1.44 pH

Oil 88 % Sand .005 % Cake 2 PPMCL 240000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
4	216	HC-GT18M	X61CV	12-15	30-35		132	161	20	25½	6.6	Rang		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	102	152	1.15	46	78			9000

DEVIATION SURVEYS

° at m		° at m	
° at m		° at m	
° at m		° at m	
° at m		° at m	

MUD & CHEMICALS ADDED

Cutter "D" - 18 m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		216		.24
1 - Drilling Motor		165		6.18
1 - Float Sub		160		.48
1 - MWD - Non Mag		168		9.44
1 - Pulser Sub		160		1.14
1 - Non Mag D.C.		158		9.40
1 - XO Sub		170		.44
6 - Drill Collars		170		57.08
1 - Drilling Jar		170		3.86
9 - Drill Collars		170		173.28
1 - XO Sub		164		.58
6 - Heavi Wate Pipe		114		54.98
167 - Drill Pipe		114		1612.24

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	20	
2. Trips		
3. Rig Service	½	
4. Deviation Surveys		
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation		
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Directional Surveys	3½	
TOTAL	24	

COSTS

DAILY 35800

CUMMULATIVE 680,000

SUPERVISOR Wilbert Callihoo

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PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-27-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-50-123-02

OPERATIONS DETAIL:

Directional Drill 216mm Hole - Hole Angle Holding at +4° - Will have to Bring Angle back to 3° or less before getting Hole Direction Turned Have to Turn Hole to 240° and have come From 84° to 170° - Still have more turning in Hole to get done before getting bottom of Hole back into Location Area - Since Midnite [illegible] to 1890m - Using Mud Motor and Sliding Drill String
Sent out Load of Solids to Ft St John - Brought in Load of Sawdust With Incoming Truck

WANT LIST:

WEATHER: Clear - Cold - 20 Hmh Wind - -20°C ROAD: Good on Hiway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING [illegible] Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-50-123-02

Day 10 Depth 1716 Metres last 24 hr 48 Rotating hrs 9 1/4

Activity at report time Directional Drill 216mm Hole @ 1756 M @ 07:00 Hrs

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 955 Vis 50 WL 20 Gels 1.5/2.5 Solids 5.8 % PV 10 YP .96 pH 16

Oil 97.5 % Sand .005 % Cake 2 PPMCL 250000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
PD#2	216	Varel-L216XA	90282	8-12 000	110	1687	19	86	3 3/4	20 3/4	4.25	3	3	In
4	216	HC-GT18M	X61CV	12-16 000	90-75		29	29	5 1/2	5 1/2	5.27	Rnng		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
4	11.9	11.9	11.9	203	100	152	1.1	46	78			9300

DEVIATION SURVEYS

3 °	at 1668 m		°	at	m
3.5 °	at 1674 m	67°	°	at	m
3.9 °	at 1685 m	72.6°	°	at	m
4.3 °	at 1694 m	77.2°	°	at	m

MUD & CHEMICALS ADDED

Barite - 15 Sax

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		216	.24	
1-Drlg Motor		165	6.18	
1-Float Sub		160	.48	
1-MWD-NonMag DC		168	9.44	
1-Pulser Sub		160	1.14	
1-NonMag D.C.		158	9.40	
1-XO Sub		170	.44	
6-Drill Collars		170	57.08	
1-Drilling Jar		170	3.86	
9-Drill Collars		170	173.28	
1-XO Sub		164	.58	
6-Hevi Wate Pipe		114	54.78	
152 Drill Pipe		114	147.16	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	9 1/4	
2. Trips	7 1/4	
3. Rig Service	1/2	
4. Deviation Surveys	1/2	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	1/2	
8. Rig Repair		
9. Run Casing & Cement		
10.		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on Directional Drlr	3 1/2	
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. Directional Surveys	3/4	
TOTAL		

COSTS

DAILY 50000

CUMMULATIVE 44200

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-26-24:00
Yr - Mon - Day - Hrs

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-50-123-02

OPERATIONS DETAIL:

Drill 216mm Hole w/ 5-6000 dan Bit Weight - Ran Survey at 1669 m - Deviation out to 3° - Drill Ahead to 1687 m - Pull out of Hole to Pickup Directional Drilling Tools which had Arrived Last P.M. - Wait on Directional Drilling Operator to Arrive - Were out of Hole @ 08:00 Hrs Operator Arrived @ 11:30 Hrs. - Pickup - Make up and Run in with Directional Drilling Tools - Survey at Casing Shoe @ 1190 m and every 5 Stands on way to Bottom - Drill Ahead with Mud Motor and Rotate 3-3.5 m on every Single Drilled -

Deviation at Bottom of Hole @ 1687 m was 24.20 m North and 22.54 m East - Start to Bring Hole Angle and Direction back since Midnite

WANT LIST:

WEATHER: Clear Cold - Wind - 30 Km/h - -16° C **ROAD:** Good on Hiway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-25-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-50-125-02

Day 9 Depth 1668 Metres last 24 hr 52 Rotating hrs 17

Activity at report time Pullout of Hole @ 1682 m - to Pick up Directional Tools

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 955 Vis 50 WL 20 Gels 1.5/2.5 Solids 5.5 % PV 10 YP 96 pH
Oil 92 % Sand .005 % Cake 2 PPMCL 240000 PPMCa 240000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
3	216	Sec GS82F	780987	6-7000	80-90	1616	✓	161	✓	26¼	Dwn Cost 24 Hrs	2-2	3	TD
RR#2	216	Smit-L216XG	90282	6-10000	100-110		52	52	17	17	3.05	Rbag		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
3	9.5	9.5	9.5	203	100	152	1.1	46	78			7200
#2RR	11.1	11.1	11.1	203	100	152	1.1	46	78			5800

DEVIATION SURVEYS

3 ° at 1640 m
° at m
° at m
° at m
° at m
° at m

MUD & CHEMICALS ADDED

Barite - 15 Sax

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1 - Bit		216	.24	
1 - Shock Sub		170	1.08	
6 - Drill Collars		170	57.08	
1 - Drilling Jar		170	3.86	
9 - Drill Collars		170	85.04	
1 - XO Sub		163	.58	
6 - Heavi Wate Pipe		114	54.58	
- Drill Pipe		114		
1 - Kelly		114		

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	17	
2. Trips	4 3/4	
3. Rig Service	1	
4. Deviation Surveys	1/2	
5. Ream & Cond. Hole Clean to Bott	1/2	
6. Mix & Cond. Mud		
7. Circulation	1/4	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Last Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 25300
CUMMULATIVE 558,200

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-25-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-5W-123-02

OPERATIONS DETAIL:

Finish Pulling out of Hole - Lay down inner Bit Stabilizer and String Stabilizer - Run in with ReRun Tooth Bit & Slick String Break Circ - Wash and Clean to Bottom - Drill Ahead with 5-6000 daN Bit Weight and 110 RPM Rotary Speed - Drill Ahead For 30 M and Run Survey @ 1640 M - Deviation still at 3°
Drill Ahead carrying 6000 daN Bit Weight
Since Midnite Ran Survey @ 1620 M - Deviation still at 3° with more Bit Weight - Pull out of Hole to pick up Directional Tools

WANT LIST:

WEATHER: Clear - Calm - Cool -18°C ROAD: Good on Highway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-24-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arnaud 0-15 LOCATION 0-15-60-50-128-02

Day 8 Depth 1616 Metres last 24 hr 88 Rotating hrs 18½

Activity at report time Drill 215mm Hole with Tooth Bit @ 1620

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 950 Vis 60 WL 20 Gels 6/12/15 Solids 5.8 % PV 10 YP 6.44 pH
Oil 91 % Sand .005 % Cake 2 PPMCL 200000 PPMCa 200000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	C
3	216	Sec-GS82F	320987	6-7000	80-90		88	161	18½	26¼	Bit Cleaned & Sharpened	Rang		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
3	9.5	9.5	9.5	203	100	152	1.1	46	98			7200

DEVIATION SURVEYS

2¾ ° at 1534 m		° at	m
2½ ° at 1564 m		° at	m
3 ° at 1611 m		° at	m
° at	m	° at	m

MUD & CHEMICALS ADDED

Invert - 130m³

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
Bit		216	.24	
1-Near Bit Stab		214	1.08	
2-Drill Collars		170	19.14	
1-String Stab		214	1.44	
3-Drill Collars		170	28.56	
1-Drilling Jars		170	3.86	
10-Drill Collars		170	94.42	
1-XO Sub		163	.58	
6-Heavi Wate Pipe		114	54.58	
146-Drill Pipe		114	468.08	
1-Kelly		114	4.22	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	18½	
2. Trips	1¼	
3. Rig Service	½	
4. Deviation Surveys	½	
5. Ream & Cond. Hole		
6. Mix & Cond. Mud		
7. Circulation	2¼	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21.		
TOTAL	24	

COSTS

DAILY 23000
CUMMULATIVE 560900

SUPERVISOR Wilbert Callihoo

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-24-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-50-123-02

OPERATIONS DETAIL:

Drill Ahead with 216 mm Button Bit - Carrying 6-7000 dan Bit Weight
Drill at 4-8 M/Hr - Circ to Clean Hole and Run Surveys every 30 M
Deviation Came in From 2 3/4 (which was Deviation at this Depth in
Old Hole) to 2 1/2° - Drilled ahead 50 M and Ran Survey - Deviation
out to 3° at 1611 M - Circ to Clean Hole - Pump Weight Material Pill
Pull out of Hole For Bit Change and Leave out Stabilizers
Since Midnite - Made Trip - Run in with ReRun Tooth Bit
Drill Ahead at 3 M/Hr with 6-6.5 dan Bit Weight - Rotate 110 RPM.

WANT LIST:

WEATHER: Clear - Calm - Cool -18°C ROAD: Good on Hiway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

FOR 24 HR PERIOD ENDING 99-01-23-20:00 (Yr - Mon - Day - Time)

WELL NAME Paramount et al Arrowhead LOCATION 015-60-50-129-00

Day 7 Depth 1528 m Metres last 24 hr 141 Rotating hrs 18 3/4

Activity at report time Drill Ahead 216mm Hole @ 1566m @ 07:30 Hrs

DRILLING MUD PROPERTIES AT SHAKER/SUCTION/PIT

Wt 945 Vis 50 WL 20 Gels 1.5/2.5 Solids 5 % PV 10 YP 1.44 pH

Oil 92 % Sand .005 % Cake 2 PPMCL 216666 PPMCa 200000

BIT RECORD

BIT NO.	SIZE mm	MAKE & TYPE	SER. NO.	BIT WT	BIT RPM	DEPTH OUT m	m DRLD TODAY	CUM m. DRLD	Rot hrs TODAY	CUM. Rot hr	m/hr	Dull Cond. T	B	G
3	216	Sec-GS82F	720987	340 daN	85-100		141	255	18 3/4	24		King		

CIRCULATION RECORD

BIT NO.	JETS - mm 1	2	3	PUMP STROKE	SPM	LINER	m³/MIN	ANN. VEL. DP	DC	JET VEL.	HHP	SURF. PRESS. kPa
3	9.5	9.5	9.5	203	100	152	1.1	46	78			7000

DEVIATION SURVEYS

1 1/2 °	at 1340 m		°	at	m
2 °	at 1419 m		°	at	m
3 °	at 1448 m		°	at	m
2 3/4 °	at 1506 m		°	at	m

MUD & CHEMICALS ADDED

BOTTOM HOLE ASSEMBLY

TOOL	ID mm	OD mm	LENGTH m	WEIGHT daN
1-Bit		216	.24	
1-Near Bit Stab		214	1.08	
2-Drill Collars		170	19.14	
1-String Stab		214	1.44	
3-Drill Collars		170	28.56	
1-Drilling Jars		170	3.86	
10-Drill Collars		170	94.42	
6-Heavi Wate Pipe		114	54.98	
156-Drill Pipe		114	1312.36	
1-Kelly		114	11.94	

TIME ANALYSIS

OPERATION	TODAY	CUM.
1. Drilling	7 3/4	
2. Trips		
3. Rig Service	1/2	
4. Deviation Surveys	2	
5. Ream & Cond. Hole - Drill Cement	11	
6. Mix & Cond. Mud		
7. Circulation	2 1/2	
8. Rig Repair		
9. Run Casing & Cement		
10. Fishing		
11. Logging		
12. Coring		
13. Formation Testing		
14. Waiting on:		
15. Nipple Up & Test BOPS		
16. Drilling Out		
17. Lost Circ.		
18. Laying Down DP & BOP's		
19. Plug & Abandon		
20. Rig up - Tear out		
21. BOP Drill	1/4	
TOTAL	24	

COSTS

DAILY	36520
CUMMULATIVE	537900

SUPERVISOR Wilbert Callihoo

PARA-DRL_RPT.xls

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT (page 2)

FOR 24 HR PERIOD ENDING 99-01-23-24:00
Yr - Mon - Day - Time

WELL NAME Paramount et al Arrowhead LOCATION 0-15-60-06-123-000

OPERATIONS DETAIL:

Drill out Cement Plug in Hole - Carrying 3-5000 daN on Bit to try and Keep Bit From Sliding off Cement Plug - Circ to Clean Hole and Run Survey every 30M - Hole Angle staying the Same as Surveys on Original Hole - Drill out thru Cement @ 1423M - Drill Ahead in New Hole carrying 9-10000 daN on Bit - Hole Angle staying the Same @ 2 3/4° after Drilling 30M New Hole - Drill Ahead with 6-8000 daN on Bit - Since Midnite have taken Survey at 1536M and Deviation still at 2 3/4° - Survey at 1560M - 2 1/2°

WANT LIST:

WEATHER: Clear - Calm - Cool - 8° C ROAD: Good Highway - Rough to Location

IN DETAIL: MOVEMENT OF PURCHASE & RENTAL ITEMS (WHERE, WHEN, HOW)

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

LOCATION: PARA ETAL ARROWHEAD O-15
UNIQUE I.D. 3000156030123000
WELL LICENCE WID 1834

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600700 5443
SPUD DATE: 99-01-17
R.R. DATE:
CONTRACTOR: PRECISION 507
A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 43 516
CUM. COST: 465 830
DAILY MUD:
CUM MUD:
TEMP -32

DAY: 5 REP DATE: 99-01-22 STATUS 08:00 REAMING TO BTM
DEPTH: 1273 PROG. 138 m KB: 6.20 GL: 380.5 MACP: 14493
SURVEYS: 1212 4° 1222m 3½° 1251m 2° 1264m 1°

MUD TYPE: INVERT WT: 965 VISC: 65 WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
2RR	90282	216	VAREL	L216XG	3-11.1	1273	153	12.25	2.21	2.4	50/80
3	730987	216	SEC	GS82F	3-9.5						

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL
OILWELL	PT600	152							
OILWELL	PT600	140	208	110	1.05	7200	78	46	

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			.25
B/S NBR			1.07
228MM DC 2-DC			19.14
X/O STR STB			1.43
X/O 3DC			28.55
6DC JARS			3.86
10 DC			94.42
KELLY 6 HWDP			54.98
		TOTAL	203.70

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:	.50	CEMENT:	
SURVEY:	2.25	WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:	10.75	TRIP:	7.00
CIRCULATE:	2.75	L.D.D.S.:	
NIPPLE UP BOP:		REAM:	
B.O.P DRILL	.25	S/CUT	.50

TOTAL HOURS: 24

CASING SUMMARY

RAN ____ JTS OF ____ MM, ____ KG/M, ____ CASING.
LANDED AT ____ MKB. TOTAL LENGTH ____ METERS.
CEMENTED WITH
PLUG DOWN AT ____ HRS. ON ____ WITH ____ M3 CEMENT RETURNS.

DRILLED OUT CEMENT & SURVEY TO 1273m. HAD TO DRILL ALL THE WAY NO SIGN OF OPEN HOLE FROM 1000m. HOLE COULD BE SWEPPED IN A BIT OR PLUGS MET. DRILLS THE SAME, LOTS OF CUTTING COMING OUT OF HOLE P.O.O.H @ 1273m AND PICKED UP BHA. RAN IN TO 1186 m AND HAD TO REAM WAY IN. DOESN'T TAKE MUCH TO REAM IN.
REAMING @ 1216m @ 0600 HRS

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

LOCATION: PARA ET AL ARROWHEAD 6-15
WELL LICENCE WID 1834

UNIQUE I.D. 8000156030123000

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600-706-5448
SPUD DATE: 99-01-17
R.R. DATE:
CONTRACTOR: PRECISION 567
A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 32179
CUM. COST: 422314
DAILY MUD: 700
CUM MUD: 1800
TEMP -30

DAY: 4 REP DATE: 99-01-21 STATUS 0600 DRILL OUT CEMENT
DEPTH: 1135 PROG. 22 KB: 6.20 GL: 380.6 MACP: 11493
SURVEYS:

MUD TYPE: INVERT WT: 9.65 VISC: 65 WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
2RR	90282	216	VAREL	L216 X 0	3-11.1		22	1.5	0 0	2-3	40

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL
OIL WELL	PT600	152	203	100	1.05 m³/m	4600	78	46	
OIL WELL	PT600	140	203						

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT	216		.25
B/S	173		1.06
15 DC	171		132.50
6 HW DP	163		54.98
X0 SUB	163		.58
KELLY			
		TOTAL	189.37

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:	.50	CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:	2.75	RUN CSG:	
DRILL:	1.50	DST:	
DRILL OUT:		TRIP:	9.25
CIRCULATE:	.50	L.D.D.S.:	
NIPPLE UP BOP:	8.75	REAM:	
FISH	.75		

TOTAL HOURS: 24

CASING SUMMARY

RAN ____ JTS OF ____ MM, ____ KG/M, ____ ____ CASING.
LANDED AT ____ MKB. TOTAL LENGTH ____ METERS.
CEMENTED WITH
PLUG DOWN AT ____ HRS. ON ____ WITH ____ M3 CEMENT RETURNS.

FINNISHED TRIP OUT W/ MAGNET. FULL OF JUNK.
PICKED UP B.O.P. STACK AND CHANGED OUT TUBING HANGER TO CSG HANGER
NIPPLED UP. B.O.P. & FLOW LINE. - PRESSURE TESTED BTM PIPE RAM. CSG HANGER
KILL LINE. MANIFOLD LINES & VALVES 1400 KPa LOW & 21000 KPa HIGH 10 min OK
RAN IN W/ MAGNET. WORKED MAGNET. P.O.H. RECOVERED MAGNET FULL OF
FILLINGS. NO LARGE PIECES.
RAN IN W/ BIT. DRILLING OUT CEMENT W/ 2-3 dcn. VERY POOR CEMENT
B. ANY WHERE FROM 10-25m/HR VERY PATCHY CEMENT.

PAI MOUNT RESOURCES L J.

DAILY DRILLING REPORT

UNIQUE I.D. 300015603012800 0

LOCATION: PARA ESAL ARROWHEAD 0-15

WELL LICENCE WID 1834

SUPERVISOR: G. SANDERS

CELLULAR #: 1-604 700 5443

SPUD DATE: 99-01-17

R.R. DATE:

CONTRACTOR: PRECISION 567

A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 28791

CUM. COST: 390135

DAILY MUD: 1100

CUM MUD: 1100

TEMP -20

DAY: 3 REP DATE: 99-01-20 STATUS 06:00 MAGNET RUN #4

DEPTH: PROG. KB: GL: MACP:

SURVEYS:

MUD TYPE: INVERT WT: 965 VISC: 65 WL: FC: PH:

ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
2	90282	216	VAREL	L216 XG	3-11-1	1108	1	.5	111	2	40

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL
OIL WELL	PT600	152	203	100	1.05 m3	4500	78	46	
OIL WELL	PT600	140	203						

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
MAGNET	203		.68
BIT SUB			1.06
15 DC	171		142.11
1 XO SUB	163		.58
6 HW DP	114		54.98
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:	.50	CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:	.75	DST:	
DRILL OUT:		TRIP:	26.75
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	
FISH W/MAGNET 2.0			

TOTAL HOURS: 24

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.

LANDED AT MKB. TOTAL LENGTH METERS.

CEMENTED WITH

PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

RAN IN W/ 8 INCH MAGNET - WORKED MAGNET - HOISTED MAGNET. RECOVERED JUNK (LOOKED LIKE CUP) APPEARS TO BE BIT CONE. MADE SECOND MAGNET RUN RECOVERED MORE PIECES OF STEEL

RAN IN W/ BIT TRIED TO DRILL - STILL MORE IRON - HOISTED BIT.

RAN MAGNET - MORE PIECES OF STEEL.

RAN MAGNET AGAIN.

HAVE ICE CREAM PAIL FULL OF PIECES RANGING FROM 1/2 OF CONE SIZE TO PEA SIZE.

HAVE INTERMEDIATE SPOOL & DOUBLE STUDDED ADAPTER HERE & NIPPLE UP CREW.

PAR MOUNT RESOURCES L

DAILY DRILLING REPORT

LOCATION: PARA ET AL ARROWHEAD 0-15
UNIQUE I.D. 300 015 6030 123000
WELL LICENCE W.I.D 1834

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600 700 5443
SPUD DATE: 99-01-17
R.R. DATE:
CONTRACTOR: PRECISION 507
A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 45 622
CUM. COST: 361 344
DAILY MUD:
CUM MUD:
TEMP -13.

DAY: 2 REP DATE: 99.01.19 STATUS 08:00 R.I.H. W/ MAGNET.
DEPTH: 1113 PROG. 113 m KB: 6.20 GL: 380.5 MACP:
SURVEYS:

MUD TYPE: INVERT WT: 940 VISC: 60 WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1:	A44DX	215.9	HC	STX.G3	3-14	1114	113	13.75	811	3-6	40/60

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL
OILWELL	600PT	152	203	100	1.05 m/s	6000	78	46	
OILWELL	600PT	140	203						

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
MAGNET			.68
BIT SUB.			1.06
15 DC	171		142.11
1 XO	163		.58
6 HWDP			54.98
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	.50
DRILL MH & RH:		LOGGING:	
RIG SERVICE:	.50	CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:	13.75	TRIP:	8.00
CIRCULATE:	.50	L.D.D.S.:	
NIPPLE UP BOP:		REAM:	
		W.O.O.	.75

TOTAL HOURS: 24

CASING SUMMARY

RAN ____ JTS OF ____ MM, ____ KG/M, ____ CASING.
LANDED AT ____ MKB. TOTAL LENGTH ____ METERS.
CEMENTED WITH
PLUG DOWN AT ____ HRS. ON ____ WITH ____ M3 CEMENT RETURNS.

DRILLED OUT BRIDGE PLUG @ 906m.
RAN IN TO TOP OF CEMENT PLUG @ 1004m
DRILL OUT CEMENT TO 1099m POOR CEMENT. DRILLED OUT CEMENT TO 1111m FAIR CEMENT - BIT STARTED TORQUING & QUIT DRILLING.
PULLED OUT OF HOLE. BIT LOCKED UP. CENTER TEETH BROKEN OFF. FOUND CHUNK OF IRON IN BIT. R.I.H. HOLE W/ NEW BIT. IRON ON BTM. P.O.O.H. PHONE DAVE WILSON. AND MET HIM AT HIWAY TO GET MAGNET 206mm. ±
R.I.H. W/ MAGNET, @ 0600 HRS

DRILLING REPORT DAY 1

PAI .MOUNT RESOURCES LTD.

DAILY DRILLING REPORT

UNIQUE I.D. 3000156030123000

LOCATION: Arrowhead D-15
WELL LICENCE

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600 700 5443
SPUD DATE: 99-01-17
R.R. DATE:
CONTRACTOR: PRECISION 507
A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 30886
CUM. COST: 315722
DAILY MUD:
CUM MUD:
TEMP

DAY: 1 REP DATE: 99-01-18 STATUS 08:00 REPAIR DWKS
DEPTH: PROG. KB: GL: MACP:
SURVEYS:

MUD TYPE: INVERT WT: VISC: WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1	A44DX	215.9	HC	GTX-G3	3-14						

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL
OILWELL	PT600	152	203						
OIL WELL	PT600	140	203						

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT	215.9		.25
B/S	177		1.06
18 DC	171		132.50
6 HWDP	163		54.98
XO SUB	163		.58
KELLY			
		TOTAL	197.67

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	2.25
DRILL MH & RH:		LOGGING:	
RIG SERVICE:	.50	CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:	10	RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	
Pick up DC & DP	7	Displace	2.50
Rig to Pick DP	1.50	Safety	.25
TOTAL HOURS:	24		

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.
LANDED AT MKB. TOTAL LENGTH METERS.
CEMENTED WITH
PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

PRESSURE TESTED LOWER PIPE RAMS & KILL LINES. WOULDNT HOLD PRESSURE. FOUND CEMENT IN CHECK VALVE. RENIPPLE KILL LINES. PRESSURE TESTED TOP & BTM PIPE RAM 1200 LOW 21000 KPA HIGH 10 MIN OK. PRESSURE TESTED ALL LINES & MANIFOLD VALVES TO 1400 LOW 21000 KPA HIGH 10 MIN OK. PRESSURE TESTED ANNULAR TO 1200 KPA 10500 HIGH 10 MIN OK. CHEKED MOTOR KILLS OK. CHECKED ACCUMALATOR 22000 KPA START PRESSURE LEFT AFTER FUNCTIONS 12500 KPA RECHARGED IN 2 MIN H SSO - PICKED UP 15 DC 6 HWDP & DRILL PIPE TO 906 M. DISPLACED CUTTER 'D' TO INVERT.
REPAIRING WATER LEAK TO BRAKE DRUMS.

DRILLING REPORT DAY 1

PAR MOUNT RESOURCES LTD.

DAILY DRILLING REPORT

UNIQUE I.D. 30060156030 12300

LOCATION: PARA ETAK ARROW HEAD O-15

WELL LICENCE WS10 1834

SUPERVISOR: G. SANDERS

CELLULAR #: 1 600 700 5443

SPUD DATE:

R.R. DATE:

CONTRACTOR: PRECISION 567

A.F.E. #: 17178 EST. T.D 3088

DAILY COST: 23390

CUM. COST: 284836

DAILY MUD:

CUM MUD:

DAY: 1 REP DATE: 99-01-17 STATUS 00:00 PRESSURE TESTING

DEPTH: PROG. KB: GL: MACP:

SURVEYS:

MUD TYPE: WT: VISC: WL: FC: PH:

ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1A											

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			
B/S			
228MM DC			
X/O			
X/O			
6DC			
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:		CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	

TOTAL HOURS:

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.

LANDED AT MKB. TOTAL LENGTH METERS.

CEMENTED WITH

PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

REBUILD BLEED OFF LINES & FLOW NIPPLE. NIPPLE UP B.O.P. SAME PROBLEM AS LAST WELL. PRESSURE TESTED MANIFOLD & FLARELINES 1400 - 2100 kpa. PRESSURE TEST BOTTOM PIPE RAM 1400 kpa LOW & 2100 kpa HIGH 10 min ea. HAD SOME CEMENT IN RTN KILL LINE. CHECK VALVE HAD TO PULL LINES OFF ON KILL LINE STOP.

PAF MOUNT RESOURCES LTD.

DAILY DRILLING REPORT

LOCATION: PARA ETAL ARROWHEAD 0-15
UNIQUE I.D. 2000156030123 0L
WELL LICENCE WID 1834

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600-700 5448
SPUD DATE:
R.R. DATE:
CONTRACTOR: PRECISION 507
A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 32450
CUM. COST: 261446
DAILY MUD:
CUM MUD:
TEMP -8

DAY: 1 REP DATE: STATUS 08:00 NIPPLE UP B.O.P.
DEPTH: PROG. KB: GL: MACP:
SURVEYS:

MUD TYPE: WT: VISC: WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1A											

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			
B/S			
228MM DC			
X/O			
X/O			
6DC			
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:		CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	

TOTAL HOURS:

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.
LANDED AT MKB. TOTAL LENGTH METERS.
CEMENTED WITH
PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

RIGGED UP FLOOR - PUT UP PREFABS - RIGGED IN CENTREFUGES..
DUG FLARE PIT - SUMPS FOR WELL SITES - PITS FOR BLOW DOWN & SHAKER LOSSES. STARTED NIPPLE UP B.O.P @ 2000 HRS. HAD DC ENERGY IN TO MANIFOLD TANK FARM & CHECK PUMP.
CONTACTED ROD @ GEO COMM THEY HAVE MOTORS & MWD TOOLS & PERSONNEL. THEY DON'T STOCK PIPE TOOLS & PERSONNEL @ FT NELSON - HAVE TO CHANGE 2 LINES ON MANIFOLD LINES..

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

UNIQUE I.D. 3600156630 12360

LOCATION: PARA ET AL ARROWHEAD 8-15

WELL LICENCE W10 1834

SUPERVISOR: G. SANDERS

CELLULAR #: 1-608 700 5443

SPUD DATE:

R.R. DATE:

CONTRACTOR: PRECISION 507

A.F.E. #: 17178 EST. T.D 3085

DAILY COST: 164045

CUM. COST: 228996

DAILY MUD:

CUM MUD:

DAY: 1 REP DATE: STATUS 06:00 RIGGING UP

DEPTH: PROG. KB: GL: MACP:

SURVEYS:

MUD TYPE: WT: VISC: WL: FC: PH:

ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1A											

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			
B/S			
228MM DC			
X/O			
X/O			
6DC			
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP		RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:		CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	

TOTAL HOURS:

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.

LANDED AT MKB. TOTAL LENGTH METERS.

CEMENTED WITH

PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

FINNISHED RIG UP W/ TRUCKS. DERRICK RAISED AT 1600 HRS.
RIGGING UP MUD TANKS, PLUMB, ETC.
COYOTE SERVICE MAN BRUISED LEFT HAND WHILE RIGGING IN CENTRIFUGES AND WENT INTO MEDIC CLINIC. REPORT TO FOLLOW. CONTACTED COYOTE REP IN NISKU AND WAS INFORMED HE WILL BE BACK 99-01-18 AM. TO CONTINUE RIGGING IN CENTRIFUGES.
WELL HEAD DIAGRAM TO FOLLOW.

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

LOCATION: PARA ETAL ARROWHEAD 0-15
UNIQUE I.D. 300015603012301
WELL LICENCE WID 1834

SUPERVISOR: G. SANDERS
CELLULAR #: 1-600 700 5443
SPUD DATE:
R.R. DATE:
CONTRACTOR: PRECISION 507
A.F.E. #: 17178 EST. T.D 3685

DAILY COST: 47730
CUM. COST: 47730
DAILY MUD:
CUM MUD:

TEMP -11

DAY: 1 REP DATE: STATUS 06:00 RIGGING UP RIG.
DEPTH: PROG. KB: GL: MACP:
SURVEYS:

MUD TYPE: WT: VISC: WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1A											

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			
B/S			
228MM DC			
X/O			
X/O			
6DC			
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP	24	RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:		CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	

TOTAL HOURS: 24

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.
LANDED AT MKB. TOTAL LENGTH METERS.
CEMENTED WITH
PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

HAULED IN BALANCE OF RIG EQUIPMENT. ALL RIG COMPONENTS ON LEASE
LAID MATTING - PUT SUB TOGETHER & LEVELED. SPOTTED MUD TANKS
PUT DERRICK TOGETHER. READY TO PICK UP DINKS AND DERRICK IN MORNING
HAVE ALL WEIGHT MATERIAL & MUD PRODUCTS ON LEASE.

BEAVER CHANGED OUT COOK.
ENTEST EQUIPMENT & ALPINE ON LOCATION.
89 DRILL STRING ON LEASE

PAR MOUNT RESOURCES LT

DAILY DRILLING REPORT

UNIQUE I.D.

LOCATION: PARA ETAL ARROWSMITH 0-15
WELL LICENCE: 5110

SUPERVISOR: G SANDERS
CELLULAR #: 1-600 706 5443
SPUD DATE:
R.R. DATE:
CONTRACTOR: PRECISION DRILL INC
A.F.E. #: 17178 EST. T.D

DAILY COST:
CUM. COST:
DAILY MUD:
CUM MUD:

DAY: 1 REP DATE: STATUS 08:00
DEPTH: PROG. KB: GL: MACP:
SURVEYS:

MUD TYPE: WT: VISC: WL: FC: PH:
ADDITIVES:

BIT	SERIAL #	SIZE	MFG	TYPE	JETS	OUT	RUN	HRS	TBG	WEIGHT	RPM
1A											

PUMP	DESCR.	LINER	STK	SPM	RATE	PRESS	AV DC	AV DP	NOZZEL VEL

DRILLING ASSEMBLY

TOOL	OD	ID	LENGTH
BIT			
B/S			
228MM DC			
X/O			
X/O			
6DC			
KELLY			
		TOTAL	

TIME DISTRIBUTION

MOVE/RIG-UP	24	RIG REP:	
DRILL MH & RH:		LOGGING:	
RIG SERVICE:		CEMENT:	
SURVEY:		WOC:	
PRESSURE TEST:		RUN CSG:	
DRILL:		DST:	
DRILL OUT:		TRIP:	
CIRCULATE:		L.D.D.S.:	
NIPPLE UP BOP:		REAM:	

TOTAL HOURS: 24

CASING SUMMARY

RAN JTS OF MM, KG/M, CASING.
LANDED AT MKB. TOTAL LENGTH METERS.
CEMENTED WITH
PLUG DOWN AT HRS. ON WITH M3 CEMENT RETURNS.

TORE OUT & MOVED CAMP TO 0-15 CAMPSITE & RIG UP SAME
TORE OUT RIG & MOVING TO 0-15.
HAVE 14 TRACTOR TRAILERS - 2 BEDS 1 POLE TRUCK ON MOVE
MOVE IS GOING WELL.
BEAVER CHANGED OUT KITCHEN STAFF. NEW COOK HAS NEVER COOKED
ON RIG CAMP - WANTS RELIEF ALREADY.

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15		REPORT NO :	38
		DATE :	03/24/98
		DEPTH 24:00	903
OPERATION AT 24:00 HRS :	RIG OUT TOP DRIVE	PROGRESS :	0
OPERATION AT 08:00 HRS :	RIG OUT WAITING ON MORE TRUCKS	DFS :	38
DRILLING FLUID IN USE :	MUD COMPANY :	AFE NO :	13577

DENSITY :		GRAD :		WATER		WELL LICENCE NO :	EL369
VIS :		600 / 300		CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP		PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10		SOLIDS		MUD ADDITIVES USED :	
DAILY MUD COSTS :			CUMM :				
DAILY WATER COSTS :			CUMM :				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :			WOB :			HOLE VOLUME :	
SIZE MM :			RPM :			TANK VOLUME :	
TYPE :			STR. WT. :			BOTTOMS UP :	
SERIAL NO :			SPM 1 :			CIRC. TIME :	
JETS :			SPM 2 :			SHOE SET AT :	
DEPTH IN :			L / STRK :			FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :			FORMATION :	
METERS :	0		PRESSURE :			SUMP VOLUME :	
HRS :			DC VEL :			SUMP FREE BOARD :	
ROP :			DP VEL :			LOADS TO LOC :	
CUM. HRS :			JET VEL :			VOL. HAULED OUT :	
CONDITION :			MACP :			MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22
B.H.A.								

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -5
MIRU		SLIP/CUT		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		WO WIRE L	8.00	RIG MANAGER :	DENNIS ROSS
CIRC/DISP		LOST CIRC.		LOG		PHONE :	
TRIP		WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY		LAY D DP		RUN PLUG	3.00	PHONE :	403-210-1894
NIPPLE DN	8.00	RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT	5.00	HAND TOOLS		WOC		PREVIOUS COST :	$3,160,692.00
TOTAL P :	13.00	TOTAL R :	0.00	TOTAL E :	11.00	DAILY COST :	$52,892.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$3,213,584.00

24 HRS SUMMARY :

RUN DRILLABLE BRIDGE PLUG SET AT 903 M SET WITH PLAINS PERFORATING
BRIDGE PLUG PRESSURE TESTED TO 20000 KPA FOR 15 MIN HELD OK

REMARKS

CLEAN MUD TANKS WITH STEAM CLEANER , TEAR OUT BOP RIG OUT TOP DRIVE
LOAD 15 MULLEN TRUCKS.
WAIT ON DAYLIGHT TO LOWER DERRICK.

NEXT 24 HRS RIG WILL BE ALL MOVED TO ROAD AND IN TRANSIT

DIRECTIONS :
PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	37
						DATE :	03/23/98
						DEPTH 24:00	996
OPERATION AT 24:00 HRS :	WAIT ON WIRE LINE TRUCK					PROGRESS :	0
OPERATION AT 08:00 HRS :	WAIT ON WIRELINE TRUCK					DFS :	37
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY : 1075	GRAD :	10.60	WATER	0.03		WELL LICENCE NO :	EL369
VIS : 70	600 / 300	95/60	CA+			LAST BOP DRILL :	03/13/98
W.L.	PV / YP	35\12	PH			RIG SAFETY DAYS :	
F.C.	GELS 1/10	4\6	SOLIDS	0.1		MUD ADDITIVES USED :	
DAILY MUD COSTS :		CUMM :	121245				
DAILY WATER COSTS :	1000	CUMM :	11271`3				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :			WOB :			HOLE VOLUME :	21
SIZE MM :			RPM :			TANK VOLUME :	
TYPE :			STR. WT. :			BOTTOMS UP :	45
SERIAL NO :			SPM 1 :			CIRC. TIME :	96
JETS :			SPM 2 :			SHOE SET AT :	1186
DEPTH IN :			L / STRK :			FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :			FORMATION :	0
METERS :	0		PRESSURE :			SUMP VOLUME :	0
HRS :			DC VEL :			SUMP FREE BOARD :	4M
ROP :			DP VEL :			LOADS TO LOC :	
CUM. HRS :			JET VEL :			VOL. HAULED OUT :	
CONDITION :			MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22
B.H.A.								

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -5
MIRU		SLIP/CUT		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		WO WIRE L	5.00	RIG MANAGER :	DENNIS ROSS
CIRC/DISP		LOST CIRC.		LOG		PHONE :	
TRIP	6.00	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY		LAY D DP	4.00	DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		HAND TOOLS		WOC	9.00	PREVIOUS COST :	$3,120,509.00
TOTAL P :	6.00	TOTAL R :	4.00	TOTAL E :	14.00	DAILY COST :	$40,183.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$3,160,692.00

24 HRS SUMMARY : PLUG NO 2 NOT SET UP YET. RECEIVED APPROVAL TO RUN DRILLABLE BRIDGE PLUG
WAIT ON WIRELINE TRUCK DUE TO ROAD BANS

REMARKS HAUL CUTTER D TO FT. LIARD LAY DOWN DRILL PIPE HAUL 12 LOADS RENTAL EQPT. TO EDM. VIA ENTERPRIZE .

NEXT 24 HRS. RUN BRIDGE PLUG , LAY DOWN BOP REDO WELL HEAD LAY DOWN TOP DRIVE UNIT.

DIRECTIONS :
PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	36
						DATE :	03/22/98
						DEPTH 24:00	1455
OPERATION AT 24:00 HRS :	W.O.C. PLUG NO TWO					PROGRESS :	0
OPERATION AT 08:00 HRS :	W.O.C. PLUG NOT SET UP YET					DFS :	36
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY : 1075	GRAD :	10.60	WATER	0.03		WELL LICENCE NO :	EL369
VIS : 70	600 / 300	95/60	CA+			LAST BOP DRILL :	03/13/98
W.L.	PV / YP	35\12	PH			RIG SAFETY DAYS :	
F.C.	GELS 1/10	4\6	SOLIDS	0.1		MUD ADDITIVES USED :	
DAILY MUD COSTS :		CUMM :	121245				
DAILY WATER COSTS :	1000	CUMM :	11271'3				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :			WOB :			HOLE VOLUME :	21
SIZE MM :			RPM :			TANK VOLUME :	
TYPE :			STR. WT. :	38		BOTTOMS UP :	45
SERIAL NO :			SPM 1 :			CIRC. TIME :	96
JETS :			SPM 2 :			SHOE SET AT :	1186
DEPTH IN :			L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :	1.36		FORMATION :	0
METERS :	0		PRESSURE :	1800		SUMP VOLUME :	0
HRS :			DC VEL :			SUMP FREE BOARD :	4M
ROP :			DP VEL :			LOADS TO LOC :	
CUM. HRS :			JET VEL :			VOL. HAULED OUT :	
CONDITION :			MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	OPEN END DP

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -5
MIRU		SLIP/CUT		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		P. TEST		RIG MANAGER :	DENNIS ROSS
CIRC/DISP		LOST CIRC.		LOG		PHONE :	
TRIP	10.25	WELL CNTRL		CEMETING	3.75	FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		HAND TOOLS		WOC	10.00	PREVIOUS COST :	$3,047,167.00
TOTAL P :	10.25	TOTAL R :	0.00	TOTAL E :	13.75	DAILY COST :	$73,342.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$3,120,509.00

24 HRS SUMMARY :	MIX AND DISPLACE PLUG NO 2 LAY DOWN 40 STANDS DP LAY DOWN DCS WOC TRY TO FEEL PLUG AFTER 12 HRS NO SUCCESS FEEL PLUG AFTER 20 HRS. STILL TO SOFT WOC.
REMARKS	AFTER DISPLACE PLUG NO 2 1.5 M3 DIESEL SPACER RETURNED PLUS .5 M3 CEMENT PLUG TOP AT 996 M NOT SET UP ENOUGH TO FEEL

DIRECTIONS :

PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	35
						DATE :	03/21/98
						DEPTH 24:00	1455
OPERATION AT 24:00 HRS :	WAIT ON CEMENTERS TO RUN PLUGS					PROGRESS :	0
OPERATION AT 08:00 HRS :	MIX PLUG NO TWO					DFS :	35
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY : 1075	GRAD :	10.60	WATER	0.03		WELL LICENCE NO :	EL369
VIS : 70	600 / 300	95/60	CA+			LAST BOP DRILL :	03/13/98
W.L.	PV / YP	35\12	PH			RIG SAFETY DAYS :	
F.C.	GELS 1/10	4\6	SOLIDS	0.1		MUD ADDITIVES USED :	
DAILY MUD COSTS :	1587	CUMM :	121245				
DAILY WATER COSTS :	1000	CUMM :	111713				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :			WOB :			HOLE VOLUME :	43
SIZE MM :			RPM :			TANK VOLUME :	43
TYPE :			STR. WT. :	55		BOTTOMS UP :	45
SERIAL NO :			SPM 1 :			CIRC. TIME :	96
JETS :			SPM 2 :			SHOE SET AT :	1186
DEPTH IN :			L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :	1.36		FORMATION :	0
METERS :	0		PRESSURE :	1800		SUMP VOLUME :	0
HRS :			DC VEL :			SUMP FREE BOARD :	4M
ROP :			DP VEL :			LOADS TO LOC :	
CUM. HRS :			JET VEL :			VOL. HAULED OUT :	
CONDITION :			MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	OPEN END DP

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -5
MIRU		SLIP/CUT		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		P. TEST		RIG MANAGER :	DENNIS ROSS
CIRC/DISP	18.00	LOST CIRC.		LOG		PHONE :	
TRIP	5.00	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		HAND TOOLS	1.00	WOC		PREVIOUS COST :	$2,966,071.00
TOTAL P :	23.00	TOTAL R :	1.00	TOTAL E :	0.00	DAILY COST :	$81,096.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$3,047,167.00

24 HRS SUMMARY :	WAIT ON CEMENTERS, CIRC OPEN END . RIG UP CEMENTERSTO RUN PLUGS

REMARKS

0800 PLUG NO 1 IN PLACE MIXING PLUG NO 2
PLUG NO 1 1455M TO 1255 4 TONNS THERMAL 40
PLUG NO2 1196 TO 996 3.5 TONNS THERMAL 40
PLUGS DOWN AT 0930 HRS. MAR. 22/98
PULL UP REVERSE CIRC WAIT ON CEMENT

DIRECTIONS :
PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	34
						DATE :	03/20/98
						DEPTH 24:00	1455
OPERATION AT 24:00 HRS :	WAIT ON N2 UNIT TO BLOW HOLE DRY					PROGRESS :	0
OPERATION AT 08:00 HRS :	WAIT ON CEMENTERS TO RUN PLUGS					DFS :	34
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY : 1075	GRAD :	10.60	WATER	0.03		WELL LICENCE NO :	EL369
VIS : 70	600 / 300	95/60	CA+			LAST BOP DRILL :	03/13/98
W.L.	PV / YP	35\12	PH			RIG SAFETY DAYS :	
F.C.	GELS 1/10	4\6	SOLIDS	0.1		MUD ADDITIVES USED :	
DAILY MUD COSTS :	1587	CUMM :	121245	LIME 25 FLOORDRY 4 BARITE 30 SAWDUST 10			
DAILY WATER COSTS :	1000	CUMM :	111713				

BIT DATA :		DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	7	WOB :			HOLE VOLUME :	43
SIZE MM :	216	RPM :			TANK VOLUME :	43
TYPE :	F15G	STR. WT. :	65		BOTTOMS UP :	45
SERIAL NO :	LN6278	SPM 1 :			CIRC. TIME :	96
JETS :	3\12.7	SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1455	L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :		M3 / MIN :	1.36		FORMATION :	0
METERS :	0	PRESSURE :	4500		SUMP VOLUME :	0
HRS :		DC VEL :			SUMP FREE BOARD :	4M
ROP :		DP VEL :			LOADS TO LOC :	1
CUM. HRS :	47.75	JET VEL :			VOL. HAULED OUT :	10M
CONDITION :	IN	MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	BIT, BIT SUB, 9 DC, 1 JARS, 4DC, 1 XO SUB, 6 HW DP,

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -6
MIRU		SLIP/CUT		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		P. TEST		RIG MANAGER :	DENNIS ROSS
CIRC/DISP	17.00	LOST CIRC.		LOG		PHONE :	
TRIP	0.75	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC	0.25	WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		WAIT ON N2	6.00	WOC		PREVIOUS COST :	$2,773,459.00
TOTAL P :	17.75	TOTAL R :	6.25	TOTAL E :	0.00	DAILY COST :	$192,612.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,966,071.00

24 HRS SUMMARY :	WAIT ON N2 UNIT , BLOW HOLE EMPTY CONTINUE DRYING HOLE STOP DRYING HOLE AND DISPLACE TO MUD TO RUN PLUGS.

REMARKS

WAITING AND CONDITIONING MUD TO RETURN TO STORAGE CEMENTERS SENT TO NEIBORS 16
TO STOP WATER FLOOD THEY WILL COME HERE NEXT
7" CSG. SENT TO FT. LIARD TO STORE IN YARD 16 TRUCKS COMING TODAY TO HAUL OUT RENTALS.

DIRECTIONS :
PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	33
						DATE :	03/19/98
						DEPTH 24:00	1455
OPERATION AT 24:00 HRS :	RIH TO BLOW DRY WITH N2 DEPTH 1455					PROGRESS :	55
OPERATION AT 08:00 HRS :	DISPLACE HOLE TO N2					DFS :	33
DRILLING FLUID IN USE :		CUTTER D	MUD COMPANY :		CONCORD	AFE NO :	13577
DENSITY :	1085	GRAD :	10.60	WATER	0.025	WELL LICENCE NO :	EL369
VIS :	72	600 / 300	55\8	CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP	25\15	PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10	4\6	SOLIDS	0.115	MUD ADDITIVES USED :	
DAILY MUD COSTS :		1476	CUMM :	119658	lime 10 sawdust 20 barite 30 floor dry 12		
DAILY WATER COSTS :		1250	CUMM :	110713			

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	7		WOB :	10\12		HOLE VOLUME :	43
SIZE MM :	216		RPM :	35		TANK VOLUME :	43
TYPE :	F15G		STR. WT. :	61		BOTTOMS UP :	45
SERIAL NO :	LN6278		SPM 1 :	107		CIRC. TIME :	96
JETS :	3\12.7		SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1215		L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :	1.36		FORMATION :	0
METERS :	237		PRESSURE :	9700		SUMP VOLUME :	0
HRS :	47.75		DC VEL :			SUMP FREE BOARD :	4M
ROP :	4.90		DP VEL :			LOADS TO LOC :	1
CUM. HRS :	47.75		JET VEL :			VOL. HAULED OUT :	10M
CONDITION :	IN		MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :	FAXED TO OFFICE			
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	BIT M MOTOR FLT SUB XO SUB NM DC PUL SUB NM DC NM SUB XO SUB JARS

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -15
MIRU		SLIP/CUT	1.00	CORING		CONTRACTOR :	PREC. 622E
DRILLING	9.50	LEAK OFF.		P. TEST		RIG MANAGER :	RANDY BITZ
CIRC/DISP	2.25	LOST CIRC.		LOG		PHONE :	
TRIP	9.50	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY	1.25	TIGHT HOLE		DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC	0.50	WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS		WOC		PREVIOUS COST :	$2,724,340.00
TOTAL P :	22.50	TOTAL R :	1.50	TOTAL E :	0.00	DAILY COST :	$49,744.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,773,459.00

24 HRS SUMMARY :	DRILL AHEAD TO 1455 CIRC HOLE CLEAN POOH LAY DOWN DIR TOOLS RIH TO BLOW HOLE DRY WAIT ON N2 UNIT RIG UP UNIT START DISPLACEING HOLE

REMARKS ON TRIP HOLE SLOUGHING NINE METERS FILL ON BOTTOM AFTER TRIP

DIRECTIONS :

PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	32
						DATE :	03/18/98
						DEPTH 24:00	1400
OPERATION AT 24:00 HRS :	DRILLING AHEAD SLIDING WITH DIR. MOTOR AT 1.5					PROGRESS :	104
OPERATION AT 08:00 HRS :	drilling at 1438					DFS :	32
DRILLING FLUID IN USE :		CUTTER D	MUD COMPANY :		CONCORD	AFE NO :	13577
DENSITY :	1085	GRAD :	10.60	WATER	0.025	WELL LICENCE NO :	EI 369
VIS :	72	600 / 300	55\8	CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP	25\15	PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10	4\6	SOLIDS	0.115	MUD ADDITIVES USED :	
DAILY MUD COSTS :		1233	CUMM :	2225	lime 22 sawdust 16 floordry 2 disperse 2		
DAILY WATER COSTS :		1250	CUMM :	110713			

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	7		WOB :	10\12		HOLE VOLUME :	43
SIZE MM :	216		RPM :	35		TANK VOLUME :	43
TYPE :	F15G		STR. WT. :	61		BOTTOMS UP :	45
SERIAL NO :	LN6278		SPM 1 :	107		CIRC. TIME :	96
JETS :	3\12.7		SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1215		L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :	1.36		FORMATION :	0
METERS :	223		PRESSURE :	9700		SUMP VOLUME :	0
HRS :	37.50		DC VEL :			SUMP FREE BOARD :	4M
ROP :	5.94		DP VEL :			LOADS TO LOC :	1
CUM. HRS :	37.50		JET VEL :			VOL. HAULED OUT :	10M
CONDITION :	IN		MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :	FAXED TO OFFICE			
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	BIT M MOTOR FLT SUB XO SUB NM DC PUL SUB NM DC NM SUB XO SUB JARS

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -15
MIRU		RIG REPAIR		CORING		CONTRACTOR :	PREC. 622E
DRILLING	21.25	LEAK OFF.		P. TEST		RIG MANAGER :	RANDY BITZ
CIRC/DISP		LOST CIRC.		LOG		PHONE :	
TRIP		WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY	2.25	TIGHT HOLE		DIR TOOLS		PHONE :	403-210-1894
NIPPLE UP		RIG SVC	0.50	WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS		WOC		PREVIOUS COST :	$2,662,337.00
TOTAL P :	23.50	TOTAL R :	0.50	TOTAL E :	0.00	DAILY COST :	$62,003.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,724,340.00

24 HRS SUMMARY :

DRILLING AHEAD SLIDING TO TRY TO MAINTAIN DEVIATION UNDER HOLE GOES OFF IMMEDIATELY WHEN WE ROTATE AND WE HAVE TO MAINTAIN SLIDE TO KEEP IT STRAIGHT

REMARKS

WATER CONCENTRATION IN MUD UP 5% ADDED 22 CUBES OF MUD TO CONTROL IT
DEVIATION A SEVERE PROBLEM WHEN ROTATING
GEOLG. ADVISES THAT THERE IS A FAULT AT 1480 WE WILL CONTINUE WITH MUD MOTOR TO 1500 M
THEN BLOWW HOLE DRY AND ATTEMP TO DRILL WITH AIR

DIRECTIONS :
PLANNED :

PARAMOUNT RESOUF

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	31
						DATE :	03/17/98
						DEPTH 24:00	1296
OPERATION AT 24:00 HRS :	DRILLING AHEAD SLIDING WITH DIR. MOTOR AT 1.5					PROGRESS :	117
OPERATION AT 08:00 HRS :	DRILL AHEAD AT 1332 M					DFS :	31
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY : 1085	GRAD :	10.64	WATER	0.025		WELL LICENCE NO :	EL369
VIS : 90	600 / 300	110\75	CA+			LAST BOP DRILL :	03/13/98
W.L.	PV / YP	35\20	PH			RIG SAFETY DAYS :	
F.C.	GELS 1/10	4\6	SOLIDS	0.12		MUD ADDITIVES USED :	
DAILY MUD COSTS :	1233	CUMM :		BICARB 10 GEL 2 BARITE 30			
DAILY WATER COSTS :	1250	CUMM :					

BIT DATA :		DRILLING PARAMETERS :		FLUIDS CONTROL :	
BIT NO :	7	WOB :	10\12	HOLE VOLUME :	43
SIZE MM :	216	RPM :	35	TANK VOLUME :	43
TYPE :	F15G	STR. WT. :	61	BOTTOMS UP :	45
SERIAL NO :	LN6278	SPM 1 :	107	CIRC. TIME :	96
JETS :	3\12.7	SPM 2 :		SHOE SET AT :	1186
DEPTH IN :	1215	L / STRK :	0.0128	FLUID LOSSES :	
DEPTH OUT :		M3 / MIN :	1.36	FORMATION :	0
METERS :	81	PRESSURE :	9700	SUMP VOLUME :	0
HRS :	16.25	DC VEL :		SUMP FREE BOARD :	4M
ROP :	4.98	DP VEL :		LOADS TO LOC :	1
CUM. HRS :	16.25	JET VEL :		VOL. HAULED OUT :	10M
CONDITION :	IN	MACP :	22925	MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :	FAXED TO OFFICE			
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	BIT M MOTOR FLT SUB XO SUB NM DC PUL SUB NM DC NM SUB XO SUB JARS

DAILY TIME BREAK DOWN :				BOILER :		WI ER :	CLEAR -15
MIRU		RIG REPAIR		CORING		CONTRACTOR :	PREC. 622E
DRILLING	16.25	LEAK OFF.		P. TEST		RIG MANAGER :	RANDY BITZ
CIRC/DISP		LOST CIRC.		LOG		PHONE :	
TRIP	2.50	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY	1.00	TIGHT HOLE		DIR TOOLS	3.50	PHONE :	403-210-1894
NIPPLE UP		RIG SVC	0.75	WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS		WOC		PREVIOUS COST :	$2,600,024.00
TOTAL P :	19.75	TOTAL R :	0.75	TOTAL E :	3.50	DAILY COST :	$62,313.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,662,337.00

24 HRS SUMMARY :	DRILL AHEAD SLIDING AND ROTATEING DEVIATION BROUGHT BACK TO 1 DEG.

REMARKS POSITION OF NEW HOLE 9.6 METERS FROM OLD WELL BORE

DIRECTIONS :

PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	30
						DATE :	03/16/98
						DEPTH 24:00	1215
OPERATION AT 24:00 HRS :	WAIT ON DIRECTIONAL TOOLS					PROGRESS :	0
OPERATION AT 08:00 HRS :	DRILLING AHEAD SLIDING WITH DIR. MOTOR AT 1.5					DFS :	29
DRILLING FLUID IN USE :	CUTTER D	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY :	1085	GRAD :	10.64	WATER	0.025	WELL LICENCE NO :	EL369
VIS :	90	600 / 300	110\75	CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP	35\20	PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10	4\6	SOLIDS	0.12	MUD ADDITIVES USED :	
DAILY MUD COSTS :		1233	CUMM :		BICARB 10 GEL 2 BARITE 30		
DAILY WATER COSTS :		1250	CUMM :				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	7		WOB :	07-Jan		HOLE VOLUME :	43
SIZE MM :	216		RPM :			TANK VOLUME :	43
TYPE :	F15G		STR. WT. :	61		BOTTOMS UP :	45
SERIAL NO :	LN6278		SPM 1 :	107		CIRC. TIME :	96
JETS :	3\12.7		SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1215		L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :			M3 / MIN :	1.36		FORMATION :	0
METERS :	0		PRESSURE :	9700		SUMP VOLUME :	0
HRS :			DC VEL :			SUMP FREE BOARD :	4M
ROP :	4.50		DP VEL :			LOADS TO LOC :	
CUM. HRS :			JET VEL :			VOL. HAULED OUT :	10M
CONDITION :	IN		MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	BIT M MOTOR FLT SUB XO SUB NM DC PUL SUB NM DC NM SUB XO SUB JARS

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -10
MIRU		RIG REPAIR		CORING		CONTRACTOR :	PREC. 622E
DRILLING	1.50	LEAK OFF.		P. TEST		RIG MANAGER :	RANDY BITZ
CIRC/DISP	9.25	LOST CIRC.		LOG		PHONE :	
TRIP	5.50	WELL CNTRL		CEMETING		FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DRILL OUT		PHONE :	403-210-1894
NIPPLE UP		RIG SVC	0.50	WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS		WOC	7.25	PREVIOUS COST :	$2,569,941.00
TOTAL P :	16.25	TOTAL R :	0.50	TOTAL E :	7.25	DAILY COST :	$47,301.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,617,242.00

24 HRS SUMMARY : POLISH PLUG TO 1218 RIG UP AIR COMPS. BLOW HOLE DRY CLEAN TANKS AND LINES DISPLACE HOLE TO CUTTER D CIRC BOTTOMS UP POOH WAIT ON DIRECTIONAL TOOLS.

REMARKS MAKE UP BOTTOM HOLE ASSEMBLY FOR DIR DRILLING RIH ORIENT TOOL SLIDE AHEAD

DIRECTIONS :

PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	29
						DATE :	03/15/98
						DEPTH 24:00	1215
OPERATION AT 24:00 HRS :	WOC					PROGRESS :	0
OPERATION AT 08:00 HRS :	WOC					DFS :	29
DRILLING FLUID IN USE :	WATER	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY :	1000	GRAD :		CL		WELL LICENCE NO :	EL369
VIS :		600 / 300		CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP		PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10		SAND %		MUD ADDITIVES USED :	
DAILY MUD COSTS :			CUMM :				
DAILY WATER COSTS :		1200	CUMM :				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	6		WOB :			HOLE VOLUME :	48.5
SIZE MM :	216		RPM :			TANK VOLUME :	20
TYPE :	FDT		STR. WT. :	53		BOTTOMS UP :	45
SERIAL NO :	CH9961		SPM 1 :	45		CIRC. TIME :	96
JETS :	3\12.7		SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1215		L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :	1215		M3 / MIN :	1.15		FORMATION :	0
METERS :	0		PRESSURE :	2850		SUMP VOLUME :	0
HRS :	6.00		DC VEL :			SUMP FREE BOARD :	
ROP :	10.50		DP VEL :			LOADS TO LOC :	
CUM. HRS :	6.00		JET VEL :			VOL. SPREAD / PITS :	
CONDITION :	IN		MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	7 171 MM DC 1 XO SUB BIT SUB 6 HW DP BHA LGTH 122.18

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -10
MIRU		RIG REPAIR		CORING		CONTRACTOR :	PREC. 622E
DRILLING		LEAK OFF.		P. T/ T		RIG MANAGER :	RANDY BITZ
CIRCULATE		LOST CIRC.		LOG		PHONE :	
TRIP	2.00	WELL CNTRL		CEMETING	2.50	FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DRILL OUT		PHONE :	403-210-1894
NIPPLE UP		RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS		WOC	19.50	PREVIOUS COST :	$2,508,013.00
TOTAL P :	2.00	TOTAL R :	0.00	TOTAL E :	22.00	DAILY COST :	$46,599.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,554,612.00

24 HRS SUMMARY :	RAN PLUG FROM 1250M TO 1100M 7 TONNES 0-1-0 PLUS 1%CFR + .6%LTR DESITY 2100 PLUG DOWN 1045 HRS. PIPE PULLED TIGHT OUT OF PLUG PULLED 130000 TO GET FREE 1.75 HRS.

REMARKS

WOC. RUN IN HOLE TO FEEL PLUG PLUG AT 1215 POOH PICK UP BIT AND COLLARS RIH
WOC WILL POLISH TOP OF PLUG TO 1218 READY FOR DIRECTIONAL TOOLS

DIRECTIONS :
PLANNED :

PARAMOUNT RESOURCES

DAILY DRILLING REPORT :

WELL NAME :Paramount Berkley Arrowhead 0-15						REPORT NO :	28
						DATE :	03/14/98
						DEPTH 24:00	1250
OPERATION AT 24:00 HRS :	CIRC HOLE CLEAN CONT. CEMENT					PROGRESS :	64
OPERATION AT 08:00 HRS :	RIG UP TO RUN PLUG					DFS :	28
DRILLING FLUID IN USE :	WATER	MUD COMPANY :		CONCORD		AFE NO :	13577
DENSITY :	1000	GRAD :		CL		WELL LICENCE NO :	EL369
VIS :		600 / 300		CA+		LAST BOP DRILL :	03/13/98
W.L.		PV / YP		PH		RIG SAFETY DAYS :	
F.C.		GELS 1/10		SAND %		MUD ADDITIVES USED :	
DAILY MUD COSTS :			CUMM :				
DAILY WATER COSTS :		1710	CUMM :				

BIT DATA :			DRILLING PARAMETERS :			FLUIDS CONTROL :	
BIT NO :	6		WOB :	2\3		HOLE VOLUME :	48.5
SIZE MM :	216		RPM :	30		TANK VOLUME :	20
TYPE :	FDT		STR. WT. :	56		BOTTOMS UP :	45
SERIAL NO :	CH9961		SPM 1 :	90		CIRC. TIME :	96
JETS :	3\12.7		SPM 2 :			SHOE SET AT :	1186
DEPTH IN :	1187		L / STRK :	0.0128		FLUID LOSSES :	
DEPTH OUT :	1250		M3 / MIN :	1.15		FORMATION :	0
METERS :	63		PRESSURE :	4500		SUMP VOLUME :	0
HRS :	6.00		DC VEL :			SUMP FREE BOARD :	
ROP :	10.50		DP VEL :			LOADS TO LOC :	
CUM. HRS :	6.00		JET VEL :			VOL. SPREAD / PITS :	
CONDITION :	2-2-I		MACP :	22925		MP 1 RRSP RATE :	

SOLIDS CONTROL :					SURVEYS :			
ITEM :	UNDER FLOW :	OVERFLOW :	L / MIN :	HRS :				
DESANDER :								
DESILTER :								
CENTRI : 1					ELEVATIONS :			
CENTRI : 2					GROUND :	387	KB ELEV :	393.22

B.H.A.	7 171 MM DC 1 XO SUB BIT SUB 6 HW DP BHA LGTH 122.18

DAILY TIME BREAK DOWN :				BOILER :		WEATHER :	CLEAR -15 C
MIRU		RIG REPAIR		CORING		CONTRACTOR :	PREC. 622E
DRILLING	6.00	LEAK OFF.	1.00	P. TEST	7.00	RIG MANAGER :	RANDY BITZ
CIRCULATE		LOST CIRC.		LOG		PHONE :	
TRIP	4.00	WELL CNTRL		CSG /CUT	2.00	FOREMAN :	HARVEY PARCELS
SURVEY		TIGHT HOLE		DRILL OUT		PHONE :	403-210-1894
NIPPLE UP	3.50	RIG SVC		WELDING		DRILLING SUPT :	SHIRLEY MAASKANT
TEAR OUT		OTHERS	0.50	WOC		PREVIOUS COST :	$2,437,333.00
TOTAL P :	13.50	TOTAL R :	1.50	TOTAL E :	9.00	DAILY COST :	$70,680.00
TOTAL HRS	24.00	REPORT TIME FROM 00:00 HRS TO 24:00 HRS :				CUMM. COST :	$2,508,013.00

24 HRS SUMMARY : FINISH PRESSURE TESTSWEEP LINE AND MANIFOLD, RIH DRILL OUT CEMENT AND SHOE DRILL AHEAD TEN METERS , NO CEMENT WITH ANY STRENGHT DUE TO CONTAMINATION.

REMARKS NEXT 24 HRS.

CIRC HOLE CLEAN RUN LEAK OFF TEST 10 METERS BELOW SHOE GRADIANT ESTABLISHED AT 19.5

POH BROP COLLARS AND BIT RUN IN OPEN END TO PLUG BACK WAIT ON CEMENTERS

DIRECTIONS :

PLANNED :

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/13	Day	27
Depth	1186m	Progress	0	AFE	13577	Operation	Pressure Testing		
Elevations	Grd -	380.5	KB	6.22	Formation	BANFF			
Drilling Fluid Type		Water	Volume		Fluid Vol.		Soap		
Wgt	1000	Visc	28	W.L.		PH		FC	
Temp		PV	YP	600/180		Oil			
Tank Vol	20	Hole Vol	45	Total Vol	65	Gradient	9.81	Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	17m3
Benex		Sawdust		Gypsum		Disperse			
Soda ash		Kwikseal		Barite		Floordry			
Mud cost - Daily		6800	Cum	109490	Water cost - Daily		1710	Cum	30530

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter	Brandt				Oil			
Centrifuge	Sharpell				Losses			
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
5RR	311	GS84F	634949	2/15.9,17.5	1459	1560	135		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
68	8.5	3.9	47	4/5/06				TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152							5700	105
2	140								

SURVEYS

1364	5*	1421	7*	1450	7+ *	GeoCom	Sheet		
1075	2*	1137m	2 1/2*	1194m	3 1/2*	1252	4*	1308	4*

Drilling		NU BOP's	10.5	Rig up		Log		WOC	
Tripping		P. test	2.5	Run Csg	3	Core		Cut csg	2
Reaming		Slip & cut		Circulate	2.75	DST		BOPdrill	
Survey		CTB		Cement	2.25	Lost. Circ		Hdl Tools	0.5
Rig Serv.		Repair		safety/M	0.5	D.O.F&S		TOTAL	24

REMARKS

Safety Meeting with Tong & Lay Down Machine Hands,Run CSG, Circ. CSG,Safety Meeting with Sanjel,Cement CSG,Rig out Cementers,ND BOP's to set CSG SLIPS(70000daN),Cut CSG & Flare NU BOP's,Install Williams Head,Pressure Test BOP's

Next 24 -Press. Test Sweep Lines,Manifold Valves,BOP & Associated Valves,Check Acumulater RIH & Drill Out Flaot, Shoe & Cement,Run Leak Off Test,POOH,Pick up Air Dri'g. Tools,RIH Drill 816mm Hole

Weather	Snowing	Temp.-15c	Spud	92/02/14	Daily Cost $262,613	CUM	$2,437,333
Rig Mgr.	Randy Bitz		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 27

TIME BREAKDOWN

	EXPLANATION
06:00-08:15	Held Safety Meeting with Tong & Lay Down Machine Hands
08:15-11:15	Run CSG
11:15-14:00	Rig to & Circ. CSG
14:00-14:15	Held Safety Meeting with Sanjel Cementers
14:15-16:00	Cement CSG
16:00-16:30	Cement CSG
16:30-17:00	Rig out Cementers
17:00-24:00	ND BOP's,Set Slips(70000 daN)
00:00-02:00	Cut CSG & Flare Same
02:00-05:30	NU BOP's & Install Williams Head
05:30-06:30	Press. Test BOP's 1500 kpa Low & 21000 kpa Hi each Function

*Ran 57 jnt's,1187.66m,244.5mm,64.74kg/m,L80,8RD,New,Algoma Intermediate CSG & Cement Same with 21 tonnes LW-14+2%cacl2+2% LWA+2% SMS Lead cement + 29 tonnes 0-1-0 'G' + 0.4% CFL-3+1% CFL-H+2% SPC-2, Landed @1186.63m KB,Plug Held, 5m3 good cement returns to surface + 10m3 contaminated Cutter 'D' & Cement,Saw no Preflush or Sanjel Invert Spacer (2m3 Diesel Preflush+2m3 Sanjel Invert Spacer) Recomendation:(10m3 Preflush)(5m3 Diesel 5m3 invert Spacer) PLUG DOWN @ 16:30 HRS. 98/03/12,

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/12	Day	26
Depth	1195	Progress	0	AFE	13577	Operation	Running CSG		
Elevations	Grd -	380.5	KB	6.22	Formation	BANFF			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1100	Visc	112	W.L.		PH		FC	
Temp	36° C	PV 50	YP 25	600/180	150/100	Oil	85.5		
Tank Vol	97	Hole Vol	98	Total Vol	195	Gradient	10.8	Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	
Benex		Sawdust		Gypsum		Disperse			
Soda ash		Kwikseal		Barite	30	Floordry			
Mud cost - Daily		726	Cum	102690	Water cost - Daily		600	Cum	28820

SOLIDS CONTROL

Item	Make		UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Dezander						Water			
Desilter						Oil			
Centrifuge	Sharpell		1770	1065		Losses			
Shaker	Swaco		Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
5RR	311	GS84F	634949	2/15.9,17.5	1459	1560	135		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
68	8.5	3.9	47	4/5/06				TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152							5700	105
2	140								

SURVEYS

1364	5°	1421	7°	1450	7+ °	GeoCom	Sheet		
1075	2°	1137m	2 1/2°	1194m	3 1/2°	1252	4°	1308	4°

Drilling		NU BOP's		Rig up		Log		WOC	10
Tripping	3.5	P. test		Run Csg	5.75	Core		W.O. SUB	
Reaming		Slip & cut		Circulate		DST		BOPdrill	
Survey		CTB		Cement		Lost. Circ		Hdl Tools	2.5
Rig Serv.		Repair	2	safety/M	0.25	D.O.F&S		TOTAL	24

REMARKS

WOC, Trip in to Feel Cement Plug, POOH to Run CSG, Rig in Power Tongs & Lay Down Machine
Held Safety Meeting with Tong & Lay Down Machine Hands, Adj. Annuar Preventer to Open & Close
Properly, Run CSG

Next 24hrs.- Run CSG,Cement CSG, Lift BOP Stack, Set CSG Slips & Seal, WOC, Nipple up BOP

Weather	Snowing	Temp.-15c	Spud	92/02/14	Daily Cost $51,263	CUM	$2,174,720
Rig Mgr.	~~Dennis Ross~~ RANDY BITZ		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 26

TIME BREAKDOWN

	EXPLANATION
08:00-16:00	WOC
16:00-18:00	WOC
18:00-19:00	Run in to 1195m with Pump @ idle, 1207m with no Pump(wt. ind.& Pump
	guage no change
19:00-21:30	Pump Pill, check Crown Saver, & POOH to Run CSG
21:30-24:00	Rig up Power Tongs, Floor, Lay Down Machine to Run CSG
00:00-00:15	Held Safety Meeting with Tong, Pipe Handling Machine Hands
00:15-02:15	Work on Annular (unable to open)
02:15-08:00	Run CSG

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/11	Day	25
Depth	1195	Progress	0	AFE	13577	Operation	WOC		
Elevations	Grd -	380.5	KB	6.22	Formation	BANFF			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1100	Visc	112	W.L.		PH		FC	
Temp	36° C	PV 50	YP 25	600/180	150/100	Oil	85.5		
Tank Vol	97	Hole Vol	98	Total Vol	195	Gradient	10.8	Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	22m3
Benex		Sawdust		Gypsum		Disperse			
Soda ash		Kwikseal		Barite	30	Floordry			
Mud cost - Daily		9526	Cum	101964	Water cost - Daily		1390	Cum	28220

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Open End	
Desilter					Oil			
Centrifuge	Sharpell	1770	1065		Losses	22		
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
5RR	311	GS84F	634949	2/15.9,17.5	1459	1560	135		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
68	8.5	3.9	47	4/5/06				TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152							5700	105
2	140								

SURVEYS

1364	5°	1421	7°	1450	7+ °	GeoCom	Sheet		
1075	2°	1137m	2 1/2°	1194m	3 1/2°	1252	4°	1308	4°

Drilling		NU BOP's		Rig up		Log		WOC	3
Tripping	13	P. test		Run Csg		Core		W.O. SUB	
Reaming		Slip & cut		Circulate	6	DST		BOPdrill	
Survey		CTB		Cement	0.5	Lost. Circ		Hdl Tools	0.5
Rig Serv.	0.25	Repair	0.5	safety/M	0.25	D.O.F&S		TOTAL	24

REMARKS

RIH,Circ.,POOH,Lay Down 228mm DC& Directional Tools,RIH to 1335m,Circ.,Held Safety Meeting with Sanjel Cementers,Pump Cement Plug,Pull 5stds. to 1195m,Reverse Circ.,Pull 5stds. to 1055m Rig Service,Trip,Service Top Drive,Pick up 60sgls.DP, WOC

Next 24hrs.-WOC,RIH & Feel Plug,POOH,Run CSG,Cement CSG

Weather	Snowing	Temp.-15c	Spud	92/02/14	Daily Cost $110,179	CUM	$2,123,457
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 25

TIME BREAKDOWN

	EXPLANATION
08:00-10:45	RIH & Pick up 8 sgls.
10:45-11:30	Circ. @ 1363m
11:30-13:45	POOH
13:45-16:00	Lay Down 228mm DC & Directional Tools
16:00-16:30	Lay Down Tools
16:30-17:30	RIH to 1348m
17:30-20:00	Circ.
20:00-20:15	Held Safety Meeting with Sanjel Cementers
20:15-20:45	Cement with Sanjel
20:45-21:00	Pull 5stds. to 1195m
21:00-22:15	Reverse Circ.
22:15-22:30	Pull 5stds. to 1055m
22:30-24:00	Circ.
00:00-00:15	Rig Service,& Function Annular Preventor
00:15-01:15	POOH 20stds.
01:15-01:45	Service Top Drive
01:45-05:00	Pick up 60sgls.
05:00-08:00	WOC

* Pump Cement Plug from 1350-1195m with 16 tonnes 0-1-0 'G' HIGH DENSITY + 1%CFR+1%LTR Plug down at 20:30hrs. 98/03/10,Reverse Circ. out 18m3 Fluid,(3m3 G00D Cement, 15m3 Diesel Preflush, Sanjel Spacer,Water, Cement Contaminated Cutter 'D').

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/10	Day	24
Depth	1560	Progress	33	AFE	13577	Operation	RIH OPEN END		
Elevations	Grd -	380.5	KB	6.22	Formation	Kotcho			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1085	Visc	86	W.L.		PH		FC	
Temp	42* C	PV 40	YP 22.5	600/180	125/85	Oil	87		
Tank Vol	80	Hole Vol	119	Total Vol	199	Gradient	10.6	Circ. Time	

MUD ADDITIVES

Gel		Lime	27	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	4m3
Benex		Sawdust	120	Gypsum		Disperse	11		
Soda ash		Kwikseal		Barite		Floordry	22		
Mud cost - Daily		7774	Cum	92168	Water cost - Daily		600	Cum	26830

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Open End	
Desilter					Oil			
Centrifuge	Sharpell	1770	1065		Losses	4		
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
5RR	311	GS84F	634949	2/15.9,17.5	1459	1560	135		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
68	8.5	3.9	47	4/5/06				TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152							5700	105
2	140								

SURVEYS

1364	5*	1421	7*	1450	7+ *	GeoCom	Sheet		
1075	2*	1137m	2 1/2*	1194m	3 1/2*	1252	4*	1308	4*

Drilling	8.5	NU BOP's		Rig up		Log	5.5	WOC	
Tripping	6	P. test		Run Csg		Core		W.O. SUB	
Reaming		Slip & cut		Circulate	2.25	DST		BOPdrill	
Survey	0.5	CTB		Cement		Lost. Circ		Hdl Tools	0.75
Rig Serv.	0.25	Repair		safety/M	0.25	D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole,Survey,Rig Service,Circ. hole clean,Pump Pill, POOH,Lay Down MWD Tools,
Loggers TD - 1560m

Next 24hrs.-RIH OPEN END,Run High Density cement Plug 1350-1200m,WOC

Weather	Cloudy	Temp.-22c	Spud	92/02/14	Daily Cost	$43,691	CUM $2,013,278
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1804

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 24

TIME BREAKDOWN

	EXPLANATION
08:00-08:30	Drill 311mm hole 1527-1531m
08:30-08:45	Survey @ 1531m
08:45-09:00	Rig Service, Function Annular Preventers
09:00-15:30	Drill 311mm hole 1531-1551m
15:30-15.45	Survey @ 1551m
15:45-16:00	Drill 311mm hole 1551-1553m
16:00-17:15	Drill 311mm hole 1553-1557m
17:15-19:30	Circ. & Contact Loggers
19:30-24:00	Flow check, check Crown Saver, Pump Pill,POOH to Log
00:00-01:00	POOH
01:00-01:45	Lay Down MWD Tools
01:45-02:00	Held Safety Meeting with Schlumberger Loggers
02:00-07:30	Log with Schlumberger
07:30-08:00	Check Crown Saver & RIH OPEN ENDED

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/09	Day	23
Depth	1527	Progress	68	AFE	13577	Operation	Drl'g. Ahead with Mud Motor		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1080	Visc	80	W.L.		PH		FC	
Temp	54* C	PV 40	YP 17.5	600/180	115/75	Oil	86		
Tank Vol	80	Hole Vol	116	Total Vol	196	Gradient	10.59	Circ. Time	93min.

MUD ADDITIVES

Gel		Lime	50	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	
Benex		Sawdust	25	Gypsum		Disperse	5		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		3252	Cum	84394	Water cost - Daily		1390	Cum	26230

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		As Per	United
Desilter					Oil		GeoCom	Sheet
Centrifuge	Sharpell	1770	1065		Losses	2		
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
5RR	311	GS84F	634949	2/15.9,17.5	1459		102		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
68	16.25	4.2	38.5					TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	90	13000	2.1	33	40	54	5700	105
2	140	95							

SURVEYS

1364	5*	1421	7*	1450	7+ *	GeoCom	Sheet		
1075	2*	1137m	2 1/2*	1194m	3 1/2*	1252	4*	1308	4*

Drilling	16.25	NU BOP's		Rig up		Log		WOC	
Tripping	6	P. test		Run Csg		Core		W.O. SUB	
Reaming		Slip & cut		Circulate		DST		BOPdrill	
Survey	1.25	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.25	Repair		safety/M	0.25	D.O.F&S		TOTAL	24

REMARKS

Run In Hole & Survey, Orient Tool Face, Drill, Rig Service

Next 24hrs.-Drill 311mm hole with Mud Motor & Survey with MWD

Weather	Cloudy	Temp.-35c	Spud	92/02/14	Daily Cost	$58,140	Cum Cost $1,969,367
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1694

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 23

TIME BREAKDOWN

	EXPLANATION
08:00-14:00	RIH & Survey 9 times on way in
14:00-14:15	Orient Tool Face
14:15-16:00	Drill 311mm hole 1459-1463m
16:00-18:45	Drill 311mm hole 1463-1475m
18:45-19:15	Survey @ 1475m
19:15-23:15	Drill 311mm hole 1475-1497m
23:15-23:30	Survey @ 1496m
23:30-24:00	Drill 311mm hole 1497-1500m
00:00-00:15	Rig Service & Function Top Pipe Ram
00:15-00:45	Drill 311mm hole 1500-1503m
00:45-01:15	Survey @ 1502m
01:15-08:00	Drill 311mm hole 1503-1527m

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/08	Day	22
Depth	1459	Progress	12	AFE	13577	Operation	RIH with Dir. Tools & Bit #5RR		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1100	Visc	85	W.L.		PH		FC	
Temp	30* C	PV 45	YP 22.5	600/180	135/90	Oil 82.5	84	12	
Tank Vol	76	Hole Vol	120	Total Vol	246	Gradient	10.79	Circ. Time	

MUD ADDITIVES

Gel		Lime	63	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	7m3
Benex		Sawdust	30	Gypsum		Disperse	8		
Soda ash		Kwikseal		Barite	30	Floordry	4		
Mud cost - Daily		8301	Cum	81142	Water cost - Daily		600	Cum	24840

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		As Per	United
Desilter					Oil		GeoCom	Sheet
Centrifuge	Sharpell	1770	1065		Losses	7		
Shaker	Swaco	Mesh	84/140	84/84	Dumped	10.5		

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205	1425	220		
5	311	GS84F	634949	3/17.5	1425	1459	34		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
42	21.5	1.95	72.5	6/7/o2mm					
12	6.75	1.70	22.5	3/3/ I					
								TOTAL	

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	105	12800	2.4	38	45	55	5700	105
2	140	105							

SURVEYS

1384	5*	1421	7*	1450	7+ *				
1075	2*	1137m	2 1/2*	1194m	3 1/2*	1252	4*	1308	4*

Drilling	6.75	NU BOP's		Rig up		Log		WOC	
Tripping	5	P. test		Run Csg		Core		W.O. SUB	7.5
Reaming		Slip & cut		Circulate	0.25	DST		BOPdrill	
Survey	0.75	CTB		Cement		Lost. Circ		Hdl Tools	3.75
Rig Serv.		Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Circ. & Survey @ 1450m, check Crown Saver & Pump Pill, POOH
Lay Down Shock Sub, Pick up Mud Motor, make up new BHA, wait on Rental Sub
Make up Bit # 5RR & RIH

Next 24hrs.-RIH with Directional Tools, Orient to straghten hole

Weather	Cloudy	Temp.-29c	Spud	92/02/14	Daily Cost	$40,061	Cum Cost $1,911,247
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 22

TIME BREAKDOWN

	EXPLANATION
06:00-14:45	Drill 311mm hole 1447-1459m
14:45-15:30	Circ. & Survey @ 1450m, Flow check
15;30-15:45	Check Crown Saver & Pump Pill
15.45-16:00	POOH
16:00-19:15	POOH with Bit # 5 , Lay down Shock Sub
19:15-23:00	Pick up Mud Motor, Make up New BHA
23:00-24:00	Wait on Rental Sub
00:00-06:30	Wait on Rental Sub
06:30-06:00	Make up Bit # 5RR & RIH

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/07	Day	21
Depth	1447	Progress	22	AFE	13577	Operation	Drl'g. 311mm hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1110	Visc	64	W.L.		PH		FC	
Temp	48° C	PV 35	YP 20	600/180	110/ 75	Oil 82.5	Solids - %	13	
Tank Vol	97	Hole Vol	105	Total Vol	202	Gradient	10.9	Circ. Time	84

MUD ADDITIVES

Gel		Lime	37	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent		Cutter D	25m3
Benex		Sawdust	40	Gypsum		Disperse	6		
Soda ash		Kwikseal		Barite	30	Floordry	4		
Mud cost - Daily		14170	Cum	72841	Water cost - Daily		1390	Cum	24240

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil	34	Bit Sub	1.55
Centrifuge	Sharpell	1770	1065		Losses	1	Shock/Sub	3.83
Shaker	Swaco	Mesh	84/140	84/84	Dumped	10	2(226) DC	18.92
							Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	10(171)DC	93.32
4	311	HP51H	DJ4132	3/15.9	1205	1425	220	Jars+x/o,s	5.8
5	311	GS84F	634949	3/17.5	1425		22	6(171) DC	55.88
								X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
42	21.5	1.95	72.5	6/7/o2mm					
22	15.5	1.40	22		6/7000	155			
								TOTAL	236.25

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	105	12800	2.4	38	45	55	5700	105
2	140	105							

SURVEYS

1364	5°	1421	7°						
1075	2°	1137m	2 1/2°	1194m	3 1/2°	1252	4°	1308	4°

Drilling	21.5	NU BOP's		Rig up		Log		WOC	
Tripping	1	P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate		DST		BOPdrill	0.25
Survey	1	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.5	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Rig Service, Survey Circ. BTMs Up, POOH
Remove Double Diamond Combination Stabalizer Reamer ,P ICK up Bit #5 & RIH
N o Fill on BTM

Next 24hrs.-Drill 311mm hole, Spot Premix Tank, Rig in 2nd Centrifuge, Spot 89mm Pipe,
Rig in United Geocom with MWD

Weather	Cloudy	Temp.-27c	Spud	92/02/14	Daily Cost	$50,270	Cum Cost $1,871,166
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad		Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 21

TIME BREAKDOWN

	EXPLANATION
08:00-11:30	POOH & close Blind Rams
11:30-11:45	Held BOP Drill with Crew
11:45-12:00	Rig Service
12:00-12:30	Service Top Drive
12:30-16:00	Make up New Bit & RIH
16:00-16:15	Brk Circ. & Wash to BTM, No Fill
16.15-24;00	Drill 311mm hole 1425-1435m
00:00-00:15	Rig Service & Funtion Bottom Pipe Ram
00:15-08:00	Drill 311mm hole 1435-1447m

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/06	Day	20
Depth	1425	Progress	42	AFE	13577	Operation	POOH with Bit #4		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1135	Visc	75	W.L.		PH		FC	
Temp	56* C	PV 40	YP 17.5	600/180	115/75	Oil 79	Solids - %	14	
Tank Vol	70	Hole Vol	101	Total Vol	171	Gradient	11.18	Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	35	Gypsum		Disperse	12		
Soda ash		Kwikseal		Barite		Floordry	4		
Mud cost - Daily		4989	Cum	58671	Water cost - Daily		600	Cum	22850

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil	6.5	Sab/Reamer	1.82
Centrifuge	Sharpell	1720	1115		Losses	1.5	Shock/Sub	3.83
Shaker	Swaco	Mesh	84/140	84/84	Dumped	3	2(228) DC	18.92
							Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	10(171)DC	93.32
4	311	HP51H	DJ4132	3/15.9	1205	1425	220	Jars+x/o,s	5.8
								6(171) DC	55.88
3RR	311	HP43A	LB8263	2/14.3/12.7	867	1205	338	X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
42	21.5	1.95	72.5						
74	13.25	5.4	62.75	5/6/ o2				TOTAL	236.52

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152							5700	105
2	140								

SURVEYS

1364	5*	1421	7*						
1075	2*	1137m	2 1/2*	1194m	3 1/2*	1252	4*	1308	4*

Drilling	21.5	NU BOP's		Rig up		Log		WOC	
Tripping	1	P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate		DST		BOPdrill	0.25
Survey	1	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.5	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Rig Service, Survey Circ. BTMs Up, POOH

Total Cutter D Losses to hole 24m3

Next 24 hrs.- Spot Premix Tank,Rig In 2nd Centrifuge, Trip for Bit #4, Drill 311mm hole, Survey

Weather	Cloudy	Temp.-16c	Spud	92/02/14	Daily Cost $75,241	Cum Cost	$1,820,986
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 20

TIME BREAKDOWN

	EXPLANATION
06:00-11:30	Drill 311mm hole 1383-1393m
11:30-11:45	Rig Service & Function Upper Pipe Rams
11.45-16:00	Drill 311mm hole 1393-1402m
16:00-24:00	Drill 311mm hole 1402-1417m
00:00-02:30	Drill 311mm hole 1417-1421m
02:30-02:45	Rig Service & Function Upper Pipe Rams
02:45-06:00	Drill 311mm hole 1421-1425m
06:00-07:00	Survey @ 1421m
07:00-06:00	Flow check, check Crown Saver, POOH with Bit #4

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/05	Day	19
Depth	1383	Progress	78	AFE	13577	Operation	Dri'g. 311mm hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1140	Visc	96	W.L.		PH		FC	
Temp	54° C	PV 50	YP 25	600/180	150/100	Oil 78	Solids - %	14	
Tank Vol	65	Hole Vol	100	Total Vol	165	Gradient	11.18	Circ. Time	69

MUD ADDITIVES

Gel		Lime	200	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	25	Gypsum		Disperse	7		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		7591	Cum	53682	Water cost - Daily		1390	Cum	22250

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil	10	Sab/Reamer	1.82
Centrifuge	Sharpell	1720	1115		Losses		Shock/Sub	3.83
Shaker	Swaco	Mesh	84/140	84/84	Dumped	9	2(226) DC	18.92
							Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	10(171)DC	93.32
4	311	HP51H	DJ4132	3/15.9	1205		178	Jars+x/o,s	5.8
								6(171) DC	55.88
3RR	311	HP43A	LB8263	2/14.3/12.7	887	1205	338	X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
78	21	3.70	51		10	160			
74	13.25	5.4	62.75	5/6/ o2				TOTAL	236.52

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	105	14360	2.4	38	45	67	5700	105
2	140	105							

SURVEYS

1364	5°								
1075	2°	1137m	2 1/2°	1194m	3 1/2°	1252	4°	1308	4°

Drilling	21	NU BOP's		Rig up		Log		WOC	
Tripping		P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate		DST		BOPdrill	0.25
Survey	1.75	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.75	Repair	0.25	safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Rig Service, Survey BOP Drill

Next 24hrs.-Drill 311mm hole, Rig Service, Survey,Rig in 2nd Centrifuge, Char Fence Sumps

Weather	Cloudy	Temp.-16c	Spud	92/02/14	Daily Cost	$33,246	Cum Cost $1,745,655
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

~~WELL NAME~~ & LOCATION Paramount Berkley Arrowhead O15 Day 19

TIME BREAKDOWN

	EXPLANATION
08:00-08:15	Rig Service & Function Swaco Choke
08:15-09:15	Drill 311mm hole 1305-1309m
09:15-09:30	Service Top Drive
09:30-12:00	Drill 311mm hole 1309-1318m
12:00-12:45	Survey @ 1308m
12:45-16:00	Drill 311mm hole 1318 1330m
16:00-17:00	Drill 311mm hole 1330-1336m
17:00-17:15	Rig Service & Function Annular Preventer
17:15-24:00	Drill 311mm hole 1336-1363m
00:00-00:15	BOP Drill & Function Annular Preventer- 16sec.
00:15-00:30	Rig Service & Service Top Drive
00:30-03:00	Drill 311mm hole 1363-1374m
03:00-04:00	Survey @ 1364m
04:00-08:00	Drill 311mm hole 1374-1383m

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/04	Day	18
Depth	1305	Progress	78	AFE	13577	Operation	Dri'g. 311mm hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1120	Visc	62	W.L.		PH		FC	
Temp	55° C	PV 34	YP 21	600/180	110/76	Oil 77	Solids - %	12	
Tank Vol	67	Hole Vol	94	Total Vol	161	Gradient	10.99	Circ. Time	67

MUD ADDITIVES

Gel		Lime	184	SAPP		Soap		Shrinks	
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	38	Gypsum		Disperse	7		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		7311	Cum	46091	Water cost - Daily		600	Cum	20860

SOLIDS CONTROL

Item	Make		UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander						Water		Bit	0.35
Desilter						Oil	20	Sub/Reamer	1.82
Centrifuge	Shumpell		1720	1110		Losses		Shock/Sub	3.83
Shaker	Swaco		Mesh	84/140	84/84	Dumped	9	2(226) DC	18.92
								Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	10(171)DC	93.32
4	311	HP51H	DJ4132	3/15.9	1205		100	Jars+x/o,s	5.8
								6(171) DC	55.88
3RR	311	HP43A	LB8263	2/14.3/12.7	867	1205	338	X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
78	22.75	3.40	30		18	80			
74	13.25	5.4	62.75	5/6/ o2				TOTAL	238.52

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	105	13700	2.4	38	45	67	5700	105
2	140	105							

SURVEYS

576m	1°	690m	1/8°	804m	1/4°	908m	1°	973m	3/4°
1075	2°	1137m	2 1/2°	1194m	3 1/2°	1252	4°		

Drilling	22.75	NU BOP's		Rig up		Log		WOC	
Tripping		P. test		Run Csg		Core		WOweldor	
Reaming		Slip & cut		Circulate		DST		BOPdrill	
Survey	0.75	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.5	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Rig Service, Survey

Next 24hrs.- Drill 311mm hole, Rig Service, Survey, Work on straightening hol Fence Sumps

Weather	Snowing	Temp.-8°C	Spud	92/02/14	Daily Cost	$62,279	Cum Cost $1,712,409
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad		Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 18

TIME BREAKDOWN

	EXPLANATION
08:00-16:00	Drill 311mm hole 1227-1250
16:00-16:15	Rig Service, Function Upper Pipe Ram
16:15-19:45	Drill 311mm hole 1250-1262
19:45-20:30	Survey @ 1252m
20:30-24:00	Drill 311mm hole 1262-1275
00:00-01:30	Drill 311mm hole 1275-1280
01:30-01:45	Rig Service, Function Lower Pipe Rams
01:45-08:00	Drill 311mm hole 1280-1305

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/03	Day	17
Depth	1227	Progress	22	AFE	13577	Operation	Dri'g. 311mm hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1105	Visc	69	W.L.		PH		FC	
Temp	47*C	PV 45	YP 25	600/180	140/95	Oil 76	Solids - %	11	
Tank Vol	58	Hole Vol	89	Total Vol	147	Gradient	10.8	Circ. Time	61

MUD ADDITIVES

Gel		Lime	64	SAPP		Soap		Shrinks	8
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	10	Gypsum		Disperse			
Soda ash		Kwikseal		Barite	20	Floordry	3		
Mud cost - Daily		2379	Cum	38780	Water cost - Daily		3660	Cum	20260

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil	20	Sab/Reamer	1.82
Centrifuge	Sharpell				Losses		Shock/Sub	3.83
Shaker	Swaco	Mesh	84/140	84/84	Dumped	6	2(228) DC	18.92
							Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	10(171)DC	93.32
4	311	HP51H	DJ4132	3/15.9	1205		22	Jars+x/o,s	5.8
								6(171) DC	55.88
3RR	311	HP43A	LB8263	2/14.3/12.7	867	1205	338	X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
22	7.25	3.00	7.25		10	150			
74	13.25	5.4	62.75	5/6/ o2				TOTAL	236.52

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	105	13700	2.4	38	45	67	5700	105
2	140	105							

SURVEYS

576m	1*	690m	1/8*	804m	1/4*	908m	1*	973m	3/4*
1075	2*	1137m	2 1/2*	1194m	3 1/2*				

Drilling	7.25	NU BOP's		Rig up		Log		WOC	
Tripping	1	P. test		Run Csg		Core		WOwelder	
Reaming	15.5	Slip & cut		Circulate		DST		BOPdrill	
Survey		CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.25	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole, Rig Service

Ream New BHA through Float,Shoe & to BTM

Pick up 30 singles

Next 24hrs.-Drill 311mm hole,Rig Service,Survey,work on getting hole straight Fence Sumps

Weather	cloudy	Temp.-8°C	Spud	92/02/14	Daily Cost $44,019	Cum Cost	$1,650,130
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 17

TIME BREAKDOWN

	EXPLANATION
08:00-09:00	Pick up Pipe
09:00-16:00	Ream 491-770m
16:00-24:00	Ream 770-1187m
00:00-00:30	Ream 1187-1205m
00:30-06:30	Drill 311mm hole 1205-1223m
06:30-06:45	Rig Service & Function Annular 16 sec.
06:45-08:00	Drill 311mm hole1223-1227m

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/02	Day	16
Depth	1205	Progress	74	AFE	13577	Operation	Picking up 127mm D. P.		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1095	Visc	66	W.L.		PH		FC	
Temp	55*C	PV 30	YP 25	600/180	110/80	Oil 76.5	Solids - %	9.5	
Tank Vol	56	Hole Vol	87	Total Vol	143	Gradient	10.74	Circ. Time	

MUD ADDITIVES

Gel		Lime	260	SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	38	Gypsum		Disperse	7		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		9237	Cum	36401	Water cost - Daily		600	Cum	16600

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil	18	Sub/Reamer	1.82
Centrifuge	Sharpell				Losses		Shock/Sub	3.83
Shaker	Swaco	Mesh	84/140	84/84	Dumped	9	2(228) DC	18.92
							Bell Sub	0.53

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
4	311	HP51H	DJ4132	3/15.9	1205			10(171)DC	93.32
								Jars+x/o,s	5.8
								6(171) DC	55.88
3RR	311	HP43A	LB8263	2/14.3/12.7	867	1205	338	X/O	0.9
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	6HWDP	55.17
74	13.25	5.4	62.75	5/6/0				TOTAL	236.52

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	104						7000	100
2	140	105							

SURVEYS

576m	1*	690m	1/8*	804m	1/4*	908m	1*	973m	3/4*
1075	2*	1137m	2 1/2*	1194m	3 1/2*				

Drilling	13.5	NU BOP's		Rig up		Log		WOC	
Tripping	3.5	P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate	1	DST		BOPdrill	
Survey	1	CTB		Cement		Lost. Circ		Hdl Tools	4.25
Rig Serv.	0.75	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole,Rig Service,Survey Trip for Bit #3RR Due to Wear & Deviation,change BHA

Next 24hrs.-Drill 311mm hole,Rig Service,Survey,work on getting hole straight

Weather	cloudy	Temp.-8°C	Spud	92/02/14	Daily Cost $44,019	Cum Cost	$1,610,966
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 16

TIME BREAKDOWN

	EXPLANATION
08:00-09:45	Drill 311mm hole 1131-1146m
09:45-10:00	Rig Service, Function Upper Pipe Rams-6sec.
10:00-10:45	Survey @ 1137m
10:45-16:00	Drill 311mm hole 1146-1178m
16:00-21:30	Drill 311mm hole 1178-1203m
21:30-21:45	Rig Service & Function Remote Choke
21:45-22:00	Survey @ 1194m
22:00-23:00	Drill 311mm hole 1203-1205m
23:00-24:00	Circ. Btms. Up
00:00-03:30	Flow check,Pump Pill,check Crown Saver & POOH for Bit #3RR
03:30-03:45	Rig Service,Function Blind Rams
03:45-08:00	Lay Down Shock Sub & X/O,s,Pick up Combination Reamer & Stabalizer,
	Shock Sub,Jars,Pick up DP to stand in Derrik to Drill with

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/03/01	Day	15
Depth	1131	Progress	151	AFE	13577	Operation	Drl'g. Ahead 311mm Hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Banff			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1060	Visc	76	W.L.		PH		FC	
Temp	45° C	PV52	YP24	600/180	152/100	Oil	Solids - %	74.5	
Tank Vol	61	Hole Vol	82	Total Vol	143	Gradient	10.4	Circ. Time	60

MUD ADDITIVES

Gel		Lime	263	SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	25	Gypsum		Disperse	8		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		9465	Cum	27164	Water cost - Daily		1000	Cum	16000

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		BIT	0.35
Desilter					Oil	10	BIT SUB	1.06
Centrifuge	Sharpell				Losses		2(228)DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped	8	Bell Sub	0.51
							Shock Sub	3.64

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
1	311	FDS	LC8522	4x14.3	500	510	10	x/o	0.45
2RR	311	H4252R3	KJ7805	5/8choke	510	867	357	10(171)DC	93.32
3RR	311	HP43A	LB8263	2/14.3/12.7	867		264	X/O	0.36
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	Jars	5.03
	8.75	1.10	8.75	3/3/I				x/o	0.41
32	20.5	17.00	21					6(171)DC	55.88
151	22.75	6.6	49.5		10000+	120		X/O	0.9
								TOTAL	236.00

PUMP DATA — 6 HWDP 55.17

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	104	14500	2.4	39	45	89	7000	100
2	140	105							

SURVEYS

576m	1°	690m	1/8°	804m	1/4°	908m	1°	973m	3/4°
1075	2°								

Drilling	22.75	NU BOP's		Rig up		Log		WOC	
Tripping		P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate		DST		BOPdrill	
Survey	0.5	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.75	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole,Rig Service,Survey

Next 24hrs.- Drill 311mm hole,Cond. Cutter D while Drl'g, Survey, Rig Service ,Adj. Pitt for Cuttings

Weather	cloudy	Temp.-25	Spud	92/02/14	Daily Cost $31,522	Cum Cost	$1,566,967
Rig Mgr.	Dennis Ross		Phone	77-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 15

TIME BREAKDOWN

	EXPLANATION
08:00-10:30	Drill 311mm hole 980-1003
10:30-10:45	Rig Service,Function Pipe Rams-6sec.
10:45-16:00	Drill 311mm hole 1003-1043
16:00-23:15	Drill 311mm hole 1043-1088
23:15-23:30	Rig Service & Function Annular-16sec.
23:30-24:00	Survey @ 1075m
00:00-03:00	Drill 311mm hole 1088-1107
03:00-03:15	Rig Service, Function Lower Pipe Rams-6sec.
03:15-08:00	Drill 311mm hole 1107-1131

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/28	Day	14
Depth	980	Progress	105	AFE	13577	Operation	Dri'g. Ahead 311mm Hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Flett - limestone			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1060	Visc	86	W.L.		PH		FC	
Temp	40°C	PV 55	YP 25	600/180	160/105	Oil	Solids - %	7	
Tank Vol	65	Hole Vol	71	Total Vol	136	Gradient	10.4	Circ. Time	57

MUD ADDITIVES

Gel		Lime	175	SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust	20	Gypsum		Disperse	6		
Soda ash		Kwikseal		Barite		Floordry	5		
Mud cost - Daily		6593	Cum	17699	Water cost - Daily		600	Cum	15000

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		BIT	0.35
Desilter					Oil	22	BIT SUB	1.06
Centrifuge	Sharpell				Losses		2(228)DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		Bell Sub	0.51
							Shock Sub	3.64

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	x/o	0.45
1	311	FDS	LC8522	4x14.3	500	510	10	10(171)DC	93.32
2RR	311	H4252R3	KJ7805	5/8choke	510	867	357	X/O	0.38
3RR	311	HP43A	LB8263	2/14.3/12.7	867		113	Jars	5.03
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	x/o	0.41
	8.75	1.10	8.75	3/3/I				6(171)DC	55.88
32	20.5	17.00	21					X/O	0.9
8	22	4.8	26.75		13000+	110		TOTAL	236.00

PUMP DATA — 6 HWDP 55.17

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	104	14500	2.4	39	45	89	7000	100
	140	105							

SURVEYS

576m	1°	690m	1/8°	804m	1/4°	908m	1°	973m	3/4°

TIME BREAKDOWN

Drilling	22	NU BOP's		Rig up		Log		WOC	
Tripping		P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate		DST		BOPdrill	
Survey	1.5	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.5	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole,Rig Service,Survey

Next 24hrs.- Drill 311mm hole,Cond. Cutter D while Dri'g, Survey, Rig Service

Weather	cloudy	Temp.-25	Spud	92/02/14	Daily Cost	$46,524	Cum Cost $1,535,445
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 14

TIME BREAKDOWN

TIME	EXPLANATION
08:00-11:00	Drill 311mm hole 875-890m
11:00-11:15	Rig Service
11:15-15:00	Drill 311mm hole 890-911m
15:00-16:00	Survey @ 908m
16:00-24:00	Drill 311mm hole 911-954m
00:00-04:45	Drill 311mm hole 954-975m
04:45-05:00	Rig Service & Function Lower Pipe Rams 6sec
05:00-05:30	Survey @ 973m
05:30-08:00	Drill 311mm hole 975-980m

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/27	Day	13
Depth	875	Progress	8	AFE	13577	Operation	Drl'g. Ahead 311mm Hole		
Elevations	Grd -	380.5	KB	6.22	Formation	Flett - limestone			
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt	1100	Visc	140	W.L.		PH		FC	
Temp	18*C	PV 60	YP 30	600/180	300/120	Oil	Solids - %	66.5	
Tank Vol	51	Hole Vol	63	Total Vol	114	Gradient	10.79	Circ. Time	97min.

MUD ADDITIVES

Gel		Lime	80	SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum		Disperse	3		
Soda ash		Kwikseal		Barite					
Mud cost - Daily		3138	Cum	11106	Water cost - Daily		1000	Cum	14400

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		BIT	0.35
Desilter					Oil	44m3	BIT SUB	1.06
Centrifuge	Sharpell				Losses		2(228)DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		Bell Sub	0.51
							Shock Sub	3.64

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	x/o	0.45
1	311	FDS	LC8522	4x14.3	500	510	10	10(171)DC	93.32
2RR	311	H4252R3	KJ7805	5/8choke	510	867	357	X/O	0.36
3RR	311	HP43A	LB8263	2/14.3/12.7	867		8	Jars	5.03
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	x/o	0.41
	8.75	1.10	8.75	3/3/I				6(171)DC	55.88
32	20.5	17.00	21					X/O	0.9
8	4.75	1.68	4.75		11000	80		TOTAL	236.00

6 HWDP 55.17

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	100	7300	1.18	19	22	43		

SURVEYS

576m	1*	690m	1/8*	804m	1/4*				

TIME BREAKDOWN

Drilling	4.75	NU BOP's		Rig up		Log		WOC	
Tripping	0.75	P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate	18.25	DST		BOPdrill	
Survey		CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.25	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Circ. & Cond. Mud, Rig Service, RIH to 856m, Circ. & clean to BTM, Drill 311mm hole.

Next 24hrs.- Drill 311mm hole, Cond. Cutter D, Survey,Clean Flare Pitt.

Weather	cloudy	Temp.-20	Spud	92/02/14	Daily Cost $71,501	Cum Cost	$1,488,921
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 13

TIME BREAKDOWN

TIME	EXPLANATION
00:80-16:00	Circ. & Cond. Mud, Dig in Shale Sloop & Rig in Ketex Equip.
16:00-24:00	Circ. & Cond. Mud, Rig in Centrifuge
00:00-02:00	Circ. & Cond. Mud, Rig in Centrifuge
02:00-02:15	Rig Service & Function Annular 17sec.
02:15-03:00	Check Crown Saver & RIH to 856m
03:00-03:15	Break Circ. & Wash to Btm. 12m
03:15-08:00	Drill 311mm hole

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/26	Day	12
Depth	867	Progress	32	AFE	13577	Operation	CIRC CUTTER D.		
Elevations	Grd -	380.5	KB	6.22		Formation	Flett - limestone		
Drilling Fluid Type		Cutter D	Volume		Fluid Vol.		Soap		
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	10	Hole Vol	60	Total Vol	70	Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		1000	Cum	13400

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		BIT	0.35
Desilter					Oil		BIT SUB	1.06
Centrifuge					Losses		2(228)DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		Bell Sub	0.51
							Shock Sub	3.64

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	x/o	0.45
1	311	FDS	LC8522	4x14.3	500	510	10	10(171)DC	93.32
2RR	311	H4252R3	KJ7805	5/8choke	510	867	357	X/O	0.36
3RR	311	HP43A	LB8263	2/14.3/12.7	867			Jars	5.03
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	x/o	0.41
	8.75	1.10	8.75	3/3/I				6(171)DC	55.88
32	20.5	17.00	21					X/O	0.9
								TOTAL	236.00

PUMP DATA — 6 HWDP 55.17

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

576m	1*	690m	1/8*	804m	1/4*				

TIME BREAKDOWN

Drilling	3	NU BOP's		Rig up		Log		WOC	
Tripping	4	P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut	0.75	Circulate	4	DST		BOPdrill	
Survey		CTB		Cement		Lost. Circ		Hdl Tools	12.25
Rig Serv.		Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole with Air, Blow hole dry, POOH & Displace hole to Cutter D , Handle tools,
Slip & Cut line, circ.

Next 24hrs.- Install Ketex Vacum System, Centrifuse ,adj. lease for equipment.

Weather	cloudy	Temp.-24	Spud	92/02/14	Daily Cost $40,687	Cum Cost	$1,417,420
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 12

TIME BREAKDOWN

TIME	EXPLANATION
08:00-11:00	Drill 311mm hole 835-867m with foam Air Hammer Failed.
11:00-14:00	Blow hole dry , Transfer Cutter D to mud tanks
14:00-16:00	POOH, Displace hole to Cutter D
16:00-18:00	POOH, Displace hole to Cutter D
18:00-24:00	Break & lay down hammer, lay down Grant head,install flow nipple
00:00-02:00	Lay down Grant head & hook up flow line
02:00-06:15	Lay down Reamer & Fire Stop,Pick up 12(171mm)DC,Jars,Shock Sub,
	make up BHA & RIH to 490m
06:15-07:00	Slip & Cut Line
07:00-08:00	Circ.

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/25	Day	11
Depth	835	Progress	315	AFE	13577	Operation	Drl'g.311mm Hole with Foam		
Elevations	Grd -	380.5	KB	6.22	Formation	Flett - limestone			
Drilling Fluid Type			Volume		Fluid Vol.		Soap		
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol	40	Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	12400

SOLIDS CONTROL

Item	Make		UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander						Water		Bit	0.33
Desilter						Oil		Hammer	2.22
Centrifuge						Losses		Bit sub	1.06
Shaker	Swaco		Mesh	84/140	84/84	Dumped		2(228)DC	18.92
								Fire Stop	0.51

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	Reamer	2.13
1	311	FDS	LC8522	4x14.3	500	510	10	Bell sub	0.51
4RR	311	H4252R3	KJ7805	5/8choke	510		325	Jars	5.03
								x/o	0.45
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	4(171)DC	37.21
	8.75	1.10	8.75	3/3/I				x/o	0.9
325	20.5	15.80	20.5		1-Jan	27		6(HWDP)	55.17
								TOTAL	124.44

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

576m	1*	690m	1/8*	804m	1/4*				

TIME BREAKDOWN

Drilling	18	NU BOP's		Rig up		Log		WOC	
Tripping		P. test		Run Csg		Core		WOwelder	
Reaming		Slip & cut		Circulate	3.5	DST		BOPdrill	
Survey	2	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.5	Repair		safety/M		D.O.F&S		TOTAL	24

REMARKS

Drill 311mm hole with air water entering wellbore @ 543m ,dry hole with air ,mist drill 311mm hole, survey, Rig service,

Next 24hrs.-when shale contacted displace hole to cutter D & Drill Ahead

Weather	cloudy	Temp.-16	Spud	92/02/14	Daily Cost $75,752	Cum Cost	$1,376,733
Rig Mgr.	Paul Wagner		Phone	774-0472	Drlg Spvr. Dave Garstad	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 11

TIME BREAKDOWN

TIME	EXPLANATION
08:00-09:30	Drill 520-543m with air
09:30-13:00	Circ. hole dry with air
13:00-13:30	Mist drill 543-550m
13:30-14:00	Survey ,miss run
14:00-15:30	Drill 550-579m with foam
15:30-16:00	Survey
16:00-21:15	Drill 579-663m with foam
21:15-21:45	Service top drive & check moter kill
21:45-23:30	Drill 663-693m with foam
23:30-24:00	Survey
00:00-05:45	Drill 693-807m with foam
05:45-06:15	Survey @ 804m
06:15-08:00	Drill 807-835m with foam

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/24	Day	10
Depth	520	Progress	10	AFE	13577	Operation	Drl'g.311mmHole with Air		
Elevations	Grd -	380.5	KB	6.22	Formation	Flett - limestone			
Drilling Fluid Type			Volume		Fluid Vol.		Soap		
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol	40	Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		1000	Cum	11800

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.33
Desilter					Oil		Hammer	2.22
Centrifuge					Losses		Bit sub	1.06
Shaker	Swaco	Mesh	84/140	84/84	Dumped		2(228)DC	18.92
							Fire Stop	0.51

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	Reamer	2.13
1	311	FDS	LC8522	4x14.3	500	510	10	Bell sub	0.51
								Jars	5.03
								x/o	0.45
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque	4(171)DC	37.21
	8.75	1.10	8.75	3/3/I				x/o	0.9
								6(HWDP)	55.17
								TOTAL	124.44

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling	1	NU BOP's		Rig up		Log		WOC	
Tripping	7	P. test		Run Csg		Core		WOwelder	4.25
Reaming		Slip & cut		Circulate	2.75	DST		BOPdrill	0.25
Survey		CTB		Cement		Lost. Circ		Hdl Tools	8.25
Rig Serv.	0.25	Repair		safety/M	0.25	D.O.F&S		TOTAL	24

REMARKS

Trip,Handle Tools, Rig Service, Make up BTM HOLE ASS. & RIH, Held Safety Meeting with AIR Drillers
Wait on Welder, Blow Hole Dry with Air, Held BOP Drill,Drill 311mm Hole

Next 24 hrs.- Air Drill 311mm Hole, Survey, Rig Service

Weather	cloudy	Temp.-19	Spud	92/02/14	Daily Cost	$53,987	Cum Cost $1,294,226
Rig Mgr.	Paul Wagner		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 10

TIME BREAKDOWN

TIME	EXPLANATION
00:80-10:00	POOH with Bit #1
10:00-11:00	Rig out Flow Nipple
11:00-11:15	Rig Service
11:15-16:00	Put on Grant head
16:00-18:00	Put on Grant head
18:00-23:00	Make up BTH Ass. & RIH to 496m
23:00-23:30	Install Grant head Insert
23:30-23:45	Safety Meeting with Air Drillers
23:45-24:00	Wait on welder to weld flow line from Grant head
00:00-04:00	Wait on welder to weld flow line from Grant head
04:00-06:45	Blow Hole Dry with Air
06:45-07:00	BOP Drill Well Secure 90 sec.
07:00-08:00	Drill 311mm Hole with Air

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/23	Day	9
Depth	510	Progress	10	AFE	13577	Operation	P.O.O.H. for Bit#1		
Elevations	Grd -	380.5	KB	6.22	Formation	Flett - limestone			
Drilling Fluid Type			Volume		Fluid Vol.		Soap		
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol	40	Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	10800

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		Bit	0.35
Desilter					Oil		Bit sub	1.06
Centrifuge					Losses		2(228)DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		Bell sub	0.55
							4(171)DC	37.21

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	X/O	0.9
1	311	FDS	LC8522	4x14.3	500			6(127)HWDP	55.17
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
								TOTAL	114.16

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling	8.75	NU BOP's		Rig up		Log		WOC	
Tripping	1	P. test	4.25	Run Csg		Core		Cut csg	
Reaming		Slip & cut		Circulate	0.75	DST		BOPdrill	0.25
Survey		CTB		Cement		Lost. Circ		Hdl Tools	2.75
Rig Serv.	0.5	Repair	0.5	WOC		D.O.F&S	5.25	TOTAL	24

REMARKS

Press. Test,Rig service,Thaw Kelly Hose,Conduct BOP Drill,Drill out cement,float,& shoe,
Drill 10m,Conduct Leak-off test to gradient of 22,formation did not break down, POOH.

Next 24hrs.- POOH,Rig in Williams Head , Rig in AIR Drillers, Dry hole, Air Drill.

Weather	cloudy	Temp.-20	Spud	92/02/14	Daily Cost	$19,282	Cum Cost $1,240,239
Rig Mgr.	Paul Wagner		Phone	774-0472	Drlg Spvr.	Dave Garstad	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 9

TIME BREAKDOWN

TIME	EXPLANATION
08;00-11;30	Press. Test
11;30-12;00	Rig Service
12;00-14:45	Thaw Kelly Hose
14:45-15:00	BOP Drill, Well Secure 90 Sec.
15:00-16:00	Break Circ. & Drill Cement * Tag cement @ 486m.
16:00-18:00	Drill out float & shoe
18:00-20:15	Drill out float & shoe
20:15-24:00	Drill 311mm hole from 500m-505m
00:00-00:30	Work on Top Drive
00:30-05:30	Drill 311mm hole from 505m-510m
05:30-06:00	Circ. btms. up
06:00-06:45	Conduct Leak-off Test
06:45-07:00	Circ
07:00-08:00	POOH for Bit #1

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/22	Day	8
Depth	500	Progress		AFE	13577	Operation	Pressure test		
Elevations	Grd -	380 5	KB		Formation	Flett - limestone			
Drilling Fluid Type			Volume		Fluid Vol.		Soap		
Wgt		Visc		W L		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol	40	Total Vol		Gradient		Circ Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	10200

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
1	311	FDS	LC8522	4x14.3	500				
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
								TOTAL	0.00

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's	12.5	Rig up		Log		WOC	
Tripping	2	P. test	9	Run Csg		Core		Cut csg	
Reaming		Slip & cut		Circulate	0.5	DST		Weld bowl	
Survey		CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.		Repair		WOC		Fish		TOTAL	24

REMARKS

NU BOP's and flare lines. Pressure tested manifold and blind rams to 14000 kPa and 1400 kPa holding
10 min on each pressure. All OK.
Picked up bit and RIH.
Pressure testing the rest of the stack as of this AM.

Next 24 hrs - Pressure test, drill out shoe, leak-off test, drill

Weather	cloudy	Temp. -18	Spud	92/02/14	Daily Cost	$22,666	Cum Cost $1,220,957
Rig Mgr.	Paul Wagner		Phone	774-0472	Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 8

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 1800	NU BOP's
1800 - 2400	Pressure test
2400 - 0230	Rig up flow line
0230 - 0430	Trip in hole
0430 - 0500	Circulate
0500 - 0800	Pressure test

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/21	Day	7
Depth	500	Progress		AFE	13577	Operation	NU BOP's		
Elevations	Grd -	380 5	KB		Formation	Flett - limestone			
Drilling Fluid Type		Gel chem	Volume		Fluid Vol.		Soap		
Wgt	1145	Visc	93	W.L.		PH	9.5	FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	37	Hole Vol	61	Total Vol	98	Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	9600

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker	Swaco	Mesh	84/140	84/84	Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
								TOTAL	0.00

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's	4	Rig up		Log		WOC	6
Tripping		P. test		Run Csg		Core		Cut csg	6
Reaming		Slip & cut		Circulate		DST		Weld bowl	4
Survey		CTB		Cement	3	Lost. Circ		Hdl Tools	1
Rig Serv.		Repair		WOC		Fish		TOTAL	24

REMARKS

Ran 36 jts 339.7mm, 81.1 kg/m, K55, STC to 500m. Cemented w/ 31T 0:1:0G + 1% CaCl2 and
27T Expandomix + 2% CaCl2. Displaced w/ 39.2 m3 of water to 488.3 m. Plug down at 1100 hrs, 98/02/20
Approx. 8 m3 good cement returns. Floats held OK. Had some circulation around conductor barrel at
start of cement job. Reduced to nil prior to bumping the plug.
Rigged out cementers and WOC.
Cut casing and lay down diverter system. Weld on casing bowl and NU BOP's.

Next 24 hrs - NU BOP's, pressure test

Weather	snowing	Temp. -15	Spud	92/02/14	Daily Cost	$217,273	Cum Cost $1,198,291
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 7

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 1100	Cement casing
1100 - 1200	Rig out cementers
1200 - 1800	WOC
1800 - 0400	Cut casing, lay down diverter, wel on bowl
0400 - 0800	NU BOP's

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/20	Day	6
Depth	500	Progress		AFE	13577	Operation	Rig up to cement sfc csg		
Elevations	Grd -	380.5	KB		Formation	Flett - limestone			
Drilling Fluid Type		Gel chem	Volume		Fluid Vol		Soap		
Wgt	1145	Visc	93	W L		PH	9 5	FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	37	Hole Vol	61	Total Vol	98	Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap			
Caustic		Vis-Plus		Lignite		Detergent			
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	9000

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.4
Desilter					Oil		bit sub	0.9
Centrifuge					Losses		2-9" DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		bell sub	0.53
							4-6 3/4 DC	37.21

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	xo	0.9
1A	444.5	hammer	KJ7906	3/8 choke	0	442	112	6-HWDP	55.17
2A	444.5	SS81J4	687007	3x20,1x28	442	500	58		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
	11.25	9.96	35.75	drlg	1-2	20	18		
22	12.75	4.55	66.75		6-8000	135	450-500		
								TOTAL	114.03

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	115	6100	1.4					
2	140	115	6100	1.2					

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log	3.5	Well control	
Tripping	6.5	P. test		Run Csg	9.25	Core		Tear Out	
Reaming		Slip & cut		Circulate	1.75	DST		Dig pit	
Survey		CTB		Cement	0.5	Lost. Circ		Hdl Tools	2
Rig Serv.	0.5	Repair		WOC		Fish		TOTAL	24

REMARKS

Finished logging with Computalog. Tear out loggers, RIH and clean to bottom. Circulate and trip out to run casing. Rigged up to/and ran 36 jts 339.7 mm casing to 500m. Had to circulate last 4m to bottom due to very loose fill. Circulated and rigged in Sanjel cementers to cement surface casing.

Next 24 hrs - cement casing, WOC, cut off casing, NU BOP's

Weather	clear	Temp. -12	Spud	92/02/14	Daily Cost	$43,366	Cum Cost $981,018
Rig Mgr.	Dennis Ross		Phone	774-0472	Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 6

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 1130	Log w/ Computalog
1130 - 1200	Tear out loggers
1200 - 1600	RIH
1600 - 1630	Circulate
1630 - 1900	Trip out to run casing
1900 - 2100	Rig in stabbing board
2100 - 0615	Rig up to/and run casing
0615 - 0800	Circ., rig up to and cement casing

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/19	Day	5
Depth	500	Progress	22	AFE	13577	Operation	Logging surface hole		
Elevations	Grd -	380.5	KB		Formation	Flett - limestone			
Drilling Fluid Type		Gel chem	Volume		Fluid Vol.		Soap		
Wgt	1145	Visc	93	W.L.		PH	9 5	FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	37	Hole Vol	61	Total Vol	98	Gradient		Circ Time	

MUD ADDITIVES

Gel	20	Lime		SAPP		Soap			
Caustic		Vis-Plus	1	Lignite		Detergent	2		
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1033	Cum	7968	Water cost - Daily		600	Cum	8400

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.4
Desilter					Oil		bit sub	0.9
Centrifuge					Losses		2-9" DC	18 92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		bell sub	0.53
							4-6 3/4 DC	37.21

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	Total m	xo	0.9
1A	444.5	hammer	KJ7906	3/8 choke	0	442	112	6-HWDP	55.17
2A	444.5	SS81J4	687007	3x20,1x28	442	500	58		
Today m	Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque		
	11.25	9.96	35.75	drlg	1-2	20	18		
22	12.75	4.55	66.75		6-8000	135	450-500		
								TOTAL	114.03

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	115	6100	1.4					
2	140	115	6100	1.2					

SURVEYS

482	1/4								

TIME BREAKDOWN

Drilling	12.75	NU BOP's		Rig up		Log	1.5	Well control	
Tripping	6.5	P. test		Run Csg		Core		Tear Out	1
Reaming		Slip & cut		Circulate	2.5	DST		Dig pit	
Survey	0.5	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.25	Repair		WOC		Fish		TOTAL	24

REMARKS

Drilled ahead to surface TD at 500m. Hole conditions good. Slight flow around around conductor pipe.
Pulled wiper trip. Had to circulate and back ream 1 stand off bottom for approximately 6 stands. Tripped to bit, cleaned off mud ring, and ran to bottom. Circulated and raised visc. to 90+. Circulated hole clean.
Tripped out to log. Hole good on trip out. Rigged up to log and start to log surface hole as of this AM.

Next 24 hrs : log, trip, run casing and cement

Weather	cloudy	Temp. -16	Spud	92/02/14	Daily Cost	$26,615	Cum Cost $937,652
Rig Mgr.	Dennis Ross		Phone		Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 5

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 1045	Drill
1045 - 1115	Survey
1115 - 2115	Drill
2115 - 2230	Circulate
2230 -2400	Wiper trip to bit
0000 - 0145	RIH
0145 - 0200	Rig service
0200 - 0300	RIH
0300 - 0415	Circ. hole clean
0415 - 0630	Trip out to log
0630 - 0800	Rig up to/and log

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/18	Day	4
Depth	478	Progress	36	AFE	13577	Operation	Drilling 444.5 mm surface hole		
Elevations	Grd -	380.5	KB		Formation	Flett - limestone			
Drilling Fluid Type		Gel chem	Volume		Fluid Vol.		Soap		
Wgt	1120	Visc	50	W.L		PH	10	FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	35	Hole Vol	59	Total Vol	94	Gradient		Circ Time	

MUD ADDITIVES

Gel	20	Lime		SAPP		Soap			
Caustic	2	Vis-Plus	1	Lignite		Detergent	2		
Benex		Sawdust	20	Gypsum					
Soda ash		Kwikseal	2	Barite					
Mud cost - Daily		1563	Cum	6935	Water cost - Daily		600	Cum	7800

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.4
Desilter					Oil		bit sub	0.9
Centrifuge					Losses		2-9" DC	18.92
Shaker	Swaco	Mesh	84/140	84/84	Dumped		bell sub	0.53
							4-6 3/4 DC	37.21

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m	xo	0.9
1A	444.5	hammer	KJ7906	3/8 choke	0	442	112	6-HWDP	55.17
2A	444.5	SS81J4	687007	3x20,1x28	442		36		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			
11.25	10.0	35.75	drlg	1-2	20	18			
18.25	2.0	54		10-Jun	135	450-500			
								TOTAL	114.03

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152	115	6100	1.4					
2	140	115	6100	1.2					

SURVEYS

453	3/4								

TIME BREAKDOWN

Drilling	18.25	NU BOP's		Rig up		Log		Well control	
Tripping	2.25	P. test		Run Csg		Core		Tear Out	1
Reaming	1.25	Slip & cut		Circulate	0.5	DST		Dig pit	
Survey	0.5	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	0.25	Repair		WOC		Fish		TOTAL	24

REMARKS

Finished connecting flow nipple. Made up BHA and ran in hole to 397m. Reamed and cleaned to bottom.
No flow around conductor pipe. Continued to drill to proposed TD at 503m.
Drilled ahead to present depth. Hole conditions good

Next 24 hrs - drill, wiper trip, drill, trip to run casing

Weather	cloudy	Temp -18	Spud	92/02/14	Daily Cost	$79,653	Cum Cost $911,037
Rig Mgr.	Dennis Ross		Phone		Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 4

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 0900	Rig up flowline
0900 - 1115	Make up BHA and RIH
1115 - 1145	Change shaker screens
1145 - 1300	Ream and clean to bottom
1300 - 1745	Drill
1745 - 1815	Survey
1815 - 2345	Drill
2345 - 2400	Rig Service
2400 - 0800	Drill

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

[redacted] Name	Paramount Berkley Arrowhead O-15					Date	98/02/17	Day	3
Depth	442	Progress	112	AFE	13577	Operation	Tear out Grant Head		
Elevations	Grd -	380 5	KB		Formation				
Drilling Fluid Type		Air	Volume	6000 cfm	Fluid Vol.	25-35 lpm Soap		0.8-1 %	
Wgt	1030	Visc	47	W L		PH	10	FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	47	Hole Vol	56.5	Total Vol	103.5	Gradient		Circ. Time	

MUD ADDITIVES

Gel	134	Lime		SAPP		Soap	1		
Caustic	1	Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash	1	Kwikseal		Barite					
Mud cost - Daily		3504	Cum	5372	Water cost - Daily		600	Cum	7200

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.39
Desilter					Oil		Hammer	2.22
Centrifuge					Losses		bit sub	0.53
Shaker		Mesh			Dumped		2-9" DC	18.92
							fire sub	0.51

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
1A	444.5	hammer	KJ7906	3/8 choke	0	442	112	4-6 3/4 DC	37.21
								xo	0.9
								6-HWDP	55.17
[redacted]Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			
[redacted]1.25	10.0	35.75	drlg	1-2	20	18			
								TOTAL	116.38

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM
1	152								
2	140								

SURVEYS

343	1	399	1/2						
374	1	427	1						

TIME BREAKDOWN

Drilling	11.25	NU BOP's		Rig up		Log		Well control	1.75
Tripping	2.5	P. test		Run Csg		Core		Tear Out	2.5
Reaming		Slip & cut		Circulate	2.5	DST		Dig pit	
Survey	1.5	CTB		Cement		Lost. Circ		Hdl Tools	0.5
Rig Serv.	0.25	Repair	1.25	WOC		Fish		TOTAL	24

REMARKS

Drilled ahead and surveyed. Hole good on connections
Drilled to 430m and mist pump went down. Repaired and brought back on line.
Drilled ahead to 442m. Clamp on Grant head vibrated open and rubber popped free. Also noticed
fluid and gas flowing up around conductor pipe. Opened HCR and closed Hydril. HCR apparently plugged.
Pulled 5 stands and pumped 15 m3 mud. Re-installed rubber and opened well to blooie pit. Pressure bled off
and bubbling around conductor pipe reduced substantially. Pulled to last stand of HWDP and displaced
well to mud. Hole took approx. 56.5 m3 to fill. Well dead. Tripped out, layed down hammer and bit. Tore
[redacted] Grant head and replaced with flow nipple.
Hole is in competent shale and should be cased here to as drilling ahead may washout conductor barrel
more. Released Percussion drilling and air drilling equipment.
Next 24 hrs.- RIH, CTB, Trip, Run casing and cement.

Weather	cloudy	Temp -14	Spud	92/02/14	Daily Cost	$47,676	Cum Cost $831,384
Rig Mgr.	Dennis Ross		Phone		Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 3

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 0930	Drill
0930 - 0945	survey
0945 - 1245	Drill
1245 - 1230	Rig service
1300 - 1315	Survey
1315 - 1515	Drill
1515 - 1545	Survey
1545 - 1830	Drill
1830 - 1900	Survey
1900 - 2015	Repair mist pump
2015 - 2215	Drill
2215 - 2400	Rubber in Grant head came out. Open HCR and close Hydril. Noticed washout around
	conductor barrel. Pulled 5 stands and pumped mud.Re-installed rubber in Grant head.
	Opened Hydril and bled gas to blooie pit.
2400 - 0130	Trip to HWDP
0130 - 0400	Displace hole to mud
0400 - 0500	Trip out
0500 - 0530	Lay down hammer and bit
0530 - 0800	Tear out Grant head. Pick up and install flow nipple

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/16	Day	2
Depth	330	Progress	238	AFE	13577	Operation	Drilling 444.5mm surface hole		
Elevations	Grd -	380.5	KB		Formation				
Drilling Fluid Type		Air	Volume	6000 cfm	Fluid Vol.	25-35 lpm Soap		0.8-1 %	
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol	78	Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel	60	Lime		SAPP		Soap			
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily		1368	Cum	1868	Water cost - Daily		600	Cum	6600

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.39
Desilter					Oil		Hammer	2.22
Centrifuge					Losses		bit sub	0.53
Shaker		Mesh			Dumped		2-9" DC	18.92
							fire sub	0.51

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
1A	444.5	hammer	KJ7906	3/8 choke	0		330	4-6 3/4 DC	37.21
								xo	0.9
								6-HWDP	55.17
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			
19	17.4	24.5	drlg	1-2	20	18			
								TOTAL	116.38

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

115	7/8	172	1 1/4	230	1 1/2	286	1		
143	7/8	201	1 1/4	258	1 1/8	315	1 7/8		

TIME BREAKDOWN

Drilling	19	NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate	0.75	DST		Dig pit	
Survey	2.5	CTB		Cement		Lost. Circ		Hdl Tools	
Rig Serv.	1	Repair	0.75	WOC		Fish		TOTAL	24

REMARKS

Drilled ahead and surveyed. Hole good on connections

Hole not making any appreciable amounts of water. Encountered gas after taking survey at 144m.Did not notice any while drilling. Volume not measurable.

Mixed mud in tanks for displacing hole prior to running casing.

Injecting air at 6000 CFM and fluid at 25-35 lpm. Hole does not slug with lower volume of fluid injection.

Next 24 hrs - drill, survey

Weather	cloudy	Temp -15	Spud 92/02/14	Daily Cost	$76,070	Cum Cost	$783,708
Rig Mgr.	Dennis Ross		Phone	Drlg Spvr.	Stew Ward	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

PAGE TWO

WELL NAME & LOCATION Paramount Berkley Arrowhead O15 Day 2

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 1400	Drill and survey
1400 - 1500	Repair top drive, rig service
1500 - 2045	Drill and survey
2045 - 2100	Rig service
2100 - 2300	Drill
2300 - 2345	Circulate
2345 - 2400	Survey
2400 - 0015	Rig service
0015 - 0330	Drill and survey
0330 - 0345	Service top drive
0345 - 0800	Drill and survey

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/15	Day	1
Depth	92	Progress	92	AFE	13577	Operation	Drilling 444.5mm surface hole		
Elevations	Grd -	380.5	KB		Formation				
Drilling Fluid Type		Air							
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ Time	

MUD ADDITIVES

Gel		Lime		SAPP		Soap	1		
Caustic	1	Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash	1	Kwikseal		Barite					
Mud cost - Daily		500	Cum	500	Water cost - Daily		600	Cum	6000

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water		bit	0.39
Desilter					Oil		Hammer	2.22
Centrifuge					Losses		bit sub	1.05
Shaker		Mesh			Dumped		2-9" DC	18.92
							fire sub	0.51

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
1A	444.5	hammer	KJ7906	3/8 choke	0		92	bell sub	0.53
								4-6 3/4 DC	37.21
								xo	0.9
								HWDP	27.7
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			
5.5	16.7	5.5		1-2	20				
								TOTAL	89.43

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

41	1/4	88	3/4						
69	3/4								

TIME BREAKDOWN

Drilling	5.5	NU BOP's		Rig up		Log		Abandon	
Tripping	2.25	P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate	1	DST		Dig pit	13
Survey	1	CTB		Cement		Lost. Circ		Hdl Tools	1.25
Rig Serv.		Repair		WOC		Fish		TOTAL	24

REMARKS

Dug blooie pit, rigged in blooie line.
Picked air hammer and bit on 9" drill collar
SPUD 2215 HRS, 98/02/14
Drilled ahead with hammer and air to 61m. Tripped out and changed to above BHA. RIH and drilled ahead
Injecting air at 5400 CFM and fluid at 30-35 lpm.
Hole good on connections

Next 24 hrs - drill, survey

Weather	cloudy	Temp -15	Spud	Daily Cost	$88,533	Cum Cost	$707,638
Rig Mgr.	Dennis Ross		Phone	Drlg Spvr.	Stew Ward	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

WELL NAME & LOCATION Paramount Berkley Arrowhead O15

TIME BREAKDOWN

TIME	EXPLANATION
0800 - 2100	Pick up DP and BHA Wait for flare pit to be dug.
2100 - 2215	Pick up bit and air hammer.
2215 - 0330	Drill and survey
0330 - 0400	Circulate
0400 - 0615	Trip to change BHA
0615 - 0800	Drill and survey

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/14	Day	PS7
Depth		Progress		AFE	13577	Operation	Rigging up		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W L		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Diverter system and Grant head installed
All air drilling and related equipment rigged in.
Track hoe to dig blooie pit did not arrive on location until 930 PM and operator would not work until morning. Waiting on pit before spudding.

Weather	cloudy	Temp -15	Spud	Daily Cost $49,469	Cum Cost $619,105
Rig Mgr.	Dennis Ross		Phone	Drlg Spvr. Steve Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/13	Day	PS6
Depth		Progress		AFE	13577	Operation	Rigging up		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W L		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Top drive installed and operational
Spotted all air equipment and rigged in
Still inspecting drill pipe.

Installing diverter system as of this AM.

Weather	cloudy	Temp -15	Spud	Daily Cost	$74,672	Cum Cost	$569,636
Rig Mgr.	Dennis Ross		Phone	Drlg Spvr.	Stew Ward	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/12	Day	PS5
Depth		Progress		AFE	13577	Operation	Rigging up		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W.L		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Continued to move equipment from Nabors 16.
Raised derrick and continued to rig up
Still inspecting drill pipe.
Started to install top drive.

If all goes well today should spud sometime on Friday.

Weather	Clear	Temp -20	Spud	Daily Cost	Cum Cost	$494,964
Rig Mgr.	Dennis Ross		Phone	Drlg Spvr. Stew Ward	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/11	Day	PS4
Depth		Progress		AFE	13577	Operation	Rigging up		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Rigged up Precision 622E. Continued to move equipment from Nabors 16.

Started to inspect drill pipe. Strung line on blocks.

Weather	Temp	Spud	Daily Cost	Cum Cost	
Rig Mgr.	Dennis Ross	Phone	Drlg Spvr.	Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/10	Day	PS3
Depth		Progress		AFE	13577	Operation	Rigging up		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W L		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Rigged up Precision 622E. Transferred air drilling equipment and diverter from Nabors 16.

Started boiler and generators. Put up prefabs.

Weather	Temp	Spud	Daily Cost	Cum Cost
Rig Mgr. Dennis Ross		Phone	Drlg Spvr. Stew Ward	Phone 210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/09	Day	PS2
Depth		Progress		AFE	13577	Operation	Move Rig		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Continued to move Precision 622E. Matting and loads spotted.

Weather	Temp	Spud	Daily Cost	Cum Cost	
Rig Mgr. Dennis Ross		Phone	Drlg Spvr. Stew Ward	Phone	210-1894

PARAMOUNT RESOURCES LTD.

DAILY DRILLING REPORT

Well Name	Paramount Berkley Arrowhead O-15					Date	98/02/08	Day	PS1
Depth		Progress		AFE	13577	Operation	Move Rig		
Elevations	Grd -		KB		Formation				
Drilling Fluid Type									
Wgt		Visc		W.L.		PH		FC	
Temp		PV	YP	600	300	Oil	Solids - %		
Tank Vol		Hole Vol		Total Vol		Gradient		Circ. Time	

MUD ADDITIVES

Gel		Lime		SAPP					
Caustic		Polymer		Lignite					
Benex		Sawdust		Gypsum					
Soda ash		Kwikseal		Barite					
Mud cost - Daily			Cum		Water cost - Daily			Cum	

SOLIDS CONTROL

Item	Make	UF	OF	L/min	Fluid Volumes		Drilling Assembly	
Desander					Water			
Desilter					Oil			
Centrifuge					Losses			
Shaker		Mesh			Dumped			

BIT DATA

No	Size	Type	Serial #	Jets	In	Out	m		
Hours	m/Hr	Cum Hrs	Condition	Weight	RPM	Torque			

PUMP DATA

Pump No.	Liners	SPM	Pressure	m3/min	DP Vel.	DC Vel.	Noz. Vel.	RSPP	SPM

SURVEYS

TIME BREAKDOWN

Drilling		NU BOP's		Rig up		Log		Abandon	
Tripping		P. test		Run Csg		Core		Tear Out	
Reaming		Slip & cut		Circulate		DST			
Survey		CTB		Cement		Lost. Circ			
Rig Serv.		Repair		WOC		Fish		TOTAL	

REMARKS

Started to move rig from Maxhamish to Arrowhead O-15

Weather	Temp	Spud	Daily Cost	Cum Cost
Rig Mgr. Dennis Ross		Phone	Drlg Spvr. Stew Ward	Phone 210-1894

UNITED GeoCom Drilling Services

A Computalog Ltd. & Geoservices N.A. Ltd. Joint Venture

COMPLETION

FOR

PARAMOUNT RESOURCES LIMITED

PARAMOUNT BERKLEY ARROWHEAD 0-15

FROM SURFACE LOCATION:

LAT 60°24' LONG 123°02'

WELL FILE: **9177 C**

99-03-25

UNITED GEOCOM DRILLING SERVICES
9204 - 37th AVENUE
EDMONTON, AB, CANADA T6E 5L4
PHONE: (780) 462-6300
FAX: (780) 466-6002

UNITED GEOCOM DRILLING SERVICES
2140 530 - 8 TH AVENUE, S.W.
CALGARY, AB, CANADA T2P 3S8
PHONE: (403) 218-2400
FAX: (403) 218-2401

UN. ED GEOCOM DRILLING SERVICE.

Client : PARAMOUNT RESOURCES LTD.
Well Name : PARAMOUNT BERKLEY ARROWHEAD 0-15
Location : LAT 60 24' LONG 123 02'

Date : 99/03/25
File : 9177C

Vertical Section Calculated Along AZ 100.67°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
2235.45	2.60	219.40	2233.31	4.76	14.45	13.32	0.39	0.31	-5.5
2245.14	2.60	220.60	2242.99	4.42	14.16	13.10	0.17	0.00	3.7
2254.84	2.30	238.30	2252.68	4.15	13.86	12.85	2.50	-0.93	54.7
2264.67	2.80	254.80	2262.50	3.98	13.46	12.49	2.70	1.53	50.4
2274.30	4.30	262.90	2272.11	3.88	12.87	11.93	4.92	4.67	25.2
2284.01	5.30	260.80	2281.79	3.76	12.07	11.16	3.14	3.09	-6.5
2293.83	5.70	257.60	2291.56	3.58	11.14	10.29	1.54	1.22	-9.8
2303.52	6.20	255.40	2301.20	3.35	10.17	9.37	1.70	1.55	-6.8
2312.93	6.40	258.20	2310.55	3.11	9.16	8.43	1.17	0.64	8.9
2324.75	5.50	254.20	2322.31	2.82	7.97	7.31	2.51	-2.28	-10.2
2332.57	5.00	251.00	2330.10	2.61	7.29	6.68	2.22	-1.92	-12.3
2341.88	5.30	250.00	2339.37	2.33	6.50	5.96	1.01	0.97	-3.2
2351.56	5.60	249.90	2349.00	2.02	5.64	5.17	0.93	0.93	-0.3
2361.23	5.40	258.40	2358.63	1.76	4.75	4.34	2.60	-0.62	26.4
2370.91	4.50	262.40	2368.27	1.62	3.93	3.56	2.99	-2.79	12.4
2380.60	3.50	260.20	2377.94	1.52	3.26	2.92	3.13	-3.10	-6.8
2390.19	3.00	256.00	2387.51	1.41	2.73	2.42	1.73	-1.56	-13.1
2399.90	2.20	257.00	2397.22	1.31	2.30	2.02	2.48	-2.47	3.1
2409.26	1.10	260.10	2406.57	1.25	2.03	1.77	3.54	-3.53	9.9
2418.99	0.50	289.70	2416.30	1.25	1.90	1.64	2.19	-1.85	91.3
2428.81	1.00	306.70	2426.12	1.31	1.79	1.52	1.66	1.53	51.9
2438.08	1.30	319.10	2435.39	1.44	1.66	1.36	1.26	0.97	40.1
2447.41	1.30	346.00	2444.72	1.63	1.56	1.24	1.94	0.00	86.5
2457.05	1.30	54.30	2454.35	1.80	1.63	1.27	4.54	0.00	99.0
2466.41	1.80	74.30	2463.71	1.90	1.85	1.47	2.34	1.60	64.1
2476.23	1.70	83.70	2473.52	1.95	2.15	1.75	0.93	-0.31	28.7
2485.95	1.90	95.70	2483.24	1.95	2.45	2.05	1.31	0.62	37.0
2495.23	2.70	110.90	2492.51	1.86	2.81	2.42	3.23	2.59	49.1
2504.95	3.70	127.10	2502.22	1.59	3.27	2.92	4.13	3.09	50.0
2514.77	4.20	128.50	2512.01	1.18	3.81	3.52	1.55	1.53	4.3
2524.45	4.10	117.00	2521.67	0.80	4.39	4.17	2.59	-0.31	-35.6
2533.57	3.80	103.10	2530.77	0.58	4.98	4.78	3.29	-0.99	-45.7
2543.27	3.70	85.70	2540.45	0.53	5.60	5.41	3.52	-0.31	-53.8
2552.98	3.50	70.80	2550.14	0.65	6.20	5.97	2.95	-0.62	-46.0
2562.24	3.00	62.30	2559.38	0.86	6.68	6.40	2.25	-1.62	-27.5

UN. ED GEOCOM DRILLING SERVICE

Client : PARAMOUNT RESOURCES LTD.
Well Name : PARAMOUNT BERKLEY ARROWHEAD 0-15
Location : LAT 60 24' LONG 123 02'

Date : 99/03/25
File : 9177C

Vertical Section Calculated Along AZ 100.67°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
				TIE-ON					
500.00	0.00	0.00	500.00	0.00	0.00	0.00	0.00	0.00	0.0
550.00	0.32	78.80	550.00	0.03	0.14	0.13	0.19	0.19	47.3
660.32	0.35	91.07	660.32	0.08	0.78	0.75	0.02	0.01	3.3
774.00	0.46	104.70	774.00	-0.04	1.56	1.55	0.04	0.03	3.6
886.00	0.81	55.62	885.99	0.29	2.65	2.55	0.17	0.09	-13.1
1001.00	2.77	68.29	1000.93	1.78	5.91	5.47	0.52	0.51	3.3
1113.00	4.10	61.14	1112.72	4.71	11.93	10.85	0.37	0.36	-1.9
			INTERMEDIATE CASING @ 1186.60m MD						
1186.60	**4.18**	**59.54**	**1186.13**	**7.34**	**16.54**	**14.90**	**0.06**	**0.03**	**-0.7**
1202.36	4.20	59.20	1201.85	7.93	17.53	15.76	0.07	0.04	-0.6
1337.65	2.60	316.80	1336.99	12.71	19.69	17.00	1.20	-0.35	-22.7
1472.58	1.90	317.10	1471.81	16.58	16.07	12.73	0.16	-0.16	0.1
1616.57	2.90	23.70	1615.70	21.66	15.91	11.63	0.58	0.21	13.9
1674.90	3.50	67.00	1673.95	23.71	18.14	13.44	1.25	0.31	22.3
1684.59	3.90	72.60	1683.62	23.92	18.73	13.98	1.67	1.24	17.3
1694.12	4.30	77.20	1693.12	24.10	19.39	14.59	1.63	1.26	14.5
1703.85	4.60	83.70	1702.82	24.22	20.13	15.30	1.81	0.92	20.0
1713.57	4.80	88.10	1712.51	24.28	20.93	16.07	1.27	0.62	13.6
1723.24	4.90	91.70	1722.15	24.28	21.74	16.87	0.99	0.31	11.2
1732.89	4.60	100.10	1731.76	24.20	22.54	17.67	2.35	-0.93	26.1
1742.71	4.50	109.80	1741.55	24.00	23.29	18.44	2.37	-0.31	29.6
1752.23	4.60	116.00	1751.04	23.70	23.98	19.18	1.58	0.32	19.5
1761.91	4.40	121.20	1760.69	23.34	24.65	19.90	1.41	-0.62	16.1
1771.60	4.20	120.30	1770.35	22.97	25.27	20.58	0.65	-0.62	-2.8
1781.42	3.90	118.20	1780.15	22.63	25.88	21.24	1.02	-0.92	-6.4
1791.13	3.90	118.30	1789.84	22.32	26.46	21.87	0.00	0.00	0.3
1800.95	3.70	132.40	1799.64	21.95	26.99	22.46	2.91	-0.61	43.1
1810.58	4.40	150.80	1809.24	21.42	27.40	22.96	4.57	2.18	57.3
1820.39	4.90	161.40	1819.02	20.69	27.71	23.40	3.03	1.53	32.4
1830.21	4.80	168.70	1828.81	19.89	27.93	23.76	1.91	-0.31	22.3
1839.94	4.40	165.40	1838.50	19.13	28.10	24.07	1.48	-1.23	-10.2
1849.75	4.10	169.40	1848.29	18.42	28.26	24.36	1.29	-0.92	12.2
1859.06	3.80	174.60	1857.57	17.79	28.35	24.57	1.50	-0.97	16.8
1868.43	3.50	183.90	1866.93	17.19	28.36	24.69	2.12	-0.96	29.8
1878.10	3.10	186.60	1876.58	16.64	28.31	24.74	1.33	-1.24	8.4
1887.10	2.80	193.70	1885.57	16.18	28.23	24.75	1.57	-1.00	23.7

UN. ED GEOCOM DRILLING SERVICE.

Client : PARAMOUNT RESOURCES LTD.
Well Name : PARAMOUNT BERKLEY ARROWHEAD 0-15
Location : LAT 60 24' LONG 123 02'

Date : 99/03/25
File : 9177C

Vertical Section Calculated Along AZ 100.67°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
1897.19	3.10	194.90	1895.65	15.68	28.10	24.71	0.91	0.89	3.6
1907.01	3.60	202.40	1905.45	15.14	27.92	24.63	2.03	1.53	22.9
1916.49	3.90	199.10	1914.91	14.56	27.70	24.52	1.17	0.95	-10.4
1926.14	2.90	192.40	1924.54	14.01	27.54	24.47	3.34	-3.11	-20.8
1935.95	1.80	176.90	1934.34	13.61	27.49	24.50	3.86	-3.36	-47.4
1945.60	1.00	162.10	1943.99	13.38	27.53	24.57	2.71	-2.49	-46.0
1955.12	0.80	157.20	1953.51	13.24	27.58	24.65	0.67	-0.63	-15.4
1964.83	1.30	186.00	1963.22	13.07	27.59	24.70	2.20	1.54	89.0
1974.51	2.20	196.30	1972.89	12.78	27.53	24.69	2.94	2.79	31.9
1984.32	3.10	195.60	1982.69	12.34	27.41	24.65	2.75	2.75	-2.1
1993.66	3.60	207.70	1992.02	11.84	27.20	24.54	2.77	1.61	38.9
2003.36	3.20	225.30	2001.70	11.38	26.87	24.29	3.44	-1.24	54.4
2013.17	3.40	251.90	2011.49	11.10	26.40	23.88	4.68	0.61	81.3
2022.87	3.20	263.30	2021.18	10.98	25.85	23.37	2.12	-0.62	35.3
2032.11	3.10	262.40	2030.40	10.91	25.35	22.89	0.36	-0.32	-2.9
2041.92	3.50	247.20	2040.20	10.76	24.81	22.39	2.93	1.22	-46.5
2051.67	4.20	248.10	2049.93	10.51	24.21	21.84	2.16	2.15	2.8
2061.47	5.00	243.20	2059.69	10.19	23.49	21.20	2.73	2.45	-15.0
2071.15	5.00	237.50	2069.34	9.77	22.76	20.56	1.54	0.00	-17.7
2080.85	4.50	231.70	2079.00	9.31	22.10	20.00	2.14	-1.55	-17.9
2090.66	3.80	216.40	2088.79	8.81	21.61	19.60	3.99	-2.14	-46.8
2100.00	3.70	220.50	2098.11	8.33	21.23	19.32	0.92	-0.32	13.2
2109.54	3.70	233.40	2107.63	7.91	20.78	18.96	2.61	0.00	40.6
2119.25	3.90	243.10	2117.32	7.58	20.24	18.48	2.08	0.62	30.0
2128.95	4.30	244.00	2126.99	7.27	19.61	17.93	1.25	1.24	2.8
2138.76	5.00	245.50	2136.77	6.93	18.90	17.29	2.17	2.14	4.6
2148.43	4.90	245.90	2146.40	6.59	18.13	16.60	0.33	-0.31	1.2
2158.15	4.50	254.20	2156.09	6.31	17.39	15.92	2.43	-1.23	25.6
2167.86	3.50	259.40	2165.78	6.15	16.73	15.30	3.28	-3.09	16.1
2177.56	2.70	265.00	2175.46	6.08	16.21	14.81	2.64	-2.47	17.3
2187.25	2.10	249.60	2185.15	6.00	15.82	14.43	2.71	-1.86	-47.7
2196.57	1.80	239.60	2194.46	5.86	15.53	14.18	1.46	-0.97	-32.2
2206.30	2.10	229.70	2204.18	5.67	15.26	13.95	1.39	0.92	-30.5
2216.00	2.40	220.20	2213.88	5.40	15.00	13.74	1.48	0.93	-29.4
2225.70	2.50	221.20	2223.57	5.09	14.73	13.53	0.34	0.31	3.1

UN. .ED GEOCOM DRILLING SERVICL

Client : PARAMOUNT RESOURCES LTD.
Well Name : PARAMOUNT BERKLEY ARROWHEAD 0-15
Location : LAT 60 24' LONG 123 02'

Date : 99/03/25
File : 9177C

Vertical Section Calculated Along AZ 100.67°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
2571.70	2.40	57.70	2568.83	1.08	7.06	6.74	2.02	-1.90	-14.6
2581.52	1.70	69.30	2578.65	1.24	7.37	7.02	2.48	-2.14	35.4
2590.64	0.60	136.30	2587.76	1.25	7.53	7.17	5.15	-3.62	99.0
2600.36	1.10	201.10	2597.48	1.13	7.53	7.20	3.10	1.54	99.0
2609.66	1.50	201.40	2606.78	0.93	7.46	7.16	1.29	1.29	1.0
2619.14	1.20	174.40	2616.26	0.72	7.42	7.16	2.20	-0.95	-85.4
2628.96	0.80	133.60	2626.08	0.57	7.48	7.25	2.42	-1.22	-99.0
2638.67	0.70	92.60	2635.79	0.52	7.59	7.36	1.65	-0.31	-99.0
2648.36	0.40	32.10	2645.48	0.55	7.67	7.43	1.89	-0.93	-99.0
2657.82	0.30	3.80	2654.94	0.60	7.69	7.44	0.62	-0.32	-89.7
2667.53	0.20	246.10	2664.65	0.62	7.67	7.43	1.33	-0.31	-99.0
2676.89	0.20	205.10	2674.00	0.60	7.65	7.41	0.45	0.00	-99.0
2686.57	0.30	173.90	2683.69	0.56	7.65	7.41	0.51	0.31	-96.7
2696.39	0.60	158.80	2693.50	0.48	7.67	7.45	0.98	0.92	-46.1
2706.06	0.80	136.00	2703.18	0.39	7.73	7.53	1.05	0.62	-70.7
2715.64	1.00	146.00	2712.75	0.27	7.83	7.64	0.79	0.63	31.3
2725.46	1.20	156.50	2722.57	0.10	7.92	7.76	0.87	0.61	32.1
2734.75	1.30	166.10	2731.86	-0.09	7.98	7.86	0.75	0.32	31.0
2744.46	0.90	171.20	2741.57	-0.27	8.02	7.93	1.27	-1.24	15.8
2754.23	0.80	176.40	2751.34	-0.41	8.03	7.97	0.39	-0.31	16.0
2763.91	1.00	172.70	2761.01	-0.57	8.05	8.01	0.65	0.62	-11.5
2773.62	1.10	176.20	2770.72	-0.74	8.07	8.06	0.37	0.31	10.8
2783.33	1.60	166.30	2780.43	-0.97	8.10	8.14	1.70	1.54	-30.6
			INTERMEDIATE CASING @ 2805.00m MD						
2805.00	**1.60**	**166.30**	**2802.09**	**-1.56**	**8.25**	**8.39**	**0.00**	**0.00**	**0.0**
2854.00	1.50	166.30	2851.07	-2.84	8.56	8.94	0.06	-0.06	0.0
2911.00	1.25	166.30	2908.06	-4.17	8.88	9.50	0.13	-0.13	0.0
2968.00	0.38	166.30	2965.05	-4.96	9.08	9.84	0.46	-0.46	0.0
3071.00	1.75	166.30	3068.03	-6.81	9.53	10.63	0.40	0.40	0.0
3090.00	2.00	166.30	3087.02	-7.42	9.68	10.88	0.40	0.39	0.0
3121.00	1.50	166.30	3118.01	-8.34	9.90	11.27	0.48	-0.48	0.0
3168.00	1.00	166.30	3165.00	-9.33	10.14	11.70	0.32	-0.32	0.0
3225.00	2.00	166.30	3221.98	-10.78	10.50	12.31	0.53	0.53	0.0
3300.00	3.75	166.30	3296.88	-14.44	11.39	13.86	0.70	0.70	0.0
			EXTRAPOLATED TD @ 3301.00m MD						
3301.00	**3.75**	**166.30**	**3297.88**	**-14.50**	**11.40**	**13.89**	**0.00**	**0.00**	**0.0**

CLOSURE TO TD: 18.44m @ AZ 141.83°

UNITED GeoCom Drilling Services

COMPLETION REPORT

COMPANY: PARAMOUNT RESOURCES LIMITED
WELL: PARAMOUNT BERKLEY ARROWHEAD 0-15
LOCATION: LAT 60°24' LONG 123°02'

FILE: 9177 C
DATE: 99-03-25
TYPE:

TOTAL DEPTH CO-ORDINATES

RECTANGULAR		POLAR	MAGNETIC DECLINATION
LAT:-14.5 m	DEP: 11.4 m	18.44 m @ AZ: 141.83°	27.2° EAST

COMPLETED TVD: 3297.88 m MEASURED DEPTH: 3301 m

PROPOSED WELL

SURFACE: ; SEC
TARGET: ; SEC

SURFACE TO TARGET

RECTANGULAR		POLAR
LAT:	DEP:	@ AZ:

TARGET TVD: PROJECTED TD:

COMMENTS:

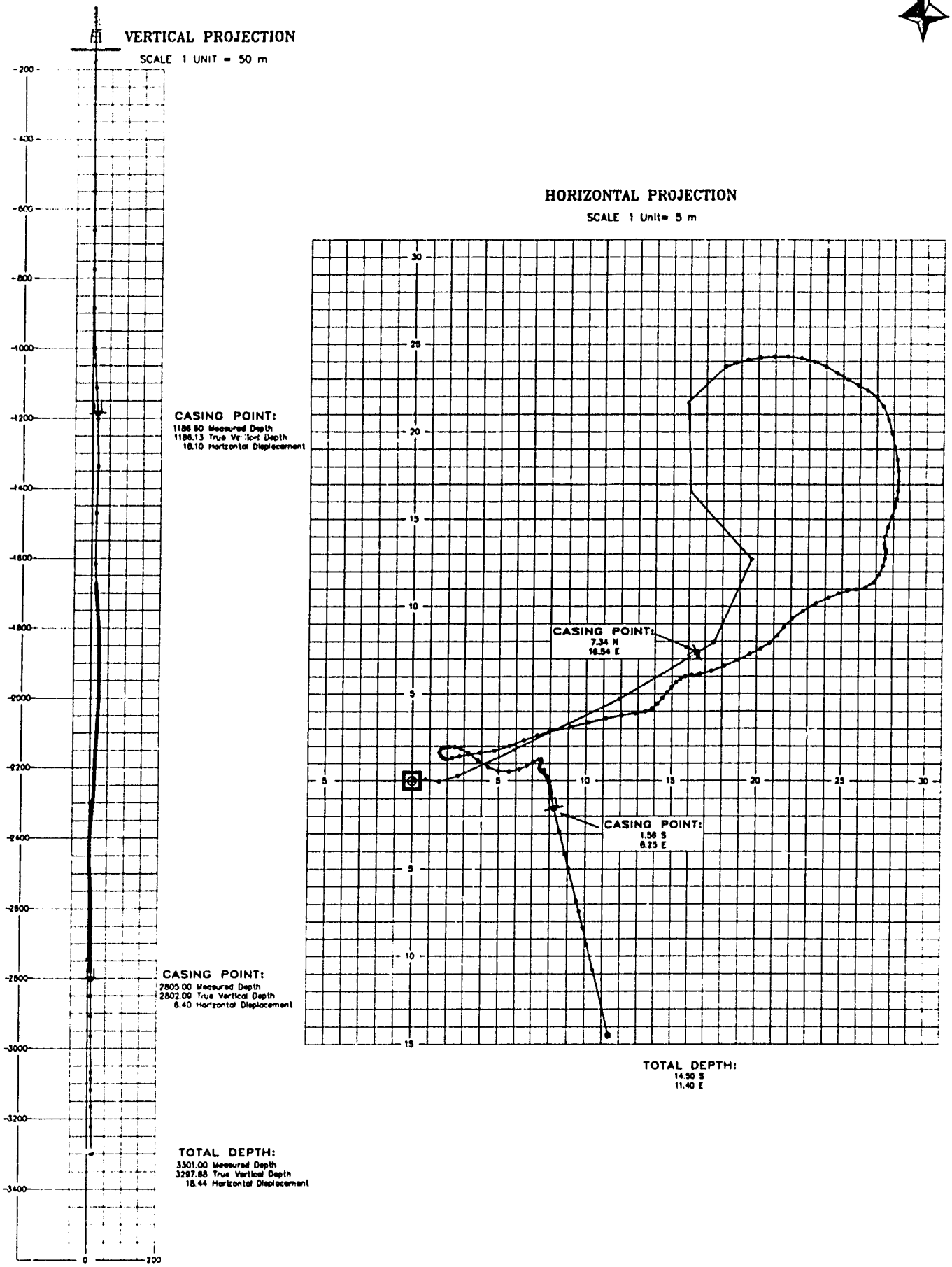
SEE COMPASS PROGRAM*

Completion Date: 99-03-25

NOTE: DISTANCES & DEPTHS ARE IN METRES AND DECIMALS.
INCLINATIONS & DIRECTION ARE IN DECIMAL DEGREES
METHOD OF CALCULATION: *MINIMUM CURVATURE*
Dleg/Build: °/30m Intervals.
(-) VALUES INDICATE SOUTH FOR LATITUDE & WEST FOR DEPARTURE.
ALL DEPTHS BASED ON KB ELEVATION

PARAMOUNT BERKLEY ARROWHEAD 0-15

CLOSURE TO TD : 18.44m @ AZ 141.83°



UNITED GeoCom Drilling Services

A Computing Ltd. & Geoservices N.A. Ltd. Joint Venture

LAT. 60° 24'

LONG. 123° 02'

COMPANY:	PARAMOUNT RESOURCES LIMITED
WELLNAME	PARAMOUNT BERKLEY ARROWHEAD 0-15
LOCATION	LAT 60°24' LONG 123°02'
FILE	9177
PROPOSAL/COMPLETION	COMPLETION
DATE	90/08/28

UNITED
GeoCom Drilling Services
A Computalog Ltd. & Geoservices N.A. Ltd. Joint Venture

COMPLETION

FOR

PARAMOUNT RESOURCES LIMITED

PARAMOUNT ET AL LIARD

FROM SURFACE LOCATION:

LAT 60-O5-27, LONG. 123-22-06

WELL FILE: **9185 C**

99-03-29

UNITED GEOCOM DRILLING SERVICES
9204 - 37th AVENUE
EDMONTON, AB, CANADA T6E 5L4
PHONE: (780) 462-6300
FAX: (780) 466-6002

UNITED GEOCOM DRILLING SERVICES
2140 530 - 8 TH AVENUE, S.W.
CALGARY, AB, CANADA T2P 3S8
PHONE: (403) 218-2400
FAX: (403) 218-2401

UNITED GEOCOM DRILLING SERVICES

Client : PARAMOUNT RESOURCES LIMITED
Well Name : PARAMOUNT ET AL LIARD
Location : LAT 60-05-27, LONG. 123-22-06

Date : 1999-03-29
File : 9185C

Vertical Section Calculated Along AZ 0.00°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
				TIE-ON					
1494.00	0.80	131.05	1493.70	-10.13	2.77	-10.13	0.00	0.00	0.0
1513.00	0.86	126.15	1512.70	-10.30	2.99	-10.30	0.15	0.09	-7.7
1533.00	0.72	157.81	1532.70	-10.51	3.15	-10.51	0.68	-0.21	47.5
1552.00	1.12	186.79	1551.69	-10.80	3.18	-10.80	0.95	0.63	45.8
1571.00	1.03	205.38	1570.69	-11.14	3.08	-11.14	0.57	-0.14	29.4
1590.00	1.97	224.97	1589.68	-11.53	2.78	-11.53	1.67	1.48	30.9
1608.00	3.28	232.05	1607.67	-12.06	2.15	-12.06	2.25	2.18	11.8
1628.00	2.75	234.00	1627.64	-12.69	1.31	-12.69	0.81	-0.79	2.9
1647.00	2.34	238.91	1646.62	-13.16	0.61	-13.16	0.73	-0.65	7.8
1665.00	2.59	240.08	1664.60	-13.56	-0.05	-13.56	0.42	0.42	2.0
1[illegible]4.00	2.21	253.51	1683.58	-13.87	-0.78	-13.87	1.07	-0.60	21.2
1[illegible]2.00	2.05	262.91	1701.57	-14.01	-1.43	-14.01	0.64	-0.27	15.7
1722.00	2.02	260.05	1721.56	-14.12	-2.13	-14.12	0.16	-0.04	-4.3
1741.00	2.01	260.01	1740.55	-14.23	-2.79	-14.23	0.00	-0.02	-0.1
1760.00	1.62	277.77	1759.54	-14.25	-3.38	-14.25	1.07	-0.62	28.0
1779.00	1.29	301.07	1778.53	-14.11	-3.83	-14.11	1.06	-0.52	36.8
1798.00	1.01	301.07	1797.53	-13.91	-4.16	-13.91	0.44	-0.44	0.0
1818.00	1.10	281.19	1817.53	-13.78	-4.50	-13.78	0.56	0.14	-29.8
1837.00	0.96	264.76	1836.52	-13.76	-4.84	-13.76	0.51	-0.22	-25.9
1856.00	1.77	232.41	1855.52	-13.95	-5.23	-13.95	1.72	1.28	-51.1
1874.00	2.54	230.31	1873.50	-14.38	-5.76	-14.38	1.29	1.28	-3.5
1894.00	2.77	252.32	1893.48	-14.81	-6.56	-14.81	1.56	0.35	33.0
1913.00	2.71	256.73	1912.46	-15.05	-7.43	-15.05	0.35	-0.09	7.0
1932.00	1.40	277.41	1931.45	-15.12	-8.10	-15.12	2.34	-2.07	32.7
1951.00	0.72	357.56	1950.45	-14.98	-8.33	-14.98	2.31	-1.07	99.0
1970.00	1.98	50.37	1969.44	-14.65	-8.09	-14.65	2.60	1.99	83.4
1989.00	3.31	60.03	1988.42	-14.16	-7.36	-14.16	2.21	2.10	15.3
2008.00	5.30	67.39	2007.37	-13.55	-6.07	-13.55	3.25	3.14	11.6
2016.00	6.64	68.49	2015.32	-13.24	-5.30	-13.24	5.04	5.02	4.1
2019.82	8.30	74.80	2019.11	-13.09	-4.83	-13.09	14.52	13.04	49.6
2028.78	7.60	77.60	2027.98	-12.79	-3.63	-12.79	2.68	-2.34	9.4
2038.35	6.40	81.50	2037.48	-12.58	-2.48	-12.58	4.04	-3.76	12.2
[illegible]7.76	5.10	83.10	2046.84	-12.45	-1.55	-12.45	4.18	-4.14	5.1
2057.30	4.50	88.90	2056.35	-12.39	-0.75	-12.39	2.42	-1.89	18.2
2067.10	3.80	100.50	2066.13	-12.44	-0.05	-12.44	3.34	-2.14	35.5

UNITED GEOCOM DRILLING SERVICES

Client : PARAMOUNT RESOURCES LIMITED
Well Name : PARAMOUNT ET AL LIARD
Location : LAT 60-05-27, LONG. 123-22-06

Date : 1999-03-29
File : 9185C

Vertical Section Calculated Along AZ 0.00°

MD m	INC deg	DIR deg	TVD m	LAT m	DEP m	VS m	D'LEG °/30	BUILD °/30	TURN °/30
2076.74	3.00	95.00	2075.75	-12.52	0.52	-12.52	2.69	-2.49	-17.1
2110.00	**1.80**	**95.00**	**2108.98**	**-12.64**	**1.90**	**-12.64**	**1.08**	**-1.08**	**0.0**

Closure to TD: 12.78m @ AZ 171.45°

UNITED GeoCom Drilling Services

COMPLETION REPORT

COMPANY: PARAMOUNT RESOURCES LIMITED
WELL: PARAMOUNT ET AL LIARD
LOCATION: LAT 60-05-27, LONG. 123-22-06

FILE: 9185 C
DATE: 99-03-29
TYPE:

TOTAL DEPTH CO-ORDINATES

RECTANGULAR		POLAR	MAGNETIC DECLINATION
LAT:-12.64 m	DEP: 1.9 m	12.78 m @ AZ: 171.45°	

COMPLETED TVD: 2108.98 m MEASURED DEPTH: 2110 m

PROPOSED WELL

SURFACE: ; SEC
TARGET: ; SEC

SURFACE TO TARGET

RECTANGULAR		POLAR
LAT:	DEP:	@ AZ:

TARGET TVD: PROJECTED TD:

COMMENTS:

Completion Date: 99-03-29

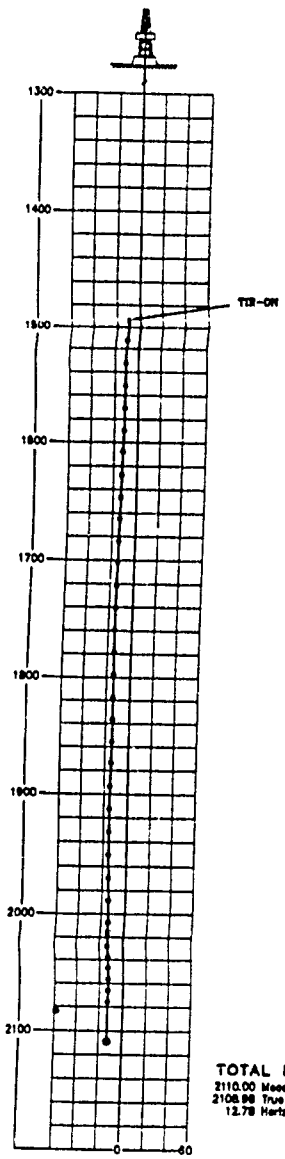
NOTE: DISTANCES & DEPTHS ARE IN METRES AND DECIMALS.
INCLINATIONS & DIRECTION ARE IN DECIMAL DEGREES
METHOD OF CALCULATION: *MINIMUM CURVATURE*
Dleg/Build: °/30m Intervals.
(-) VALUES INDICATE SOUTH FOR LATITUDE & WEST FOR DEPARTURE.
ALL DEPTHS BASED ON KB ELEVATION

PARAMOUNT ET AL LIARD

CLOSURE TO TD : 12.78m @ AZ 171.45°

VERTICAL PROJECTION

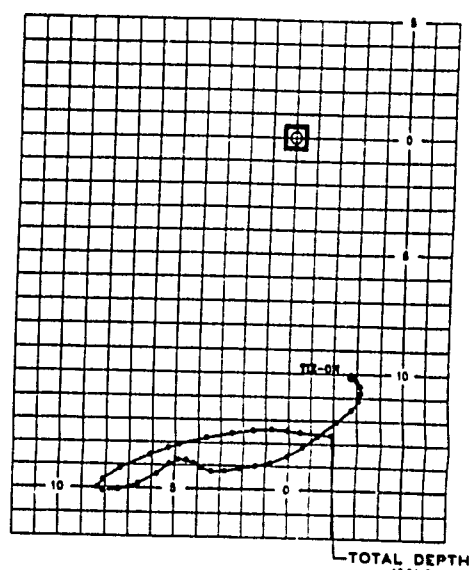
SCALE 1 Unit = 20 m



TOTAL DEPTH:
2110.00 Measured Depth
2108.98 True Vertical Depth
12.78 Horizontal Displacement

HORIZONTAL PROJECTION

SCALE 1 Unit= 1 m



TOTAL DEPTH:
12.84 S
1.90 E

UNITED GeoCom Drilling Services

A Computalog Ltd. & Geoservices N.A. Ltd. Joint Venture

LAT. 60° 06' 27"
LONG. 123° 22' 06"

COMPANY: PARAMOUNT RESOURCES LIMITED

WELLNAME PARAMOUNT ET AL LIARD
LOCATION LAT. 60°06'27.0",LONG. 123°22'06.6"
FILE
PROPOSAL/COMPLETION
DATE 99/ 0

4. GEOLOGY

Drill Cuttings	5 m interval surface to total depth
Sample Distribution:	One set bagged samples and Two sets of glass vials sent to G.S.C., Calgary Attention: Alan Scott One Set vials to Paramount
Cores	N/A
Lithology:	See following pages for descriptions
Stratigraphic Column	Attached in this section
Biostratigraphic Column	N/A

GEOLOGICAL MARKERS

GEOLOGICAL REPORT

on

PARA ET AL ARROWHEAD O-15
60° 30' 123° 00'

in the
NORTH WEST TERRITORIES

for
PARAMOUNT RESOURCES LTD.

Prepared For: PAUL COLLENS P.GEOL
Prepared by: COLIN BREDIN P.GEOL
C.L. Bredin Holdings Ltd.

COLIN BREDIN P.GEOL

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WELL DATA SUMMARY

WELL NAME: PARA ET AL ARROWHEAD O-15
OPERATOR: PARAMOUNT RESOURCES LTD.
LOCATION: 60 30' 123 00'
NS CO-ORDINATES: Lat. 60 24' 53.694"
EW CO-ORDINATES: Long. 123 02' 31.174"
PROVINCE: N.W.T.
AREA: Ft. Liard
DRILLING CONTRACTOR: PRECISION DRILLING INC. **Rig #:** 622E
WELL LICENCE NUMBER: EL369
ELEVATIONS - **GROUND LEVEL:** 380.50m
- **KELLY BUSHING:** 387.00m
SPUD DATE: FEB 14, 1998 at 2220 hours
T.D. DATE: MAR 19, 1998 at 1600 hours
SAMPLE INTERVAL: 20.00m - 1557.00m

ELECTRICAL LOGS RUN:

Rep#	Log#	Description	From(m)	To(m)
1	1	SPeID/CN/GR/DAC STI/SP	497.40	20.00
1	2	BHC Sonic	495.90	20.00
2	1	AITH/LDT/CN/DAC/GR/ML/BHC Sonic	1557.00	500.00

DRILL STEM TESTS:

DST#	From(m)	To(m)

CORES CUT:

Cores#	From(m)	To(m)	Formation

WELL STATUS: Operations Suspended

CASING SUMMARY

String#	Name	Casing Size (mm)	Hole Size (mm)	Joints (#)	Weight (kg/m)	Landed At (m)	Cement (tonnes)	Cement Type
1	Algoma K55	339.00	445.00	36	81.10	500.00	58.00	Expandomix with 0-1-0 tail
2	Algoma L80	244.50	311.00	57	64.74	1186.60	50.00	21 lead LW, 29 tail 0-1-0 'G'

LOGGING REPORT

Date: FEB 19, 1998
Logging Company: Computalog
Logging Engineer: J. Wasylyshyn
Truck Number: 352
Hole Size: 445.00mm
Depth (Driller's): 500.00m
Depth (Strap): 500.00m
Depth (Logger's): 499.50m
Last Casing: Depth : 20.00m **Size:** N/Amm **Weight:** N/Akg/m

MUD DETAILS

Mud Type: Gel
Mud Type: 1145.00kg/m**3
Viscosity: 93.00sec/l
pH: 9.50
Fluid Loss: 9.00cc/30min
Salinity: N/Appm

OPERATIONS SUMMARY

Hole conditions prior to logging: Good
Circulation time after T.D.: 4 hrs
Number of Dummy Trips: 1
Description of Dummy Trips: N/A
Number of Runs in Hole: Total: 2 **Suceeded:** 2 **Failed :** 0

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (m)	Interval To (m)	Remarks
SPeD/CN/GR/DAC STI/SP	1.50	497.40	20.00	Ran in combination.
BHC Sonic	1.00	495.90	20.00	N/A

Total Hours Logging: 2.50

FURTHER REMARKS

Surface Hole

Date: MAR 10, 1998
Logging Company: Schlumberger
Logging Engineer: Stewart Dunn
Truck Number: 3021
Hole Size: 311.00mm
Depth (Driller's): 1557.10m
Depth (Strap): 1559.00m
Depth (Logger's): 1560.00m
Last Casing: Depth : 500.00m **Size:** 339.00mm **Weight:** 81.10kg/m

MUD DETAILS

Mud Type: Cutter 'D'
Mud Type: 1100.00kg/m**3
Viscosity: 110.00sec/l
pH: N/A
Fluid Loss: N/Acc/30min
Salinity: N/Appm

OPERATIONS SUMMARY

Hole conditions prior to logging: Good
Circulation time after T.D.: 1.5 hours
Number of Dummy Trips: 0
Description of Dummy Trips: N/A
Number of Runs in Hole: Total: 1 **Suceeded:** 1 **Failed :** 0

LOGGING SEQUENCE

Logs	Time (Hrs)	Interval From (m)	Interval To (m)	Remarks
AITH/LDT/CN/DAC/GR/ML/BHC Sonic	4.00	1557.00	500.00	Pulled tight at 1250m, pulled GRN into casing to tie in.

Total Hours Logging: 6.50

FURTHER REMARKS

Stacked tools. No dipole sonic available on short notice.

Array Induction Tool -H

FORMATION TOPS

Kelly Bushing : 387.00m

Formation	Prognosis (m)	Sample Top (m)	Sample TVD (m)	Log Top (m)	Log TVD (m)	Subsea (m)
FORT ST. JOHN	N/A	196.00	196.00	201.00	201.00	186.00
SCATTER	240.00	276.00	276.00	276.50	276.50	110.50
GARBUTT	N/A	360.00	360.00	359.00	359.00	28.00
MATTSON	456.00	451.00	451.00	451.00	451.00	-64.00
FLETT	545.00	464.00	464.00	465.00	465.00	-78.00
PEKISKO	N/A	951.00	951.00	953.00	953.00	-566.00
BANFF	976.00	979.00	979.00	986.00	986.00	-599.00
EXSHAW	1578.00	1555.00	1547.50	1555.00	1547.55	-1160.55

FORMATION EVALUATIONS

Formation:	FORT ST. JOHN		
Age:	CRETACEOUS		
Member:	N/A		
Sample Top:	196.00m	**Sample TVD:**	196.00m
Log Top:	201.00m	**Log TVD:**	201.00m
Thickness:	N/A	**Subsea:**	186.00m

Evaluation: SHALE medium gray, medium gray silty, fissile, predominantly blocky, trace micromicaceous, trace of SANDSTONE lenses

Conclusion: No reservoir potential.

Formation:	SCATTER		
Age:	CRETACEOUS		
Member:	N/A		
Sample Top:	276.00m	**Sample TVD:**	276.00m
Log Top:	276.50m	**Log TVD:**	276.50m
Thickness:	N/A	**Subsea:**	110.50m

Evaluation: Interbedded SHALE medium gray, medium gray silty, fissile, blocky and SANDSTONE light to medium gray, gray brown, predominantly quartz, silty to very fine grained, subround, medium to well sorted, speckled glauconitic, firm to friable, clay cement to matrix, patchy oil stain, faint dry fluorescence, light amber to dark straw cut, patchy intergranular porosity 2-5%, petroliferous odor in part,

Conclusion: Limited reservoir potential, low permeability.

Formation:	GARBUTT		
Age:	CRETACEOUS		
Member:	N/A		
Sample Top:	360.00m	**Sample TVD:**	360.00m
Log Top:	359.00m	**Log TVD:**	359.00m
Thickness:	N/A	**Subsea:**	28.00m

Evaluation: SHALE dark gray, dark gray to black, dark gray brown, minor medium gray silty, fissile, blocky, minor micromicaceous, trace of disseminated and nodular pyrite

Conclusion: No reservoir potential

Formation:	MATTSON		
Age:	MISSISSIPPIAN		
Member:	N/A		
Sample Top:	451.00m	**Sample TVD:**	451.00m
Log Top:	451.00m	**Log TVD:**	451.00m
Thickness:	N/A	**Subsea:**	-64.00m

Evaluation: Predominantly SHALE in samples, trace of SILTSTONE light to medium gray quartzose, slightly sandy, slightly argillaceous, calcareous cement, no stain, no fluorescence, no visible porosity, trace of CHERT varicolored, angular to well round, pebbles in part

Conclusion: No apparent reservoir potential. Could be Mattson, Fantasque or just unconformity rubble.

Formation:	FLETT		
Age:	MISSISSIPPIAN		
Member:	N/A		
Sample Top:	464.00m	**Sample TVD:**	464.00m
Log Top:	465.00m	**Log TVD:**	465.00m
Thickness:	N/A	**Subsea:**	-78.00m

Evaluation: Predominantly LIMESTONE light brown, medium gray brown, gray argillaceous, cryptocrystalline to microcrystalline, mudstone, tight, cherty in part with common SHALE interbeds. 535 to 555 samples contain significant porous dolomite with dead oil stain.

Conclusion: Reservoir potential from 535 to 555m, drilled with air, WTS about .8 cu m / hr, 1600 ppm.

Formation:	PEKISKO		
Age:	MISSISSIPPIAN		
Member:	N/A		
Sample Top:	951.00m	**Sample TVD:**	951.00m
Log Top:	953.00m	**Log TVD:**	953.00m
Thickness:	N/A	**Subsea:**	-566.00m

Evaluation: Interbedded SHALE and LIMESTONE light brown white, slightly argillaceous, cryptocrystalline, mudstone, tight, trace of crinoid fragments

Conclusion: No reservoir potential

Formation:	BANFF		
Age:	MISSISSIPPIAN		
Member:	N/A		
Sample Top:	979.00m	**Sample TVD:**	979.00m
Log Top:	986.00m	**Log TVD:**	986.00m
Thickness:	N/A	**Subsea:**	-599.00m

Evaluation: Upper part is SHALE with occasional tight LIMESTONE beds, Lower part is predominantly medium to dark gray SHALE, slightly to very calcareous. Crossed a Fault zone at 1488 - 1494m, below which the SHALE was noticibly darker and less calcareous.

Conclusion: No reservoir potential.

Formation:	EXSHAW		
Age:	MISSISSIPPIAN		
Member:	N/A		
Sample Top:	1555.00m	**Sample TVD:**	1547.50m
Log Top:	1555.00m	**Log TVD:**	1547.55m
Thickness:	N/A	**Subsea:**	-1160.55m

Evaluation: SH dk brn, m - dk gy brn, sks ip, probable frac @ 1554.8m MD, small gas effect.

Conclusion: No reservoir potential

SAMPLE DESCRIPTIONS

Well Name:	**PARA ET AL ARROWHEAD O-15**
Location:	**60 30' 123 00'**
10.00 to 20.00m **Interval: 10.00m**	NA: 0%, Conductor pipe, no samples
20.00 to 25.00m **Interval: 5.00m**	NS: 0%, Air hammer, soap with mist, hole slugging, no retrievable returns
25.00 to 55.00m **Interval: 30.00m**	TILL: 100%, Clay / soap sludge, sandy in part, occasional boulders
55.00 to 65.00m **Interval: 10.00m**	TILL: 100%, Clay / soap sludge, sandy in part, minor pebbles
65.00 to 140.00m **Interval: 75.00m**	TILL: 100%, Clay / soap sludge, sandy in part
140.00 to 145.00m **Interval: 5.00m**	TILL: 100%, as above, 8-10 second gas flare ahead of air after survey at 143m and on all subsequent underbalanced surveys. Probable coal stringer.
145.00 to 190.00m **Interval: 45.00m**	TILL: 100%, Clay / soap sludge, sandy in part
190.00 to 195.00m **Interval: 5.00m**	SHALE: 100%, medium gray, fissile, predominantly blocky, silty in part, trace sandy
196.00m	FORT ST. JOHN
195.00 to 210.00m **Interval: 15.00m**	SHALE: 100%, medium gray, fissile, blocky, silty, trace of sandy laminae, trace glauconitic
210.00 to 230.00m **Interval: 20.00m**	SHALE: 100%, medium gray, medium to dark gray, fissile, predominantly blocky, silty in part, trace micromicaceous, trace of sandy laminae, trace of LIMESTONE cavings
230.00 to 235.00m **Interval: 5.00m**	SHALE: 100%, as above, trace of SANDSTONE light gray, salt and pepper, very fine to fine grained, subangular to subround, medium sorted, glauconitic, argillaceous, no visible porosity
235.00 to 260.00m **Interval: 25.00m**	SHALE: 100%, medium gray, medium gray silty, fissile, predominantly blocky, micromicaceous in part, trace of sandy lenses
260.00 to 270.00m **Interval: 10.00m**	NS: 0%, No sample
276.00m	SCATTER
270.00 to 280.00m **Interval: 10.00m**	SHALE: 100%, as above, very poor returns
280.00 to 285.00m **Interval: 5.00m**	SHALE: 40%, as above SANDSTONE: 20%, light to medium gray, salt and pepper, predominantly very fine grained, subangular to subround, argillaceous, speckled glauconitic, no stain, no fluorescence, no visible porosity CAVINGS: 40%, Clay and common quartzite, feldspar, igneous pebbles, angular to rounded

285.00 to 290.00m
Interval: 5.00m

SHALE: 60%, as above

SANDSTONE: 10%, as above

CAVINGS: 30%, as above

290.00 to 295.00m
Interval: 5.00m

SHALE: 50%, as above

SANDSTONE: 30%, medium gray, medium brown, silty to very fine grained, subangular to subround, medium sorted, calcareous to dolomitic cement to matrix, argillaceous in part, no stain, no fluorescence, no visible porosity

SILTSTONE: 20%, medium gray, medium brown, dolomitic, tight, minor cavings

295.00 to 300.00m
Interval: 5.00m

SHALE: 40%, as above

SANDSTONE: 60%, light to medium gray, medium brown, salt and pepper, silty to very fine grained, subangular to subround, medium to well sorted, slightly argillaceous, predominantly firm, minor friable, calcareous cement to matrix, speckled glauconitic, no stain, no fluorescence, minor patchy intergranular porosity 2-3%

300.00 to 305.00m
Interval: 5.00m

SHALE: 50%, medium gray, fissile, blocky, silty to sandy in part

SANDSTONE: 50%, light to medium gray, medium brown, silty to very fine grained, predominantly subround, well sorted, argillaceous in part, slightly calcareous, speckled glauconitic, predominantly clay matrix and cement, no stain, no fluorescence, no visible porosity

305.00 to 310.00m
Interval: 5.00m

SHALE: 40%, as above

SANDSTONE: 60%, light gray, medium gray, medium brown, silty to very fine grained, predominantly subround, well sorted, speckled glauconitic, very calcareous in part, predominantly clay cement to matrix, no stain, very weak blooming wet cut fluorescence, very patchy intergranular porosity 2-3%

310.00 to 315.00m
Interval: 5.00m

SHALE: 60%, medium gray as above

SANDSTONE: 20%, as above

SILTSTONE: 20%, light gray, argillaceous, calcareous cement, tight

315.00 to 320.00m
Interval: 5.00m

SHALE: 40%, medium gray, medium gray silty, fissile, blocky, sandy in part

SANDSTONE: 60%, light to medium gray, gray brown, predominantly quartz, silty to very fine grained, subround, well sorted, speckled glauconitic, clay matrix, firm to friable, spotty light oil stain, faint dry fluorescence, slow streaming wet cut fluorescence, light amber cut, patchy intergranular porosity 2-3%

320.00 to 325.00m
Interval: 5.00m

SHALE: 40%, as above

	SANDSTONE: 60%, light to medium gray, gray brown, predominantly quartzose, silty to very fine grained, subround, medium to well sorted, speckled glauconitic, clay matrix, firm to friable, patchy oil stain, faint dry fluorescence, strong streaming wet cut fluorescence, dark straw cut, patchy intergranular porosity 3-5%, petroliferous odor
325.00 to 330.00m Interval: 5.00m	SHALE: 60%, medium gray, medium gray brown, fissile, blocky, sandy in part
	SANDSTONE: 40%, as above, patchy intergranular porosity 2-3%
330.00 to 335.00m Interval: 5.00m	SHALE: 70%, as above
	SANDSTONE: 30%, as above, patchy stain, slow streaming wet cut fluorescence, no visible porosity
335.00 to 340.00m Interval: 5.00m	SHALE: 70%, medium gray, medium brown, fissile, blocky, silty to sandy in part,
	SANDSTONE: 20%, medium gray brown, predominantly quartzose, silty to very fine grained, subround, medium sorted, argillaceous, glauconitic in part, predominantly firm, clay cement, light patchy oil stain, slow blooming wet cut fluorescence, no visible porosity
	SILTSTONE: 10%, light to medium brown, argillaceous, sandy in part, tight
340.00 to 350.00m Interval: 10.00m	SHALE: 80%, as above
	SANDSTONE: 10%, as above
	SILTSTONE: 10%, as above
350.00 to 355.00m Interval: 5.00m	SHALE: 80%, dark gray, medium gray, medium gray brown, fissile, blocky, sandy in part
	SILTSTONE: 20%, medium brown, medium gray brown, argillaceous, sandy in part, tight
355.00 to 360.00m Interval: 5.00m	SHALE: 90%, medium gray, dark gray, medium gray brown, silty in part
	SILTSTONE: 10%, as above
360.00m	GARBUTT
360.00 to 385.00m Interval: 25.00m	SHALE: 100%, dark gray brown, dark gray, medium gray slightly silty, fissile, predominantly blocky, micromicaceous in part, trace of SILTSTONE as above
385.00 to 390.00m Interval: 5.00m	SHALE: 100%, dark gray, dark gray brown, medium gray, silty in part, predominantly blocky, platy in part, minor micromicaceous, trace of disseminated pyrite
390.00 to 395.00m Interval: 5.00m	SHALE: 100%, dark gray, dark gray to black, dark gray brown, minor medium gray silty, fissile, blocky to platy
395.00 to 400.00m Interval: 5.00m	SHALE: 100%, dark gray, medium gray, dark gray brown, silty in part, fissile, blocky to platy, trace of nodular pyrite
400.00 to 405.00m Interval: 5.00m	SHALE: 100%, dark gray, dark gray brown, medium gray silty in part, fissile, blocky to platy

405.00 to 410.00m Interval: 5.00m	SHALE: 100%, dark gray, medium gray brown silty, fissile, blocky
410.00 to 415.00m Interval: 5.00m	SHALE: 100%, dark gray, dark gray brown silty, fissile, blocky to platy, trace of SILTSTONE medium brown argillaceous, tight
415.00 to 425.00m Interval: 10.00m	SHALE: 100%, medium to dark gray, dark gray brown, silty, fissile, blocky to platy
425.00 to 430.00m Interval: 5.00m	SHALE: 100%, medium gray, dark gray, medium to dark gray brown, fissile, platy to blocky, minor silty in part
430.00 to 441.00m Interval: 11.00m	SHALE: 100%, medium gray, dark gray, dark gray brown slightly silty, fissile, platy to blocky
441.00 to 442.00m Interval: 1.00m	NS: 0%, No sample, Conductor washed out.
442.00 to 445.00m Interval: 3.00m	SHALE: 100%, medium gray, medium to dark gray, fissile, blocky to platy, bentonitic laminae, minor medium gray brown silty
445.00 to 450.00m Interval: 5.00m	SHALE: 100%, medium gray, medium gray silty, dark gray, medium to dark gray brown, fissile, platy to blocky, silty in part, minor bentonitic laminae, trace of coal cavings
451.00m	MATTSON
450.00 to 455.00m Interval: 5.00m	SHALE: 100%, as above, Cutter 'D' Contamiination from mud tanks, trace of SILTSTONE light to medium gray, quartzose, slightly sandy, slightly argillaceous, calcareous cement, no stain, no fluorescence, no visible porosity, trace of CHERT, varicolored, coarse angular to well rounded, pebbles in part
455.00 to 460.00m Interval: 5.00m	SHALE: 95%, as above, trace of CHERT varicolored, angular to well rounded LIMESTONE: 5%, light gray white, light brown, cryptocrystalline to microcrystalline, mudstone, clean, tight, trace white chalky
464.00m	FLETT
460.00 to 465.00m Interval: 5.00m	SHALE: 65%, as above LIMESTONE: 35%, light gray white, light brown white mottled, medium gray brown argillaceous, predominantly cryptocrystalline mudstone, no stain, no fluorescence, no visible porosity
465.00 to 470.00m Interval: 5.00m	LIMESTONE: 60%, as above SHALE: 40%, as above
470.00 to 475.00m Interval: 5.00m	SHALE: 20%, as above LIMESTONE: 80%, light brown white mottled, light gray white mottled, cryptocrystalline to microcrystalline, mudstone to wackestone, clean, very spotty light oil stain, weak dry cut fluorescence, no porosity
475.00 to 480.00m Interval: 5.00m	LIMESTONE: 90%, light gray brown mottled, light gray white mottled, cryptocrystalline to finely crystalline in part, mudstone to wackestone, trace with very spotty dead oil stain, no visible porosity, minor dark gray brown mottled, slightly argillaceous, tight

	SHALE: 10%, as above, trace of DOLOMITE light to medium gray, microcrystalline, packstone, silty in part, no stain, no fluorescence, trace of pin point porosity 1-2%
480.00 to 485.00m Interval: 5.00m	LIMESTONE: 70%, light brown white mottled medium, light gray white mottled dark, predominantly cryptocrystalline, minor microcrystalline to finely crystalline, mudstone to wackestone, trace of pellets and crinoid fragments, trace with spotty dead oil stain, no fluorescence, no visible porosity
	SHALE: 30%, dark gray to black, fissile, platy
485.00 to 490.00m Interval: 5.00m	LIMESTONE: 60%, as above
	DOLOMITE: 20%, light to medium gray, microcrystalline, predominantly wackestone, packstone in part, no stain, no fluorescence, no visible porosity
	SHALE: 20%, dark gray, dark gray to black, fissile, platy
490.00 to 495.00m Interval: 5.00m	LIMESTONE: 90%, light gray white, light gray brown mottled medium to dark, cryptocrystalline to finely crystalline, mudstone to wackestone, no stain, no fluorescence, no visible porosity
	SHALE: 10%, as above
495.00 to 500.00m Interval: 5.00m	LIMESTONE: 90%, light brown white mottled medium to dark, medium gray in part, cryptocrystalline, mudstone, no stain, no fluorescence, no porosity
	SHALE: 10%, as above
500.00 to 505.00m Interval: 5.00m	CAVINGS: 95%, cement
	LIMESTONE: 5%, light to medium brown mottled, cryptocrystalline, mudstone, tight, trace of SHALE dark gray to black, fissile, platy
505.00 to 510.00m Interval: 5.00m	LIMESTONE: 97%, light brown white mottled medium to dark brown, predominantly cryptocrystalline mudstone, minor microcrystalline mudstone to wackestone, no visible stain, very spotty weak blooming wet cut fluorescence, no visible porosity
	CHERT: 3%, light gray, light brown, medium brown, coarse, angular
510.00 to 515.00m Interval: 5.00m	LIMESTONE: 70%, mottled light to medium brown, cryptocrystalline to microcrystalline, mudstone, tight
	DOLOMITE: 20%, light to medium gray brown, calcareous, cryptocrystalline to microcrystalline, mudstone to wackestone, clean, tight
	SHALE: 10%, medium to dark gray brown, calcareous, fissile, blkt to platy
515.00 to 520.00m Interval: 5.00m	LIMESTONE: 100%, medium brown, dark gray brown, argillaceous, cryptocrystalline, mudstone, tight
520.00 to 525.00m Interval: 5.00m	LIMESTONE: 100%, medium gray, dark gray brown, argillaceous, cryptocrystalline, mudstone, tight
525.00 to 530.00m Interval: 5.00m	LIMESTONE: 100%, as above, mottled light to medium brown, cryptocrystalline, mudstone, clean, tight, trace of varigated CHERT

530.00 to 535.00m Interval: 5.00m	LIMESTONE: 100%, as above
535.00 to 540.00m Interval: 5.00m	LIMESTONE: 40%, as above DOLOMITE: 60%, light gray cryptocrystalline to microcrystalline, predominantly mudstone, slightly argillaceous, tight, minor DOLOMITE medium brown, microcrystalline to finely crystalline, wackestone to sucrosic packstone, spotty dead oil stain, patchy pin point and intercrystalline porosity from 6 to 20%, Water to Surface.
540.00 to 543.00m Interval: 3.00m	DOLOMITE: 100%, as above
543.00 to 545.00m Interval: 2.00m	DOLOMITE: 95%, medium brown, light to medium brown, predominantly microcrystalline, mudstone to wackestone, tight, minor DOLOMITE medium brown, microcrystalline, packstone, spotty dead oil stain, no fluorescence, trace of pin point and intercrystalline porosity 10 to 12% CHERT: 5%, varigated
545.00 to 550.00m Interval: 5.00m	DOLOMITE: 100%, dark gray brown, medium brown, predominantly microcrystalline to finely crystalline, cryptocrystalline in part, mudstone to wackestone, minor packstone, no stain, no fluorescence, no visible porosity, minor sparry-dolomite veining, trace of nodular pyrite, minor CHERT as above
550.00 to 555.00m Interval: 5.00m	DOLOMITE: 30%, as above LIMESTONE: 70%, mottled light gray brown, mottled medium to dark brown, predominantly cryptocrystalline, minor microcrystalline mudstone, tight, argillaceous in part, trace of SHALE dark gray to black, calcareous, fissile, platy
555.00 to 560.00m Interval: 5.00m	LIMESTONE: 90%, mottled light, medium to dark gray, dark gray brown, cryptocrystalline, mudstone, argillaceous, no stain, no fluorescence, no visible porosity SHALE: 10%, as above
560.00 to 565.00m Interval: 5.00m	LIMESTONE: 90%, medium gray, dark gray brown, cryptocrystalline, mudstone, argillaceous, tight SHALE: 10%, as above
565.00 to 570.00m Interval: 5.00m	LIMESTONE: 70%, medium gray, medium gray brown, mottled in part, cryptocrystalline mudstone, trace microcrystalline mudstone, tight SHALE: 30%, medium gray, medium to dark gray, very calcareous, fissile, blocky
570.00 to 575.00m Interval: 5.00m	LIMESTONE: 80%, as above, mottled light to medium brown, microcrystalline to cryptocrystalline, mudstone to wackestone, tight SHALE: 20%, as above
575.00 to 580.00m Interval: 5.00m	SHALE: 50%, medium to dark gray, calcareous, fissile, blocky to platy 50: 0%, light, medium , dark gray, dark gray brown, argillaceous in part, predominantly cryptocrystalline mudstone, tight

580.00 to 585.00m Interval: 5.00m	LIMESTONE: 70%, light to medium gray, gray brown, mottled in part, cryptocrystalline to microcrystalline, mudstone, slightly argillaceous, tight SHALE: 30%, as above
585.00 to 590.00m Interval: 5.00m	LIMESTONE: 85%, mottled light to medium brown, medium gray argillaceous, cryptocrystalline to microcrystalline, mudstone, tight SHALE: 15%, medium to dark gray, calcareous, fissile, blocky, common disseminated pyrite
590.00 to 595.00m Interval: 5.00m	LIMESTONE: 80%, as above SHALE: 20%, as above
595.00 to 600.00m Interval: 5.00m	LIMESTONE: 90%, light to medium gray, light to medium gray brown, cryptocrystalline to microcrystalline, predominantly mudstone, slightly argillaceous, slightly dolomitic, tight SHALE: 10%, as above
600.00 to 605.00m Interval: 5.00m	LIMESTONE: 70%, mottled light to medium brown, medium gray brown, argillaceous, predominantly cryptocrystalline mudstone, tight SHALE: 30%, medium gray, calcareous, fissile, platy to blocky
605.00 to 610.00m Interval: 5.00m	LIMESTONE: 60%, medium gray brown, light to medium brown, medium gray argillaceous, cryptocrystalline, mudstone, tight SHALE: 40%, medium gray, calcareous, fissile, platy to blocky
610.00 to 615.00m Interval: 5.00m	LIMESTONE: 80%, light to medium brown, medium to dark gray brown, predominantly mottled, cryptocrystalline, mudstone, argillaceous in part, tight, occasional crinoid fragments SHALE: 20%, medium gray, calcareous, fissile, platy
615.00 to 620.00m Interval: 5.00m	LIMESTONE: 90%, mottled light to medium gray brown, medium gray, argillaceous in part, predominantly cryptocrystalline, minor microcrystalline, mudstone to wackestone, dolomitic in part, no stain, no fluorescence, no visible porosity, trace of crinoid and bryozoa fragments SHALE: 10%, as above
620.00 to 625.00m Interval: 5.00m	LIMESTONE: 80%, mottled medium to dark brown, medium to dark gray brown, cryptocrystalline to microcrystalline, predominantly mudstone, argillaceous in part, tight SHALE: 10%, medium to dark gray, platy, calcareous CHERT: 10%, varigated, brown, white, gray, translucent
625.00 to 635.00m Interval: 10.00m	SHALE: 30%, medium gray, medium to dark gray, calcareous, fissile, platy, trace of CHERT LIMESTONE: 70%, mottled light to medium brown, gray brown, cryptocrystalline to microcrystalline, mudstone to wackestone, slightly dolomitic, very argillaceous in part, tight, trace of pellets and fossil fragments
635.00 to 640.00m Interval: 5.00m	LIMESTONE: 85%, mottled light to medium brown, predominantly cryptocrystalline, minor microcrystalline, mudstone, argillaceous in part, tight, minor nodular and disseminated pyrite

	CHERT: 5%, varigated
	SHALE: 10%, light to medium gray, medium gray calcareous, fissile, platy to blocky
640.00 to 645.00m Interval: 5.00m	LIMESTONE: 50%, as above
	SHALE: 50%, medium gray, calcareous, fissile, platy
645.00 to 650.00m Interval: 5.00m	LIMESTONE: 60%, as above
	SHALE: 40%, as above
650.00 to 655.00m Interval: 5.00m	LIMESTONE: 50%, as above, very poor returns
	SHALE: 50%, as above
655.00 to 660.00m Interval: 5.00m	LIMESTONE: 60%, mottled light to medium brown, medium gray brown, predominantly cryptocrystalline mudstone, minor microcrystalline, argillaceous in part, tight, common crinoid fragments, trace of CHERT
	SHALE: 40%, medium gray, calcareous, fissile, platy
660.00 to 665.00m Interval: 5.00m	LIMESTONE: 80%, as above
	SHALE: 20%, as above
665.00 to 670.00m Interval: 5.00m	SHALE: 20%, medium gray, medium gray calcareous, fissile, platy
	LIMESTONE: 80%, medium brown, medium gray brown, argillaceous in part, predominantly cryptocrystalline, minor microcrystalline, mudstone, tight, occasional crinoid fragments
670.00 to 675.00m Interval: 5.00m	SHALE: 15%, as above
	LIMESTONE: 85%, light to medium brown, mottled in part, medium gray brown slightly argillaceous, predominantly cryptocrystalline, minor microcrystalline, mudstone, tight, occasional crinoid and bryozoa fragments
675.00 to 680.00m Interval: 5.00m	SHALE: 10%, medium gray calcareous, fissile, platy
	LIMESTONE: 90%, light to medium brown, light to medium gray, mottled cryptocrystalline to microcrystalline, mudstone, argillaceous in part, tight, trace of crinoid fragments
680.00 to 685.00m Interval: 5.00m	LIMESTONE: 80%, as above, trace of varigated CHERT
	SHALE: 20%, as above
685.00 to 690.00m Interval: 5.00m	LIMESTONE: 80%, light to medium brown, light to medium gray brown, mottled in part, argillaceous in part, predominantly cryptocrystalline, minor microcrystalline, mudstone, tight, common fossil fragments
	SHALE: 20%, as above

690.00 to 695.00m Interval: 5.00m	LIMESTONE: 90%, as above
	SHALE: 10%, as above
695.00 to 700.00m Interval: 5.00m	SHALE: 20%, medium gray, medium gray calcareous, fissile, platy, cavings in part
	LIMESTONE: 80%, light to medium gray brown, light to medium brown, mottled in part, dark gray brown argillaceous, cryptocrystalline to microcrystalline, mudstone, occasional crinoid fragments, tight
700.00 to 705.00m Interval: 5.00m	SHALE: 10%, as above
	LIMESTONE: 90%, as above, con varigated CHERT
705.00 to 710.00m Interval: 5.00m	LIMESTONE: 90%, as above
	SHALE: 10%, as above
710.00 to 715.00m Interval: 5.00m	SHALE: 5%, medium gray calcareous
	CHERT: 5%, varigated, dark brown, light gray, white, medium brown
	LIMESTONE: 90%, light to medium brown, dark brown, mottled in part, cryptocrystalline mudstone, minor microcrystalline, argillaceous in part, tight, occasional fossil fragments, trace of sparry calcite
715.00 to 720.00m Interval: 5.00m	LIMESTONE: 90%, mottled medium brown, light brown, medium gray, cryptocrystalline to microcrystalline, mudstone, argillaceous in part, occasional fossil fragments, trace of sparry calcite, tight
	SHALE: 10%, medium gray, dark gray calcareous, fissile, platy
720.00 to 725.00m Interval: 5.00m	LIMESTONE: 80%, as above
	SHALE: 20%, as above
725.00 to 730.00m Interval: 5.00m	LIMESTONE: 80%, medium gray, slightly argillaceous, medium brown, mottled light in part, predominantly cryptocrystalline mudstone, tight, occasional bryozoa fragments
	SHALE: 20%, medium gray, calcareous, platy to blocky
730.00 to 735.00m Interval: 5.00m	LIMESTONE: 60%, as above
	SHALE: 40%, medium gray, calcareous, platy to blocky
735.00 to 740.00m Interval: 5.00m	SHALE: 60%, medium gray, medium to dark gray calcareous, platy
	LIMESTONE: 40%, mottled light to medium brown, medium to dark brown, medium gray brown argillaceous, predominantly cryptocrystalline mudstone, tight, common fossil fragments
740.00 to 745.00m Interval: 5.00m	LIMESTONE: 80%, light to medium brown, medium to dark brown, predominantly cryptocrystalline mudstone, tight
	SHALE: 20%, light to medium gray calcareous

745.00 to 750.00m Interval: 5.00m	LIMESTONE: 80%, as above, occasional crinoid fragments SHALE: 20%, as above
750.00 to 755.00m Interval: 5.00m	LIMESTONE: 90%, mottled light to medium brown, medium to dark brown, medium to dark gray brown, cryptocrystalline to microcrystalline, mudstone, tight, occasional fossil fragments SHALE: 10%, medium gray calcareous
755.00 to 760.00m Interval: 5.00m	LIMESTONE: 70%, as above, common fossil fragments SHALE: 30%, as above
760.00 to 765.00m Interval: 5.00m	LIMESTONE: 70%, mottled light to medium brown, light to medium gray brown argillaceous, predominantly cryptocrystalline, mudstone, tight, common crinoid and bryozoa fragments SHALE: 30%, medium gray, medium to dark gray, calcareous, platy
765.00 to 770.00m Interval: 5.00m	SHALE: 50%, medium to dark gray calcareous, blocky to platy LIMESTONE: 50%, medium gray, light gray brown mottled medium, cryptocrystalline, mudstone, tight, trace of varigated CHERT
770.00 to 775.00m Interval: 5.00m	SHALE: 50%, as above LIMESTONE: 50%, as above, occasional crinoid fragments
775.00 to 780.00m Interval: 5.00m	SHALE: 20%, as above LIMESTONE: 80%, as above, medium gray argillaceous, cryptocrystalline, mudstone, tight, trace of varigated CHERT
780.00 to 785.00m Interval: 5.00m	SHALE: 10%, medium gray, calcareous, platy LIMESTONE: 90%, medium gray, dark gray, dark gray brown, argillaceous, medium to dark brown mottled, cryptocrystalline, mudstone, tight, trace of crinoid fragments, trace of CHERT
785.00 to 790.00m Interval: 5.00m	SHALE: 10%, as above LIMESTONE: 90%, as above, common varigated CHERT
790.00 to 795.00m Interval: 5.00m	SHALE: 10%, as above LIMESTONE: 90%, as above, mottled light, medium, dark brown, cryptocrystalline to microcrystalline, mudstone, common CHERT
795.00 to 800.00m Interval: 5.00m	SHALE: 30%, medium gray, medium to dark gray, calcareous, platy LIMESTONE: 70%, as above
800.00 to 805.00m Interval: 5.00m	SHALE: 20%, medium gray calcareous, platy LIMESTONE: 80%, light to medium gray brown, light to medium brown, cryptocrystalline, mudstone, very argillaceous in part, tight

805.00 to 810.00m Interval: 5.00m	SHALE: 20%, as above LIMESTONE: 80%, as above, minor CHERT, medium brown, dark brown, light gray white
810.00 to 815.00m Interval: 5.00m	SHALE: 10%, medium to dark gray calcareous, platy LIMESTONE: 90%, medium to dark gray, very argillaceous, medium to dark gray brown, argillaceous, cryptocrystalline to microcrystalline, mudstone, tight, occasional fossil fragments
815.00 to 820.00m Interval: 5.00m	SHALE: 10%, as above LIMESTONE: 90%, medium to dark gray, medium to dark gray brown, very argillaceous, cryptocrystalline to microcrystalline, mudstone, tight
820.00 to 825.00m Interval: 5.00m	SHALE: 20%, as above LIMESTONE: 80%, as above, trace of sparry calcite
825.00 to 830.00m Interval: 5.00m	SHALE: 20%, as above LIMESTONE: 80%, as above, light to medium gray brown, slightly argillaceous, cryptocrystalline to microcrystalline, mudstone, mottled in part, common fossil fragments
830.00 to 835.00m Interval: 5.00m	SHALE: 20%, light to medium gray, medium gray, calcareous, platy LIMESTONE: 80%, medium gray, dark gray, cryptocrystalline, argillaceous, light to medium brown cryptocrystalline to microcrystalline, mottled in part, mudstone, tight
835.00 to 840.00m Interval: 5.00m	LIMESTONE: 60%, as above, common crinoid and bryozoa fragments SHALE: 40%, as above
840.00 to 845.00m Interval: 5.00m	SHALE: 35%, medium gray, dark gray, light gray calcareous, platy, trace of disseminated pyrite LIMESTONE: 65%, medium gray brown argillaceous, light gray brown slightly argillaceous, predominantly cryptocrystalline mudstone, tight
845.00 to 850.00m Interval: 5.00m	SHALE: 30%, as above LIMESTONE: 70%, as above
850.00 to 855.00m Interval: 5.00m	SHALE: 25%, as above LIMESTONE: 75%, light to medium gray, light to medium gray brown, medium gray argillaceous, predominantly cryptocrystalline, mudstone, tight
855.00 to 860.00m Interval: 5.00m	SHALE: 30%, as above

	LIMESTONE: 70%, as above, trace of varigated CHERT
860.00 to 867.00m Interval: 7.00m	SHALE: 25%, light gray, medium gray calcareous, platy
	LIMESTONE: 75%, light to medium brown, cryptocrystalline, mudstone, occasional fossil fragments, medium brown, dark brown, medium to dark gray brown argillaceous, cryptocrystalline, mudstone, tight, AIR HAMMER MALFUNCTION, DISPLACE HOLE TO INVERT
867.00 to 870.00m Interval: 3.00m	CAVINGS: 100%, shale, limestone and mud additives (predominantly lime to treat out water from invert mud)
870.00 to 875.00m Interval: 5.00m	CAVINGS: 70%, as above
	SHALE: 20%, medium gray, dark gray, very calcareous, fissile, platy
	LIMESTONE: 10%, medium gray, medium gray brown, cryptocrystalline, mudstone, tight
875.00 to 880.00m Interval: 5.00m	CAVINGS: 70%, sloughing shale and mud additives (hot lime)
	SHALE: 35%, dark gray, medium gray very calcareous, fissile, platy
	LIMESTONE: 5%, medium gray, light to medium gray brown, argillaceous, cryptocrystalline, mudstone, tight
880.00 to 885.00m Interval: 5.00m	CAVINGS: 70%, as above
	SHALE: 25%, as above
	LIMESTONE: 5%, as above, trace of crinoid fragments
885.00 to 890.00m Interval: 5.00m	CAVINGS: 60%, as above
	SHALE: 40%, medium gray, dark gray, very calcareous, fissile, platy, trace of LIMESTONE as above
890.00 to 895.00m Interval: 5.00m	CAVINGS: 60%, as above
	SHALE: 40%, medium gray, medium to dark gray, calcareous, platy, trace of LIMESTONE light to medium gray, cryptocrystalline, mudstone, tight
895.00 to 900.00m Interval: 5.00m	CAVINGS: 50%, as above
	SHALE: 15%, as above
	LIMESTONE: 35%, light gray, light gray brown, argillaceous, minor mottled, cryptocrystalline, mudstone, tight
900.00 to 905.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 60%, medium to dark gray, dark gray brown, calcareous, fissile, platy
905.00 to 915.00m Interval: 10.00m	SHALE: 60%, medium to dark gray, dark gray brown, calcareous, fissile, platy

	CAVINGS: 40%, as above
915.00 to 930.00m Interval: 15.00m	CAVINGS: 40%, as above, common lime
	SHALE: 60%, medium to dark gray, dark gray, calcareous, fissile, platy
930.00 to 945.00m Interval: 15.00m	CAVINGS: 40%, as above
	SHALE: 60%, medium to dark gray, calcareous, fissile, platy
945.00 to 950.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 60%, medium to dark gray, calcareous, fissile, platy
951.00m	PEKISKO
950.00 to 955.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 60%, as above, trace of LIMESTONE light to medium gray argillaceous, cryptocrystalline, mudstone, tight
955.00 to 960.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 60%, as above, trace of LIMESTONE light brown white, slightly argillaceous, cryptocrystalline, mudstone, tight, trace of crinoid fragments
960.00 to 965.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 60%, as above, trace of LIMESTONE as above
965.00 to 970.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 50%, as above
	LIMESTONE: 10%, light to medium brown, light gray brown, slightly argillaceous, cryptocrystalline, mudstone, tight
970.00 to 975.00m Interval: 5.00m	CAVINGS: 40%, as above
	SHALE: 55%, medium to dark gray, calcareous, fissile, platy
	LIMESTONE: 5%, as above
979.00m	BANFF
975.00 to 980.00m Interval: 5.00m	CAVINGS: 50%, shale and hot lime
	SHALE: 50%, as above, minor LIMESTONE as above
980.00 to 985.00m Interval: 5.00m	CAVINGS: 60%, as above
	SHALE: 20%, medium to dark gray, calcareous, fissile, platy
	LIMESTONE: 20%, light to medium brown, light brown white, medium brown mottled in part, cryptocrystalline, mudstone, tight

985.00 to 990.00m **Interval: 5.00m**	**CAVINGS: 60%, as above** **SHALE: 40%, medium to dark gray, calcareous, fissile, platy, trace of LIMESTONE as above**
990.00 to 995.00m **Interval: 5.00m**	**CAVINGS: 50%, as above** **SHALE: 50%, as above**
995.00 to 1000.00m **Interval: 5.00m**	**CAVINGS: 40%, as above** **SHALE: 30%, medium to dark gray, calcareous, fissile, platy** **LIMESTONE: 30%, light brown white, light to medium brown, light gray brown, mottled in part, argillaceous in part, cryptocrystalline, mudstone, tight**
1000.00 to 1005.00m **Interval: 5.00m**	**CAVINGS: 40%, as above** **SHALE: 40%, medium to dark gray calcareous, fissile, platy** **LIMESTONE: 20%, as above**
1005.00 to 1010.00m **Interval: 5.00m**	**CAVINGS: 30%, as above** **SHALE: 70%, medium to dark gray, calcareous, fissile, platy, minor LIMESTONE light to medium brown gray, slightly argillaceous, mottled in part, cryptocrystalline, mudstone, tight**
1010.00 to 1015.00m **Interval: 5.00m**	**CAVINGS: 30%, as above** **SHALE: 70%, as above, minor LIMESTONE as above**
1015.00 to 1020.00m **Interval: 5.00m**	**CAVINGS: 10%, as above** **SHALE: 90%, medium to dark gray, dark gray, fissile, platy, slickensided in part, trace of LIMESTONE as above**
1020.00 to 1025.00m **Interval: 5.00m**	**CAVINGS: 50%, shale and hot lime** **SHALE: 25%, medium to dark gray, slightly calcareous, fissile, platy** **LIMESTONE: 25%, light to medium gray, light to medium brown, mottled in part, slightly argillaceous, predominantly cryptocrystalline, mudstone, tight**
1025.00 to 1030.00m **Interval: 5.00m**	**CAVINGS: 50%, as above** **SHALE: 30%, as above** **LIMESTONE: 20%, as above, light to medium gray argillaceous, cryptocrystalline, mudstone, tight, trace of crinoid fragments**
1030.00 to 1040.00m **Interval: 10.00m**	**CAVINGS: 50%, as above** **SHALE: 40%, as above**

	LIMESTONE: 10%, as above
1040.00 to 1045.00m Interval: 5.00m	CAVINGS: 30%, as above
	SHALE: 70%, medium to dark gray, slightly calcareous, trace of LIMESTONE light gray brown, light to medium brown, cryptocrystalline, mudstone, tight
1045.00 to 1050.00m Interval: 5.00m	CAVINGS: 20%, as above
	SHALE: 80%, medium to dark gray, light to medium gray, very calcareous, fissile, platy, minor LIMESTONE as above
1050.00 to 1055.00m Interval: 5.00m	SHALE: 90%, medium to dark gray, slightly calcareous, fissile, platy, abundant CAVINGS and mud additives (lime)
	LIMESTONE: 10%, light to medium gray brown, light brown, cryptocrystalline, mudstone, tight
1055.00 to 1060.00m Interval: 5.00m	SHALE: 90%, as above, abundant CAVINGS
	LIMESTONE: 10%, as above
1060.00 to 1070.00m Interval: 10.00m	SHALE: 90%, medium to dark gray, slightly calcareous, fissile, platy, abundant CAVINGS
	LIMESTONE: 10%, light to medium gray brown, light gray brown, cryptocrystalline, mudstone, tight
1070.00 to 1085.00m Interval: 15.00m	SHALE: 100%, medium to dark gray, slightly calcareous, fissile, platy, trace of LIMESTONE as above, abundant CAVINGS
1085.00 to 1090.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, fissile, platy, abundant CAVINGS
1090.00 to 1100.00m Interval: 10.00m	SHALE: 95%, medium to dark gray, fissile, platy, abundant CAVINGS
	LIMESTONE: 5%, light gray, light gray brown, mottled dark in part, very argillaceous in part, cryptocrystalline, mudstone, trace of crinoid fragments
1100.00 to 1105.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, fissile, platy, trace of LIMESTONE as above, abundant CAVINGS
1105.00 to 1110.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, fissile, platy, slightly calcareous in part, abundant CAVINGS
1110.00 to 1115.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, fissile, platy, slightly calcareous in part, trace of LIMESTONE light to medium gray, argillaceous, cryptocrystalline, mudstone, abundant CAVINGS
1115.00 to 1120.00m Interval: 5.00m	SHALE: 100%, as above, trace of crinoid plates
1120.00 to 1135.00m Interval: 15.00m	SHALE: 100%, medium to dark gray, fissile, platy, slightly calcareous in part
1135.00 to 1140.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, fissile, platy, slightly calcareous in part, trace of LIMESTONE light brown, cryptocrystalline, mudstone, tight, abundant CAVINGS and mud additives (lime)

1140.00 to 1175.00m Interval: 35.00m	SHALE: 30%, medium to dark gray, fissile, platy, calcareous in part, abundant CAVINGS
	CAVINGS: 70%, shale and mud additives (lime)
1175.00 to 1180.00m Interval: 5.00m	SHALE: 30%, medium to dark gray, fissile, platy, calcareous in part, trace of LIMESTONE light gray argillaceous, cryptocrystalline, mudstone, trace of sparry calcite, abundant CAVINGS
	CVG: 70%, N/A
1180.00 to 1190.00m Interval: 10.00m	CAVINGS: 80%, as above
	SHALE: 20%, medium to dark gray, platy, calcareous in part
1190.00 to 1200.00m Interval: 10.00m	CAVINGS: 90%, as above
	SHALE: 10%, medium to dark gray, platy, calcareous
1200.00 to 1205.00m Interval: 5.00m	SH: 10%, N/A
	CAVINGS: 90%, as above
1205.00 to 1210.00m Interval: 5.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy, abundant CAVINGS
1210.00 to 1215.00m Interval: 5.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy, abundant CAVINGS
1215.00 to 1225.00m Interval: 10.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy, abundant CAVINGS
1225.00 to 1240.00m Interval: 15.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy, abundant CAVINGS
1240.00 to 1300.00m Interval: 60.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy, trace slickensided, abundant CAVINGS
1300.00 to 1305.00m Interval: 5.00m	SHALE: 100%, medium gray, medium to dark gray, calcareous, platy to blocky, common CAVINGS
1305.00 to 1310.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, medium to dark gray brown, calcareous, platy, common CAVINGS
1310.00 to 1315.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, medium to dark gray brown, calcareous, platy, common CAVINGS
1315.00 to 1320.00m Interval: 5.00m	SHALE: 100%, medium gray, medium to dark gray, calcareous, platy to blocky, common CAVINGS
1320.00 to 1325.00m Interval: 5.00m	SHALE: 100%, medium gray, medium to dark gray calcareous, platy to blocky, common CAVINGS
1325.00 to 1340.00m Interval: 15.00m	SHALE: 100%, medium to dark gray, medium to dark gray brown, calcareous, platy to blocky, common CAVINGS
1340.00 to 1375.00m Interval: 35.00m	SHALE: 100%, medium to dark gray, calcareous, platy to blocky, common CAVINGS
1375.00 to 1380.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, dark gray brown, slightly calcareous, platy to blocky, common cavings
1380.00 to 1400.00m Interval: 20.00m	SHALE: 100%, medium to dark gray, calcareous, platy to blocky, common CAVINGS

1400.00 to 1420.00m Interval: 20.00m	SHALE: 100%, medium to dark gray, calcareous, platy to blocky, abundant CAVINGS
1420.00 to 1425.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, calcareous, platy to blocky, predominantly CAVINGS
1425.00 to 1455.00m Interval: 30.00m	SHALE: 100%, medium to dark gray, slightly calcareous, platy to blocky, common CAVINGS
1455.00 to 1485.00m Interval: 30.00m	SHALE: 100%, medium to dark gray, slightly calcareous, platy to blocky, abundant CAVINGS
1485.00 to 1495.00m Interval: 10.00m	SHALE: 100%, medium to dark gray, slightly calcareous, platy to blocky, common CAVINGS, darker mud. APPARENT FAULT ZONE FROM 1488 to 1494m, shales darker and non-calcareous below this point
1495.00 to 1500.00m Interval: 5.00m	SHALE: 100%, medium to dark gray, dark gray brown, slightly calcareous, platy to blocky, trace of nodular pyrite
1500.00 to 1505.00m Interval: 5.00m	SHALE: 100%, medium to dark gray brown, predominantly platy
1505.00 to 1530.00m Interval: 25.00m	SHALE: 100%, medium to dark gray, dark gray brown, predominantly platy, common CAVINGS
1530.00 to 1550.00m Interval: 20.00m	SHALE: 100%, medium to dark gray, dark gray brown, platy to blocky, abundant CAVINGS
1555.00m	EXSHAW
1550.00 to 1557.00m Interval: 7.00m	SHALE: 100%, dark gray brown, dark brown, platy to blocky, slickensided in part, abundant CAVINGS, slight gas effect. TD INVERT. PLUG BACK AND CASE. SAMPLES BELOW THIS POINT ARE FROM LEG #2, AIR DRILLED.

SAMPLE DESCRIPTIONS

Well Name: PARA ET AL ARROWHEAD O-15
Location: 60 30' 123 00'

1175.00 to 1186.60m Interval: 11.60m	NA: N/A, BASE OF 244.5mm FIRST INTERMEDIATE CASING @ 1186.6m
1186.60 to 1213.00m Interval: 26.40m	NA: 0%, OPEN HOLE, TOP OF CEMENT PLUG @ 1213.4m
1213.00 to 1218.00m Interval: 5.00m	CEMENT: 100%, 0-1-0 'G', POLISH PLUG TO 1218m
1218.00 to 1220.00m Interval: 2.00m	CEMENT: 98%, 0-1-0 'G', DRILL 216mm DIRECTIONAL HOLE SHALE: 2%, predominantly medium gray, blocky, subround, trace platy, flaky
1220.00 to 1225.00m Interval: 5.00m	CEMENT: 70%, 0-1-0 'G' SHALE: 30%, medium to dark gray, blocky to platy, predominantly subround, minor flaky
1225.00 to 1230.00m Interval: 5.00m	SHALE: 90%, medium gray, slightly calcareous, platy to blocky CEMENT: 10%, 0-1-0 'G'
1230.00 to 1235.00m Interval: 5.00m	SHALE: 90%, as above, minor cement CEMENT: 10%, as above
1235.00 to 1250.00m Interval: 15.00m	SHALE: 90%, as above LIME: 10%, processed mud additive
1250.00 to 1255.00m Interval: 5.00m	SHALE: 100%, medium gray, slightly calcareous, predominantly poorly, common cavings
1255.00 to 1260.00m Interval: 5.00m	SHALE: 100%, as above
1260.00 to 1265.00m Interval: 5.00m	SHALE: 100%, as above
1265.00 to 1270.00m Interval: 5.00m	SHALE: 100%, as above
1270.00 to 1280.00m Interval: 10.00m	SHALE: 100%, medium gray, slightly calcareous, platy to blocky, common cavings
1280.00 to 1300.00m Interval: 20.00m	SHALE: 100%, as above
1300.00 to 1320.00m Interval: 20.00m	SHALE: 100%, medium gray, slightly calcareous, predominantly platy, common cavings
1320.00 to 1340.00m Interval: 20.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy to blocky, common cavings
1340.00 to 1360.00m Interval: 20.00m	SHALE: 100%, medium gray, medium to dark gray, slightly calcareous, platy to blocky, common cavings

1360.00 to 1380.00m **Interval: 20.00m**	**SHALE: 100%**, medium gray, slightly calcareous, platy to blocky, abundant cavings
1380.00 to 1400.00m **Interval: 20.00m**	**SHALE: 100%**, medium gray, slightly calcareous, platy to blocky, common cavings
1400.00 to 1420.00m **Interval: 20.00m**	**SHALE: 100%**, medium gray, medium to dark gray, slightly calcareous, platy to blocky, common cavings
1420.00 to 1440.00m **Interval: 20.00m**	**SHALE: 100%**, medium gray, medium to dark gray, slightly calcareous, platy to blocky, common cavings
1440.00 to 1455.00m **Interval: 15.00m**	**SHALE: 100%**, medium gray, medium to dark gray, slightly calcareous, platy to blocky, common cavings
1455.00 to 1456.00m **Interval: 1.00m**	NA: 0%, UNLOAD HOLE WITH N2, DRY WITH AIR, SUSPEND DRILLING OPERATIONS FOR BREAK UP, PLUG BACK AND TEAR OUT.

Power*Log V1.9 developed by TriVision Geosystems Ltd. (403) 777-9454

Well Information

Operator:	Paramount Resources Ltd.
Well Name:	Para et al Arrowhead O-15
Location:	60 30` 123 00`
UWI:	300O156030123000
Pool:	
Field:	Wildcat
Province / State:	N.W.T.
Country:	Canada

Elevations

Reference:	Ground	Ground:	380.5m
Cut(-) / Fill(+):		Kelly Bushing:	386.7m
K.B. to Ground:	6.2m	Casing Flange:	7.2m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	3301m	m
Drillers TD (Strap or SLM)	3301.03m	m
Loggers TD	3299.3m	m

Well Node - Surface Node

Well Type: Straight Longitude: 123.0231174 Latitude: 60.2453694

N / S Co - Ordinates:

E / W Co - Ordinates:

Well Node - Bottom Hole Node

Longitude: Latitude:

N / S Co - Ordinates:

E / W Co - Ordinates:

Drilling Fluid Summary

Fluid Type	From	To
Invert	1186m	2805m
Nitrified Invert	2805m	2936m
Invert / baryte	2936m	3301m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	445mm	339.7mm	500m
Intermediate	311mm	244.5mm	1186.6m
Intermediate	216mm	177.8mm	2804.7m

Well Summary

Spud Date:	Jan 17, 1999 @ 10:00hrs	Contractor:	Precision Drilling Rig #507
TD Date:	Feb 23, 1999 @ 18:00hrs	Rig Release Date:	

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
C. L. Bredin Holdings Ltd.	Colin Bredin P.Geol	1545m - 3301m	Jan 18, 1999 - Feb 25, 1999

Remarks

Legend

Rock Types and Thin Beds

Whole Bed | Stringer | Nodule | Breccia | Clast | Pebble | Grain | Rock Type

Anhydrite - primary
Anhydrite - secondary
Argillite
Barite
Bentonite
Breccia
Calcareous
Cement
Conglomerate - mixed
Conglomerate - dark chert
Conglomerate - light chert
Conglomerate - varicolored chert
Chert - dark
Chert - fossiliferous
Chert - light
Chert - tripolitic
Chert - varicolored
Claystone - colored
Claystone - gray
Coal
Dolomite
Ferruginous
Feldspar
Gypsum
Igneous - acidic
Igneous - basic
Igneous - metamorphic
Limestone - grain supported
Limestone - mud supported
Manganese
Marlstone - calcareous
Marlstone - dolomitic
Phosphate
Pyrite
Quartz
Salt
Shale - black
Shale - medium gray
Shale - light gray
Shale - dark gray
Shale - light to medium gray
Shale - medium to dark gray
Shale - light to dark gray
Shale - dark colored
Shale - light colored
Shale - light to medium colored
Shale - light to dark colored
Shale - medium to dark colored
Shale - medium colored
Siderite
Sandstone
Siltstone
Till - glacial
Volcanic (Tuff)
Welded Volcanic (Tuff)

Accessories

	Anhydritic	G	Gibbsitic
	Argillaceous	I	Illitic
	Baritic	K	Kaolinitic
	Bentonitic		Marly - calcareous
	Bituminous		Marly - dolomitic
	Calcareous		Micromicaceous
	Carbonaceous	ML	Mixed layer clayey
	Cherty - dark	M	Montmorillonitic
	Cherty - fossiliferous		Phosphate pellets
	Cherty - light	P	Pyritic
	Cherty - tripolitic		Salt casts
	Cherty - varicolored		Sandy
C	Chloritic		Sideritic
	Clayey		Siliceous
	Dolomitic		Silty
	Ferruginous staining		Stylolitic
	Fractures		Tuffaceous
	Glauconitic	Z	Zeolitic
	Gypsiferous		

Fossils (Rock Builders)

	Aggregate grains		Euryamphipora
	Algae - laminations		Foraminifera
	Algae - non descript	F	Fossil
	Algae - ooloid		Fragmental
	Algae - skeletal		Gastropod
	Amphipora		Graptolite
	Belemnite		Hydrozoa
	Bioclastic		Intraclast
	Brachiopod		Mollusc
	Bryozoa		Oncolite
	Calciphaera		Oolite
	Cephalopod		Ostracod
	Chaetetes		Pelecypod
	Coated grain		Pellet
	Conodont		Pisolite
	Coral		Plant Remains
	Coral - branching		Scaphopod
	Coral - head		Spicule
	Coral - colonial		Sponge
	Coral - solitary		Stromatoporoid
	Crinoid		Stromatoporoid - bulbous
	Diatom		Stromatoporoid - massive
	Echnoid		Stromatoporoid - tabular
	Echnoid - spine		Tentaculites
	Fish Remains		Trilobite

Miscellaneous Grains

	Biotite		Mineral crystal		Orthoclase
	Glauconite		Mineral - dark		Plagioclase
	Mica flakes		Muscovite	o	Sand grain

Matrix

	Argillaceous		Marl - dolomitic
B	Bentonite		Micrite
	Bituminous		Mixed Clay
	Clay		Montmorillonite
C	Chlorite		Sand
	Gibbsite		Silt
I	Illite		Sparry Calcite
K	Kaolinite	Z	Zeolite
	Marl - calcareous		

Textures

C	Chalky	e	Earthy	mx	Microcrystalline
Cx	Cryptocrystalline	L	Lithographic		

Porosity Type Track

e	Earthy - low permeability - crystals / grains less than 1 / 16 mm
	Fenestral - voids from gas bubbles - shrinkage cracks - birdseye texture
F	Fracture
X	Intercrystalline - interfragmental - intergranular
	Interoolitic - interpelletoidal
	Moldic
O	Organic - Bridged - intrafossil
P	Pinpoint - voids less than 1/ 16 mm
V	Vuggy - voids greater than 1 / 16 mm

Cement

	Anhydritic		Gypsiferous
	Baritic		Hematitic
	Bituminous		Limonitic
	Calcareous	P	Pyritic
	Chert - dark		Salt
	Chert - light		Sideritic
	Dolomitic		Siliceous
	Ferruginous		

Oil Show Track

	Even staining (75 - 100% of the rock is stained) - fluoresces in solvent
	Spotted staining (50 - 75% of the rock is stained) - fluoresces in solvent
	Spotted staining (25 - 50% of the rock is stained) - fluoresces in solvent
	Spotted staining (1 - 25% of the rock is stained) - fluoresces in solvent
	Questionable oil staining - No fluorescents in solvent
D	Dead oil staining - asphaltic - bitumen - pyrobitumen etc.

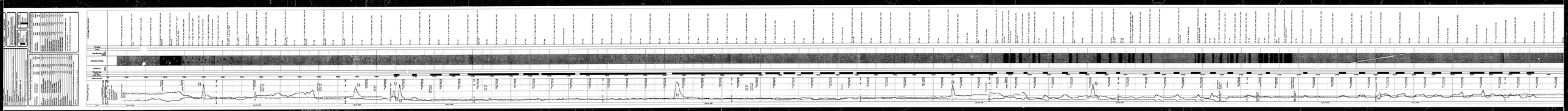
Sorting Track

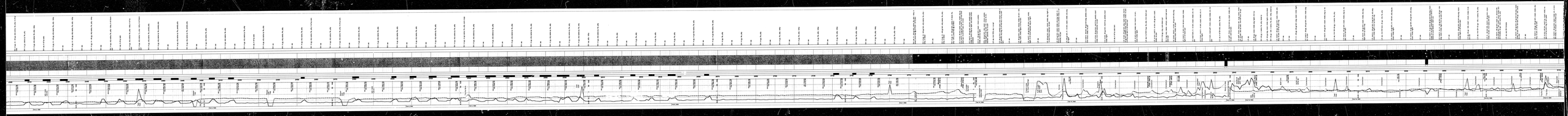
vP	Very poorly sorted - > 10 phi size grade classes
P	Poorly sorted - 6-10 phi size grade classes
M	Moderately sorted - 3-6 phi size grade classes
mW	Moderately well sorted - 2-3 phi size grade classes
W	Well sorted - < 2 phi size grade classes

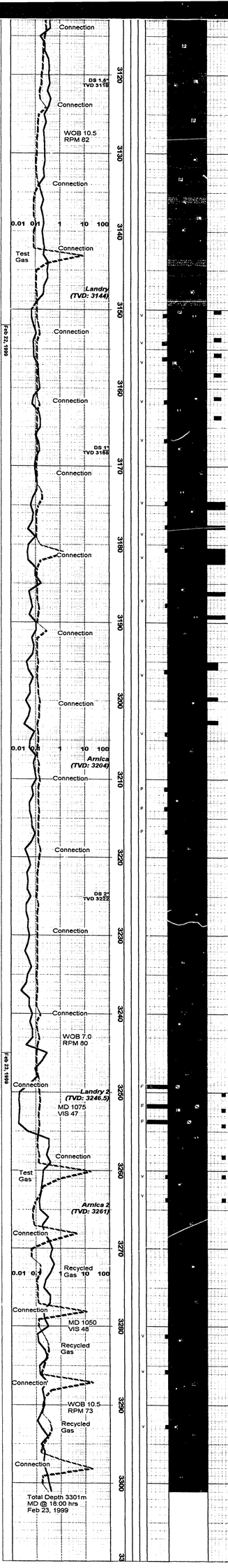
Rounding Track

vA	Very Angular	r	Subrounded
A	Angular	R	Rounded

Diagenesis Track







brn lith, mdst, no por, tr of dism pyr

LS: aa

LS: mot lt - m brn, cln, dk gy brn, crpxl, m brn lith, mdst, no por, tr of dism pyr

LS: mot lt - m gy brn, cln, mnr dk brn, crpxl, mdst, tight

LS: mot lt - m gy brn, m - dk brn, crpxl, mdst, m brn lith, lt gy crpxl, mdst, mnr dism pyr

LS: aa, lt gy crpxl, mdst, cln, tight, mnr SH lam, lt gy gn, fis, plty, calcs

SH: lt gy gn, glauc, calcs, tr of dism pyr

LS: aa

DOL: sy wh - trnsl, lt gy, mdst - wackst, v cy xln ip, dolic cmt, scat intxl bit, scat intxl pyr, no vis por

DOL: sy wh - trnsl, prly, vng - mas, no vis por, lt - m gy, crpxl - fy xln in pt, mdst - wackst, tr of intxl bit, tr of pyr, no vis por, tr of clr prisic dol xls, prob scat vugy por, no apr perm

DOL: wh - trnsl, prly, mas, no vis por, mnr lt gy crpxl - fy xln ip, dolic cmt, predly mdst, tr of intxl bit, no vis por

DOL: wh - trnsl, prly, mas, mnr lt gy, crpxl - micxl, mdst, tr of intxl bit, no vis por

DOL: aa, tr of clr prisic dol xls, prob scat vugy por, no apr perm

DOL: wh - trnsl, prly, mas, mnr lt gy, crpxl - micxl, mdst, tr of intxl bit, tr of c prisic dol, prob scat vugs

DOl: aa

DOL: wh - trnsl, prly, mas, tight, mnr lt gy, crpxl - cy xln, tr of intxl bit, no vis por

DOL: aa, predly mas

DOL: wh - trnsl, prly, mas, tight, mnr lt gy, crpxl - micxl, mdst, no por

DOL: wh - trnsl, prly, mas, tight, mnr lt gy brn, crpxl, tr fy xln, mdst, tr of prisic dol xls, prob scat vugy por, no apr perm

DOL: aa

DOL: wh - trnsl, prly, mas, tight, lt gy - lt brn crpxl mdst, dk gy - blk crpxl - micxl mdst, no vis por

DOL: lt - m brn, crpxl, mdst, tight, dk brn - blk, micxl, wackst, slly arg, dolic mtx, tr of pp and intxl por 3-4%

DOL: lt - m brn, crpxl, mnr micxl, mdst, no por, mnr dk gy micxl aa, tr of SH dk gy - blk, fis, plty

DOL: aa

DOL: lt - m brn, crpxl - micxl, mdst, tight, mnr dk gy - blk micxl wackst, no vis por

DOL: aa, mnr lt - m brn, micxl, wackst, no vis por

DOL: lt - m brn, m gy, dk gy brn slly arg, crpxl - micxl, predly mdst, mnr wackst, no vis por

DOL: dk gy - blk micxl wackst, slly arg, no vis por, lt - m brn, calcs, crpxl, mdst, tight

DOL: lt - m brn, crpxl - micxl, mdst - wackst, no vis por, tr of DOL sy wh - trnsl, prly, mas, tight

DOL: wh - trnsl, prly, mas, cy xln ip, no vis por, mnr DOL aa

DOL: wh - trnsl, prly, mas, cy xln ip, no por, mnr m gy, dk gy, slly arg, crpxl - micxl, tight

DOL: wh - trnsl, prly, mas, tr cy xln, mnr lt gy crpxl mdst, tight, tr of prisic dol xls, prob scat vugy por, no apr perm

DOL: aa, com lt - m brn, dk brn, crpxl - micxl, predly mdst, mnr wackst, no vis por

DOL: lt - m brn, dk brn - blk, crpxl - micxl, mdst - wackst, no vis por, mnr wh prly aa

DOL: aa, mnr sy wh dol vng

DOL: lt - m brn, dk brn, crpxl - micxl, mdst - wackst, tight, mnr sy wh vng, tr of prisic dol xls, prob scat vugy por, no apr perm

DOL: aa

DOL: lt - m brn, m - dk brn, crpxl - micxl, mdst - wackst, no vis por, mnr sy wh vng, mnr SH thnbds, dk gy - blk, fis, plty

DOL: aa, mnr lt gy, crpxl, mdst, calcs, tight

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

Wellsite Geological Report

on

Re-entry of

Paramount Berkley Arrowhead O-15
60° 30' 123° 00

for

Paramount Resources Ltd.

Prepared by:

Colin Bredin P.Geol
C.L. Bredin Holdings Ltd.
1-780-621-1276
1-780-696-2366

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Paramount Berkley Arrowhead O-15 was re-entered as a continuance of a well suspended in the spring of 1998. The original well was drilled to 1557m but had deviated to 14 degrees. It was subsequently logged, plugged back and cased to 1186m. It was then drilled with a motor to 1440m where it was suspended and plugged back into casing. The hole was sabotaged, by persons unknown, who dumped a pail of assorted junk into the well between the cement plug and the wireline bridge plug.

The well was re-entered in 1999 and drilled to TD. The second intermediate hole was drilled with invert to a depth of 2805m and casing was set in the top of the Slave Point. The upper main hole was drilled underbalanced with nitrified invert until water was encountered from a fracture at 2936m. Baryte was added and the well was continued in a balanced state (density of 1065) to a total depth of 3301m MD. The well was logged with induction, density neutron, dipole sonic and a diplog. After logging, a DST was run to investigate a fault / fracture zone in the lower devonian.

Casing Data Summary

Storage Units: Metric

Casing Type: Surface

Casing Size:	339.7	**Hole Size:**	445.0
Casing Landed @:	500.00	**Total Joints:**	36
Casing Date:		**Plug Down Date:**	

# of Joints / Length / O.D. / Weight: 36 joints of 81.1 kg/m Algoma L80

Cementing Details: .58 tonnes of 0-1-0 Expandomix + 1% CaCl2

Remarks:

Casing Type: Intermediate

Casing Size:	244.5	**Hole Size:**	311.0
Casing Landed @:	1,186.60	**Total Joints:**	57
Casing Date:		**Plug Down Date:**	

# of Joints / Length / O.D. / Weight: 57 Jts. of 64.74 kg/m Algoma L80

Cementing Details: 50 tonnes of 0-1-0 G

Remarks:

Casing Type: Intermediate

Casing Size:	177.8	**Hole Size:**	216.0
Casing Landed @:	2,804.70	**Total Joints:**	210
Casing Date:	Feb 10, 1999 @ 15:00	**Plug Down Date:**	Feb 10, 1999 @ 21:21

# of Joints / Length / O.D. / Weight: 205 Jts. (2779.2m) of IPSCO 177.8mm L80 LTC 38.69 kg/m and 2 Jts. (27.08m) of IPSCO 177.8mm L80 LTC 34.2 kg/m at bottom (2806.32m overall length) 3 Jts. left out.

Cementing Details: Cemented with 24.6 tonnes of 1-1-2 G and 17 tonnes of Thermal 40F

Remarks: No cement returns, some flush. Landed in slips @ 04:30 hr, Feb 11, 1999

Wireline Logging Summary

Storage Units: Metric

Logging Suite Number: 1
Wireline Logging Company: Baker Atlas
District: Grande Prairie
Witness: Colin Bredin

Engineer: Roman Khafizov / D. Spelay
Unit Number: HL 6544

Was Pressure Control Equipment Utilized:
Was the Logging Job Mechanically Assisted:

Maximum Deviation: 6.400 °
Hole Size: 216.0

Total Lost Time: 0.00
Loggers' Total Down Time: 0.00
Total Job Time (From Rig up to Rig down): 8.00

	Measured Depth	True Vertical Depth
Casing Depth Driller	1,186.60	1,186.10
Casing Depth Logger	1,185.70	1,185.20
Total Depth Driller (Tally)	2,805.00	2,802.10
Total Depth Driller (Strap or SLM)	2,805.00	.

General Remarks: No problems.

Logging Run #: 1
Date: Feb 8, 1999

Drilling Fluid Data

Drilling Fluid Type: Invert
Fluid Density: 1010 **Viscosity:** 53 **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ °
Mud Filtrate Resistivity (Rmf): @ °
Mud Cake Resistivity (Rmc): @ °

Maximum Temperature: 122.0 °
Source (Rmf):
Source (Rmc):

Logging Run Information

Date on Bottom: Feb 8, 1999
Total Depth Logger: 2,804.70 (MD) 2,801.80 (TVD)

Logging Tools: HDIL-GR (High Definition Induction Log) from 2794.8 to 1185.7m
ZDL-CN-PE-GR-DAC (Compensated Z-Densilog - Compensated Neutron) from 2787.3 to 1185.7m
DAL-GR-XY (Digital Acoustilog) from 2801.4 to 1185.7m

Remarks: Logged in combination.

Hole Conditions: Good

Wireline Logging Summary

Storage Units: Metric

Logging Suite Number: 2
Wireline Logging Company: Baker Atlas
District: Grande Prairie
Witness: C. Bredin

Engineer: N. Lesage
Unit Number: HL6544

Was Pressure Control Equipment Utilized:
Was the Logging Job Mechanically Assisted:

Maximum Deviation: 2.000 °
Hole Size: 156.0

Total Lost Time: 0.00
Loggers' Total Down Time: 15.00
Total Job Time (From Rig up to Rig down): 23.00

	Measured Depth	True Vertical Depth
Casing Depth Driller	2,804.70	
Casing Depth Logger	2,804.60	
Total Depth Driller (Tally)	3,301.00	
Total Depth Driller (Strap or SLM)	3,301.00	

General Remarks: Good effort by engineer. Numerous tool problems. Had to hotshot rplacement density.

Logging Run #: 1
Date: Feb 24, 1999

Drilling Fluid Data

Drilling Fluid Type: Invert / Baryte
Fluid Density: 1075 **Viscosity:** 54 **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ °
Mud Filtrate Resistivity (Rmf): @ °
Mud Cake Resistivity (Rmc): @ °

Maximum Temperature: 147.2 °
Source (Rmf): Flowline
Source (Rmc):

Logging Run Information

Date on Bottom: Feb 24, 1999
Total Depth Logger: 3,299.30 (MD) (TVD)

Logging Tools: HDIL-GR from 3296.9 to 2804.6m

Remarks: Ran in combination with density which failed.

Hole Conditions: Good

Logging Run #: 2
Date: Feb 24, 1999

Drilling Fluid Data

Drilling Fluid Type: Invert / Baryte
Fluid Density: 1075 **Viscosity:** 54 **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** 155.3 °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):** Flowline
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom: Feb 24, 1999
Total Depth Logger: 3,299.00 (MD) (TVD)

Logging Tools: MAC-GR-CAL from 3295.5 to 2804.6m

Remarks: Ran in combination with diplog which failed.

Hole Conditions: Good

Logging Run #: 3
Date: Feb 24, 1999

Drilling Fluid Data

Drilling Fluid Type: Invert / Baryte
Fluid Density: 1075 **Viscosity:** 54 **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** 158.2 °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):** Flowline
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom: Feb 24, 1999
Total Depth Logger: 3,298.20 (MD) (TVD)

Logging Tools: HEXDIP-GR from 3282.6 to 2804.6m

Remarks: Single run.

Hole Conditions: Good

Wireline Logging Summary

Storage Units: Metric

Logging Run #: 4
Date: Feb 24, 1999

Drilling Fluid Data

Drilling Fluid Type: Invert / Baryte
Fluid Density: 1075 **Viscosity:** 54 **pH:** **Fluid Loss:**

Mud Resistivity (Rm): @ °
Mud Resistivity (Rm) @ BHT: @ ° **Maximum Temperature:** 160.1 °
Mud Filtrate Resistivity (Rmf): @ ° **Source (Rmf):** Flowline
Mud Cake Resistivity (Rmc): @ ° **Source (Rmc):**

Logging Run Information

Date on Bottom: Feb 24, 1999
Total Depth Logger: 3,299.00 (MD) (TVD)

Logging Tools: ZDL-CNL-GR-PE-CAL from 3298.4 to 2804.6m

Remarks: Ran replacement tool.

Hole Conditions: Good

Deviation / Directional Survey Report

Directional Drilling Company:	United Geocom
Directional Drillers:	John Webb
Measured While Drilling (MWD) Hands:	Rik Kaminsky
Survey Type:	electronic
Survey Mode:	MWD
Survey Date:	1/26/99
Survey Calculation Method:	minimum curvature
Vertical Section Calculated on:	0.00 ° plane

Survey Tie-In Information

Tie-In Depths	**Measured Depth:**	500.00	**True Vertical Depth (TVD):**	500.00
Tie-In Node	**Latitude:**	60.2453694	**Longitude:**	123.0231174
Tie-In Co-Ordinantes				
N / S:				
E / W:				

Kick-Off (Whipstock) Information

Kick-Off Depths	**Measured Depth:**		**True Vertical Depth (TVD):**	
Kick-Off Node	**Latitude:**		**Longitude:**	
Kick-Off Co-Ordinantes				
N / S:				
E / W:				

Remarks: Bring vertical hole back to well center.

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
500.00	500.00	0.000	0.00	0.00	0.00	0.00	0.00
550.00	550.00	0.320	78.80	0.03	0.14	0.11	0.19
660.32	660.32	0.350	91.07	0.08	0.78	0.58	0.02
774.00	774.00	0.460	104.70	-0.04	1.56	1.01	0.04
886.00	885.90	0.810	55.62	0.29	2.65	1.99	0.17
1,001.00	1,000.93	2.770	68.29	1.78	5.91	5.26	0.52
1,113.00	1,112.72	4.100	61.14	4.71	11.93	11.47	0.37
1,202.36	1,201.85	4.200	59.20	7.93	17.54	17.61	0.06
1,337.65	1,336.99	2.600	316.80	12.71	19.69	22.60	1.20
1,472.58	1,471.81	1.900	317.10	16.58	16.07	23.07	0.16
1,616.57	1,615.70	2.900	23.70	21.66	15.91	26.75	0.58
1,674.90	1,673.95	3.500	67.00	23.71	18.15	29.77	1.25
1,684.59	1,683.62	3.900	72.60	23.92	18.73	30.32	1.67
1,694.12	1,693.12	4.300	77.20	24.10	19.39	30.89	1.63
1,703.85	1,702.82	4.600	83.70	24.22	20.13	31.48	1.81
1,713.57	1,712.51	4.800	88.10	24.28	20.93	32.05	1.27
1,723.24	1,722.15	4.900	91.70	24.28	21.74	32.59	0.99
1,732.89	1,731.76	4.600	100.10	24.20	22.54	33.06	2.35
1,742.71	1,741.55	4.500	109.80	24.00	23.29	33.21	2.37
1,752.23	1,751.04	4.600	116.00	23.71	23.98	33.56	1.58
1,761.91	1,760.69	4.400	121.20	23.34	24.65	33.85	1.41
1,771.60	1,770.35	4.200	120.30	22.97	25.27	34.10	0.65
1,781.42	1,780.15	3.900	118.20	22.63	25.88	34.36	1.02
1,791.13	1,789.84	3.900	118.30	22.32	26.46	34.61	0.02
1,800.95	1,799.64	3.700	132.40	21.95	26.99	34.79	2.91
1,810.58	1,809.24	4.400	150.80	21.42	27.40	34.77	4.57
1,820.39	1,819.02	4.900	161.40	20.69	27.71	34.47	3.03
1,830.21	1,828.81	4.800	168.70	19.89	27.93	34.23	1.91
1,839.94	1,838.50	4.400	165.40	19.13	28.10	33.97	1.48
1,849.75	1,848.29	4.100	169.40	18.42	28.26	33.73	1.29
1,859.12	1,857.64	3.800	174.60	17.78	28.35	33.47	1.50
1,868.43	1,866.93	3.500	183.90	17.19	28.36	33.16	2.14
1,878.10	1,876.58	3.100	186.60	16.64	28.31	32.74	1.33
1,887.10	1,885.57	2.800	193.70	16.18	28.23	32.47	1.57
1,897.19	1,895.64	3.100	194.90	15.68	28.10	32.13	0.91
1,907.01	1,905.45	3.600	202.40	15.14	27.92	31.73	2.03

1,916.49	1,914.91	3.900	199.10	14.56	27.70	31.28	1.17
1,926.14	1,924.54	2.500	192.40	14.01	27.54	30.89	3.34
1,935.95	1,934.34	1.800	176.90	13.61	27.49	30.68	3.86
1,945.60	1,943.99	1.000	162.10	13.38	27.53	30.61	2.71
1,955.12	1,953.51	0.800	157.20	13.24	27.58	29.01	0.67
1,964.83	1,963.22	1.300	186.00	13.07	27.59	28.90	2.20
1,974.51	1,972.89	2.200	196.30	12.78	27.53	28.65	2.94
1,984.32	1,982.69	3.100	195.60	12.35	27.41	28.26	2.75
1,993.66	1,992.02	3.600	207.70	11.84	27.20	29.67	2.77
2,003.36	2,001.70	3.200	225.30	11.38	26.87	29.18	3.44
2,013.17	2,011.49	3.400	251.90	11.10	26.40	28.63	4.68
2,022.87	2,021.18	3.200	263.30	10.98	25.85	28.09	2.12
2,032.11	2,030.40	3.100	262.40	10.92	25.35	27.60	0.36
2,041.92	2,040.20	3.500	247.20	10.76	24.81	27.05	2.93
2,051.67	2,049.92	4.200	248.10	10.52	24.21	26.39	2.16
2,061.47	2,059.69	5.000	243.20	10.19	23.49	25.61	2.73
2,071.15	2,069.34	5.000	237.50	9.77	22.76	24.77	1.54
2,080.85	2,079.00	4.500	231.70	9.31	22.10	23.97	2.14
2,090.66	2,088.79	3.800	216.40	8.81	21.61	23.33	3.99
2,100.00	2,098.11	3.700	220.50	8.33	21.23	22.80	0.92
2,109.54	2,107.63	3.700	233.40	7.91	20.78	22.24	2.61
2,119.25	2,117.32	3.900	243.10	7.58	20.24	21.61	2.08
2,128.95	2,126.99	4.300	244.00	7.27	19.62	20.92	1.25
2,138.76	2,136.77	5.000	245.50	6.93	18.90	20.13	2.17
2,148.43	2,146.40	4.900	245.90	6.59	18.14	19.29	0.33
2,158.15	2,156.09	4.500	254.20	6.31	17.39	18.50	2.43
2,167.86	2,165.78	3.500	259.40	6.16	16.73	17.83	3.28
2,177.56	2,175.46	2.700	265.00	6.08	16.21	17.32	2.64
2,187.25	2,185.14	2.100	249.60	6.00	15.82	16.92	2.71
2,196.57	2,194.46	1.800	239.60	5.87	15.53	16.60	1.46
2,206.30	2,204.18	2.100	229.70	5.67	18.27	16.28	1.39
2,216.00	2,213.88	2.400	220.20	5.40	15.00	15.94	1.48
2,225.70	2,223.57	2.500	221.10	5.09	14.73	15.58	0.34
2,235.45	2,233.31	2.600	219.40	4.76	14.45	15.21	0.39
2,245.14	2,242.99	2.600	220.60	4.42	14.17	14.84	0.17
2,254.84	2,252.68	2.300	238.30	4.15	13.86	14.46	2.50
2,264.67	2,262.50	2.800	254.80	3.99	13.46	14.03	2.70
2,274.30	2,272.11	4.300	262.90	3.88	12.87	13.44	4.92
2,284.01	2,281.79	5.300	260.80	3.76	12.07	12.64	3.14
2,293.83	2,291.56	5.700	257.60	3.58	11.14	11.71	1.54

2,303.52	2,301.20	6.200	255.40	3.35	10.17	10.71	1.70
2,312.93	2,310.55	6.400	258.20	3.11	9.16	9.68	1.17
2,324.75	2,322.31	5.500	254.20	2.83	7.97	8.27	2.51
2,332.57	2,330.10	5.000	251.00	2.61	7.29	7.58	2.22
2,341.88	2,339.37	5.300	250.00	2.33	6.50	6.76	1.01
2,351.56	2,349.00	5.600	2.02	5.64	5.86	0.93	
2,361.23	2,358.63	5.400	258.40	1.76	4.75	4.97	2.60
2,370.91	2,368.27	4.500	262.40	1.62	3.93	4.20	2.99
2,380.60	2,377.94	3.500	260.20	1.52	3.26	3.57	3.13
2,390.19	2,387.51	3.000	256.00	1.41	2.73	3.06	1.73
2,399.90	2,397.21	2.200	257.00	1.31	2.30	2.64	2.48
2,409.26	2,406.57	1.100	260.10	1.25	2.04	2.39	3.54
2,418.99	2,416.30	0.500	289.70	1.25	1.90	2.22	2.19
2,428.81	2,426.12	1.000	306.70	1.32	1.79	2.19	1.66
2,438.08	2,435.39	1.300	319.10	1.44	1.66	2.19	1.26
2,447.41	2,444.71	1.300	346.00	1.63	1.57	2.26	1.94
2,457.05	2,454.35	1.300	54.30	1.80	1.63	2.42	4.54
2,466.41	2,463.71	1.800	74.30	1.90	1.86	2.65	2.34
2,476.23	2,473.52	1.700	83.70	1.96	2.15	2.90	0.93
2,485.95	2,483.24	1.900	95.70	1.96	2.45	3.11	1.31
2,495.23	2,492.51	2.700	110.90	1.86	2.81	3.29	3.23
2,504.95	2,502.22	3.700	127.10	1.59	3.27	3.42	4.13
2,514.77	2,512.01	4.200	128.50	1.18	3.81	3.90	1.56
2,524.45	2,521.67	4.100	117.00	0.80	4.39	4.45	2.59
2,533.57	2,530.77	3.800	103.10	0.58	4.98	5.01	3.29
2,543.27	2,540.45	3.700	85.70	0.53	5.60	5.63	3.52
2,552.98	2,550.14	3.500	70.80	0.65	6.20	6.23	2.95
2,562.24	2,559.38	2.300	62.30	0.86	6.68	6.72	2.25
2,571.70	2,568.83	2.400	57.70	1.08	7.06	7.13	2.02
2,581.52	2,578.65	1.700	69.30	1.24	7.37	7.45	2.48
2,590.64	2,587.76	0.600	136.30	1.26	7.53	7.61	5.15
2,600.36	2,597.48	1.100	201.10	1.13	7.54	7.60	3.10
2,609.66	2,606.78	1.500	201.40	0.93	7.46	7.51	1.29
2,619.14	2,616.26	1.200	174.40	0.72	7.42	7.46	2.20
2,628.96	2,626.08	0.800	133.60	0.57	7.48	7.51	2.42
2,638.67	2,635.79	0.700	92.60	0.52	7.59	7.61	1.65
2,648.36	2,645.48	0.400	32.10	0.55	7.67	7.69	1.89
2,657.82	2,654.94	0.300	3.80	0.60	7.69	7.71	0.62
2,667.53	2,664.65	0.200	246.10	0.62	7.67	7.70	1.33
2,676.89	2,674.01	0.200	205.10	0.60	7.65	7.68	0.45

2,686.57	2,683.69	0.300	173.90	0.56	7.65	7.67	0.51
2,696.39	2,693.50	0.600	158.80	0.48	7.67	7.68	0.98
2,706.06	2,703.17	0.800	136.00	0.39	7.73	7.67	1.05
2,715.64	2,712.75	1.000	146.00	0.27	7.83	7.77	0.79
2,725.46	2,722.57	1.200	156.50	0.10	7.92	7.87	0.87
2,734.75	2,731.86	1.300	166.10	-0.09	7.98	7.96	0.75
2,744.46	2,741.57	0.900	171.20	-0.27	8.02	8.01	1.27
2,754.23	2,751.34	0.800	176.40	-0.41	8.03	8.04	0.39
2,763.91	2,761.02	1.000	172.70	-0.56	8.05	8.07	0.65
2,773.62	2,770.72	1.100	176.20	-0.74	8.07	8.10	0.37
2,783.33	2,780.43	1.600	166.30	-0.97	8.10	8.14	1.70
2,805.00	2,802.09	1.600	166.30	-1.55	8.25	8.39	0.00
2,854.00	2,851.10	1.500					
2,911.00	2,908.00	1.250					
2,968.00	2,965.06	0.625					
3,026.00	3,023.03	1.500					
3,071.00	3,068.01	1.750					
3,090.00	3,087.01	2.000					
3,121.00	3,118.00	1.500					
3,168.00	3,165.00	1.000					
3,225.00	3,222.00	2.000					

Deviation / Directional Survey Report

Directional Drilling Company:	United Geocom
Directional Drillers:	Pat Franz
Measured While Drilling (MWD) Hands:	
Survey Type:	electronic
Survey Mode:	MWD
Survey Date:	3/18/98
Survey Calculation Method:	minimum curvature
Vertical Section Calculated on:	64.21 ° plane

Survey Tie-In Information

Tie-In Depths **Measured Depth:** **True Vertical Depth (TVD):**
Tie-In Node **Latitude:** **Longitude:**
Tie-In Co-Ordinantes
N / S:
E / W:

Kick-Off (Whipstock) Information

Kick-Off Depths **Measured Depth:** 1,218.00 **True Vertical Depth (TVD):** 1,217.40
Kick-Off Node **Latitude:** **Longitude:**
Kick-Off Co-Ordinantes
N / S:
E / W:

Remarks: Plugged back, Ran casing to 1186m. Ran motor to straighten hole. Initial leg was out to 14.5 degrees.

Survey Points

Storage Units: Metric

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
500.00	500.00	0.000	0.00	0.00	0.00	0.00	0.00
550.00	550.00	0.320	78.80	0.03	0.14	0.14	0.19
660.32	660.32	0.350	91.07	0.08	0.78	0.73	0.02
774.00	773.99	0.460	104.70	-0.04	1.56	1.39	0.04
886.00	885.99	0.810	55.62	0.29	2.65	2.52	0.17
1,001.00	1,000.93	2.770	68.29	1.78	5.91	6.90	0.52
1,113.00	1,112.72	4.100	61.14	4.71	11.93	12.79	0.37
1,203.00	1,202.45	4.760	55.63	8.37	17.83	19.70	0.26
1,213.80	1,213.22	4.250	53.28	8.86	18.52	20.53	1.51
1,226.00	1,225.39	3.190	62.52	9.29	19.18	21.32	2.99
1,242.00	1,241.38	1.820	53.95	9.65	19.78	22.01	2.66
1,255.00	1,254.37	1.030	27.29	9.87	20.01	22.31	2.33
1,270.00	1,269.37	0.970	10.56	10.12	20.09	22.49	0.59
1,286.00	1,285.37	1.330	332.69	10.41	20.03	22.57	1.54
1,297.00	1,297.16	1.250	312.82	10.62	19.87	22.51	1.15
1,313.40	1,312.75	2.810	313.04	11.00	19.47	22.31	3.00
1,325.37	1,324.71	3.230	319.19	11.45	19.03	22.12	1.33
1,340.00	1,339.32	2.330	304.81	11.94	18.52	21.87	2.32
1,353.27	1,352.58	1.440	277.26	12.11	18.13	21.60	2.82
1,382.50	1,381.80	2.530	301.13	12.49	17.22	20.94	1.38
1,397.90	1,397.18	2.670	313.70	12.91	16.67	20.63	1.14
1,411.00	1,410.27	2.500	300.96	13.27	16.20	20.36	1.37
1,427.07	1,426.32	2.000	278.39	13.49	15.62	19.94	1.88
1,440.00	1,439.25	2.480	241.92	13.40	15.15	19.47	3.42
1,455.00	1,454.23	2.480	225.00	13.01	14.64	18.84	1.46

Deviation / Directional Survey Report

Directional Drilling Company:
Directional Drillers:
Measured While Drilling (MWD) Hands:
Survey Type: drift
Survey Mode:
Survey Date: 1/20/99
Survey Calculation Method:
Vertical Section Calculated on: ° plane

Survey Tie-In Information

Tie-In Depths **Measured Depth:** **True Vertical Depth (TVD):**
Tie-In Node **Latitude:** **Longitude:**
Tie-In Co-Ordinantes
N / S:
E / W:

Kick-Off (Whipstock) Information

Kick-Off Depths **Measured Depth:** **True Vertical Depth (TVD):**
Kick-Off Node **Latitude:** **Longitude:**
Kick-Off Co-Ordinantes
N / S:
E / W:

Remarks: Drill out cement to 1455m following previously drilled directional hole.

Survey Points

Storage Units: Metric

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
1,251.00	1,251.00	2.000					
1,269.00	1,269.00	0.500					
1,303.00	1,303.00	1.500					
1,332.00	1,332.00	2.750					
1,361.00	1,361.00	2.000					
1,390.00	1,390.00	1.500					
1,419.00	1,419.00	2.000					
1,448.00	1,448.00	2.000					
1,506.00	1,506.00	2.750					
1,534.00	1,534.00	2.750					
1,564.00	1,564.00	2.500					
1,611.00	1,611.00	3.000					
1,640.00	1,640.00	3.000					
1,669.00	1,669.00	3.000					

Drilling Fluid Summary

Storage Units: Metric

Drilling Fluid Type:	Invert	**From:**	1,186	**To:**	2,805
Drilling Fluid Type:	Nitrified Invert	**From:**	2,805	**To:**	2,936
Drilling Fluid Type:	Invert / baryte	**From:**	2,936	**To:**	3,301

Formation Top Summary

Storage Units: Metric

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

***** All Depths measured from Kelly Bushing Elevation *****

Group *Formation* Member	Prognosis (TVD)	Sample Top (MD)	Sample Top (TVD)	Log Top (MD)	Log Top (TVD)	Subsea	Thickness
Exshaw	1,555.00	1,567.50	1,566.60	1,564.50	1,563.60	-1,176.90	14.50
Kotcho	1,567.00	1,578.00	1,577.10	1,579.00	1,578.10	-1,191.40	423.20
Tetcho	1,958.00	2,007.00	2,005.30	2,003.00	2,001.30	-1,614.60	128.20
Kakisa	2,074.00	2,139.00	2,137.00	2,131.50	2,129.50	-1,742.80	21.40
Fort Simpson	2,093.00	2,156.00	2,153.90	2,153.00 ✓	2,150.90	-1,764.20	631.20
Muskwa	2,671.00	2,785.00	2,782.10	2,785.00 ✓	2,782.10	-2,395.40	12.00
Slave Point	2,681.00	2,797.00	2,794.10	2,797.00 ✓	2,794.10	-2,407.40	83.40
Watt Mountain	2,775.00	2,894.50	2,891.50	2,880.50 ✓	2,877.50	-2,490.80	13.00
Sulphur Point	2,786.00	2,906.00	2,903.00	2,893.50 ✓	2,890.50	-2,503.80	56.50
Horn River	2,820.00	2,950.50	2,947.50	2,950.00 ✓	2,947.00	-2,560.30	95.50
Nahanni	2,875.00	3,047.00	3,044.00	3,045.50 ✓	3,042.50	-2,655.80	57.00
Headless	2,938.00	3,100.00	3,097.00	3,102.50 ✓	3,099.50	-2,712.80	42.50
Landry	2,972.00	3,147.00	3,144.00	3,145.00	3,142.00	-2,755.30	61.50
Arnica	3,012.00	3,207.00	3,204.00	3,206.50	3,203.50	-2,816.80	40.00

Formation Top Summary

Storage Units: Metric

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

***** All Depths measured from Kelly Bushing Elevation *****

Group *Formation* Member	Prognosis (TVD)	Sample Top (MD)	Sample Top (TVD)	Log Top (MD)	Log Top (TVD)	Subsea	Thickness
Landry 2		3,249.50	3,246.50	3,246.50	3,243.50	-2,856.80	22.50
Arnica 2		3,264.00	3,261.00	3,269.00	3,266.00	-2,879.30	

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Exshaw
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: lower
Period: Mississippian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	1,567.50	1,566.60	-1,179.90	10.50
Log Top	1,564.50	1,563.60	-1,176.90	14.50

Evaluation:
SHALE dark gray brown, fissile, blocky to platy, common nodular and disseminated pyrite

Conclusion:
No reservoir potential.

Group:
Formation: Kotcho
Member:
Boundary Type: disconformable
Fault Type:

Era: Paleozoic
Series: upper
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	1,578.00	1,577.10	-1,190.40	428.20
Log Top	1,579.00	1,578.10	-1,191.40	423.20

Evaluation:
Predominantly SHALE, light to medium gray, calcareous, fissile, platy to blocky. Upper Kotcho contains numerous argillaceous LIMESTONE thinbeds.

Conclusion:
No reservoir potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Tetcho
Member:
Boundary Type: disconformable
Fault Type:

Era: Paleozoic
Series: upper
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,007.00	2,005.30	-1,618.60	131.70
Log Top	2,003.00	2,001.30	-1,614.60	128.20

Evaluation:
The upper Tetcho is interbedded SILTSTONE gray brown, light gray brown, calcareous matrix, slightly argillaceous, tight, LIMESTONE light gray brown, medium gray brown, cryptocrystalline to microcrystalline, predominately mudstone, no visible porosity and SHALE medium to dark gray brown, dark brown, very calcareous in part, fissile, platy to blocky. Lower Tetcho is predominately SHALE medium gray, medium to dark gray, calcareous, fissile, platy to blocky with common thinbeds of LIMESTONE medium gray, light to medium gray brown, cryptocrystalline, mudstone, very argillaceous, no visible porosity.

Conclusion:
No apparent reservoir potential.

Group:
Formation: Kakisa
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: upper
Period. Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,139.00	2,137.00	-1,750.30	16.90
Log Top	2,131.50	2,129.50	-1,742.80	21.40

Evaluation:
Predominately LIMESTONE light to medium gray brown, medium gray brown, cryptocrystalline, mudstone, argillaceous in part, tight

Conclusion:
No reservoir potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Fort Simpson
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: upper
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,156.00	2,153.90	-1,767.20	628.20
Log Top	2,153.00	2,150.90	-1,764.20	631.20

Evaluation:
SHALE medium gray, medium gray calcareous, fissile, platy to blocky. The Fort Simpson is extremely dehydrated and swells immediately upon contact with water.

Conclusion:
No reservoir potential.

Group:
Formation: Muskwa
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: upper
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,785.00	2,782.10	-2,395.40	12.00
Log Top	2,785.00	2,782.10	-2,395.40	12.00

Evaluation:
SHALE medium gray, medium to dark gray brown, slightly calcareous, fissile, platy to blocky, trace slickensided.

Conclusion:
No reservoir potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Slave Point
Member:
Boundary Type: unconformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,797.00	2,794.10	-2,407.40	97.40
Log Top	2,797.00	2,794.10	-2,407.40	83.40

Evaluation:
Slave Point is a LIMESTONE mottled light to dark gray brown, dark gray brown, cryptocrystalline, mudstone, slightly argillaceous, tight, medium to dark brown, cryptocrystalline to microcrystalline, mottled in part, predominately mudstone, trace of wackestone, no apparent porosity

Conclusion:
No apparent reservoir.

Group:
Formation: Watt Mountain
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,894.50	2,891.50	-2,504.80	11.50
Log Top	2,880.50	2,877.50	-2,490.80	13.00

Evaluation:
LIMESTONE medium brown, mottled light to medium brown, dark gray brown, cryptocrystalline, mudstone, tight bordered by an upper SHALE light gray, fissile, platy, disseminated pyrite and a base SHALE light gray, waxy, calcareous to anhydritic, abundant nodular and disseminated pyrite.

Conclusion:
No reservoir potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Sulphur Point
Member:
Boundary Type: unconformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,906.00	2,903.00	-2,516.30	44.50
Log Top	2,893.50	2,890.50	-2,503.80	56.50

Evaluation:
Drilled underbalanced with nitrified invert. Predominantly LIMESTONE mottled light brown, light to medium brown, cryptocrystalline, mudstone, clean, no visible porosity. Stuck in hole at a porous fracture at 2936m. Recovered salt water, field tested at 42,000 parts per million. Cleaner and lighter in color than carbonates above or below. Shallower environment. No indication of dolomitization.

Conclusion:
No apparent gas potential.

Group:
Formation: Horn River
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,950.50	2,947.50	-2,560.80	96.50
Log Top	2,950.00	2,947.00	-2,560.30	95.50

Evaluation:
Horn River is LIMESTONE mottled light to dark gray, dark gray brown, cryptocrystalline, mudstone, argillaceous in part, no porosity, with common thinbeds or laminar SHALE dark gray, very calcareous, fissile, platy, slickensided in part. Probable fracture at 3038m (log).

Conclusion:
No apparent gas potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Nahanni
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,047.00	3,044.00	-2,657.30	53.00
Log Top	3,045.50	3,042.50	-2,655.80	57.00

Evaluation:
Predominately LIMESTONE mottled light to dark gray brown, cryptocrystalline, medium to dark brown lithographic, minor dark gray brown to black, cryptocrystalline to microcrystalline, mudstone, occasional SHALE thinbeds, dark gray to black, calcareous, fissile, platy

Conclusion:
No apparent reservoir potential.

Group:
Formation: Headless
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: middle
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,100.00	3,097.00	-2,710.30	47.00
Log Top	3,102.50	3,099.50	-2,712.80	42.50

Evaluation:
Predominately LIMESTONE mottled light to dark gray brown, cryptocrystalline, medium to dark brown lithographic, minor dark gray brown to black, cryptocrystalline to microcrystalline, mudstone, disseminated pyrite throughout, occasional SHALE thinbeds, dark gray to black, calcareous, fissile, platy

Conclusion:
No apparent reservoir potential.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Landry
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: lower
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,147.00	3,144.00	-2,757.30	60.00
Log Top	3,145.00	3,142.00	-2,755.30	61.50

Evaluation:
DOLOMITE white to translucent, pearly, massive, minor light gray, cryptocrystalline to microcrystalline, mudstone, trace of intercrystalline bitumen, trace of clear prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

Conclusion:
No apparent reservoir.

Group:
Formation: Amica
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: lower
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,207.00	3,204.00	-2,817.30	42.50
Log Top	3,206.50	3,203.50	-2,816.80	40.00

Evaluation:
Predominately DOLOMITE light to medium brown, medium gray, dark gray brown slightly argillaceous, cryptocrystalline to microcrystalline, predominately mudstone, minor wackestone, no visible porosity, occasional SHALE laminae or thinbeds. Trace of pin point to microcrystalline porosity in upper Amica, no apparent permeability.

Conclusion:
No apparent reservoir.

Kelly Bushing Elevation: 386.70 **Casing Flange Elevation:** 7.20
Ground Elevation: 380.50

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Landry 2
Member:
Boundary Type: nonconformable
Fault Type: unknown

Era: Paleozoic
Series: lower
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,249.50	3,246.50	-2,859.80	14.50
Log Top	3,246.50	3,243.50	-2,856.80	22.50

Evaluation:
DOLOMITE white to translucent, pearly, massive, coarsely crystalline in part, no visible porosity, minor medium gray, dark gray, slightly argillaceous, cryptocrystalline to microcrystalline, tight. Had a fast drilling break from 3247 to 3252m (log). Fault with fracture zone. No gas response, zone took a couple cubes of mud. Added invert and ran centrifuge which dropped the weight from 1075 to about 1050 and allowed a significant increase in connection gas on all connections below this point. Probable fracture porosity from 3249.0 to 3249.2m, 3251.4 to 3251.6m and 3253.6 to 3253.8m drilled depth.

Conclusion:
Probably wet but has reservoir potential.

Group:
Formation: Amica 2
Member:
Boundary Type: conformable
Fault Type:

Era: Paleozoic
Series: lower
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,264.00	3,261.00	-2,874.30	
Log Top	3,269.00	3,266.00	-2,879.30	

Evaluation:
DOLOMITE light to medium brown, dark brown, cryptocrystalline to microcrystalline, mudstone to wackestone, tight, minor sparry white veining, trace of clear prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability.

Conclusion:
No apparent reservoir.

1,545.00 to 1,550.00 (5.00) 100% **SHALE**
medium to dark gray brown, fissile, platy, slightly micromicaceous

1,550.00 to 1,555.00 (5.00) 100% **SHALE**
medium to dark gray brown, dark gray brown, fissile, platy, minor cavings

1,555.00 to 1,560.00 (5.00) 100% **SHALE**
dark gray brown, medium to dark gray brown, fissile, platy

1,560.00 to 1,565.00 (5.00) 100% **SHALE**
dark gray brown, medium to dark gray brown, fissile, platy

1,565.00 to 1,570.00 (5.00) 100% **SHALE**
dark gray brown, fissile, blocky to platy, common nodular and disseminated pyrite

1,570.00 to 1,575.00 (5.00) 100% **SHALE**
dark gray brown, fissile, blocky to platy, common nodular and disseminated pyrite

1,575.00 to 1,580.00 (5.00) 80% **SHALE**
as above, medium to dark gray brown calcareous, light to medium gray very calcareous, fissile, platy to blocky

20% **LIMESTONE**
light to medium gray, argillaceous, cryptocrystalline, mudstone, tight

1,580.00 to 1,585.00 (5.00) 90% **SHALE**
light to medium gray, light to medium gray calcareous, fissile, predominately blocky

10% **LIMESTONE**
light to medium gray, argillaceous, cryptocrystalline, mudstone, tight

1,585.00 to 1,590.00 (5.00) 80% **SHALE**
light to medium gray, medium gray, calcareous, fissile, blocky to platy

20% **LIMESTONE**
light to medium gray, argillaceous, cryptocrystalline, mudstone, tight

1,590.00 to 1,595.00 (5.00) 80% **SHALE**
light to medium gray, medium gray, calcareous, fissile, predominately blocky

20% **LIMESTONE**
light to medium gray, argillaceous, cryptocrystalline, mudstone, tight

1,595.00 to 1,600.00 (5.00) 90% **SHALE**
light to medium gray, medium gray, calcareous, fissile, platy to blocky

10% **LIMESTONE**
as above

1,600.00 to 1,605.00 (5.00) 100% **SHALE**
medium gray, light to medium gray, very calcareous in part, fissile, platy to blocky, minor LIMESTONE light to medium gray, argillaceous, tight

1,605.00 to 1,610.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous in part, fissile, predominately blocky, minor LIMESTONE as above

1,610.00 to 1,615.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous in part, predominately blocky, minor argillaceous LIMESTONE as above

1,615.00 to 1,620.00 100% **SHALE**
(5.00) light to medium gray, medium gray, very calcareous in part, fissile, platy to blocky, trace of disseminated pyrite

1,620.00 to 1,625.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous in part, fissile, platy to blocky

1,625.00 to 1,630.00 100% **SHALE**
(5.00) as above, trace of disseminated pyrite

1,630.00 to 1,635.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous in part, fissile, platy to blocky, trace of disseminated pyrite

1,635.00 to 1,640.00 100% **SHALE**
(5.00) as above

1,640.00 to 1,645.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous, fissile, platy to blocky, trace of disseminated pyrite

1,645.00 to 1,650.00 100% **SHALE**
(5.00) as above

1,650.00 to 1,655.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous, fissile, platy to blocky, trace of disseminated pyrite

1,655.00 to 1,660.00 100% **SHALE**
(5.00) as above

1,660.00 to 1,665.00 100% **SHALE**
(5.00) medium gray, light to medium gray calcareous, fissile, platy to blocky, trace of disseminated pyrite

1,665.00 to 1,670.00 100% **SHALE**
(5.00) medium gray, light to medium gray calcareous, fissile, platy to blocky

1,670.00 to 1,675.00 100% **SHALE**
(5.00) as above

1,675.00 to 1,680.00 100% **SHALE**
(5.00) medium gray, light to medium gray calcareous, fissile, platy to blocky

1,680.00 to 1,685.00 100% **SHALE**
(5.00) medium gray, light to medium gray calcareous, fissile, blocky to platy

1,685.00 to 1,690.00 100% **SHALE**
(5.00) as above

1,690.00 to 1,695.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,695.00 to 1,700.00 100% **SHALE**
(5.00) as above

1,700.00 to 1,705.00 100% **SHALE**
(5.00) medium gray, light to medium gray, very calcareous in part, fissile, blocky to platy

1,705.00 to 1,710.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,710.00 to 1,715.00 100% **SHALE**
(5.00) as above

1,715.00 to 1,720.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,720.00 to 1,725.00 100% **SHALE**
(5.00) as above

1,725.00 to 1,730.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,730.00 to 1,735.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy, trace of disseminated pyrite

1,735.00 to 1,740.00 100% **SHALE**
(5.00) as above

1,740.00 to 1,745.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,745.00 to 1,750.00 100% **SHALE**
(5.00) as above

1,750.00 to 1,755.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,755.00 to 1,760.00 100% **SHALE**
(5.00) as above

1,760.00 to 1,765.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,765.00 to 1,770.00 100% **SHALE**
(5.00) as above

1,770.00 to 1,775.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,775.00 to 1,780.00 100% **SHALE**
(5.00) as above, trace of disseminated pyrite

1,780.00 to 1,785.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,785.00 to 1,790.00 100% **SHALE**
(5.00) as above

1,790.00 to 1,795.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,795.00 to 1,800.00 100% **SHALE**
(5.00) as above

1,800.00 to 1,805.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,805.00 to 1,810.00 100% **SHALE**
(5.00) as above

1,810.00 to 1,815.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,815.00 to 1,820.00 100% **SHALE**
(5.00) as above

1,820.00 to 1,825.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,825.00 to 1,830.00 100% **SHALE**
(5.00) as above

1,830.00 to 1,835.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,835.00 to 1,840.00 100% **SHALE**
(5.00) as above

1,840.00 to 1,845.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, platy to blocky

1,845.00 to 1,850.00 100% **SHALE**
(5.00) as above

1,850.00 to 1,855.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, blocky to platy

1,855.00 to 1,860.00 100% **SHALE**
(5.00) as above

1,860.00 to 1,865.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, platy to blocky

1,865.00 to 1,870.00 100% **SHALE**
(5.00) as above

1,870.00 to 1,875.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, platy to blocky

1,875.00 to 1,880.00 100% **SHALE**
(5.00) as above

1,880.00 to 1,885.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, platy to blocky

1,885.00 to 1,890.00 100% **SHALE**
(5.00) medium gray, calcareous, fissile, platy to blocky

1,890.00 to 1,895.00 100% **SHALE**
(5.00) as above

1,895.00 to 1,900.00 100% **SHALE**
(5.00) medium gray, calcareous, fissile, platy to blocky

1,900.00 to 1,905.00 100% **SHALE**
(5.00) as above

1,905.00 to 1,910.00 100% **SHALE**
(5.00) medium gray, minor medium gray brown, calcareous, fissile, platy to blocky

1,910.00 to 1,915.00 100% **SHALE**
(5.00) as above

1,915.00 to 1,920.00 100% **SHALE**
(5.00) medium gray, medium gray brown, calcareous, fissile, platy to blocky

1,920.00 to 1,925.00 100% **SHALE**
(5.00) as above, trace of disseminated pyrite

1,925.00 to 1,930.00 100% **SHALE**
(5.00) medium gray, medium gray brown, calcareous, fissile, platy to blocky, trace of disseminated pyrite

1,930.00 to 1,935.00 100% **SHALE**
(5.00) medium gray, medium gray brown, calcareous, fissile, platy to blocky

1,935.00 to 1,940.00 100% **SHALE**
(5.00) as above

1,940.00 to 1,945.00 100% **SHALE**
(5.00) medium gray, medium gray brown, calcareous, fissile, platy to blocky

1,945.00 to 1,950.00 100% **SHALE**
(5.00) medium gray brown, medium gray, calcareous, fissile, platy to blocky

1,950.00 to 1,955.00 100% **SHALE**
(5.00) as above

1,955.00 to 1,960.00 100% **SHALE**
(5.00) medium gray brown, medium gray, calcareous, fissile, platy to blocky

1,960.00 to 1,965.00 100% **SHALE**
(5.00) as above

1,965.00 to 1,970.00 100% **SHALE**
(5.00) medium gray brown, medium gray, slightly calcareous, fissile, platy to blocky

1,970.00 to 1,975.00 100% **SHALE**
(5.00) as above

1,975.00 to 1,980.00 100% **SHALE**
(5.00) medium gray brown, medium gray, slightly calcareous, fissile, platy to blocky

1,980.00 to 1,985.00 100% **SHALE**
(5.00) medium gray brown, slightly calcareous, fissile, platy to blocky

1,985.00 to 1,990.00 100% **SHALE**
(5.00) as above, trace slickenside

1,990.00 to 1,995.00 100% **SHALE**
(5.00) medium to dark gray brown, dark brown, slightly calcareous, fissile, platy to blocky

1,995.00 to 2,000.00 100% **SHALE**
(5.00) as above, common cavings

2,000.00 to 2,005.00 100% **SHALE**
(5.00) medium to dark gray brown, dark brown, slightly calcareous, fissile, platy to blocky

2,005.00 to 2,010.00 60% **SHALE**
(5.00) as above

30% **SILTSTONE**
medium gray brown, light gray brown, calcareous matrix, slightly argillaceous, tight

10% **LIMESTONE**
light gray brown, medium gray brown, cryptocrystalline to microcrystalline, predominately mudstone, no visible porosity

2,010.00 to 2,015.00 40% **SHALE**
(5.00) medium to dark gray brown, dark brown, very calcareous in part, fissile, platy to blocky

30% **LIMESTONE**
light to medium gray brown, cryptocrystalline, mudstone, argillaceous, tight

30% **SILTSTONE**
as above

2,015.00 to 2,020.00 (5.00)	40%	**LIMESTONE** light to medium gray brown, cryptocrystalline, argillaceous, mudstone, tight
	40%	**SHALE** as above
	20%	**SILTSTONE** light to medium gray brown, calcite matrix, argillaceous, tight
2,020.00 to 2,025.00 (5.00)	80%	**SHALE** medium gray, medium to dark gray, calcareous, fissile, blocky to platy
	20%	**LIMESTONE** as above
2,025.00 to 2,030.00 (5.00)	100%	**SHALE** as above, minor LIMESTONE as above
2,030.00 to 2,035.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, calcareous, fissile, blocky to platy
2,035.00 to 2,040.00 (5.00)	100%	**SHALE** medium to dark gray, calcareous, fissile, blocky to platy
2,040.00 to 2,045.00 (5.00)	100%	**SHALE** as above, minor LIMESTONE light to medium gray, argillaceous, cryptocrystalline, mudstone, tight
2,045.00 to 2,050.00 (5.00)	100%	**SHALE** as above
2,050.00 to 2,055.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, slightly calcareous, fissile, blocky to platy
2,055.00 to 2,060.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, calcareous, fissile, platy to blocky
2,060.00 to 2,065.00 (5.00)	70%	**SHALE** as above
	30%	**LIMESTONE** medium gray, light to medium gray brown, cryptocrystalline, mudstone, very argillaceous, no visible porosity
2,065.00 to 2,070.00 (5.00)	80%	**SHALE** as above
	20%	**LIMESTONE** as above
2,070.00 to 2,075.00 (5.00)	90%	**SHALE** medium gray, medium to dark gray, calcareous, fissile, platy to blocky

2,070.00 to 2,075.00 (5.00)	10%	**LIMESTONE** light to medium gray, very argillaceous, cryptocrystalline, mudstone, tight
2,075.00 to 2,080.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, calcareous, fissile, platy to blocky
2,080.00 to 2,085.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, slightly calcareous, fissile, platy to blocky
2,085.00 to 2,090.00 (5.00)	100%	**SHALE** medium gray, medium to dark gray, slightly calcareous, fissile, platy to blocky
2,090.00 to 2,095.00 (5.00)	100%	**SHALE** as above
2,095.00 to 2,100.00 (5.00)	100%	**SHALE** medium gray, light to medium gray, slightly calcareous, fissile, platy to blocky, trace of disseminated pyrite
2,100.00 to 2,105.00 (5.00)	100%	**SHALE** as above, trace of disseminated pyrite
2,105.00 to 2,110.00 (5.00)	60%	**LIMESTONE** light gray white, light to medium gray, predominately cryptocrystalline, minor microcrystalline, mudstone, argillaceous in part, no porosity
	40%	**SHALE** as above
2,110.00 to 2,115.00 (5.00)	70%	**SHALE** medium gray, light to medium gray, calcareous, fissile, platy to blocky
	30%	**LIMESTONE** as above
2,115.00 to 2,120.00 (5.00)	70%	**SHALE** as above
	30%	**LIMESTONE** light gray white, light to medium gray, cryptocrystalline, mudstone, argillaceous, tight
2,120.00 to 2,125.00 (5.00)	50%	**LIMESTONE** as above
	50%	**SHALE** medium gray, light to medium gray, calcareous, fissile, platy to blocky
2,125.00 to 2,130.00 (5.00)	70%	**SHALE** medium gray, light to medium gray, calcareous, fissile, platy to blocky
	30%	**LIMESTONE** light to medium gray, medium gray, cryptocrystalline, mudstone, argillaceous, tight

2,130.00 to 2,135.00 (5.00)	80%	**SHALE** medium gray, light to medium gray, calcareous, fissile, platy to blocky
	20%	**LIMESTONE** as above
2,135.00 to 2,140.00 (5.00)	70%	**LIMESTONE** light gray brown, medium brown, cryptocrystalline, mudstone, argillaceous, tight
	30%	**SHALE** as above
2,140.00 to 2,145.00 (5.00)	60%	**LIMESTONE** as above
	40%	**SHALE** medium gray, light to medium gray, calcareous, fissile, blocky to platy
2,145.00 to 2,150.00 (5.00)	70%	**LIMESTONE** light to medium gray brown, medium gray brown, cryptocrystalline, mudstone, argillaceous in part, tight
	30%	**SHALE** as above
2,150.00 to 2,155.00 (5.00)	90%	**LIMESTONE** light to medium gray brown, medium gray brown, cryptocrystalline, minor microcrystalline, mudstone, argillaceous in part, no porosity
	10%	**SHALE** as above
2,155.00 to 2,160.00 (5.00)	60%	**SHALE** medium gray, slightly calcareous, fissile, blocky, scattered disseminated pyrite
	40%	**LIMESTONE** as above
2,160.00 to 2,165.00 (5.00)	80%	**SHALE** medium gray, light to medium gray, slightly calcareous, fissile, platy to blocky
	20%	**LIMESTONE** as above
2,165.00 to 2,170.00 (5.00)	100%	**SHALE** as above, minor LIMESTONE as above
2,170.00 to 2,175.00 (5.00)	100%	**SHALE** medium gray, light to medium gray, calcareous in part, fissile, platy to blocky
2,175.00 to 2,180.00 (5.00)	100%	**SHALE** medium gray, light to medium gray, calcareous, fissile, platy to blocky

2,180.00 to 2,185.00 100% **SHALE**
(5.00) as above

2,185.00 to 2,190.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous, fissile, platy to blocky

2,190.00 to 2,195.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy to blocky

2,195.00 to 2,200.00 100% **SHALE**
(5.00) medium gray, light to medium gray, calcareous in part, fissile, platy to blocky

2,200.00 to 2,205.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, predominately platy

2,205.00 to 2,210.00 100% **SHALE**
(5.00) as above

2,210.00 to 2,215.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, predominately platy

2,215.00 to 2,220.00 100% **SHALE**
(5.00) as above

2,220.00 to 2,225.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, predominately platy

2,225.00 to 2,230.00 100% **SHALE**
(5.00) as above

2,230.00 to 2,235.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, predominately platy

2,235.00 to 2,240.00 100% **SHALE**
(5.00) as above, trace of sparry calcite

2,240.00 to 2,245.00 100% **SHALE**
(5.00) medium gray, calcareous, fissile, platy, trace of sparry calcite

2,245.00 to 2,250.00 100% **SHALE**
(5.00) as above

2,250.00 to 2,255.00 100% **SHALE**
(5.00) medium gray, calcareous, fissile, platy

2,255.00 to 2,260.00 100% **SHALE**
(5.00) as above, trace of sparry calcite

2,260.00 to 2,265.00 100% **SHALE**
(5.00) medium gray, calcareous in part, fissile, platy

2,265.00 to 2,270.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,270.00 to 2,275.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, platy

2,275.00 to 2,280.00 100% **SHALE**
(5.00) as above

2,280.00 to 2,285.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, fissile, platy

2,285.00 to 2,290.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, platy to blocky

2,290.00 to 2,295.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, slightly calcareous in part, fissile, platy

2,295.00 to 2,300.00 100% **SHALE**
(5.00) as above

2,300.00 to 2,305.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, slightly calcareous, fissile, platy, trace of sparry calcite

2,305.00 to 2,310.00 100% **SHALE**
(5.00) medium gray, calcareous in part, fissile, platy

2,310.00 to 2,315.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy to blocky

2,315.00 to 2,320.00 100% **SHALE**
(5.00) as above, trace of sparry calcite

2,320.00 to 2,325.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, slightly calcareous, fissile, platy to blocky

2,325.00 to 2,330.00 100% **SHALE**
(5.00) as above

2,330.00 to 2,335.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, slightly calcareous, fissile, platy to blocky

2,335.00 to 2,340.00 100% **SHALE**
(5.00) as above

2,340.00 to 2,345.00 100% **SHALE**
(5.00) medium gray, medium to dark gray, slightly calcareous, fissile, platy to blocky

2,345.00 to 2,350.00 100% **SHALE**
(5.00) as above

2,350.00 to 2,355.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy to blocky, trace of disseminated pyrite

2,355.00 to 2,360.00 100% **SHALE**
(5.00) as above, trace of sparry calcite

2,360.00 to 2,365.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy to blocky, trace of sparry calcite

2,365.00 to 2,370.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy to blocky, trace of disseminated pyrite

2,370.00 to 2,375.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, predominately platy

2,375.00 to 2,380.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, predominately platy

2,380.00 to 2,385.00 100% **SHALE**
(5.00) as above

2,385.00 to 2,390.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, predominately platy

2,390.00 to 2,395.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, predominately platy

2,395.00 to 2,400.00 100% **SHALE**
(5.00) as above

2,400.00 to 2,405.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,405.00 to 2,410.00 100% **SHALE**
(5.00) as above

2,410.00 to 2,415.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,415.00 to 2,420.00 100% **SHALE**
(5.00) as above

2,420.00 to 2,425.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,425.00 to 2,430.00 100% **SHALE**
(5.00) as above, trace of sparry calcite

2,430.00 to 2,435.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,435.00 to 2,440.00 100% **SHALE**
(5.00) as above

2,440.00 to 2,445.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,445.00 to 2,450.00 100% **SHALE**
(5.00) as above

2,450.00 to 2,455.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,455.00 to 2,460.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy, trace of sparry calcite

2,460.00 to 2,465.00 100% **SHALE**
(5.00) as above

2,465.00 to 2,470.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,470.00 to 2,475.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy, trace of sparry calcite

2,475.00 to 2,480.00 100% **SHALE**
(5.00) as above

2,480.00 to 2,485.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,485.00 to 2,490.00 100% **SHALE**
(5.00) as above

2,490.00 to 2,495.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,495.00 to 2,500.00 100% **SHALE**
(5.00) as above

2,500.00 to 2,505.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,505.00 to 2,510.00 100% **SHALE**
(5.00) as above

2,510.00 to 2,515.00 100% **SHALE**
(5.00) medium gray, slightly calcareous, fissile, platy

2,515.00 to 2,520.00 100% **SHALE**
(5.00) as above

2,520.00 to 2,525.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,525.00 to 2,530.00 100% **SHALE**
(5.00) as above

2,530.00 to 2,535.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,535.00 to 2,540.00 100% **SHALE**
(5.00) medium gray, medium gray calcareous, fissile, platy, common cavings

2,540.00 to 2,545.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,545.00 to 2,550.00 100% **SHALE**
(5.00) as above

2,550.00 to 2,555.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,555.00 to 2,560.00 100% **SHALE**
(5.00) as above

2,560.00 to 2,565.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,565.00 to 2,570.00 100% **SHALE**
(5.00) as above

2,570.00 to 2,575.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,575.00 to 2,580.00 100% **SHALE**
(5.00) as above

2,580.00 to 2,585.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,585.00 to 2,590.00 100% **SHALE**
(5.00) as above

2,590.00 to 2,595.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,595.00 to 2,600.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,600.00 to 2,605.00 100% **SHALE**
(5.00) as above, platy to blocky

2,605.00 to 2,610.00 100% **SHALE**
(5.00) medium gray, slightly calcareous in part, fissile, platy

2,610.00 to 2,615.00 100% **SHALE**
(5.00) as above

2,615.00 to 2,620.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,620.00 to 2,625.00 100% **SHALE**
(5.00) as above

2,625.00 to 2,630.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,630.00 to 2,635.00 100% **SHALE**
(5.00) as above

2,635.00 to 2,640.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,640.00 to 2,645.00 100% **SHALE**
(5.00) as above

2,645.00 to 2,650.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,650.00 to 2,655.00 100% **SHALE**
(5.00) as above

2,655.00 to 2,660.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, platy

2,660.00 to 2,665.00 100% **SHALE**
(5.00) as above

2,665.00 to 2,670.00 100% **SHALE**
(5.00) medium gray, medium gray slightly calcareous, fissile, platy

2,670.00 to 2,675.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,675.00 to 2,680.00 100% **SHALE**
(5.00) as above

2,680.00 to 2,685.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,685.00 to 2,690.00 100% **SHALE**
(5.00) as above

2,690.00 to 2,695.00 100% **SHALE**
(5.00) medium gray, fissile, platy

2,695.00 to 2,700.00 100% **SHALE**
(5.00) as above

2,700.00 to 2,705.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,705.00 to 2,710.00 100% **SHALE**
(5.00) as above

2,710.00 to 2,715.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,715.00 to 2,720.00 100% **SHALE**
(5.00) as above

2,720.00 to 2,725.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,725.00 to 2,730.00 100% **SHALE**
(5.00) as above

2,730.00 to 2,735.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,735.00 to 2,740.00 100% **SHALE**
(5.00) as above

2,740.00 to 2,745.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,745.00 to 2,750.00 100% **SHALE**
(5.00) as above

2,750.00 to 2,755.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,755.00 to 2,760.00 100% **SHALE**
(5.00) as above

2,760.00 to 2,765.00 100% **SHALE**
(5.00) medium gray, fissile, platy to blocky

2,765.00 to 2,770.00 100% **SHALE**
(5.00) as above

2,770.00 to 2,775.00 100% **SHALE**
(5.00) as above, medium to dark gray brown, calcareous, fissile, platy to blocky, trace slickensided, probable fracture at 2772.6 to 2772.8m

2,775.00 to 2,780.00 100% **SHALE**
(5.00) medium gray, medium to dark gray brown, slightly calcareous, fissile, platy to blocky, trace slickensided

2,780.00 to 2,785.00 100% **SHALE**
(5.00) as above

2,785.00 to 2,790.00 100% **SHALE**
(5.00) medium gray, medium to dark gray brown, slightly calcareous, fissile, platy to blocky, trace slickensided

2,790.00 to 2,795.00 100% **SHALE**
(5.00) medium gray, medium to dark gray brown, calcareous, trace slickensided, fissile, platy to blocky, probable fracture at 2796m

2,795.00 to 2,800.00 70% **SHALE**
(5.00) as above, dark gray brown calcareous, common disseminated pyrite

2,795.00 to 2,800.00 (5.00)	30%	**LIMESTONE** medium brown, dark brown, cryptocrystalline, mass, mudstone, argillaceous in part, minor mottled light to medium gray brown, no porosity, trace of nodular and disseminated pyrite, trace of CHERT laminae, light to medium brown
2,800.00 to 2,805.00 (5.00)	70%	**LIMESTONE** mottled light to dark gray brown, dark brown, predominately cryptocrystalline mudstone, trace microcrystalline, argillaceous in part, tight, sulphurous odor when acidized
	30%	**SHALE** as above
2,805.00 to 2,810.00 (5.00)	80%	**LIMESTONE** medium to dark gray brown, cryptocrystalline to microcrystalline, predominately mudstone, dolomitic in part, tight
	20%	**DOLOMITE** dark gray brown to black, cryptocrystalline to microcrystalline, predominately mudstone, tight, trace of sparry dolomite, white to translucent, finely crystalline, wackestone to packstone, no visible porosity
2,810.00 to 2,815.00 (5.00)	100%	**LIMESTONE** as above, minor DOLOMITE as above, very poor sample
2,815.00 to 2,820.00 (5.00)	100%	**LIMESTONE** dark gray brown, predominately cryptocrystalline, minor microcrystalline, mudstone, trace of wackestone, slightly argillaceous, trace of intercrystalline bitumen, trace of sparry calcite laminae
2,820.00 to 2,825.00 (5.00)	100%	**LIMESTONE** as above
2,825.00 to 2,830.00 (5.00)	100%	**LIMESTONE** dark gray brown, cryptocrystalline to microcrystalline, mudstone, dark brown to black, argillaceous, cryptocrystalline, mudstone, tight, trace of sparry calcite
2,830.00 to 2,835.00 (5.00)	100%	**LIMESTONE** mottled light to dark gray brown, dark brown, cryptocrystalline, mudstone, tight, trace of microcrystalline wackestone, argillaceous in part, tight
2,835.00 to 2,840.00 (5.00)	100%	**LIMESTONE** as above
2,840.00 to 2,845.00 (5.00)	100%	**LIMESTONE** dark gray brown, cryptocrystalline to microcrystalline, mudstone, argillaceous, tight, light to medium brown microcrystalline wackestone, no porosity
2,845.00 to 2,850.00 (5.00)	100%	**LIMESTONE** dark gray brown, cryptocrystalline, mudstone, slightly argillaceous, tight, medium to dark brown, cryptocrystalline to microcrystalline, mottled in part, predominately mudstone, trace of wackestone, no porosity

2,850.00 to 2,855.00 100% **LIMESTONE**
(5.00) dark gray brown, light to medium brown, cryptocrystalline, mudstone, slightly argillaceous in part, tight

2,855.00 to 2,860.00 100% **LIMESTONE**
(5.00) as above

2,860.00 to 2,865.00 100% **LIMESTONE**
(5.00) mottled light to dark brown, dark gray brown argillaceous, predominately cryptocrystalline, minor microcrystalline, mudstone, no porosity

2,865.00 to 2,870.00 100% **LIMESTONE**
(5.00) medium brown, dark gray brown, mottled light in part, predominately cryptocrystalline mudstone, minor microcrystalline wackestone, no porosity

2,870.00 to 2,875.00 100% **LIMESTONE**
(5.00) medium brown, dark gray brown, mottled light in part, predominately cryptocrystalline mudstone, tight

2,875.00 to 2,880.00 100% **LIMESTONE**
(5.00) as above, trace of sparry calcite laminae

2,880.00 to 2,885.00 100% **LIMESTONE**
(5.00) medium brown, dark gray brown, argillaceous, cryptocrystalline, mudstone, mottled light to medium gray brown, predominately cryptocrystalline, microcrystalline in part, mudstone, no porosity, trace of sparry calcite laminae, trace of disseminated pyrite

2,885.00 to 2,890.00 100% **LIMESTONE**
(5.00) medium brown cryptocrystalline mudstone, minor mottled light to medium brown, cryptocrystalline mudstone, tight

2,890.00 to 2,895.00 100% **LIMESTONE**
(5.00) as above, trace of SHALE light gray, fissile, platy, minor disseminated pyrite

2,895.00 to 2,900.00 100% **LIMESTONE**
(5.00) as above

2,900.00 to 2,905.00 70% **LIMESTONE**
(5.00) medium brown, mottled light to medium brown, dark gray brown, cryptocrystalline, mudstone, no porosity

20% **SHALE**
light gray, waxy, calcareous to anhydritic, abundant nodular and disseminated pyrite

10% **ANHYDRITE**
light blue gray, clayey, common disseminated pyrite

2,905.00 to 2,910.00 100% **LIMESTONE**
(5.00) light brown, mottled light to medium brown, dark gray brown slightly argillaceous, predominately cryptocrystalline, mudstone, no porosity

2,910.00 to 2,915.00 (5.00) 100% **LIMESTONE**
mottled light to medium brown, minor dark brown, cryptocrystalline, mudstone, tight, trace of disseminated pyrite

2,915.00 to 2,920.00 (5.00) 100% **LIMESTONE**
mottled light brown, light to medium brown, cryptocrystalline, mudstone, clean, no porosity

2,920.00 to 2,925.00 (5.00) 100% **LIMESTONE**
light brown, mottled light to medium brown, cryptocrystalline, mudstone, clean, trace microcrystalline, tight

2,925.00 to 2,930.00 (5.00) 100% **LIMESTONE**
light brown, mottled buff to light brown, cryptocrystalline, mudstone, clean, no porosity

2,930.00 to 2,935.00 (5.00) 100% **LIMESTONE**
as above, trace of SHALE black, calcareous, fissile, platy

2,935.00 to 2,940.00 (5.00) 100% **LIMESTONE**
buff to light brown, mottled medium brown in part, cryptocrystalline, mudstone, clean, no porosity, common sparry calcite

2,940.00 to 2,945.00 (5.00) 100% **LIMESTONE**
buff to light brown, mottled in part, white to light gray, cryptocrystalline, mudstone, clean, no porosity, occasional sparry calcite, minor SHALE laminae, dark gray, fissile, platy

2,945.00 to 2,950.00 (5.00) 100% **LIMESTONE**
as above

2,950.00 to 2,955.00 (5.00) 80% **LIMESTONE**
dark gray, cryptocrystalline, mudstone, argillaceous, tight, minor sparry calcite veining

20% **SHALE**
dark gray, very calcareous, fissile, platy, slickensided in part

2,955.00 to 2,960.00 (5.00) 60% **SHALE**
dark gray to black, very calcareous, fissile, platy to blocky, slickensided in part

40% **LIMESTONE**
dark gray argillaceous, cryptocrystalline, mudstone, tight, commonly slickensided

2,960.00 to 2,965.00 (5.00) 90% **LIMESTONE**
mottled light to dark gray, dark gray brown, cryptocrystalline, mudstone, slightly argillaceous, no porosity, trace of sparry calcite veining

10% **SHALE**
as above

2,965.00 to 2,970.00 (5.00) 100% **LIMESTONE**
as above

2,970.00 to 2,975.00 100% **LIMESTONE**
(5.00) medium to dark gray, dark gray brown, argillaceous, cryptocrystalline, mudstone, tight

2,975.00 to 2,980.00 100% **LIMESTONE**
(5.00) mottled light to dark gray, dark gray brown, cryptocrystalline, mudstone, argillaceous in part, no porosity

2,980.00 to 2,985.00 100% **LIMESTONE**
(5.00) as above

2,985.00 to 2,990.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, cryptocrystalline, mudstone, argillaceous in part, no porosity

2,990.00 to 2,995.00 100% **LIMESTONE**
(5.00) as above, minor SHALE dark gray, very calcareous, fissile, platy

2,995.00 to 3,000.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, cryptocrystalline, mudstone, argillaceous in part, no porosity, minor SHALE laminae

3,000.00 to 3,005.00 100% **LIMESTONE**
(5.00) as above

3,005.00 to 3,010.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, cryptocrystalline, mudstone, slightly argillaceous, tight, common sparry calcite veining

3,010.00 to 3,015.00 100% **LIMESTONE**
(5.00) mottled medium to dark gray brown, light gray brown in part, slightly argillaceous, cryptocrystalline, mudstone, tight, minor sparry calcite veining

3,015.00 to 3,020.00 100% **LIMESTONE**
(5.00) as above, minor SHALE laminae, dark gray to black, fissile, platy

3,020.00 to 3,025.00 100% **LIMESTONE**
(5.00) mottled light to medium gray brown, medium to dark brown, slightly argillaceous in part, cryptocrystalline, mudstone, tight

3,025.00 to 3,030.00 100% **LIMESTONE**
(5.00) as above

3,030.00 to 3,035.00 100% **LIMESTONE**
(5.00) mottled light to medium gray, gray brown, dark gray brown, slightly argillaceous, cryptocrystalline, mudstone, tight

3,035.00 to 3,040.00 100% **LIMESTONE**
(5.00) as above

3,040.00 to 3,045.00 100% **LIMESTONE**
(5.00) mottled light to medium gray brown, dark gray brown slightly argillaceous, cryptocrystalline, mudstone, no visible porosity, probable fractures from 3040.2 to 3040.4m and 3040.8 to 3041.2m

3,045.00 to 3,050.00 100% **LIMESTONE**
(5.00) mottled light to medium, medium to dark gray brown, minor dark gray to black argillaceous, cryptocrystalline, mudstone, tight, minor sparry calcite veining

3,050.00 to 3,055.00 100% **LIMESTONE**
(5.00) as above

3,055.00 to 3,060.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, dark brown slightly argillaceous, cryptocrystalline, mudstone, tight, trace of microcrystalline calcite

3,060.00 to 3,065.00 100% **LIMESTONE**
(5.00) as above, dark gray to black, cryptocrystalline to microcrystalline, mudstone, trace dark brown lithographic

3,065.00 to 3,070.00 100% **LIMESTONE**
(5.00) as above, minor SHALE dark gray to black, very calcareous, fissile, platy

3,070.00 to 3,075.00 100% **LIMESTONE**
(5.00) medium to dark brown lithographic, mottled light to dark gray brown, cryptocrystalline, mudstone, no porosity, minor calcareous SHALE laminae

3,075.00 to 3,080.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, cryptocrystalline, medium to dark brown lithographic, minor dark gray brown to black, cryptocrystalline to microcrystalline, mudstone, occasional SHALE thinbeds, dark gray to black, calcareous, fissile, platy

3,080.00 to 3,085.00 100% **LIMESTONE**
(5.00) as above, occasional SHALE thinbeds

3,085.00 to 3,090.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, dark gray brown slightly argillaceous, cryptocrystalline, mudstone, no porosity, minor SHALE laminae, dark gray to black, calcareous, fissile, platy

3,090.00 to 3,095.00 100% **LIMESTONE**
(5.00) as above

3,095.00 to 3,100.00 100% **LIMESTONE**
(5.00) mottled medium to dark gray, dark gray brown, cryptocrystalline, mudstone, slightly argillaceous, no porosity, trace of sparry calcite

3,100.00 to 3,105.00 100% **LIMESTONE**
(5.00) medium brown, dark brown, mottled light in part, cryptocrystalline, mudstone, no porosity, trace of sparry calcite veining, trace of coarse pellets

3,105.00 to 3,110.00 100% **LIMESTONE**
(5.00) mottled light to dark gray brown, cryptocrystalline, mudstone, clean, medium brown lithographic mudstone, no visible porosity, trace of disseminated pyrite

3,110.00 to 3,115.00 100% **LIMESTONE**
(5.00) mottled light to medium gray brown, clean, dark gray brown, cryptocrystalline, medium brown lithographic, mudstone, no porosity, trace of disseminated pyrite

3,115.00 to 3,120.00 100% **LIMESTONE**
(5.00) as above

3,120.00 to 3,125.00 100% **LIMESTONE**
(5.00) mottled light to medium brown, clean, dark gray brown, cryptocrystalline, medium brown lithographic, mudstone, no porosity, trace of disseminated pyrite

3,125.00 to 3,130.00 100% **LIMESTONE**
(5.00) mottled light to medium gray brown, clean, minor dark brown, cryptocrystalline, mudstone, tight

3,130.00 to 3,135.00 100% **LIMESTONE**
(5.00) mottled light to medium gray brown, medium to dark brown, cryptocrystalline, mudstone, medium brown lithographic, light gray cryptocrystalline, mudstone, minor disseminated pyrite

3,135.00 to 3,140.00 100% **LIMESTONE**
(5.00) as above, light gray cryptocrystalline, mudstone, clean, tight, minor SHALE laminae, light gray green, fissile, platy, calcareous

3,140.00 to 3,145.00 70% **LIMESTONE**
(5.00) as above

20% **DOLOMITE**
sparry white to translucent, light gray, mudstone to wackestone, very coarsely crystalline in part, dolomitic cement, scattered intercrystalline bitumen, scattered intercrystalline pyrite, no visible porosity

10% **SHALE**
light gray green, glauconitic, calcareous, trace of disseminated pyrite

3,145.00 to 3,150.00 90% **DOLOMITE**
(5.00) sparry white to translucent, pearly, veining to massive, no visible porosity, light to medium gray, cryptocrystalline to finely crystalline in part, mudstone to wackestone, trace of intercrystalline bitumen, trace of pyrite, no visible porosity, trace of clear prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

10% **LIMESTONE**
as above

3,150.00 to 3,155.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, no visible porosity, minor light gray, cryptocrystalline to finely crystalline in part, dolomitic cement, predominately mudstone, trace of intercrystalline bitumen, no visible porosity

3,155.00 to 3,160.00 100% **DOLOMITE**
(5.00) as above

3,160.00 to 3,165.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, minor light gray, cryptocrystalline to microcrystalline, mudstone, trace of intercrystalline bitumen, no visible porosity

3,165.00 to 3,170.00 100% **DOLOMITE**
(5.00) as above, trace of clear prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

3,170.00 to 3,175.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, minor light gray, cryptocrystalline to microcrystalline, mudstone, trace of intercrystalline bitumen, trace of coarse prismatic dolomite, probable scattered vugs

3,175.00 to 3,180.00 100% **Dolomite**
(5.00) as above

3,180.00 to 3,185.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, tight, minor light gray, cryptocrystalline to coarsely crystalline, trace of intercrystalline bitumen, no visible porosity

3,185.00 to 3,190.00 100% **DOLOMITE**
(5.00) as above, predominately massive

3,190.00 to 3,195.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, tight, minor light gray, cryptocrystalline to microcrystalline, mudstone, no porosity

3,195.00 to 3,200.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, tight, minor light gray brown, cryptocrystalline, trace finely crystalline, mudstone, trace of prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

3,200.00 to 3,205.00 100% **DOLOMITE**
(5.00) as above

3,205.00 to 3,210.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, tight, light gray to light brown cryptocrystalline mudstone, dark gray to black cryptocrystalline to microcrystalline mudstone, no visible porosity

3,210.00 to 3,215.00 100% **DOLOMITE**
(5.00) light to medium brown, cryptocrystalline, mudstone, tight, dark brown to black, microcrystalline, wackestone, slightly argillaceous, dolomitic matrix, trace of pin point and intercrystalline porosity 3-4%

3,215.00 to 3,220.00 100% **DOLOMITE**
(5.00) light to medium brown, cryptocrystalline, minor microcrystalline, mudstone, no porosity, minor dark gray microcrystalline as above, trace of SHALE dark gray to black, fissile, platy

3,220.00 to 3,225.00 100% **DOLOMITE**
(5.00) as above

3,225.00 to 3,230.00 100% **DOLOMITE**
(5.00) light to medium brown, cryptocrystalline to microcrystalline, mudstone, tight, minor dark gray to black microcrystalline wackestone, no visible porosity

3,230.00 to 3,235.00 100% **DOLOMITE**
(5.00) as above, minor light to medium brown, microcrystalline, wackestone, no visible porosity

3,235.00 to 3,240.00 100% **DOLOMITE**
(5.00) light to medium brown, medium gray, dark gray brown slightly argillaceous, cryptocrystalline to microcrystalline, predominately mudstone, minor wackestone, no visible porosity

3,240.00 to 3,245.00 100% **DOLOMITE**
(5.00) dark gray to black microcrystalline wackestone, slightly argillaceous, no visible porosity, light to medium brown, calcareous, cryptocrystalline, mudstone, tight

3,245.00 to 3,250.00 100% **DOLOMITE**
(5.00) light to medium brown, cryptocrystalline to microcrystalline, mudstone to wackestone, no visible porosity, trace of DOLOMITE sparry white to translucent, pearly, massive, tight

3,250.00 to 3,255.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, coarsely crystalline in part, no visible porosity, minor DOLOMITE as above. Probable fractures at 3249.0, 3251.4 and 3253.6m

3,255.00 to 3,260.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, coarsely crystalline in part, no porosity, minor medium gray, dark gray, slightly argillaceous, cryptocrystalline to microcrystalline, tight

3,260.00 to 3,265.00 100% **DOLOMITE**
(5.00) white to translucent, pearly, massive, trace coarsely crystalline, minor light gray cryptocrystalline mudstone, tight, trace of prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

3,265.00 to 3,270.00 100% **DOLOMITE**
(5.00) as above, common light to medium brown, dark brown, cryptocrystalline to microcrystalline, predominately mudstone, minor wackestone, no visible porosity

3,270.00 to 3,275.00 100% **DOLOMITE**
(5.00) light to medium brown, dark brown to black, cryptocrystalline to microcrystalline, mudstone to wackestone, no visible porosity, minor white pearly as above

3,275.00 to 3,280.00 100% **DOLOMITE**
(5.00) as above, minor sparry white dolomite veining

3,280.00 to 3,285.00 100% **DOLOMITE**
(5.00) light to medium brown, dark brown, cryptocrystalline to microcrystalline, mudstone to wackestone, tight, minor sparry white veining, trace of clear prismatic dolomite crystals, probable scattered vuggy porosity, no apparent permeability

3,285.00 to 3,290.00 100% **DOLOMITE**
(5.00) as above

3,290.00 to 3,295.00 100% **DOLOMITE**
(5.00) light to medium brown, medium to dark brown, cryptocrystalline to microcrystalline, mudstone to wackestone, no visible porosity, minor sparry white veining, minor

SHALE thinbeds, dark gray to black, fissile, platy

3,295.00 to 3,300.00 100% **DOLOMITE**
(5.00) as above, minor light gray, cryptocrystalline, mudstone, calcareous, tight

Power*Log V1.9 developed by TriVision Geosystems Ltd. (403) 777-9454

Well Information

Operator:	Paramount Resources Ltd.
Well Name:	Para et al Arrowhead O-15
Location:	60 30` 123 00`
UWI:	300O158030123000
Pool:	
Field:	Wildcat
Province / State:	N.W.T.
Country:	Canada

Elevations

Reference:	Ground	Ground:	380.5m
Cut(-) / Fill(+):		Kelly Bushing:	386.7m
K.B. to Ground:	6.2m	Casing Flange:	7.2m

Total Depth

Measurement Type	Measured Depth	True Vertical Depth
Drillers TD (Tally)	3301m	m
Drillers TD (Strap or SLM)	3301.03m	m
Loggers TD	3299.3m	m

Well Node - Surface Node

Well Type: Straight Longitude: 123.0231174 Latitude: 60.2453694

N / S Co-Ordinates:

E / W Co-Ordinates:

Well Node - Bottom Hole Node

Longitude: Latitude:

N / S Co-Ordinates:

E / W Co-Ordinates:

Drilling Fluid Summary

Fluid Type	From	To
Invert	1186m	2805m
Nitrified Invert	2805m	2936m
Invert / baryte	2936m	3301m

Casing Summary

Type	Hole Size	Casing Size	Landed At
Surface	445mm	339.7mm	500m
Intermediate	311mm	244.5mm	1186.6m
Intermediate	216mm	177.8mm	2804.7m

Well Summary

Spud Date: Jan 17, 1999 @ 10:00hrs Contractor: Precision Drilling Rig #507

TD Date: Feb 23, 1999 @ 18:00hrs Rig Release Date:

Work Schedule

Contractor	Geologist	Log Interval	Dates Logged
C. L. Bredin Holdings Ltd.	Colin Bredin P.Geol	1545m - 3301m	Jan 18, 1999 - Feb 25, 1999

Remarks

Legend

Rock Types and Thin Beds

Whole Bed / Stringer / Nodule / Breccia / Clast / Pebble / Grain / Rock Type

Anhydrite - primary; Anhydrite - secondary; Argillite; Barite; Bentonite; Breccia; Calcareous; Cement; Conglomerate - mixed; Conglomerate - dark chert; Conglomerate - light chert; Conglomerate - varicolored chert; Chert - dark; Chert - fossiliferous; Chert - light; Chert - tripolitic; Chert - varicolored; Claystone - colored; Claystone - gray; Coal; Dolomite; Ferruginous; Feldspar; Gypsum; Igneous - mafic; Igneous - felsic; Igneous - metamorphic; Limestone - grain supported; Limestone - mud supported; Manganese; Marlstone - calcareous; Marlstone - dolomitic; Phosphate; Pyrite; Quartz; Salt; Shale - black; Shale - medium gray; Shale - dark gray; Shale - medium to dark gray; Shale - dark colored; Shale - light to medium colored; Shale - medium to dark colored; Shale - medium colored; Shale - light gray; Shale - light to medium gray; Shale - light to dark gray; Shale - light colored; Shale - light to dark colored; Siderite; Sandstone; Siltstone; Till - glacial; Volcanic (Tuff); Welded Volcanic (Tuff)

Accessories

Anhydritic; Argillaceous; Baritic; Bentonitic; Bituminous; Calcareous; Carbonaceous; Cherty - dark; Cherty - fossiliferous; Cherty - light; Cherty - tripolitic; Cherty - varicolored; Chloritic; Clayey; Dolomitic; Ferruginous staining; Fractured; Glauconitic; Gypsiferous; Gibbsitic; Illitic; Kaolinitic; Marly - calcareous; Marly - dolomitic; Micromicaceous; Mixed layer clayey; Montmorillonitic; Phosphate pellets; Pyritic; Salt casts; Sandy; Sideritic; Siliceous; Silty; Stylolitic; Tuffaceous; Zeolitic

Fossils (Rock Builders)

Aggregate grains; Algae - laminations; Algae - non descript; Belemnite; Brachiopod; Bryozoa; Calcisphere; Cephalopod; Chaetetes; Coated grain; Conodont; Coral; Coral - branching; Coral - head; Coral - colonial; Coral - solitary; Crinoid; Diatom; Echinoid; Echinoid - spine; Fish Remains; Euryamphipora; Foraminifera; Fossil; Mollusc; Oncolite; Oolite; Ostracod; Pelecypod; Pellet; Pisolite; Plant Remains; Scaphopod; Spicule; Sponge; Stromatoporoid; Stromatoporoid - bulbous; Stromatoporoid - massive; Stromatoporoid - tabular; Tentaculites; Trilobite

Miscellaneous Grains

Biotite; Glauconite; Mica flakes; Mineral crystal; Mineral - dark; Muscovite; Orthoclase; Plagioclase; Sand grain

Textures

C	Chalky	E	Earthy	mx	Microcrystalline
CX	Cryptocrystalline	L	Lithographic		

Matrix

Argillaceous; Bentonite; Bituminous; Clay; Chlorite; Gibbsite; Illite; Kaolinite; Marl - calcareous; Marl - dolomitic; Micrite; Mixed Clay; Montmorillonite; Sand; Silt; Sparry Calcite; Zeolite

Porosity Type Track

e	Earthy - low permeability - crystals / grains less than 1 / 16 mm
fe	Fenestral - voids from gas bubbles - shrinkage cracks - birdseye texture
F	Fracture
X	Intercrystalline - interfragmental - intergranular
	Interoolitic - interpelletoidal
	Moldic
	Organic - Bridged - intrafossil
P	Pinpoint - voids less than 1/16 mm
V	Vuggy - voids greater than 1 / 16 mm

Cement

Anhydritic; Baritic; Bituminous; Calcareous; Chert - dark; Chert - light; Dolomitic; Ferruginous; Gypsiferous; Hematitic; Limonitic; Pyritic; Salt; Sideritic; Siliceous

Oil Show Track

Even staining (75 - 100% of the rock is stained) - fluoresces in solvent

Spotted staining (50 - 75% of the rock is stained) - fluoresces in solvent

Spotted staining (25 - 50% of the rock is stained) - fluoresces in solvent

Spotted staining (1 - 25% of the rock is stained) - fluoresces in solvent

Questionable oil staining - No fluorescents in solvent

Dead oil staining - asphaltic - bitumen - pyrobitumen etc.

Sorting Track

vP	Very poorly sorted - > 10 phi size grade classes
P	Poorly sorted - 6-10 phi size grade classes
M	Moderately sorted - 3-6 phi size grade classes
mW	Moderately well sorted - 2-3 phi size grade classes
W	Well sorted - < 2 phi size grade classes

Diagenesis Track

Calcification - Calcitized; Dolomitization; Diagenetically mottled; Fracturing; Leaching; Metasomatism - Replacement - Allotropic recrystallization - Inversion - Transformation; Pressure Deformation; Recrystallization - Strain recrystallization - Grain growth; Silicification; Solution cavity filled - Geopetal structure; Stylolitic; Weathering

Degree of Diagenesis is in (%) percent. ? indicates questionable interpretation.

Rounding Track

vA	Very Angular	r	Subrounded
A	Angular	R	Rounded
a	Subangular	wR	Well Rounded

Framework Track

Framework is a ratio between clastic material greater than 1/16 mm and primary void filler less than 1/16 mm. ? indicates questionable interpretation

Core Track

Indicates Cored Interval; Indicates Lost Core

Test Track

Indicates Tested Interval

Wentworth Grain / Cyrstal Size Scale Chart

Clastic Rocks Common Name	Crystalline Rocks Common Name	Lower Size Limit (mm)	Upper Size Limit (mm)	Size Grades Phi (Ø)
Clay	Cryptocrystalline	0.00039	0.004	+10 to +9
Very Fine Silt	Very Finely Microcrystalline	0.004	0.008	+8
Fine Silt	Finely Microcrystalline	0.008	0.016	+7
Medium Silt	Medium Microcrystalline	0.016	0.031	+6
Coarse Silt	Coarsely Microcrystalline	0.031	0.0625	+5
Very Fine Sand	Very Finely Crystalline	0.0625	0.125	+4
Fine Sand	Finely Crystalline	0.125	0.25	+3
Medium Sand	Medium Crystalline	0.25	0.5	+2
Coarse Sand	Coarsely Crystalline	0.5	1.0	+1
Very Coarse Sand	Finely Megacrystalline	1.0	2.0	0
Granules	Coarsely Megacrystalline	2.0	4.0	-1
Fine Pebbles		4.0	8.0	-2
Medium pebbles		8.0	16.0	-3
Coarse Pebbles		16.0	32.0	-4
Very Coarse pebbles		32.0	64.0	-5
Cobbles		64.0	256.0	-6 to -7
Boulders		256.0	infinity	-8 to -9

The size measure Phi is equal to the negative logarithm to the base 2 of the size in millimeters.
Thus 1 mm = 0 Phi and 1/2 mm = +1 Phi and 1/4 mm = +2 Phi etc.

Canstrat/Amstrat Grain Size Scale Chart

Clastic Rocks Common Name	Lower Size Limit (mm)	Upper Size Limit (mm)	Size Grades Phi (Ø)
Silt (Lower)	0.0039	0.0312	+8 to +7
Silt (Upper)	0.0312	0.0625	+6 to +5
Very Fine Sand (Lower)	0.0625	0.0937	+4.5
Very Fine Sand (Upper)	0.0937	0.125	+4
Fine Sand (Lower)	0.125	0.187	+3.5
Fine Sand (Upper)	0.187	0.25	+3
Medium Sand (Lower)	0.25	0.375	+2.5
Medium Sand (Upper)	0.375	0.5	+2
Coarse Sand (Lower)	0.5	0.75	+1.5
Coarse Sand (Upper)	.75	1.0	+1
Very Coarse Sand (Lower)	1.0	1.5	+0.5
Very Coarse Sand (Upper)	1.5	2.0	0

The size measure Phi is equal to the negative logarithm to the base 2 of the size in millimeters.
Thus 1 mm = 0 Phi and 1/2 mm = +1 Phi and 1/4 mm = +2 Phi etc.

Drilling Progress

Date | Total Gas (%) 0.01 0.1 1 10 100 | Drill Rate (min/m) 0 20 40 60 | Measured Depth | Slide / Rotate | Oil Show | Porosity Type | Porosity (%) | Interpreted Lithology | Grain Size (mm) | Sorting | Rounding | Lithology Description

Lithology Description

SH: m - dk gy brn, fis, plty, slty micmica

SH: m - dk gy brn, dk gy brn, fis, plty, mnr cvgs

SH: dk gy brn, m - dk gy brn, fis, plty

SH: dk gy brn, m - dk gy brn, fis, plty

SH: dk gy brn, fis, blky - plty, com nodr and dism pyr

SH: dk gy brn, fis, blky - plty, com nodr and dism pyr

SH: aa, m - dk gy brn calcs, lt - m gy v calcs, fis, plty - blky

LS: lt - m gy, arg, crpxl, mdst, tight

SH: lt - m gy, lt - m gy calcs, fis, predly blky

LS: lt - m gy, arg, crpxl, mudst, tight

SH: lt - m gy, m gy, calcs, fis, blky - plty

LS: lt - m gy, arg, crpxl, mdst, tight

SH: lt - m gy, m gy, calcs, fis, predly blky

LS: lt - m gy, arg, crpxl, mdst, tight

SH: lt - m gy, m gy, calcs, fis, plty - blky

LS: aa

SH: m gy, lt - m gy, v calcs lp, fis, plty - blky, mnr LS lt - m gy, arg, tight

SH: m gy, lt - m gy, v calcs lp, fis, predly blky, mnr LS aa

SH: m gy, lt - m gy, v calcs lp, predly blky, mnr arg LS aa

SH: lt - m gy, m gy, v calcs lp, fis, plty - blky, tr of dism pyr

SH: m gy, lt - m gy, v calcs lp, fis, plty - blky

SH: aa, tr of dism pyr

SH: m gy, lt - m gy, v calcs lp, fis, plty - blky, tr of dism pyr

SH: aa

SH: m gy, lt - m gy, v calcs, fis, plty - blky, tr of dism pyr

SH: aa

SH: m gy, lt - m gy, v calcs, fis, plty - blky, tr of dism pyr

SH: aa

SH: m gy, lt - m gy calcs, fis, plty - blky, tr of dism pyr

SH: m gy, lt - m gy calcs, fis, plty - blky

SH: aa

SH: m gy, lt - m gy calcs, fis, plty - blky

SH: m gy, lt - m gy calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, v calcs lp, fis, blky - plty

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: m gy, lt - m gy, calcs, fis, blky - plty, tr of dism pyr

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa, tr of dism pyr

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, plty - blky

SH: aa

SH: m gy, lt - m gy, calcs, fis, blky - plty

SH: aa

SH: m gy, lt - m gy, calcs, fis, plty - blky

SH: aa

SH: m gy, lt - m gy, calcs, fis, plty - blky

SH: aa

SH: m gy, lt - m gy, calcs, fis, plty - blky

SH: m gy, calcs, fis, plty - blky

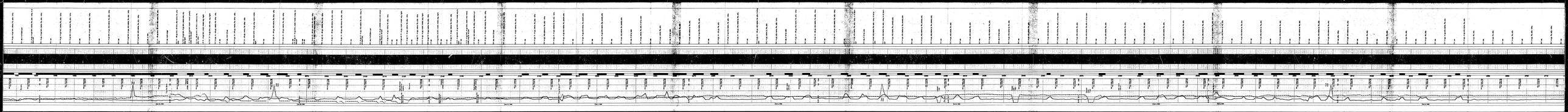
SH: aa

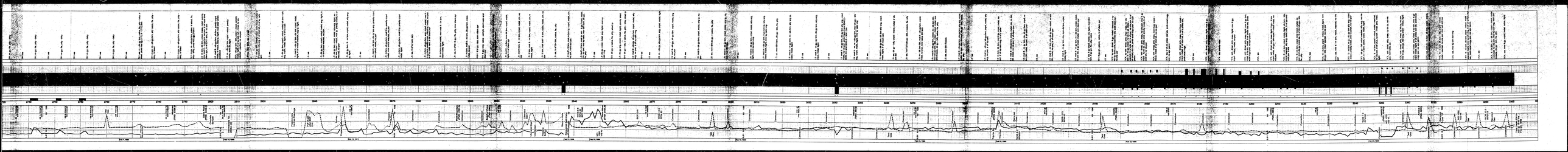
SH: m gy, calcs, fis, plty - blky

SH: aa

SH: m gy, mnr m gy brn, calcs, fis, plty - blky

SH: aa





BEST
COPY
ON FILE

5. WELL EVALUATION

Logs are in pockets at the back of binder

Formation & Production Tests:

Three DSTs were run - reports are attached in this section

DST #1: 3245-3270 m
DST #2: 3227-3270 m
DST #3: 3033-3044 m

PARAMOUNT RESOURCES LTD.

FIELD DRILL STEM TEST REPORT

A. WELL DATA DATE Feb-26-1999

WELL NAME Paramount Berkley Arrowhead LOCATION Arrowhead 0-15

DST No. 1 Interval 3245-3270 Formation Landry

Last Casing: Size 177.8mm Depth 2805m Open Hole: Size 156mm Depth 3301m

Hole Troubles Hole Drag Caliper at Packer(s) 158-160mm

Mud: Wt 1075 Vis 50 W.L. 13.5 % Oil 92.8 ppm Cl 185500

B. TEST STRING DATA

Testing Company Baker Oil Tools Type of Test Inflate Straddle

Type & No. of packers Rubber Inflatable-2 Size 136mm

DP size 89 mm Weight 23.06 Kg/m Length 2948.40

DC size 120mm Weight 70 Kg/m ID 58mm Length 194.16

Tailpipe size Weight Length Perfs

T.D.String 3248.82 Recorder Depth 3248 Water Cushion 900m-Invert BH Choke 25.4mm

Packer depths 3245m & 3270m Wt on Packers

Other Equip Bottom Hole Sampler - Pump out Sub - Safety Joint

C. TEST RESULTS Temp 135.4 °C

Times: PF 10 ISI 60 Flow 90 FSI 270 mins

Pressures: PF 10141 IF 15545 IH 34121 ISI 33108

FF 32432 FH 34121 FSI 33108

FLOW DESCRIPTION

Preflow Very weak Air Blow - Hose made Bubbles on Surface of Water in Pail

Valve Open Very Weak Air Blow - Hose went down 1 1/4" below Surface of Water in Pail after 60 mins - Held for 30 mins

Recoveries 150M Saline Invert Mud

D. SAMPLE DETAILS

Reverse Circ out Invert Mud Cushion and 150M Fluid Recovery Caught 4 Samples of Fluid when Circ out 150m Recovery

Sent to: AGAT Labs Via: Baker Tester Ken Willis Date Sent: Mar-01-1999

E. REMARKS

Hole was Swabbing For First 5 Stands pulled out of Hole - Next 10 Stands Hole was Stable - Fluid Holding in BOPs - Close BOP - Pump Mud thru Kill Line to Push Mud past Packers - Hole taking Fluid Rest of Way out Left both Packer Rubbers in Hole Supervisor Wilbert Callihoo

NOTE: Data reported on this form are field readings taken

PARA-DST_RPT.xls

Baker Oil Tools — FIELD REPORT

TEST DATA

TEST No 1 LUS. TEST No 1
FORMATION TESTED Slave Point T.D. 3301 m
INTERVAL TESTED: From 3245 m to 3270 m
TOTAL INTERVAL TESTED 25 m
TEST TYPE Inflate Straddle RESET: YES ☐ NO ☒
CUSHION: YES ☒ NO ☐ TYPE Invert AMOUNT 900 m
STARTED IN HOLE @ 22:00 HRS. OPENED TOOL 06:20 HRS.
DATE & TIME OUT OF HOLE 1999-02-26 @ HRS.
TEST TIMES:

PRE-FLOW	10	MIN.	INITIAL SHUT-IN	60	MIN.
SECOND FLOW		MIN.	SECOND SHUT-IN		MIN.
FINAL FLOW	90	MIN.	FINAL SHUT-IN	270	MIN.

PRE-FLOW BLOW DESCRIPTION: VWAB decreasing throughout. NGTS.

FINAL FLOW BLOW DESCRIPTION: VWAB. increasing marginally to 2"into pail. NGTS.

MECHANICAL RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
20657	☐ / ☒	22561	☒ / ☐	13085	☒ / ☐
DEPTH 3248 m		DEPTH 3237 m		DEPTH 3272 m	
CLOCK 23403		CLOCK 20977		CLOCK 29242	
REC. SEC. # 15027		REC. SEC. # 12512		REC. SEC. # 11704	
No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
	☐ / ☐		☐ / ☐		☐ / ☐
DEPTH m		DEPTH m		DEPTH m	
CLOCK		CLOCK		CLOCK	
REC. SEC. #		REC. SEC. #		REC. SEC. #	

ELECTRONIC RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
M77	☐ / ☒	M27	☒ / ☐		☐ / ☐
DEPTH 3248 m		DEPTH 3233 m		DEPTH m	
TEMP. 135.4		TEMP. 125.4		TEMP.	
FILE p015a.dec		FILE p015aa.dec		FILE	

FIELD READINGS

REC. No. 22561 DEFLECTION		PRESSURE kPa	REC. No. 20657 DEFLECTION		PRESSURE kPa
50.5	1	34121	48	1	33131.8
15	2	10141	20	2	13761.3
15	3	10141	34	3	23446.5
49	4	33108	47.5	4	32785.8
23	5	15545	40	5	27597.3
48	6	32432	47.5	6	32785.8
49	7	33108	47.5	7	32785.7
	8			8	
	9			9	
	10			10	
	11			11	
	12			12	
	13			13	
50.5	14	34121	48	14	33131.7

REMARKS

SEQUENCE OF TEST EVENTS:

All measurements are field estimates. 7000daN hole drag both ways. Tool was swabbing from the time we pulled free untill approximatly 1500m. Filled the hole by forcing mud past tool with annular closed. the electronic recorders failed due to temperature.

GENERAL INFORMATION

COMPANY Paramount Resources Ltd.
CONTACT IN CALGARY
CONTACT'S PHONE FAX
WELL NAME Paramount Berkley Arrowhead 0-15
LOCATION 3000156030123000
K.B. 387 m GROUND ELEV 380.5 m
COMPANY REP Wilbert Callihoo
TESTER Ken Willis
JAR No 234 HYDRAULIC TOOL No 138
UNIT # 960201 PUMP No 89
CONTRACTOR Precision RIG No 507
TICKET No 808842 DATE 1999-02-25

MUD & HOLE DATA

HOLE CONDITION @ TEST TIME:
EXCELLENT ☐ GOOD ☐ FAIR ☒ POOR ☐
WAS HOLE CONDITIONED PRIOR TO TEST: YES ☐ NO ☒
HOLE DEVIATION: YES ☒ NO ☐ AMOUNT 3 DEGREES
CALIPER LOG RUN PRIOR TO TEST: YES ☒ NO ☐
CALIPERED HOLE SIZE @ TEST DEPTH 156 MAX. mm
MUD TYPE Invert
WEIGHT 1070 kg/m³ VISCOSITY 54 WATER LOSS 0.0
FILTER CAKE 0.0 mm
DRILL PIPE SIZE:O.D. 89 mm I.D. 70 mm WEIGHT 23.06 kg/m
DRILL COLLARS:O.D. 119 mm I.D. 61 mm RUN 285.95 m
MAIN HOLE OR CASING SIZE 156 mm
BOTTOM HOLE OR CHOKE SIZE 25.4 mm
PACKER RUBBER SIZE: DIAM. IN mm 136 LENGTH IN m 1.68
RUBBER LEFT IN HOLE: YES ☐ NO ☒
TOP PACKER: SERIAL No CONDITION
BTM PACKER: SERIAL No CONDITION

GAS MEASUREMENTS

MEASURED WITH:
SIDE STATIC ☐ CRITICAL FLOW PROVER ☐
FLOOR MANIFOLD ☒ ORIFICE WELL TESTER ☐
CLOSED CHAMBER ☐ OTHER

RISER SIZE

FLOW #	TIME	CHOKE mm	READING kPa	RATE m3/D

RECOVERY

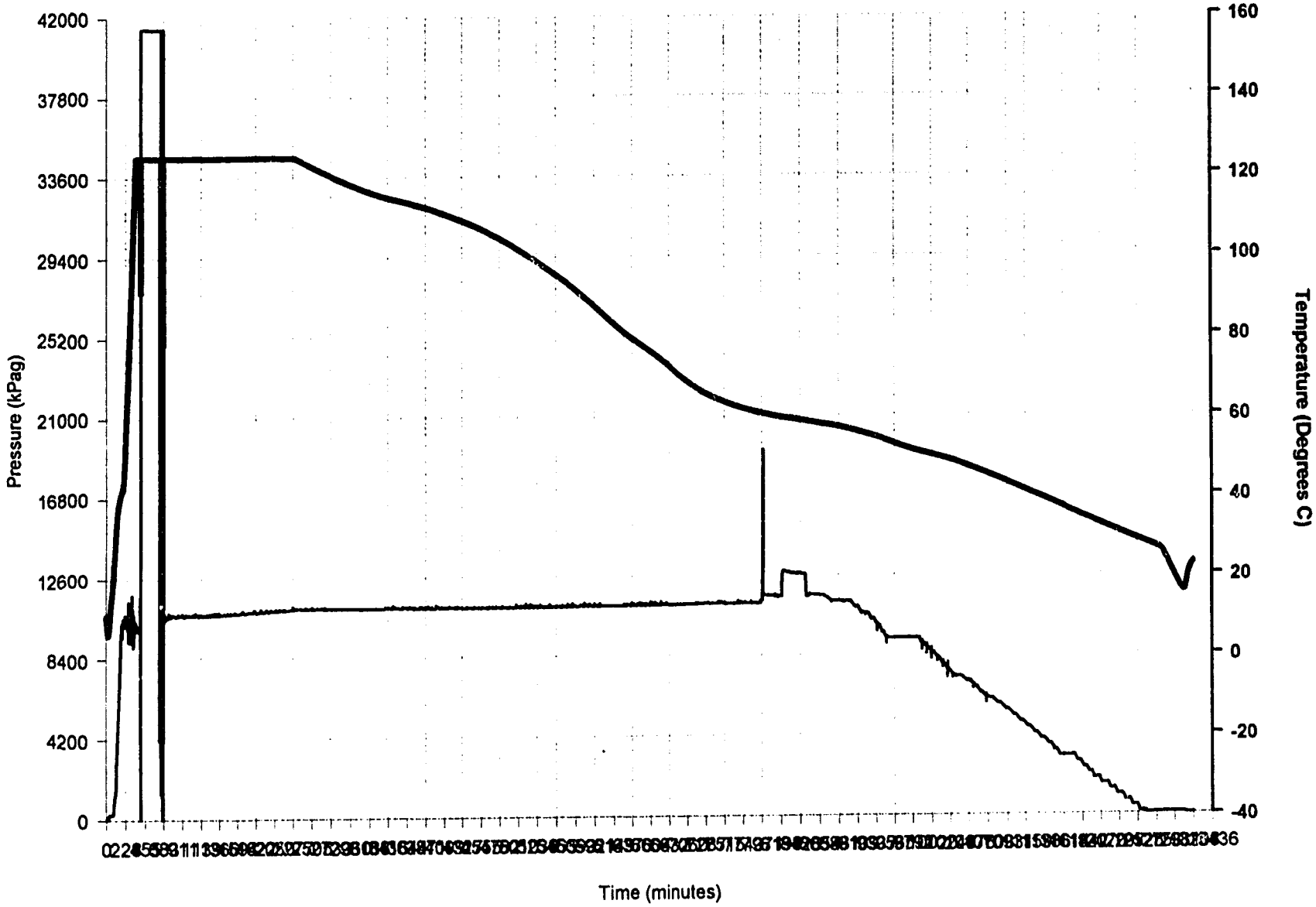
RECOVERY VERIFICATION SIGNATURE:

TOTAL FLUID RECOVERED 1050 m CONSISTING OF:
1050 m OF invert SALINITY
m OF SALINITY
m OF SALINITY
m OF SALINITY
TEST WAS REVERSED OUT: YES ☒ NO ☐

BTM. H. SAMPLER # NSN SENT TO AGAT
GAS BOMB # SENT TO
No. OF FLUID SAMPLES TAKEN 4 SENT TO AGAT

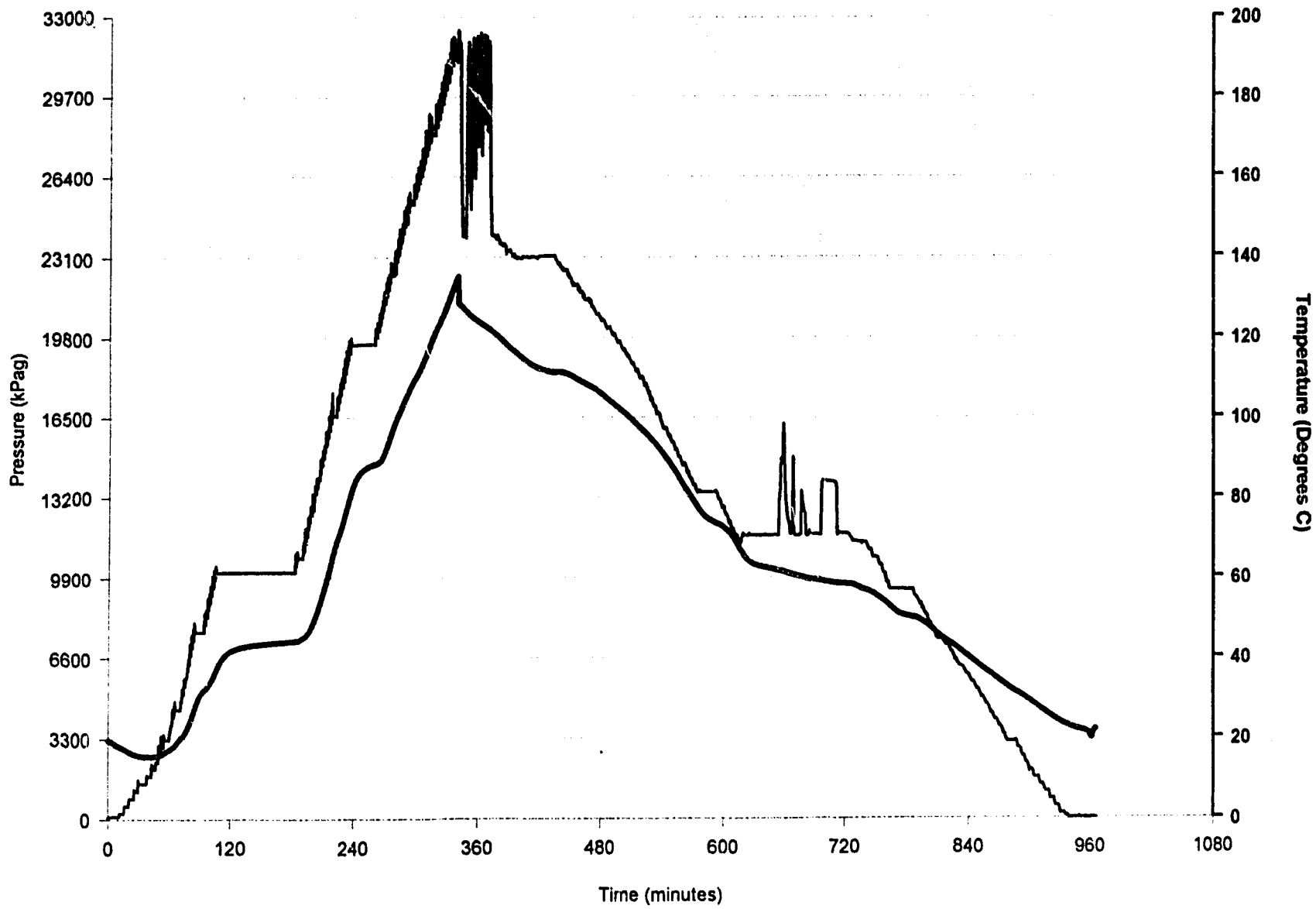
Baker Oil Tools Drill Stem Testing

Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 1
Recorder: M27



Baker Oil Tools Drill Stem Testing

Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 1
Recorder: M77



TEST TOOL & PIPE RECORD

Baker Oil Tools

Well Name: Paramount Berkley.... Location: 3000156030123000 Date 1999-02-25 Ticket # 808842

Interval Tested: from 3245 to 3270 Total Depth 3301 Test No. 1

CONVENTIONAL

Tool	Length
Top Packer Seal Depth	
Btm Packer Seal Depth	

DRILL COLLARS

JOINT	LENGTH	JOINT	LENGTH
1	0.79	11	27.51
2	9.44	12	27.62
3	27.78	13	27.55
4	27.84	14	27.58
5	27.54	15	
6	27.26	16	
7	27.77	17	
8	27.27	18	
9		19	
10		20	
1st TOTAL	175.69	2nd TOTAL	110.26

DRILL PIPE

1	28.11	11	28.38	21	28.77	31	28.55	41	28.74
2	28.45	12	28.43	22	28.06	32	27.99	42	28.20
3	28.76	13	28.16	23	28.33	33	28.13	43	28.77
4	26.78	14	28.76	24	28.32	34	28.14	44	28.42
5	29.00	15	28.91	25	28.10	35	28.59	45	28.03
6	27.99	16	27.56	26	28.90	36	27.32	46	28.72
7	28.79	17	28.89	27	28.67	37	28.72	47	28.01
8	28.36	18	28.13	28	28.65	38	27.36	48	28.91
9	28.97	19	28.29	29	27.91	39	28.33	49	29.05
10	27.88	20	28.79	30	28.80	40	28.75	50	28.91
3rd TOTAL	283.09	4th TOTAL	284.30	5th TOTAL	284.51	6th TOTAL	281.88	7th TOTAL	285.76

51	28.52	61	28.28	71	29.14
52	28.44	62	28.10	72	28.85
53	28.23	63	28.79	73	29.06
54	28.78	64	28.99	74	29.13
55	28.76	65	27.91	75	29.08
56	28.50	66	28.57	76	29.08
57	28.78	67	28.73	77	28.81
58	28.51	68	28.77	78	29.12
59	28.04	69	29.07	79	29.05
60	28.71	70	29.16	80	29.09
8th TOTAL	285.27	9th TOTAL	286.37	10th TOTAL	290.41

81	29.15	91	29.11	101	28.84
82	28.90	92	29.16	102	28.78
83	29.11	93	28.79	103	19.41
84	28.71	94	29.12	104	9.31
85	29.11	95	29.15	105	0.58
86	29.21	96	29.14	106	0.40
87	29.10	97	28.78	107	
88	29.02	98	28.77	108	
89	28.53	99	28.77	109	
90	28.71	100	29.15	110	
11th TOTAL	289.55	12th TOTAL	289.94	13th TOTAL	87.32

TOOL	14.47
1st TOTAL	175.69
2nd TOTAL	110.26
3rd TOTAL	283.09
4th TOTAL	284.30
5th TOTAL	284.51
6th TOTAL	281.88
7th TOTAL	285.76
8th TOTAL	285.27
9th TOTAL	286.37
10th TOTAL	290.41
11th TOTAL	289.55
12th TOTAL	289.94
13th TOTAL	87.32

BEFORE TEST IN DERRICK

TOTAL DRILL COLLARS	
TOTAL DRILL PIPE	

TESTING	IN	OUT	TOTAL
DRILL COLLARS			
DRILL PIPE			

CONVENTIONAL PIPE TALLY

BELOW BOTTOM PACKER SEAL	
BETWEEN PACKER SEALS	
TOOL ABOVE PACKER SEAL	
DRILL COLLARS	
DRILL PIPE	
TOTAL STRING	
TOTAL DEPTH	
TOP SINGLE ABOVE TABLE	

INFLATE PIPE TALLY

TOOL ABOVE INTERVAL	14.47
DRILL COLLARS	285.95
DRILL PIPE	2948.40
TOTAL STRINGS ABOVE INTERVAL	3248.82
BOTTOM OF TOP PACKER SEAL DEPTH	3245.00
TOP SINGLE ABOVE TABLE	3.82

INFLATABLE

Tool	Length
POS	0.33
DPSub	0.33
POS	0.33
Car	1.38
Hydr	1.50
BHS	1.03
Car	1.38
Jar	2.22
SJ	0.65
Pump	2.38
Scr	1.16
TPack	1.78
3245.0 Top Packer Seal Depth	
PSD	0.82
PS	0.42
Car	2.06
Spg	1.80
XOS	0.30
DC	18.88
XOS	0.30
PSU	0.42
3270.0 Btm Packer Seal Depth	
Perf	0.61
BS	2.00

Tester Signature _____ Approved by Oil Co. Rep. _____

PARAMOUNT RESOURCES LTD.

FIELD DRILL STEM TEST REPORT

A. WELL DATA DATE Feb-28-1999

WELL NAME Paramount Berkley Arrowhead LOCATION 0-15-60-25-W2-02

DST No. 2 Interval 3251-3270 Formation Landry

Last Casing: Size 177.8mm Depth 2805m Open Hole: Size 156mm Depth 3301m

Hole Troubles Hole Drag due to Deviation Caliper at Packer(s) 158-160 mm

Mud: Wt 1075 Vis 50 W.L. 13.5 % Oil 92.8 ppm Cl 185,500

B. TEST STRING DATA

Testing Company Baker Oil Tools Type of Test InFlate Straddle

Type & No. of packers Rubber InFlatable - 2 Size 136mm

DP size 89mm Weight 23.06Kg/m Length 2940.28

DC size 120 mm Weight 70Kg/m ID 58mm Length 194.16

Tailpipe size Weight Length Perfs

T.D.String 3258.94 Recorder Depth 3254 Water Cushion 900m Invert BH Choke 25.4mm

Packer depths 3251 & 3270 Wt on Packers 15000daN

Other Equip 2 Bottom Hole Samplers Pump out Sub - Safety Joint

C. TEST RESULTS Temp 148 °C

Times: PF 10 ISI 60 Flow ✓ FSI 90mins

Pressures: PF 9956 IF 12378 IH 33478 ISI 12378

FF ✓ FH 32786 FSI ✓

FLOW DESCRIPTION

Preflow Very Weak Air Blow - Hose went 1½" into Pail - No Gas to Surface

Valve Open Opened Tool - Top Packer Blew - Lost Packer Seat

Recoveries 200m Invert Drilling Mud - Slightly Contaminated With Salt Water

D. SAMPLE DETAILS

Reverse Circ out Invert Cushion Plus Fluid Recovery Caught 4 Samples while Circ out Recovery

Sent to: ACAT Labs - Grande Prairie Via: Ken Willis Baker Tester Date Sent: Mar-3-1999

E. REMARKS

Top Packer Seat Failed when Tool Opened For Final Flow - Shut in Tool - Pulled Packers Free - Pulled out of Hole with No Problems Left Both Packer Rubbers in Hole.

Supervisor Wilbert Callihoo

NOTE: Data reported on this form are field readings taken

PARA-DST_RPT.xls

Baker Oil Tools — FIELD REPORT

TEST DATA

TEST No 2 LUS. TEST No 2
FORMATION TESTED Slave Point T.D. 3301 m
INTERVAL TESTED: From 3251 m to 3270 m
TOTAL INTERVAL TESTED 19 m
TEST TYPE Inflate Straddle RESET: YES ☐ NO ☒
CUSHION: YES ☒ NO ☐ TYPE invert AMOUNT 900 m
STARTED IN HOLE @ 08:00 HRS. OPENED TOOL 14:35 HRS.
DATE & TIME OUT OF HOLE 1999-02-28 @ HRS.
TEST TIMES:

PRE-FLOW	10 MIN.	INITIAL SHUT-IN	60 MIN.
SECOND FLOW	MIN.	SECOND SHUT-IN	MIN.
FINAL FLOW	MIN.	FINAL SHUT-IN	MIN.

PRE-FLOW BLOW DESCRIPTION: VWAB. 1-1/4" into pail. NGTS.

FINAL FLOW BLOW DESCRIPTION: Lost packer seat 30 sec. into main flow.

MECHANICAL RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
20657	☐ / ☒	13085	☒ / ☐	22561	☒ / ☐
DEPTH	3254 m	DEPTH	3243 m	DEPTH	3272 m
CLOCK	23403	CLOCK	29242	CLOCK	20977
REC. SEC. #	12512	REC. SEC. #	11704	REC. SEC. #	6377
No.	INSIDE ☐ / OUTSIDE ☐	No.	INSIDE ☐ / OUTSIDE ☐	No.	INSIDE ☐ / OUTSIDE ☐
DEPTH	m	DEPTH	m	DEPTH	m
CLOCK		CLOCK		CLOCK	
REC. SEC. #		REC. SEC. #		REC. SEC. #	

ELECTRONIC RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
R62	☐ / ☒	S58	☒ / ☐		☐ / ☐
DEPTH	3254 m	DEPTH	3238 m	DEPTH	m
TEMP.	148.3	TEMP.	149.0	TEMP.	
FILE	p015b.dec	FILE	p015br.dec	FILE	

FIELD READINGS

REC. No. 20657 DEFLECTION		PRESSURE kPa	REC. No. 13085 DEFLECTION		PRESSURE kPa
48.5	1	33478	49	1	33703
14.5	2	9956	14.5	2	9915
17.5	3	12032	16	3	10950
47.5	4	32786	47.5	4	32669
18	5	12378	17	5	11639
	6			6	
	7			7	
	8			8	
	9			9	
	10			10	
	11			11	
	12			12	
	13			13	
48.5	14	33478	49	14	33703

REMARKS

SEQUENCE OF TEST EVENTS:

All measurements are field approximations. Good packer seat for pre-flow and initial shut-in, lost packer seat 30 sec into main flow. Electronic probe R64 did not function properly due to heat, did not show proper shut-in. Some of the fluid recovery showed signs of salt water contamination. Top packer was blown. Both packers stripped.

GENERAL INFORMATION

COMPANY Paramount Resources Ltd.
CONTACT IN CALGARY
CONTACT'S PHONE FAX
WELL NAME Paramount Berkley Arrowhead 0-15
LOCATION 3000156030123000
K.B. 387 m GROUND ELEV 380.5 m
COMPANY REP Wilbur Callihoo
TESTER Ken Willis
JAR No 234 HYDRAULIC TOOL No 138
UNIT # 960201 PUMP No 464
CONTRACTOR Precision RIG No 507
TICKET No 808843 DATE 1999-02-28

MUD & HOLE DATA

HOLE CONDITION @ TEST TIME:
EXCELLENT ☐ GOOD ☐ FAIR ☒ POOR ☐
WAS HOLE CONDITIONED PRIOR TO TEST: YES ☒ NO ☐
HOLE DEVIATION: YES ☒ NO ☐ AMOUNT 3 DEGREES
CALIPER LOG RUN PRIOR TO TEST: YES ☒ NO ☐
CALIPERED HOLE SIZE @ TEST DEPTH 156 MAX. mm
MUD TYPE Invert
WEIGHT 1070 kg/m³ VISCOSITY 54 WATER LOSS
FILTER CAKE mm
DRILL PIPE SIZE:O.D. 89 mm I.D. 70 mm WEIGHT 23.06 kg/m
DRILL COLLARS:O.D. 11 mm I.D. 61 mm RUN 303.16 m
MAIN HOLE OR CASING SIZE 156 mm
BOTTOM HOLE OR CHOKE SIZE 25.4 mm
PACKER RUBBER SIZE: DIAM. IN mm 136 LENGTH IN m 1.68
RUBBER LEFT IN HOLE: YES ☒ NO ☐
TOP PACKER: SERIAL No CONDITION 4
BTM PACKER: SERIAL No CONDITION 4

GAS MEASUREMENTS

MEASURED WITH:
SIDE STATIC ☐ CRITICAL FLOW PROVER ☐
FLOOR MANIFOLD ☒ ORIFICE WELL TESTER ☐
CLOSED CHAMBER ☐ OTHER

RISER SIZE

FLOW #	TIME	CHOKE mm	READING kPa	RATE m3/D

RECOVERY

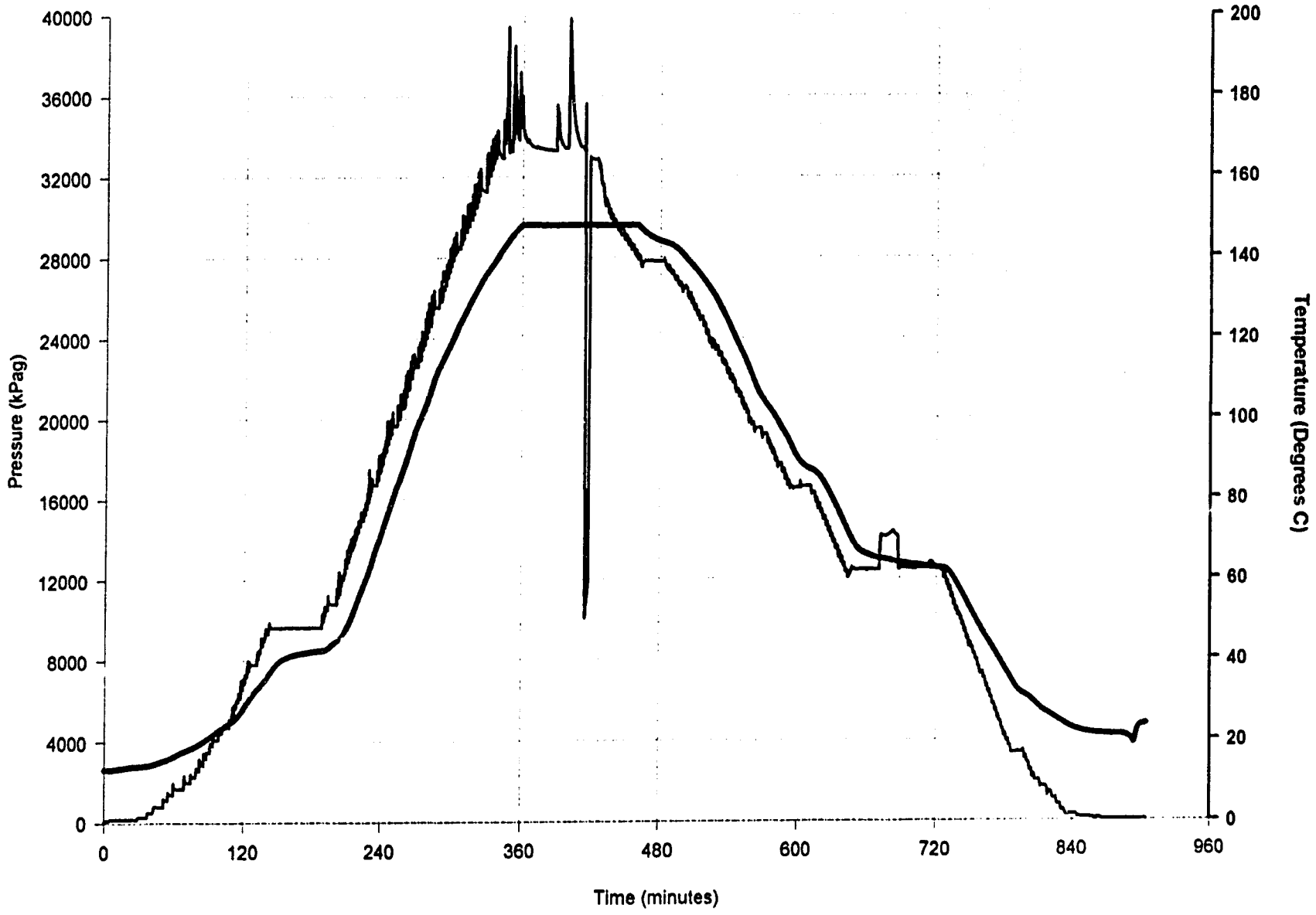
RECOVERY VERIFICATION SIGNATURE:

TOTAL FLUID RECOVERED 1100 m CONSISTING OF:
1100 m OF invert SALINITY
m OF SALINITY
m OF SALINITY
m OF SALINITY
TEST WAS REVERSED OUT: YES ☒ NO ☐

BTM. H. SAMPLER # nsn/nsn SENT TO AGAT
GAS BOMB # SENT TO
No. OF FLUID SAMPLES TAKEN 4 SENT TO AGAT

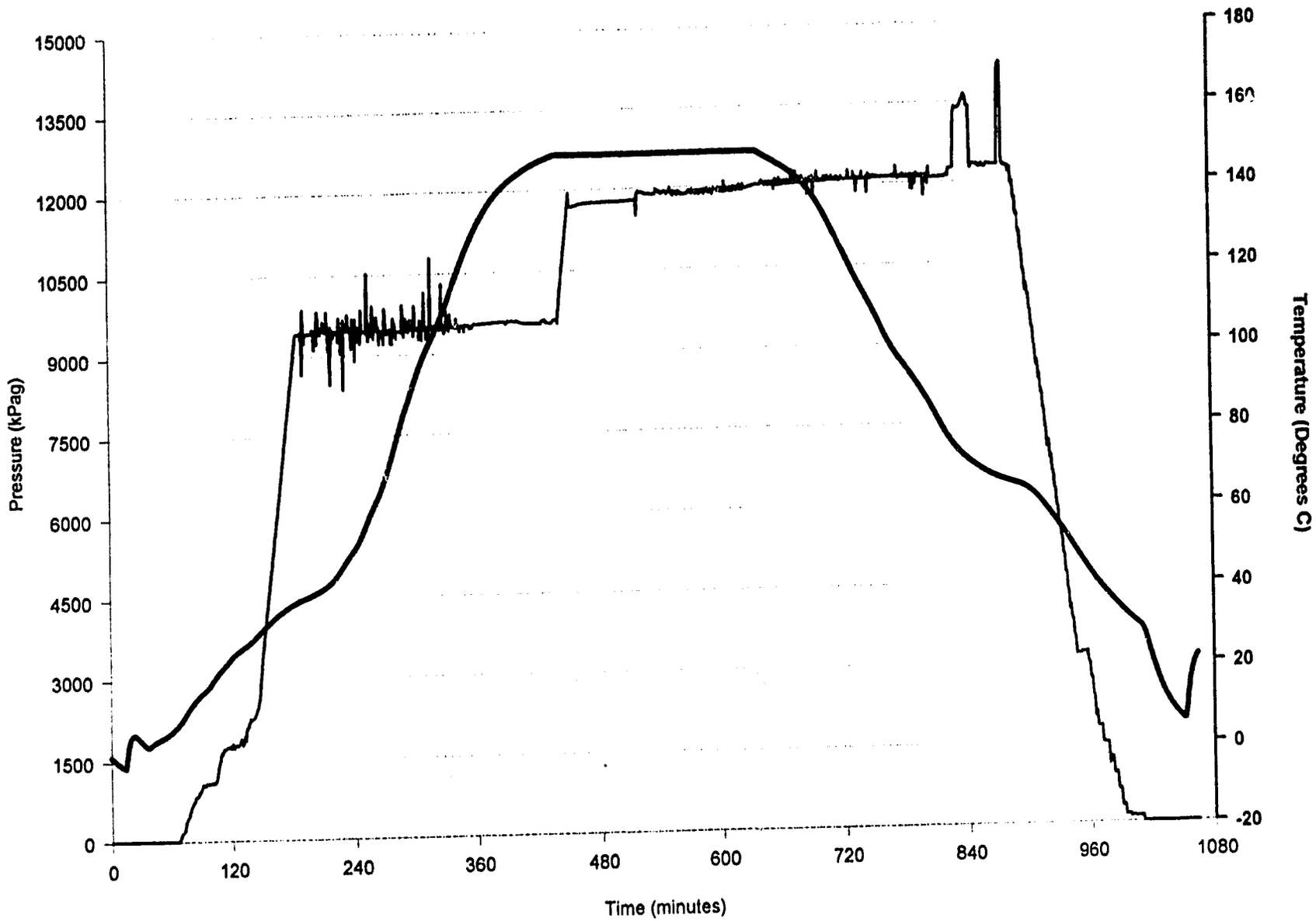
Baker Oil Tools Drill Stem Testing

Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 2
Recorder: R62



Baker Oil Tools Drill Stem Testing

Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 2
Recorder: S58



BAKER HUGHES

TEST TOOL & PIPE RECORD

Baker Oil Tools

Well Name: Paramount Berkley... Location: 3000156030123000 Date 1999-02-28 Ticket # 808843

Interval Tested: from 3251 to 3270 Total Depth 3301 Test No. 2

CONVENTIONAL

Tool | Length

DRILL COLLARS

JOINT	LENGTH	JOINT	LENGTH
1	0.79	11	27.61
2	28.13	12	27.62
3	27.97	13	27.52
4	28.01	14	27.38
5	26.78	15	
6	27.02	16	
7	27.06	17	
8	27.27	18	
9		19	
10		20	
1st TOTAL	193.03	2nd TOTAL	110.13
31	28.84	41	28.76
32	28.28	42	28.17
33	27.94	43	28.25
34	28.41	44	29.03
35	27.78	45	27.97
36	28.02	46	28.15
37	28.51	47	28.58
38	27.20	48	29.00
39	28.72	49	29.06
40	28.79	50	28.85
6th TOTAL	282.49	7th TOTAL	285.82
81	29.12	91	29.10
82	28.88	92	28.77
83	29.11	93	29.19
84	28.75	94	29.08
85	29.10	95	29.21
86	29.16	96	29.10
87	29.18	97	28.83
88	28.94	98	28.73
89	28.26	99	28.82
90	29.07	100	29.15
11th TOTAL	289.57	12th TOTAL	289.98

DRILL PIPE

1	28.67	11	28.34	21	28.71
2	28.60	12	28.51	22	28.12
3	27.83	13	28.16	23	28.22
4	28.10	14	28.77	24	27.76
5	28.49	15	28.13	25	28.85
6	28.36	16	28.28	26	28.78
7	28.48	17	28.34	27	28.74
8	28.93	18	27.37	28	28.65
9	28.82	19	29.15	29	27.96
10	28.03	20	28.78	30	28.55
3rd TOTAL	284.31	4th TOTAL	283.83	5th TOTAL	284.34
51	28.53	61	28.38	71	28.83
52	27.82	62	28.64	72	29.18
53	28.53	63	28.54	73	29.08
54	28.73	64	28.90	74	29.08
55	28.81	65	28.82	75	29.06
56	28.60	66	27.95	76	29.15
57	28.77	67	28.54	77	28.81
58	28.46	68	28.78	78	29.10
59	27.98	69	28.79	79	29.04
60	28.82	70	29.11	80	29.14
8th TOTAL	285.05	9th TOTAL	286.45	10th TOTAL	290.47
101	28.84				
102	28.78				
103	19.37				
104					
105	0.58				
106	0.40				
107					
108					
109					
110					
13th TOTAL	77.97				

TOOL	15.50
1st TOTAL	193.03
2nd TOTAL	110.13
3rd TOTAL	284.31
4th TOTAL	283.83
5th TOTAL	284.34
6th TOTAL	282.49
7th TOTAL	285.82
8th TOTAL	285.05
9th TOTAL	286.45
10th TOTAL	290.47
11th TOTAL	289.57
12th TOTAL	289.98
13th TOTAL	77.97

Top Packer Seal Depth

Btm Packer Seal Depth

INFLATABLE

Tool	Length
POS	0.33
DPSub	0.33
POS	0.33
Car	1.38
Hydr	1.50
BHS	1.03
BHS	1.03
Car	1.38
Jar	2.22
SJ	0.65
Pump	2.38
Scr	1.16
TPack	1.78
3251.0 (Top Packer Seal Depth)	
PSD	0.82
PS	0.42
Car	2.06
Spg	5.53
XOS	0.30
DC	9.15
XOS	0.30
PSU	0.42
3270.0 (Btm Packer Seal Depth)	
BPack	1.90
Perf	0.61
BS	2.00

BEFORE TEST IN DERRICK

TOTAL DRILL COLLARS	
TOTAL DRILL PIPE	

TESTING

	IN	OUT	TOTAL
DRILL COLLARS			
DRILL PIPE			

CONVENTIONAL PIPE TALLY

BELOW BOTTOM PACKER SEAL	
BETWEEN PACKER SEALS	
TOOL ABOVE PACKER SEAL	
DRILL COLLARS	
DRILL PIPE	
TOTAL STRING	
TOTAL DEPTH	
TOP SINGLE ABOVE TABLE	

INFLATE PIPE TALLY

TOOL ABOVE INTERVAL	15.50
DRILL COLLARS	303.16
DRILL PIPE	2940.28
TOTAL STRINGS ABOVE INTERVAL	3258.94
BOTTOM OF TOP PACKER SEAL DEPTH	3251.00
TOP SINGLE ABOVE TABLE	7.94

Tester Signature _____ Approved by Oil Co. Rep. _____

PARAMOUNT RESOURCES LTD.

FIELD DRILL STEM TEST REPORT

A. WELL DATA DATE Mar-1-1999

WELL NAME Paramount Bertley Arrowhead LOCATION 0-15-60-25-123-02

DST No. 2 Interval 3033-3044 Formation Hotin River

Last Casing: Size 177.8mm Depth 2805m Open Hole: Size 156mm Depth 3301m

Hole Troubles None Apparent Caliper at Packer(s) 158mm

Mud: Wt 1065 Vis 54 W.L. 13.2 % Oil 93.4 ppm Cl 184,000

B. TEST STRING DATA

Testing Company Baker Oil Tools Type of Test Inflate Straddle

Type & No. of packers Rubber Inflatable - 2 Size 136mm

DP size 89mm Weight 23.06Kg/m Length 2718.54

DC size 120mm Weight 70Kg/m ID 58mm Length 304.08 Incl HW

Tailpipe size Weight Length Perfs

T.D.String 3038.10 Recorder Depth 3095 Water Cushion Invert 870m BH Choke 25.4mm

Packer depths 3033-3044 Wt on Packers 12000 daN

Other Equip 2 Bottom Hole Samplers - Safety Joint - Pump out Sub

C. TEST RESULTS Temp 148 °C

Times: PF 10 ISI 60 Flow 60 FSI 120

Pressures: PF 19781 IF 27463 IH 31822 ISI 30745

FF ✓ FH 31443 FSI ✓

FLOW DESCRIPTION

Preflow Good Air Blow when Tool Opened - Strong Air Blow - Hose to Bottom of Pail in 4 mins - No Gas to Surface

Valve Open Did not get Tool to Open (Found Tools were Plugged with Sand after Pulling Out)

Recoveries 870m Invert Cushion - 830m Very Gassified Salt Water Tested Salinity @ 142000 PPM

D. SAMPLE DETAILS

Recovered 8 Samples of Recovered Fluid - Taken at Intervals while Reverse Circ out Fluid Recovery

Sent to: AGAT Labs - Grande Prairie Via: Ken Willis Baker Oil Tools Date Sent: Mar-2-1999

E. REMARKS

Had Good Strong Air Blow on Initial Open - Could not get any Blow on Tool Open - Found all Tools below Pump out Sub plugged with Sand

Supervisor Wilbert Callihoo

NOTE: Data reported on this form are field readings taken

PARA-DST_RPT.xls

Baker Oil Tools — FIELD REPORT

TEST DATA

TEST No 3 LUS. TEST No 3
FORMATION TESTED T.D. 3301 m
INTERVAL TESTED: From 3033 m to 3044 m
TOTAL INTERVAL TESTED 11 m
TEST TYPE Inflate Straddle RESET: YES ☐ NO ☒
CUSHION: YES ☒ NO ☐ TYPE Invert AMOUNT 870 m
STARTED IN HOLE @ 06:30 HRS. OPENED TOOL 14:20 HRS.
DATE & TIME OUT OF HOLE 1999-03-01 @ HRS.
TEST TIMES:
PRE-FLOW 10 MIN. INITIAL SHUT-IN 60 MIN.
SECOND FLOW MIN. SECOND SHUT-IN MIN.
FINAL FLOW 60 MIN. FINAL SHUT-IN 120 MIN.
PRE-FLOW BLOW DESCRIPTION: SAB in 4 min. steady throughout. NGTS.

FINAL FLOW BLOW DESCRIPTION: Opened tool had no flow. cycled tool several times still no flow.

MECHANICAL RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
20657	☐ / ☒	13085	☒ / ☐	22561	☒ / ☐
DEPTH 3035 m		DEPTH 3024 m		DEPTH 3045 m	
CLOCK 23403		CLOCK 29242		CLOCK 20977	
REC. SEC. # 12512		REC. SEC. # 11704		REC. SEC. # 69377	
No.	☐ / ☐	No.	☐ / ☐	No.	☐ / ☐
DEPTH m		DEPTH m		DEPTH m	
CLOCK		CLOCK		CLOCK	
REC. SEC. #		REC. SEC. #		REC. SEC. #	

ELECTRONIC RECORDERS

No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE	No.	INSIDE / OUTSIDE
R62	☐ / ☒	S58	☒ / ☐		☐ / ☐
DEPTH 3035 m		DEPTH 3019 m		DEPTH m	
TEMP. 148.8		TEMP. 149.0		TEMP.	
FILE p015c1.dec		FILE p015cr.dec		FILE	

FIELD READINGS

REC. No. R62 DEFLECTION		PRESSURE kPa	REC. No. 20657 DEFLECTION		PRESSURE kPa
	1	31822.30	46.5	1	31748
	2	19781.08	28.5	2	19641
	3	27463.04	35.5	3	24484
	4	30745.28	44.5	4	30710
	5			5	
	6			6	
	7			7	
	8			8	
	9			9	
	10			10	
	11			11	
	12			12	
	13			13	
	14	31443.53	46.5	14	31748

REMARKS

SEQUENCE OF TEST EVENTS:

All measurements are field estimates. Salt water has lots of gas trapped with it under fluid cushion. Very noticeable break between cushion and produced water. One drill collar was plugged completely with sand. top recorder carrier, pressure activated pump out sub and cross-over sub all plugged. Both packers stripped. Recorder R62 did not show full shut-in, but showed pre-flow and part of the shut

GENERAL INFORMATION

COMPANY Paramount Resources Ltd.
CONTACT IN CALGARY
CONTACT'S PHONE FAX
WELL NAME Paramount Berkley Arrowhead 0-15
LOCATION 3000156030123000
K.B. 387 m GROUND ELEV 380.5 m
COMPANY REP Wilbert Callihoo
TESTER Ken Willis
JAR No 234 HYDRAULIC TOOL No 138
UNIT # 960201 PUMP No 464
CONTRACTOR Precision RIG No 507
TICKET No 808844 DATE 1999-03-01

MUD & HOLE DATA

HOLE CONDITION @ TEST TIME:
EXCELLENT ☐ GOOD ☐ FAIR ☒ POOR ☐
WAS HOLE CONDITIONED PRIOR TO TEST: YES ☐ NO ☒
HOLE DEVIATION: YES ☒ NO ☐ AMOUNT 3 DEGREES
CALIPER LOG RUN PRIOR TO TEST: YES ☒ NO ☐
CALIPERED HOLE SIZE @ TEST DEPTH 156 MAX. mm
MUD TYPE Invert
WEIGHT 1070 kg/m³ VISCOSITY 54 WATER LOSS
FILTER CAKE mm
DRILL PIPE SIZE:O.D. 89 mm I.D. 70 mm WEIGHT 23.06 kg/m
DRILL COLLARS:O.D. 119 mm I.D. 61 mm RUN 304.08 m
MAIN HOLE OR CASING SIZE 156 mm
BOTTOM HOLE OR CHOKE SIZE 25.4 mm
PACKER RUBBER SIZE: DIAM. IN mm 136 LENGTH IN m 1.68
RUBBER LEFT IN HOLE: YES ☐ NO ☒
TOP PACKER: SERIAL No CONDITION
BTM PACKER: SERIAL No CONDITION

GAS MEASUREMENTS

MEASURED WITH:
SIDE STATIC ☐ CRITICAL FLOW PROVER ☐
FLOOR MANIFOLD ☒ ORIFICE WELL TESTER ☐
CLOSED CHAMBER ☐ OTHER

RISER SIZE

FLOW #	TIME	CHOKE mm	READING kPa	RATE m3/D

RECOVERY

RECOVERY VERIFICATION SIGNATURE:

TOTAL FLUID RECOVERED 1700 m CONSISTING OF:
870 m OF invert cushion SALINITY
830 m OF Gassified salt water SALINITY 142000
m OF SALINITY
m OF SALINITY
TEST WAS REVERSED OUT: YES ☐ NO ☒

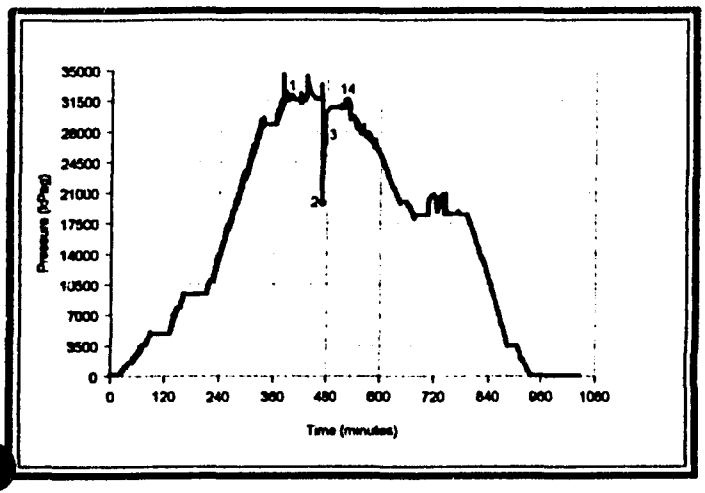
BTM. H. SAMPLER # NSN/NSN SENT TO AGAT
GAS BOMB # SENT TO
No. OF FLUID SAMPLES TAKEN 8 SENT TO AGAT

Baker Oil Tools

Paramount Berkley Arrowhead 0-15
3000156030123000
DST# 3

Formation:
Interval - from: 3033 to: 3044 m

Recorder# R62 at 3035 m



Maximum Btm Hole Temperature @ FSI: 148.8 C

		Pressure (kPag)	*Time (min)*	*Extrapolated Pressure (kPag)*
1	Initial Hydrostatic	31822		
2	Start of 1st Flow	19781		
3	End of 1st Flow	27463	4.0	
4	End of 1st Shut-in	30745	39.5	
14	Final Hydrostatic	31444		

Liquid Recovery of 1700.00 m

Recovery	*Description*	*Salinity*
870.00 m	invert cushion	
830.00 m	Gassified salt water	142000

Test Date:	**1999-03-01**
Test Type:	**Inflate Straddle**
Tester Name:	**Ken Willis**
Cushion Type:	**Invert**
Cushion Amount:	**870 m**
Drill Pipe O.D.:	**89.00 mm**
Drill Collar I.D.:	**61.00 mm**
Drill Collar Length:	**304.08 m**
Hole Size:	**156.00 mm**

Blow Description:

PREFLOW - SAB in 4 min. steady throughout. NGTS. FINAL FLOW - Opened tool had no flow. cycled tool several times still no flow.

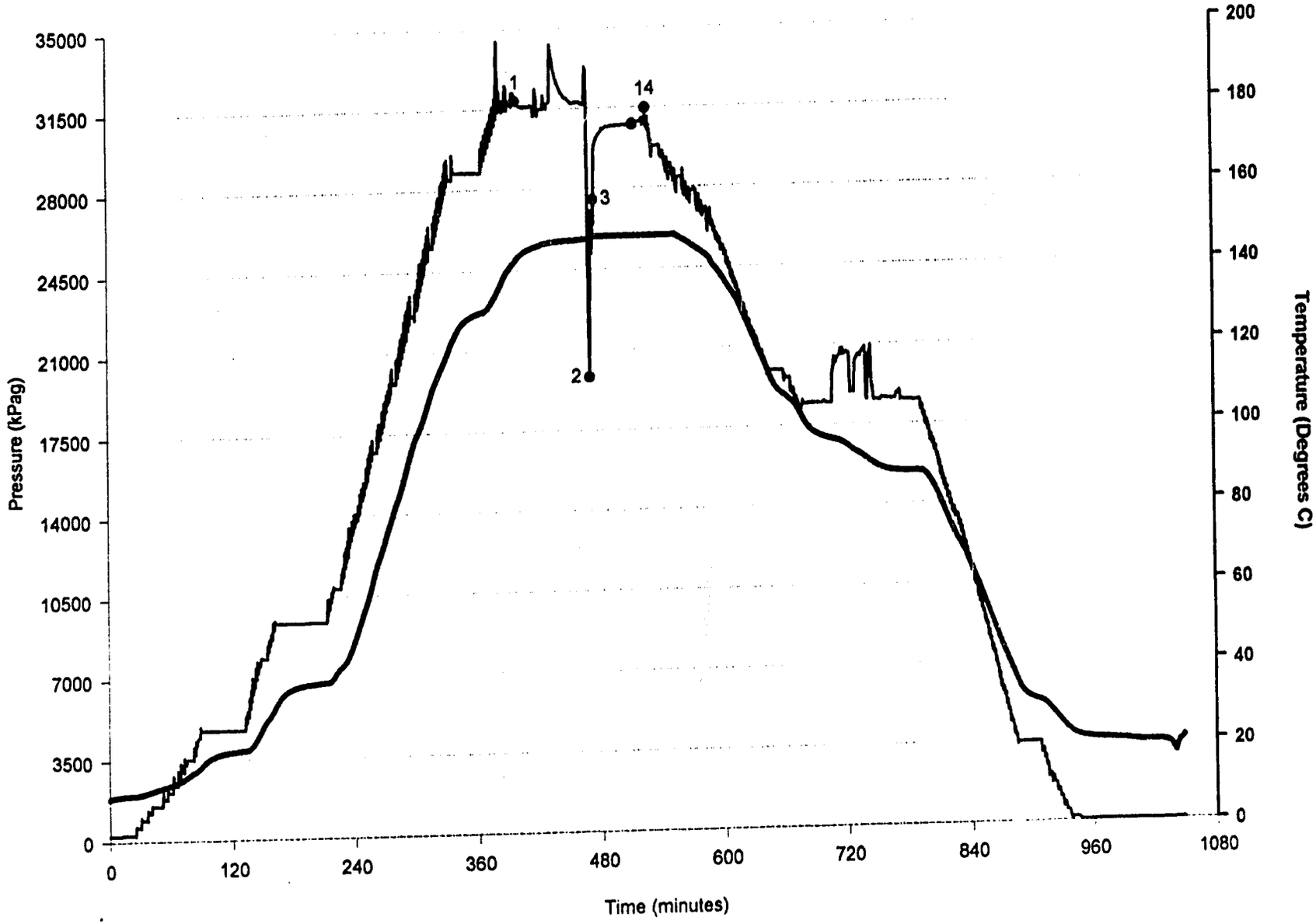
Remarks:

All measurements are field estimates. Salt water has lots of gas trapped with it under fluid cushion. Very noticeable break between cushion and produced water. One drill collar was plugged completely with sand. top recorder carrier, pressure activated pump out sub and cross-over sub all plugged. Both packers stripped. Recorder R62 did not show full shut-in, but showed pre-flow and part of the shut in.

Baker Oil Tools Drill Stem Testing

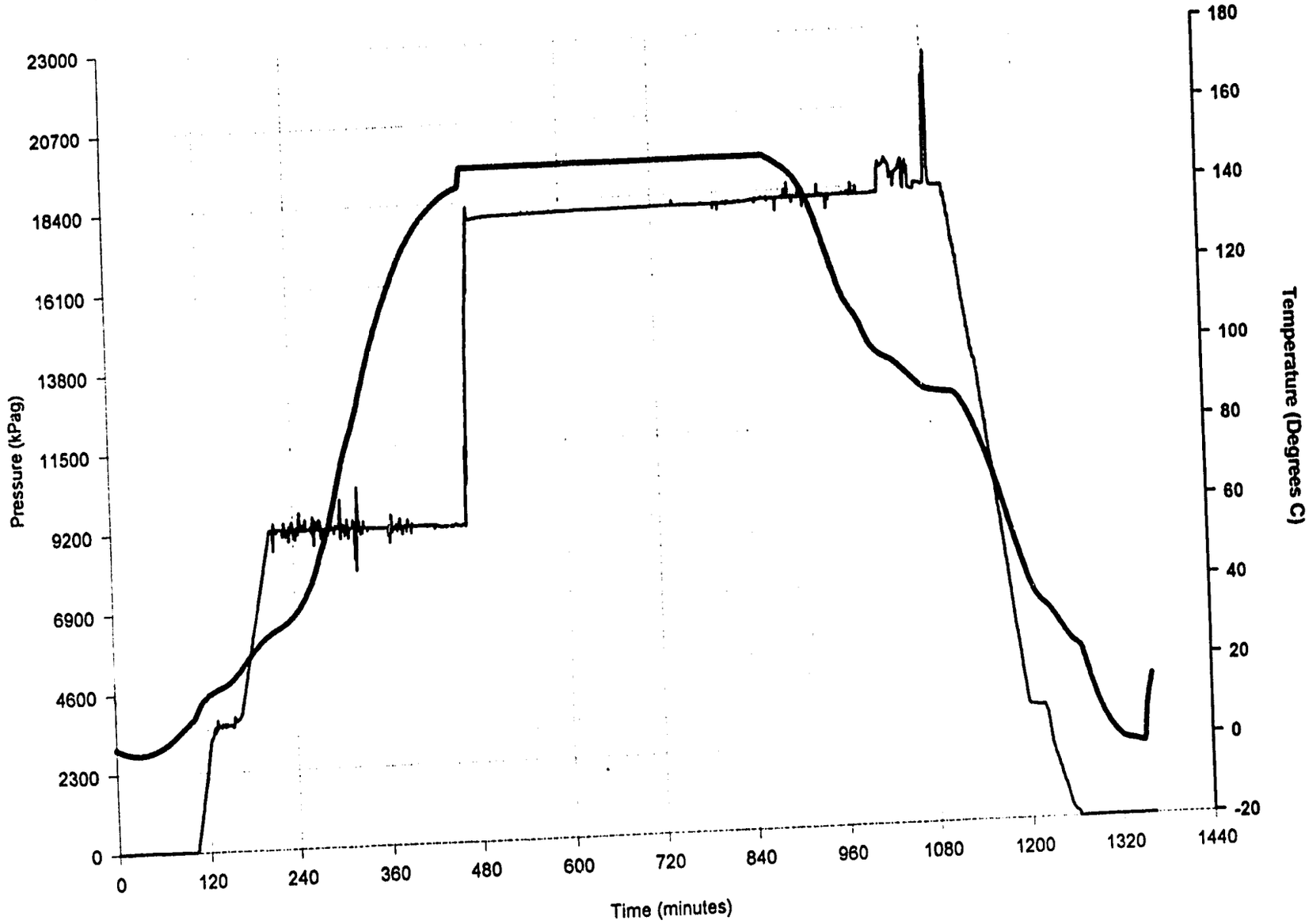
Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 3
Recorder: R62

Pressure (kPag) at Critical Points:
1: 31822 4: 30745
2: 19781 14: 31444
3: 27463



Baker Oil Tools Drill Stem Testing

Paramount Berkley Arrowhead 0-15
3000156030123000
DST #: 3
Recorder: S58



BAKER HUGHES

TEST TOOL & PIPE RECORD

Baker Oil Tools

Well Name: Paramount Berkley... Location: 3000156030123000 Date 1999-03-01 Ticket # 808844

Interval Tested: from 3033 to 3044 Total Depth 3301 Test No. 3

CONVENTIONAL

Tool	Length
Top Packer Seal Depth	
Btm Packer Seal Depth	

DRILL COLLARS

JOINT	LENGTH	JOINT	LENGTH
1	9.34	11	27.61
2	27.97	12	27.62
3	28.11	13	27.52
4	28.00	14	18.43
5	26.80	15	
6	27.71	16	
7	27.74	17	
8	27.23	18	
9		19	
10		20	
1st TOTAL	202.90	2nd TOTAL	101.18
31	28.55	41	28.77
32	28.00	42	28.20
33	28.15	43	28.78
34	28.14	44	28.43
35	28.59	45	28.02
36	27.34	46	28.73
37	28.74	47	28.01
38	27.36	48	28.92
39	28.33	49	29.06
40	28.77	50	28.92
6th TOTAL	281.97	7th TOTAL	285.84
81	29.15	91	29.12
82	28.90	92	29.17
83	29.12	93	28.80
84	28.70	94	29.13
85	29.11	95	29.16
86	29.12	96	
87	29.11	97	
88	29.03	98	
89	28.54	99	
90	28.71	100	
11th TOTAL	289.49	12th TOTAL	145.38

DRILL PIPE

1	28.12	11	28.39	21	28.78
2	28.45	12	28.44	22	28.06
3	28.75	13	28.60	23	28.32
4	27.21	14	28.76	24	28.33
5	29.00	15	28.91	25	28.10
6	28.00	16	27.57	26	28.90
7	28.80	17	28.90	27	28.67
8	28.36	18	28.02	28	28.65
9	28.98	19	28.30	29	27.92
10	27.89	20	28.79	30	28.80
3rd TOTAL	283.56	4th TOTAL	284.68	5th TOTAL	284.53
51	28.52	61	28.29	71	29.17
52	28.44	62	29.14	72	28.85
53	28.24	63	28.12	73	29.06
54	28.79	64	28.78	74	29.13
55	28.76	65	28.99	75	29.09
56	28.50	66	27.92	76	29.09
57	28.79	67	28.58	77	28.82
58	28.52	68	28.74	78	29.03
59	28.03	69	28.77	79	29.06
60	28.71	70	29.08	80	29.10
8th TOTAL	285.30	9th TOTAL	286.41	10th TOTAL	290.40
101	0.40				
102	0.58				
103					
104					
105					
106					
107					
108					
109					
110					
13th TOTAL	0.98				

TOOL	15.47
1st TOTAL	202.90
2nd TOTAL	101.18
3rd TOTAL	283.56
4th TOTAL	284.68
5th TOTAL	284.53
6th TOTAL	281.97
7th TOTAL	285.84
8th TOTAL	285.30
9th TOTAL	286.41
10th TOTAL	290.40
11th TOTAL	289.49
12th TOTAL	145.38
13th TOTAL	0.98

BEFORE TEST IN DERRICK

TOTAL DRILL COLLARS	
TOTAL DRILL PIPE	

TESTING

	IN	OUT	TOTAL
DRILL COLLARS			
DRILL PIPE			

CONVENTIONAL PIPE TALLY

BELOW BOTTOM PACKER SEAL	
BETWEEN PACKER SEALS	
TOOL ABOVE PACKER SEAL	
DRILL COLLARS	
DRILL PIPE	
TOTAL STRING	
TOTAL DEPTH	
TOP SINGLE ABOVE TABLE	

INFLATE PIPE TALLY

TOOL ABOVE INTERVAL	15.47
DRILL COLLARS	304.08
DRILL PIPE	2718.54
TOTAL STRINGS ABOVE INTERVAL	3038.09
BOTTOM OF TOP PACKER SEAL DEPTH	3033.00
TOP SINGLE ABOVE TABLE	5.09

INFLATABLE

Tool	Length
POS	0.33
XOS	0.30
POS	0.33
Car	1.38
Hydr	1.50
BHS	1.03
BHS	1.03
Car	1.38
Jar	2.22
SJ	0.65
Pump	2.38
Scr	1.16
TPack	1.78
3033.0 Top Packer Seal Depth	
PSD	0.82
PS	0.42
Car	2.06
Spg	7.28
PSU	0.42
3044.0 Btm Packer Seal Depth	
BPack	1.90
Perf	0.61
BS	2.00

Tester Signature _____ Approved by Oil Co. Rep. _____

6. ENVIRONMENTAL WELL REPORT

Was submitted with drilling application

7. APPENDICES TO WELL HISTORY REPORT

Oil, Gas & Water Analyses:	(see attached)
Completion Data:	N/A
Wellbore Diagram:	(see attached)
Well Survey Plan:	(see attached)

AGAT Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 22S

LABORATORY NUMBER: WF36512S

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT BERKLEY ARROWHEAD O-15

ELEVATIONS KB m: 387.00 GRD m: 380.50

FIELD OR AREA:

POOL OR ZONE:

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST NO: 3

TEST RECOVERY: 60 DEG. 24' 53"latitude 123 DEG. 2' 31"longitude

SAMPLING POINT: DRILL STEM

AMT & TYPE OF CUSHION:

MUD RESISTIVITY/Ω m @ 25° C

TEST INTERVAL OR PERFS: 3033.00-3044.00 mKB

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-03-01

DATE RECEIVED (Y-M-D): 99-03-08

DATE REPORTED (Y-M-D): 99-03-31

ANALYST: LN NCO

OTHER INFORMATION: DRILL STEM 7

ION	mg/L	MASS FRACTION	mmol/L	ION	mg/L	MASS FRACTION	mmol/L
Na	32500.0	0.274	1410.0	Cl	69000.0	0.581	1950.0
K	4960.0	0.042	127.0	Br	N.A.	N.A.	N.A.
Ca	10900.0	0.092	271.0	I	N.A.	N.A.	N.A.
Mg	901.0	0.008	37.1	HCO_3	442.0	0.004	7.2
Ba	N.A.	N.A.	N.A.	SO_4	1.1	TRC*	TRC+
Sr	N.A.	N.A.	N.A.	CO_3	NIL	NIL	NIL
Fe	110.0	0.001	2.0	OH	NIL	NIL	NIL
				H_2S	N.D.	N.D.	N.D.

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C	EVAPORATED AT 180° C
AT IGNITION	CALCULATED
	119000.0

RELATIVE DENSITY: 1.092 @ 25° C

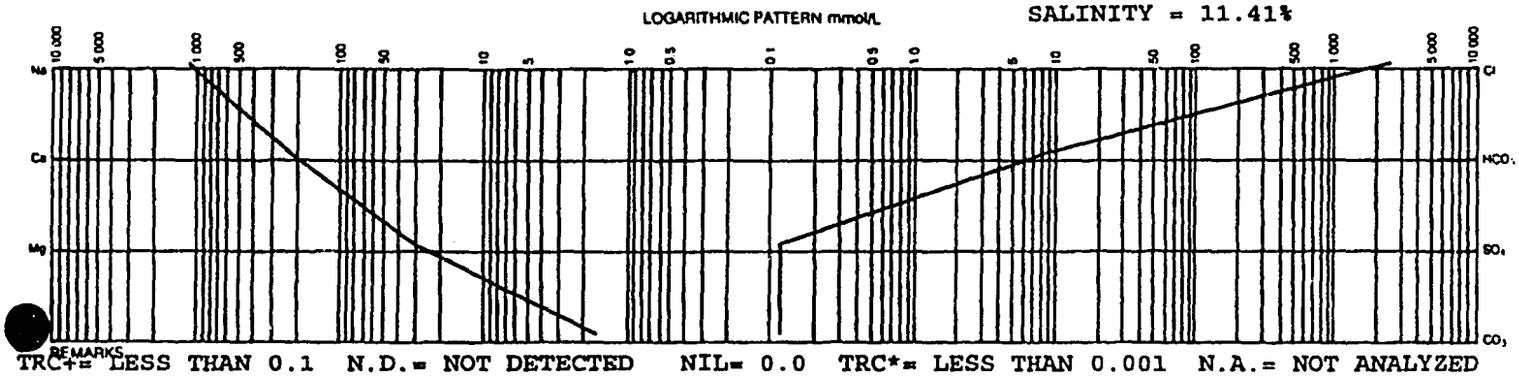
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 6.36 @ 25° C

RESISTIVITY/OHM •m: 0.07 @ 25° C

LOGARITHMIC PATTERN mmol/L

SALINITY = 11.41%



REMARKS: TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 11J

LABORATORY NUMBER: WF365125

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT BERKLEY ARROWHEAD O-15

ELEVATIONS KB m: 387.00 GRD m: 380.50

FIELD OR AREA:

POOL OR ZONE:

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST NO: 2

TEST RECOVERY: 60 DEG. 24' 53"latitude 123 DEG. 2' 31"longitude

SAMPLING POINT: DRILL STEM

AMT & TYPE OF CUSHION:

MUD RESISTIVITY/Ω m @ 25° C

TEST INTERVAL OR PERFS: 3251.00-3270.00 mKB

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-02-28

DATE RECEIVED (Y-M-D): 99-03-08

DATE REPORTED (Y-M-D): 99-03-31

ANALYST: LN NCO

OTHER INFORMATION: DRILL STEM 4

ION	mg/L	MASS FRACTION	mmol/L
Na	45700.0	0.238	1990.0
K	9370.0	0.049	240.0
Ca	20500.0	0.107	511.0
Mg	880.0	0.005	36.2
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	0.9	TRC*	TRC+

ION	mg/L	MASS FRACTION	mmol/L
Cl	115000.0	0.599	3230.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	641.0	0.003	10.5
SO_4	2.3	TRC*	TRC+
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 192000.0

RELATIVE DENSITY: 1.140 @ 25° C

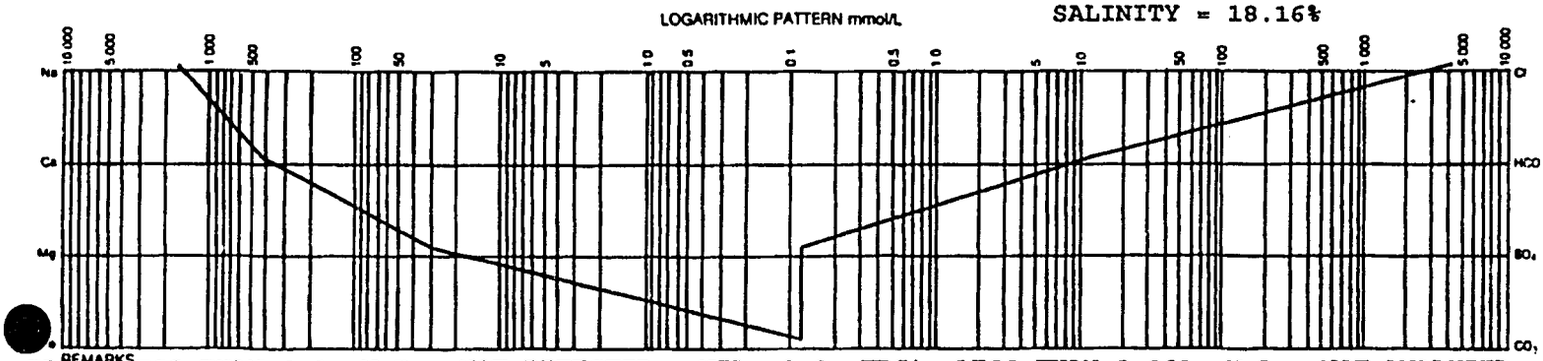
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 7.42 @ 25° C

RESISTIVITY/OHM •m: 0.05 @ 25° C

SALINITY = 18.16%

LOGARITHMIC PATTERN mmol/L



REMARKS: TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

AGAT Laboratories

WATER ANALYSIS

CONTAINER IDENTIFICATION: PB 250

LABORATORY NUMBER: WF365120

OPERATOR NAME: PARAMOUNT RESOURCES LTD.

UNIQUE WELL IDENTIFIER:

WELL NAME: PARAMOUNT BERKLEY ARROWHEAD O-15

ELEVATIONS KB m: 387.00 GRD m: 380.50

FIELD OR AREA:

POOL OR ZONE:

NAME OF SAMPLER:

COMPANY: BAKER

TEST TYPE: DST

NO: 3

TEST RECOVERY: 60 DEG. 24' 53"latitude 123 DEG. 2' 31"longitude

SAMPLING POINT: BHS

AMT & TYPE OF CUSHION:

MUD RESISTIVITY/Ω m @ 25° C

TEST INTERVAL OR PERFS: 3033.00-3044.00 mKB

TYPE OF PRODUCTION: PUMPING | FLOWING | GAS LIFT | SWAB

PRODUCTION RATES: WATER m³/d | OIL m³/d | GAS 10³ m³/d

	SEPARATOR	TREATER	RESERVOIR	SOURCE	SAMPLED	RECEIVED
GAUGE PRESSURE kPa						
TEMPERATURE °C						

DATE SAMPLED (Y-M-D): 99-03-01

DATE RECEIVED (Y-M-D): 99-03-08

DATE REPORTED (Y-M-D): 99-03-31

ANALYST: LN NCO

OTHER INFORMATION: BHS NSN #1

ION	mg/L	MASS FRACTION	mmol/L
Na	33100.0	0.252	1440.0
K	5400.0	0.041	138.0
Ca	13400.0	0.102	334.0
Mg	1010.0	0.008	41.5
Ba	N.A.	N.A.	N.A.
Sr	N.A.	N.A.	N.A.
Fe	23.1	TRC*	0.4

ION	mg/L	MASS FRACTION	mmol/L
Cl	77900.0	0.593	2200.0
Br	N.A.	N.A.	N.A.
I	N.A.	N.A.	N.A.
HCO_3	458.0	0.003	7.5
SO_4	2.8	TRC*	TRC+
CO_3	NIL	NIL	NIL
OH	NIL	NIL	NIL
H_2S	N.D.	N.D.	N.D.

DISSOLVED TOTAL SOLIDS mg/L

EVAPORATED AT 110° C:

EVAPORATED AT 180° C:

AT IGNITION:

CALCULATED: 131000.0

RELATIVE DENSITY: 1.091 @ 25° C

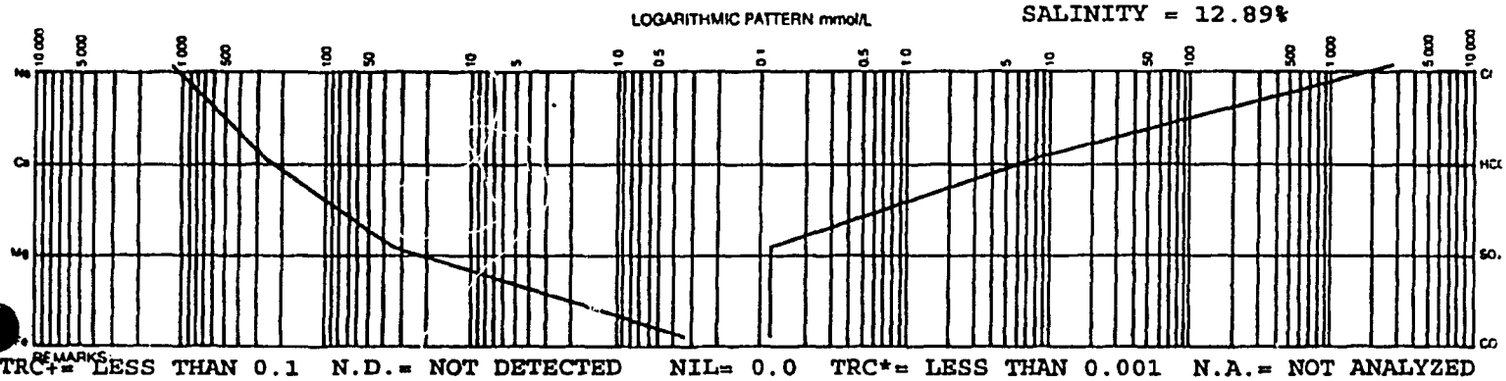
REFRACTIVE INDEX: N.A. @ 25° C

OBSERVED pH: 6.41 @ 25° C

RESISTIVITY/OHM m: 0.06 @ 25° C

SALINITY = 12.89%

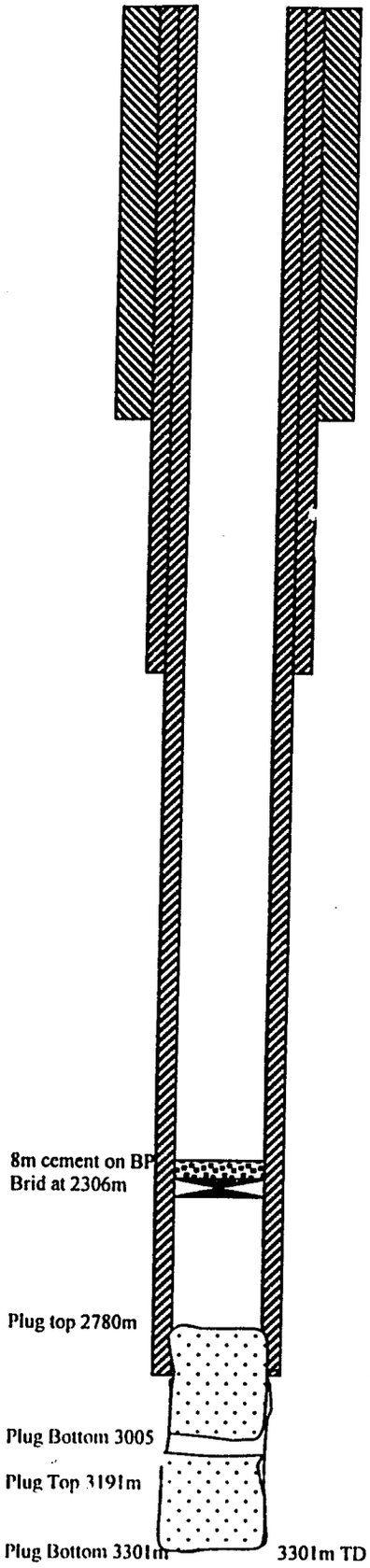
LOGARITHMIC PATTERN mmol/L



REMARKS

TRC+= LESS THAN 0.1 N.D.= NOT DETECTED NIL= 0.0 TRC*= LESS THAN 0.001 N.A.= NOT ANALYZED

Well Schematic
Paramount Berkley Arrowhead O15
As Drilled March 06, 1999



Surface Hole: (surface – 500)
Hole Size: 444 mm
Surveys: ¾ @ 463
Mud Type: Air to 442, gel/chem to 500

Casing: 339.7 mm, 81.1 kg/m, K55
Landed at 499.9 m KB

Cement: Lead: 31 T 0:1:0 Class "G" + 1% $CaCl_2$
Tail: 27 T Expandomix + 2% $CaCl_2$
8 m3 returns

Intermediate Hole: (500 – 1455 m)

Hole Size: 311 mm
Surveys: This section originally kicked out to 15° so was plugged back and re-drilled To keep vertical
First Leg: (partial plug back) 500 – 1560 m KB
Drilled with foam and air hammer to 867 m, well watered out. Drill with Cutter D to 1560 m MD.
Problems: Totco surveys indicated 7°, directional survey read 15°, Decision was made to plug back and redrill
Plug #1: 1195 – 1350 m w/ 16 T 0:1:0 High Density G + 1% CFR + 1% LTR

Casing: 244.5 mm, 64.74 kg/m, L80 landed at 1196 m

Cement: Lead: 21 T LW14 + 2% CaCl2 + 2% LWA + 2% SMS
Tail: 29 T 0:1:0 G + 0.4% CFL3 + 1% CFLH + 2% SPC 2
5 m3 returns

1196m

2nd Intermediate Re-Entry (spud January 19, 1999)
2nd Intermediate hole :drill 216 mm 1196 m to 2805 m KB
Casing: 177.8 mm, 38.69 kg/m IL-80 - 0 - 2805 m KB
Cement: 24.6 Tonnes 1:1:2 G fill plus 17 Tonnes Thermal 40 tail

Hole Size: 216 mm
Mud Type: Invert

Main hole: drill 156 mm hole 2805 - 3301 m KB
Mud: Invert
Open Hole

OVERSIZED

DOCUMENT

FILMED

ON

35mm

DST REPORTS (3)

N.E.B. COPY

BAKER HUGHES

Baker Oil Tools

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1

Formation: Slave Point

Interval - from: 3,245.00 **to:** 3,270.00 meters

Test Date: 1999-02-25

Test Type : Inflate Straddle

Recorder# 20657 at 3,248.00 meters

		Pressure (kPag)	Time (min)	Extrapolated Pressure (kPag)
1	Initial Hydrostatic	33574		
2	Start of 1st Flow	14278		
3	End of 1st Flow	23563	10.0	
4	End of 1st Shut-in	33371	60.0	33396.5
5	Start of 2nd Flow	27674		
6	End of 2nd Flow	29223	90.0	
7	End of 2nd Shut-in	33368	270.0	33376.3
14	Final Hydrostatic	33574		

Liquid Recovery 1,050.00 meters

Recovery	Description
1,050.00 m	Invert

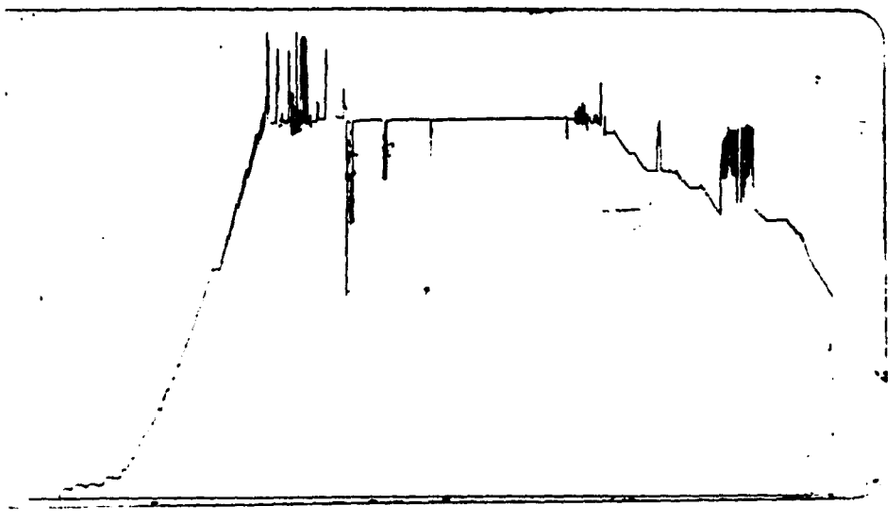
Blow Description:

PREFLOW: Very weak air blow decreasing throughout. No gas to surface.

FINAL FLOW: Very weak air blow increasing marginally to 50 mm into pail. No gas to surface.

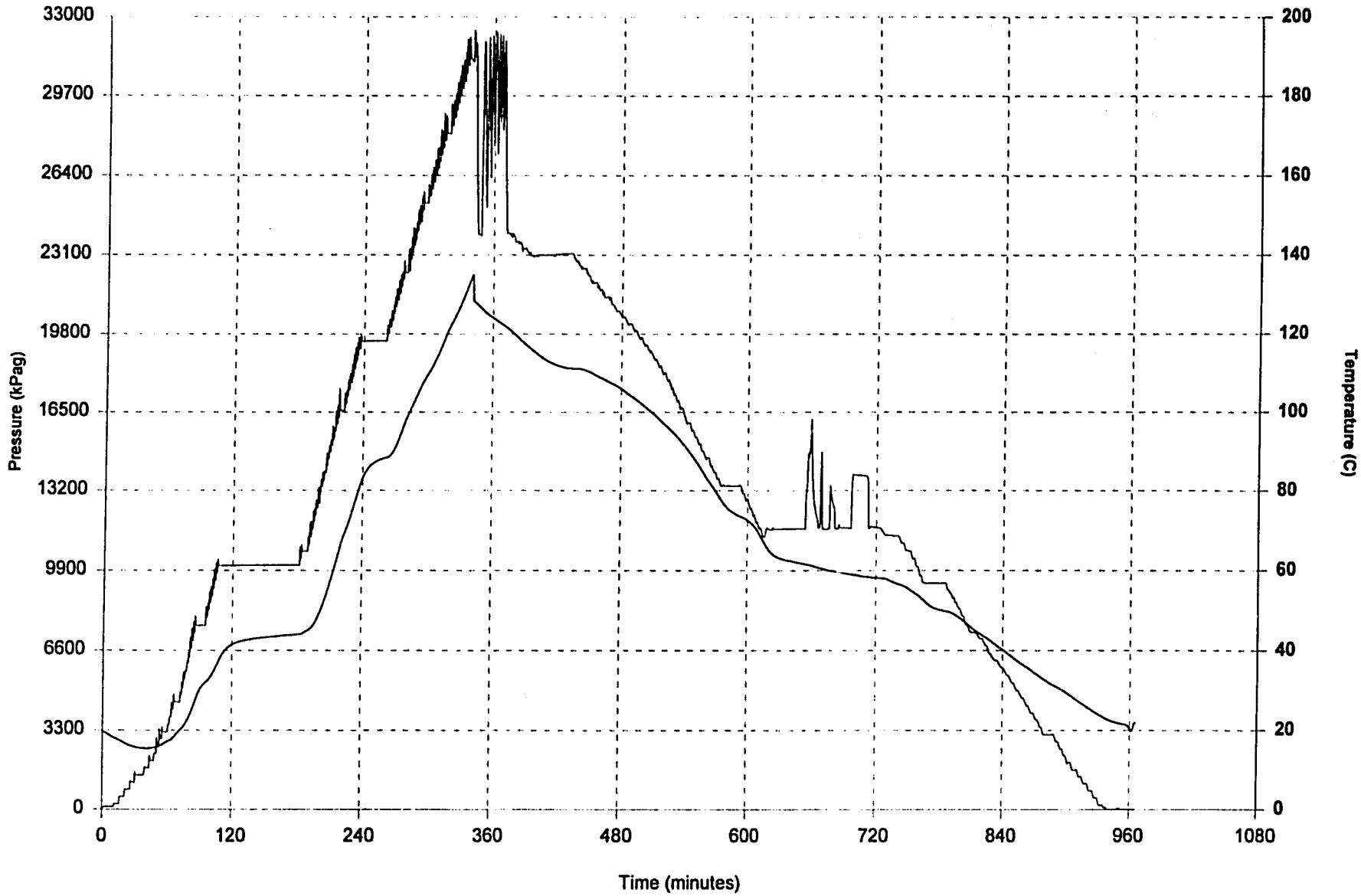
Remarks:

The test results indicate a large degree of plugging during both flows. This resulted in falsely high flowing pressures - the shut-in pressures should be valid. No valid electronic gauge data was obtained due to the high temperature. Tool was swabbing from the time we pulled free untill approximatly 1500 meters. Filled the hole by forcing mud past tool with annulus closed.



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 1
Recorder: M77

Invalid data



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Willis K
Ticket#: 808842
Reverse Circulated? Y
KB Elevation: 387.00 meters
Ground Elevat'n: 380.50 meters
Total Depth: 3,301.00 meters
Cushion: Invert 900.00 meters

Mud Data:

Weight: 1070 kg/m3
Type: Invert
Viscosity: 54 s/l
Water Loss: 0.0 cc/s
Filter Cake: 0.0 mm

Hole Data:

Drilled Hole Size: 156 mm
Calipered Hole Size: 156 mm
Hole Condition at Test Time: Fair
Conditioned prior to this test? N

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
22561	K-3	Inside	41200	kPag	3,237.00	Above interval
20657	K-3	Outside	42400	kPag	3,248.00	
M77	ZI	Outside	34500	kPag	3,248.00	Invalid data
13085	K-3	Inside	42000	kPag	3,272.00	Below interval

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 4 Sent To: AGAT

Bottom Hole Sampler#	*Sent To*
Yes	AGAT

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1

Tool Sequence:

Diagram	*Description*	*Length*
	Pump Out Sub	0.33 m
	Double Pin Sub	0.33 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Hydraulic Tool	1.50 m
	Bottom Hole Sampler	1.03 m
	Recorder Carrier	1.38 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Inflate Pump	2.38 m
	Screen	1.16 m
	Top Inflate Packer	1.78 m
	Packer Stick Down	0.82 m
	Port Sub	0.42 m
	Recorder Carrier	2.06 m
	Spacing	1.80 m
	Cross Over Sub	0.30 m
	Drill Collar	18.88 m
	Cross Over Sub	0.30 m
	Packer Stick Up	0.42 m
	Perforations	0.61 m
	Belly Spring	2.00 m

Tool String Length:	42.08 m
Drill Collar I.D.: 61 mm	285.95 m
Drill Pipe O.D.: 89 mm	2,948.40 m
Collar Pipe Total:	3,234.35 m
Stick Up:	3.82 m
Tool Above:	14.47 m
Interval Tested:	25.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1
Recorder# 20657

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	14278
3	10.0	23563

Shut-in# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		23563		
	0.8	8334	31897	13.9702	
	1.0	9565	33128	10.6061	
	2.7	9647	33210	4.7051	
	7.7	9711	33274	2.2967	*
	13.3	9739	33302	1.7517	*
	18.3	9766	33329	1.5460	*
	23.3	9778	33341	1.4294	*
	28.0	9791	33354	1.3572	*
	32.8	9794	33357	1.3047	*
	37.3	9800	33362	1.2679	*
	41.9	9801	33364	1.2386	*
	47.2	9805	33368	1.2117	*
	51.4	9807	33370	1.1945	*
	54.6	9807	33370	1.1831	*
4	60.0	9808	33371	1.1667	*

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	27674
6	90.0	29223

Shut-in# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		29223		
	0.6	3989	33212	182.8182	
	9.7	4056	33279	11.3605	
	19.2	4083	33306	6.2100	
	29.3	4108	33331	4.4188	*
	41.1	4111	33334	3.4329	*
	83.3	4118	33341	2.2004	*
	116.1	4124	33347	1.8615	*
	129.0	4133	33355	1.7752	*
	147.1	4136	33359	1.6797	*
	168.9	4140	33362	1.5921	*
	191.0	4140	33362	1.5236	*
	212.0	4143	33366	1.4717	*
	238.8	4143	33366	1.4188	*
	262.7	4145	33368	1.3807	*
7	270.0	4145	33368	1.3704	*

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1
Recorder#20657

Build-up and Flow Curve Increments

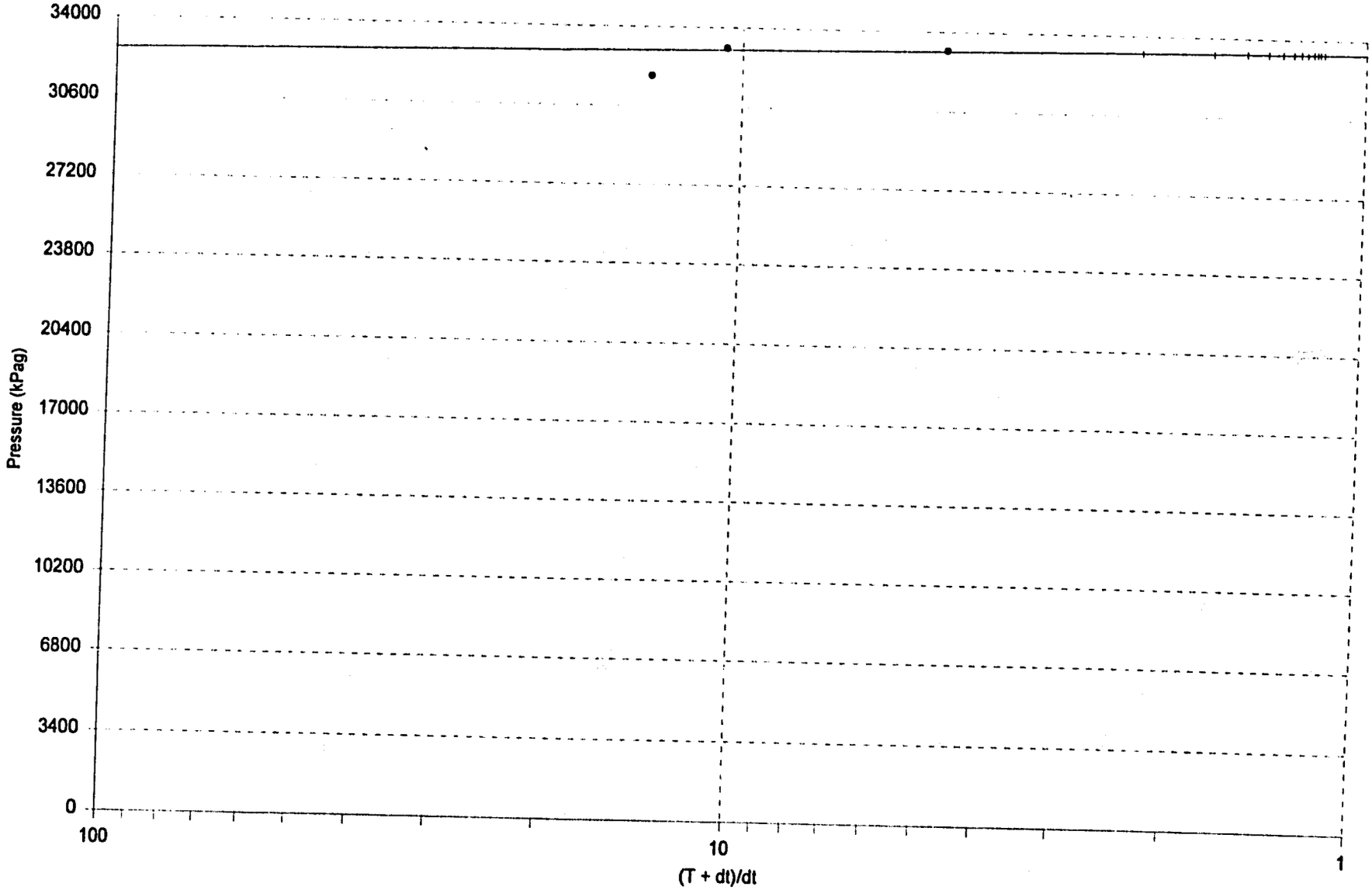
Horner Extrapolation:

Shut-in#	*Extrapolated Pressure (kPag)*	*Extrapolated Slope ((kPag/cycle)*
1	33396.5	352.19686
2	33376.3	78.79545

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

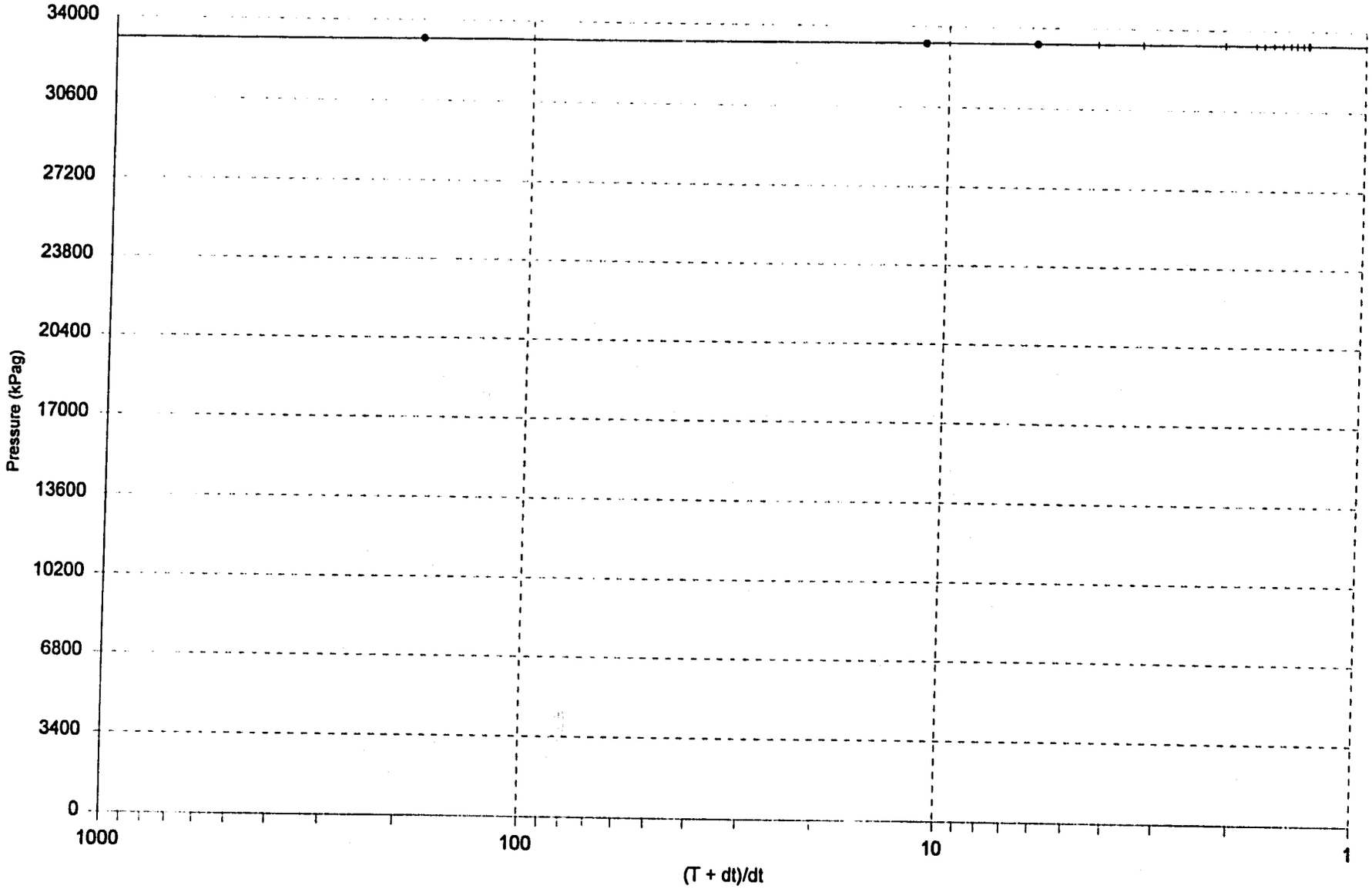
PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 1
Recorder: 20657

Shut-in #1
Slope = 352.19 kPag/cycle
Extrapolated Pressure = 33396.52 kPag



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 1
Recorder: 20657

Shut-in #2
Slope = 78.79 kPag/cycle
Extrapolated Pressure = 33376.28 kPag

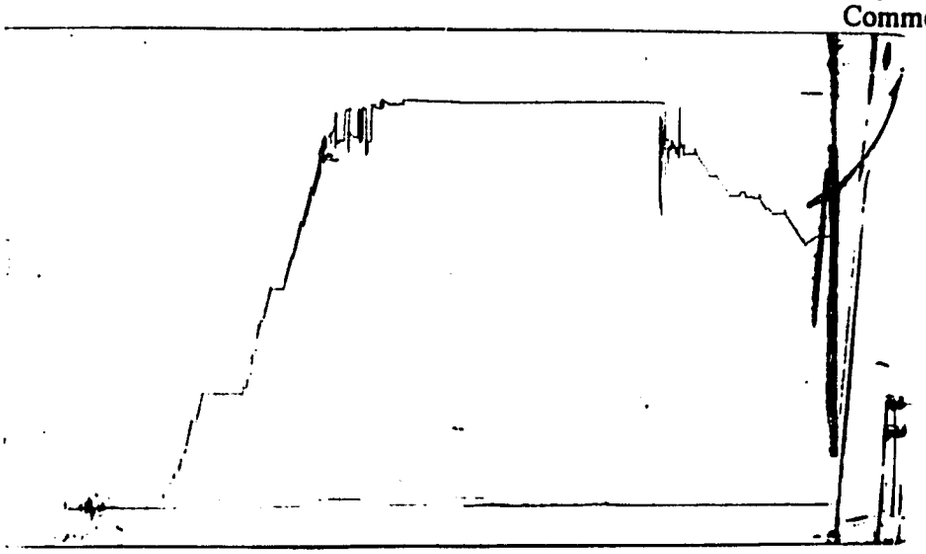


PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1

Recorder# 13085

Depth: 3,272.00 m
Location: Inside

Recorder Type: K-3
Capacity: 42,000 kPag
Comments: Below interval

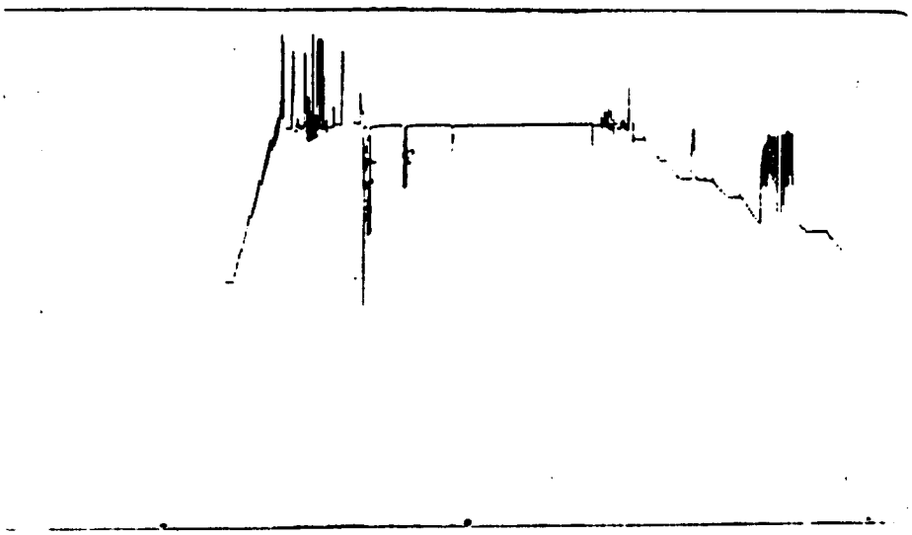


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	34074	
14	Final Hydrostatic	34074	

Recorder# 20657

Depth: 3,248.00 m
Location: Outside

Recorder Type: K-3
Capacity: 42,400 kPag



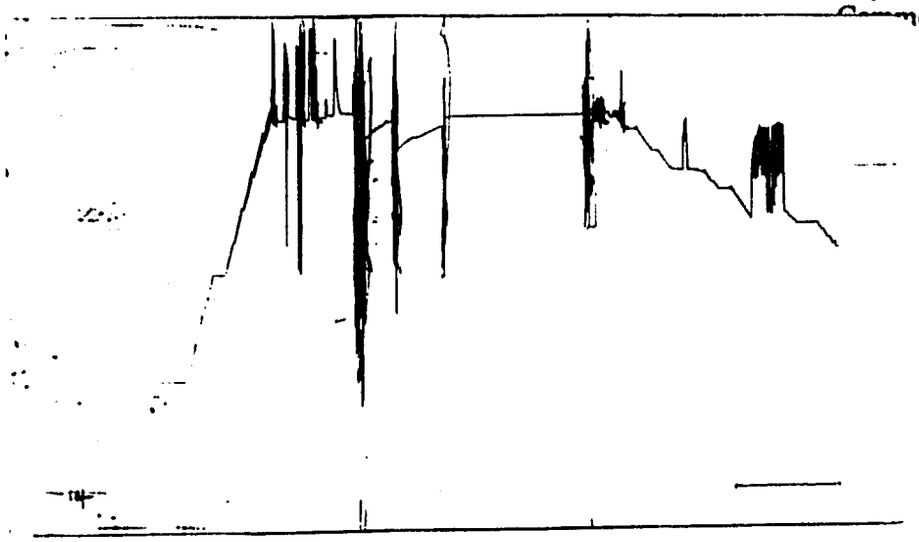
		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	33574	
2	Start of 1st Flow	14278	
3	End of 1st Flow	23563	10.0
4	End of 1st Shut-in	33371	60.0
5	Start of 2nd Flow	27674	
6	End of 2nd Flow	29223	90.0
7	End of 2nd Shut-in	33368	270.0
14	Final Hydrostatic	33574	

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 1

Recorder# 22561

Depth: 3,237.00 m
Location: Inside

Recorder Type: K-3
Capacity: 41,200 kPag
Comments: Above interval

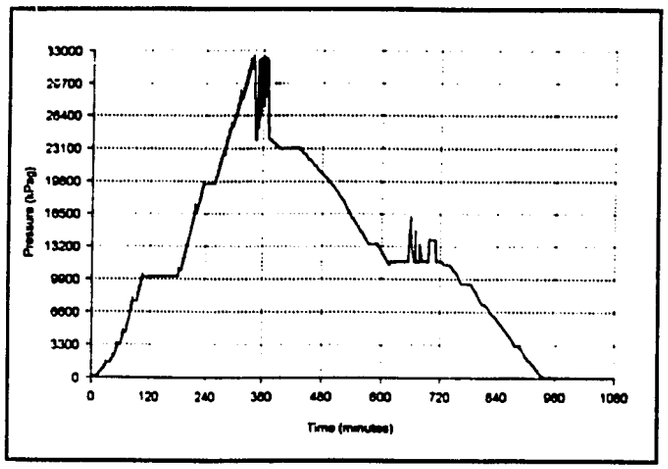


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	33634	
2	Start of 1st Flow	7808	
3	End of 1st Flow	15196	10.0
4	End of 1st Shut-in	33239	60.0
5	Start of 2nd Flow	15782	
6	End of 2nd Flow	19984	90.0
7	End of 2nd Shut-in	33239	270.0
14	Final Hydrostatic	33634	

Recorder# M77

Depth: 3,248.00 m
Location: Outside

Recorder Type: ZI
Capacity: 34,500 kPag
Comments: Invalid data



N.E.B. COPY

BAKER HUGHES

Baker Oil Tools

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

Formation: Slave Point

Interval - from: 3,251.00 **to:** 3,270.00 meters

Test Date: 1999-02-28

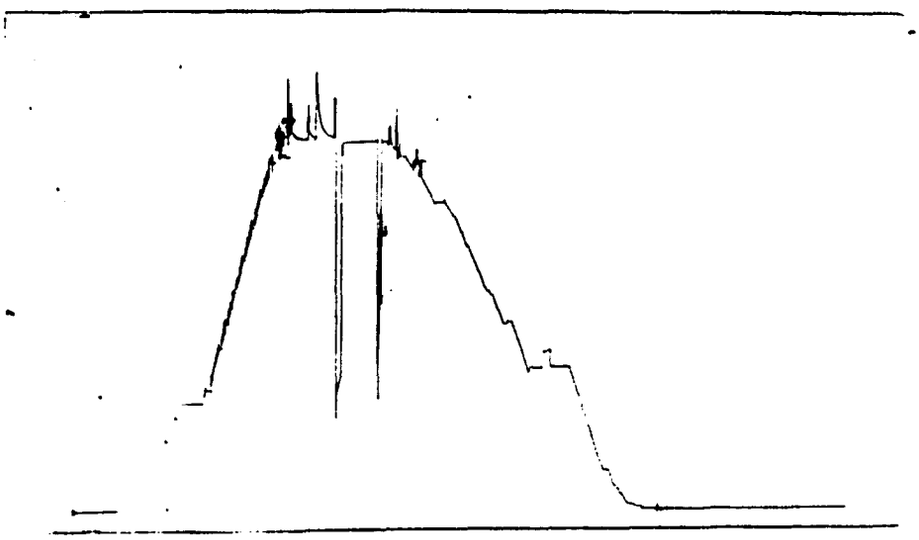
Test Type : Inflate Straddle

Recorder# 20657 at 3,254.00 meters

		Pressure (kPag)	Time (min)	Extrapolated Pressure (kPag)
1	Initial Hydrostatic	33277		
2	Start of 1st Flow	8005		
3	End of 1st Flow	12000	10.0	
4	End of 1st Shut-in	33120	60.0	33131.8
14	Final Hydrostatic	33277		

Liquid Recovery 1,100.00 meters

Recovery	Description
1,100.00 m	Invert



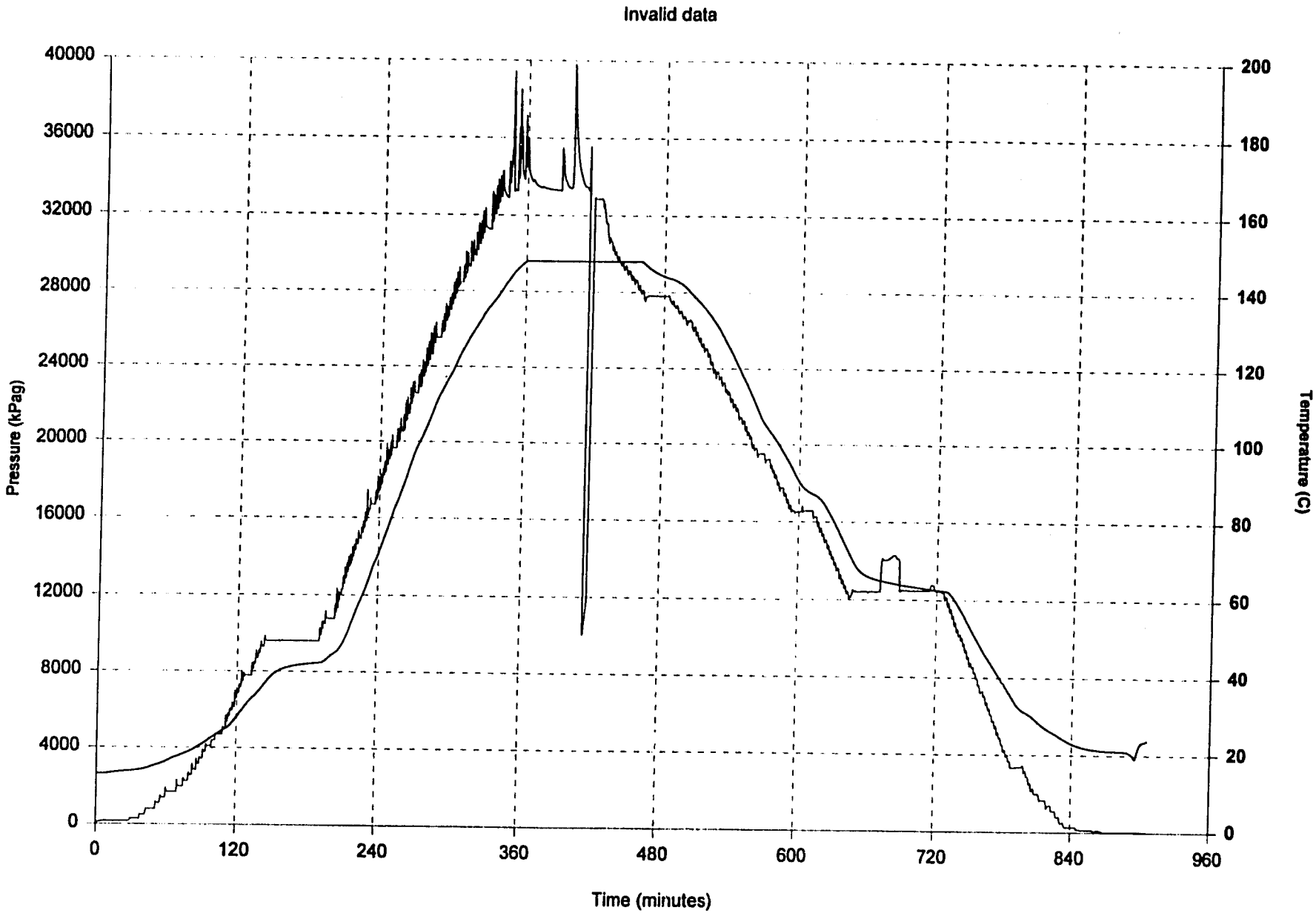
Blow Description:

PREFLOW: Very weak air blow (30 mm int pail). No gas to surface.

Remarks:

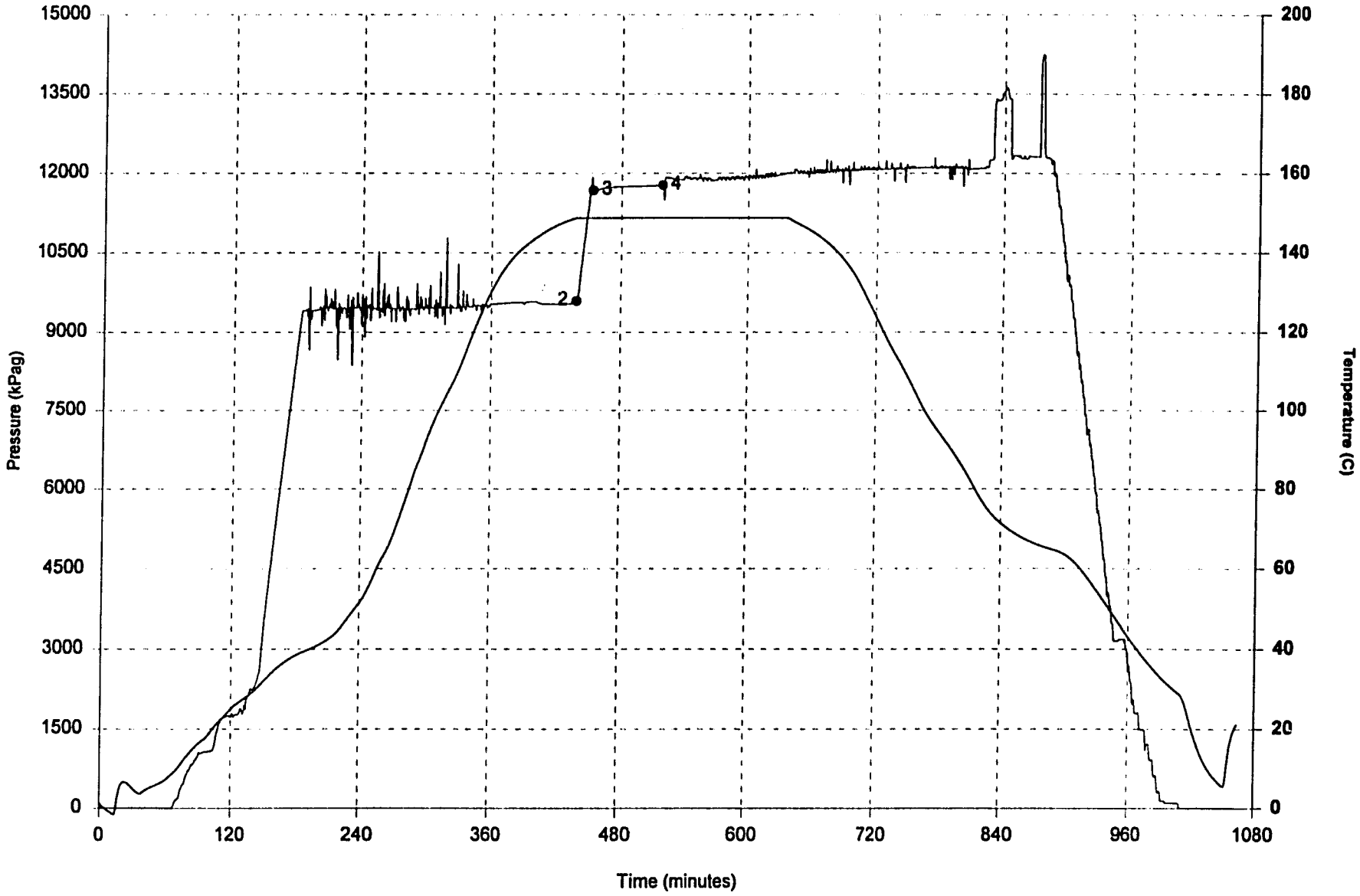
The test results indicate a zone of relatively high permeability. Lost the packer seat when opening the tool for the final flow - unable to regain the seat. No valid electronic gauge data from the interval recorder was obtained due to the high temperature. Some of the fluid recovery showed signs of salt water contamination.

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 2
Recorder: R62



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 2
Recorder: S58

Pressure (kPag) at Critical Points:
2: 9591
3: 11676
4: 11772



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Willis K
Ticket#: 808843
Reverse Circulated? Y
KB Elevation: 387.00 meters
Ground Elevat'n: 380.50 meters
Total Depth: 3,301.00 meters
Cushion: Invert 900.00 meters

Mud Data:

Weight: 1070 kg/m3
Type: Invert
Viscosity: 54 s/l

Hole Data:

Drilled Hole Size: 156 mm
Calipered Hole Size: 156 mm
Hole Condition at Test Time: Fair
Conditioned prior to this test? Y

Recorder Summary:

Recorder#	*Type*	*Position*	*Capacity*	*Units*	*Depth*	*Comments*
S58	ZI	Inside	68900	kPag	3,238.00	
13085	K-3	Inside	42000	kPag	3,243.00	Above interval
20657	K-3	Outside	42400	kPag	3,254.00	
R62	ZI	Outside	68900	kPag	3,254.00	Invalid data
22561	K-3	Inside	41200	kPag	3,272.00	Below interval

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 4 Sent To: AGAT

Bottom Hole Sampler#	*Sent To*
Yes	AGAT

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

Tool Sequence:

Diagram	Description	Length
	Pump Out Sub	0.33 m
	Double Pin Sub	0.33 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Hydraulic Tool	1.50 m
	Bottom Hole Sampler	1.03 m
	Bottom Hole Sampler	1.03 m
	Recorder Carrier	1.38 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Inflate Pump	2.38 m
	Screen	1.16 m
	Top Inflate Packer	1.78 m
	Packer Stick Down	0.82 m
	Port Sub	0.42 m
	Recorder Carrier	2.06 m
	Spacing	5.53 m
	Cross Over Sub	0.30 m
	Drill Collar	9.15 m
	Cross Over Sub	0.30 m
	Packer Stick Up	0.42 m
	Bottom Inflate Packer	1.90 m
	Perforations	0.61 m
	Belly Spring	2.00 m

Tool String Length:	39.01 m
Drill Collar I.D.: 61 mm	303.16 m
Drill Pipe O.D.: 89 mm	2,940.28 m
Collar Pipe Total:	3,243.44 m
Stick Up:	7.94 m
Tool Above:	15.50 m
Interval Tested:	19.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2
Recorder#S58

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	8005
3	10.0	12000

Shut-in# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		12000		
	0.9	6235	18235	11.9290	
	1.4	9083	21083	8.0423	
	1.8	11228	23228	6.5617	
	2.2	14469	26469	5.5290	
	2.7	16521	28521	4.7736	
	3.2	19662	31661	4.1075	
	4.1	20696	32696	3.4576	
	4.7	20882	32882	3.1418	
	6.3	20994	32994	2.5770	
	8.3	21028	33028	2.2099	*
	10.4	21037	33037	1.9606	*
	12.8	21040	33040	1.7827	*
	15.1	21046	33046	1.6618	*
	17.3	21053	33053	1.5774	*
	20.3	21058	33058	1.4915	*
	23.0	21065	33065	1.4348	*
	25.0	21069	33069	1.3997	*
	26.7	21072	33072	1.3752	*
	28.4	21081	33081	1.3526	*
	31.0	21085	33085	1.3225	*
	33.7	21086	33086	1.2965	*
	36.6	21093	33093	1.2730	*
	40.1	21099	33099	1.2496	*
	43.4	21104	33104	1.2302	*
	46.5	21108	33108	1.2151	*
	50.4	21111	33111	1.1984	*
	54.0	21115	33115	1.1851	*
	56.7	21118	33118	1.1765	*
4	60.0	21120	33120	1.1667	*

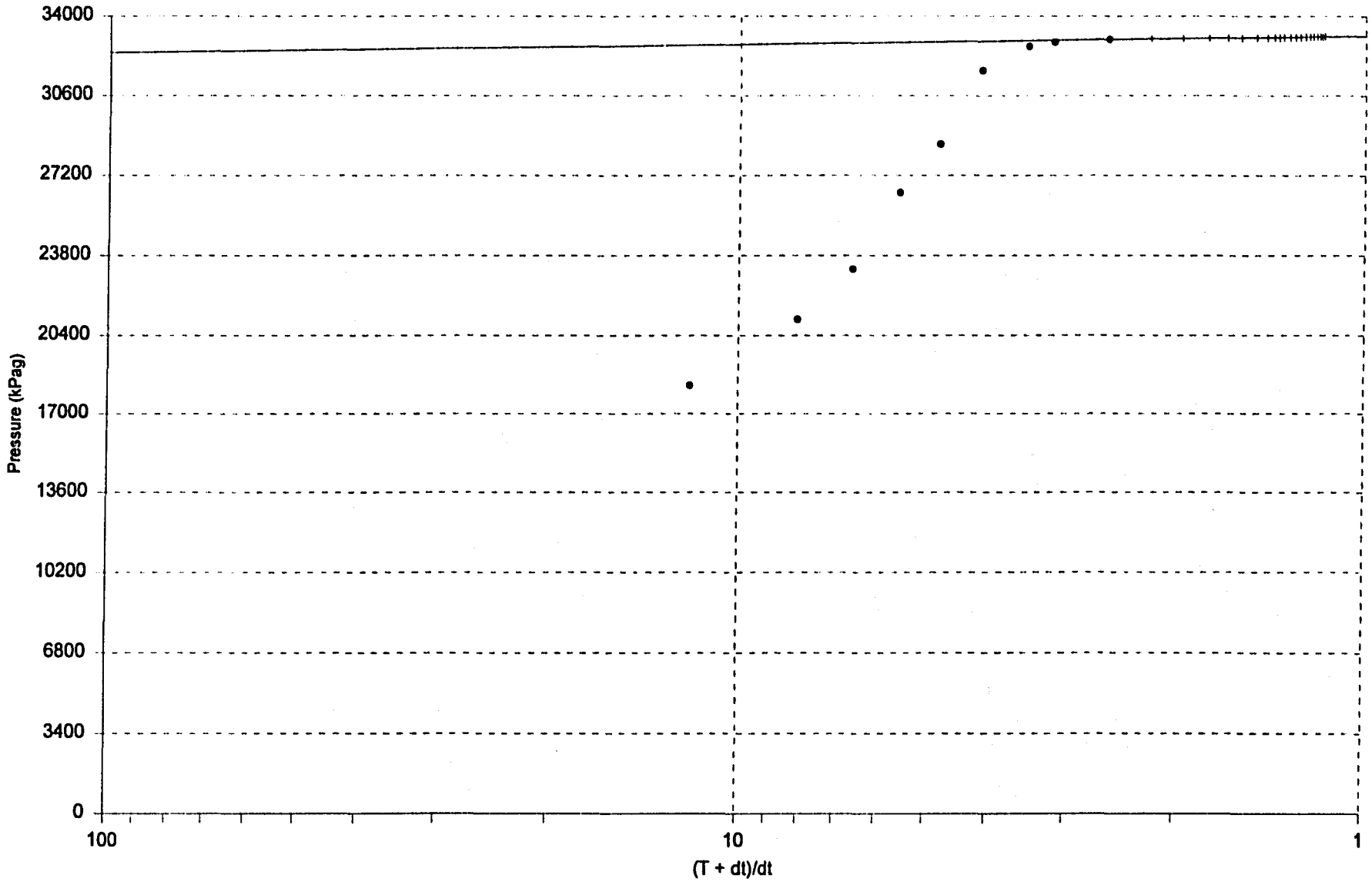
Horner Extrapolation:

Shut-in#	Extrapolated Pressure (kPag)	Extrapolated Slope ((kPag/cycle)
1	33131.8	355.38334

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 2
Recorder: 20657

Shut-in #1
Slope = 355.38 kPag/cycle
Extrapolated Pressure = 33131.77 kPag

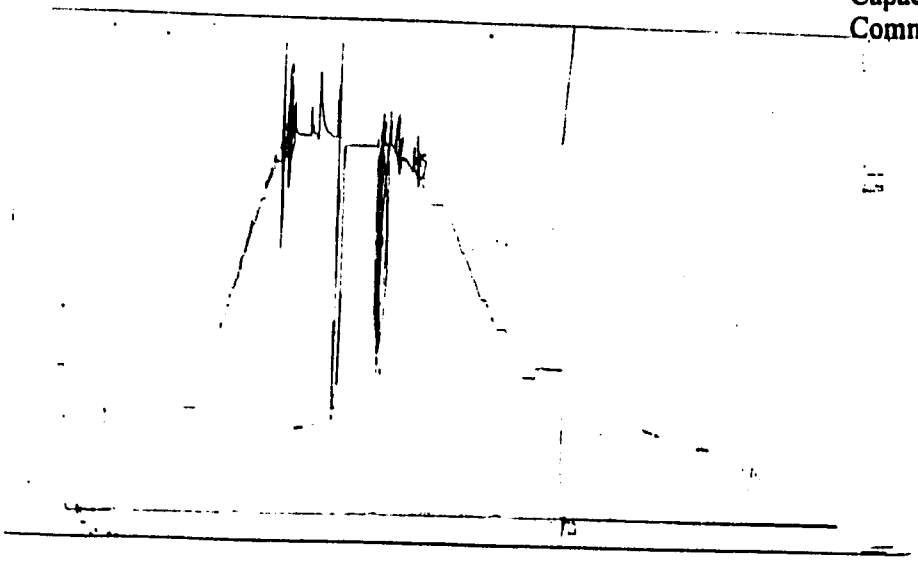


PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

Recorder# 13085

Depth: 3,243.00 m
Location: Inside

Recorder Type: K-3
Capacity: 42,000 kPag
Comments: Above interval

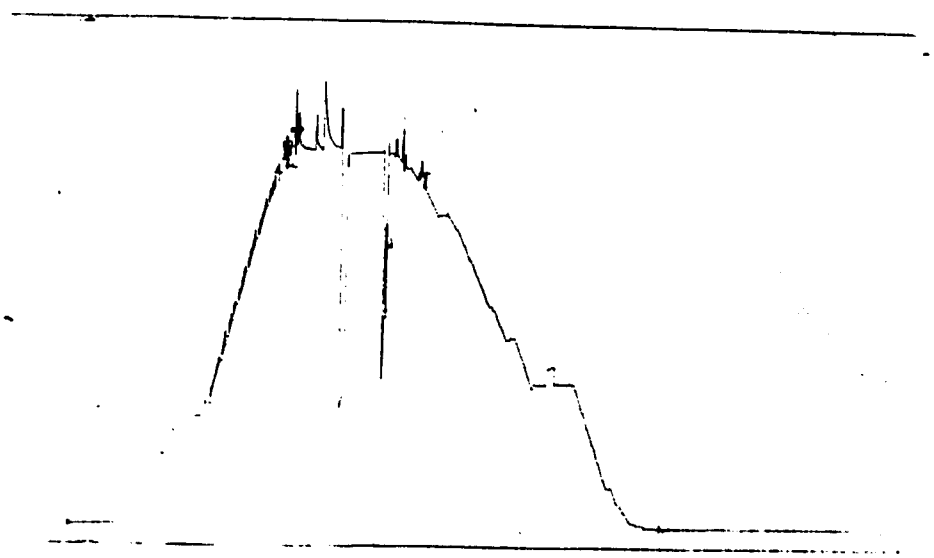


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	33211	
2	Start of 1st Flow	8245	
3	End of 1st Flow	11562	10.0
4	End of 1st Shut-in	32974	60.0
14	Final Hydrostatic	33211	

Recorder# 20657

Depth: 3,254.00 m
Location: Outside

Recorder Type: K-3
Capacity: 42,400 kPag



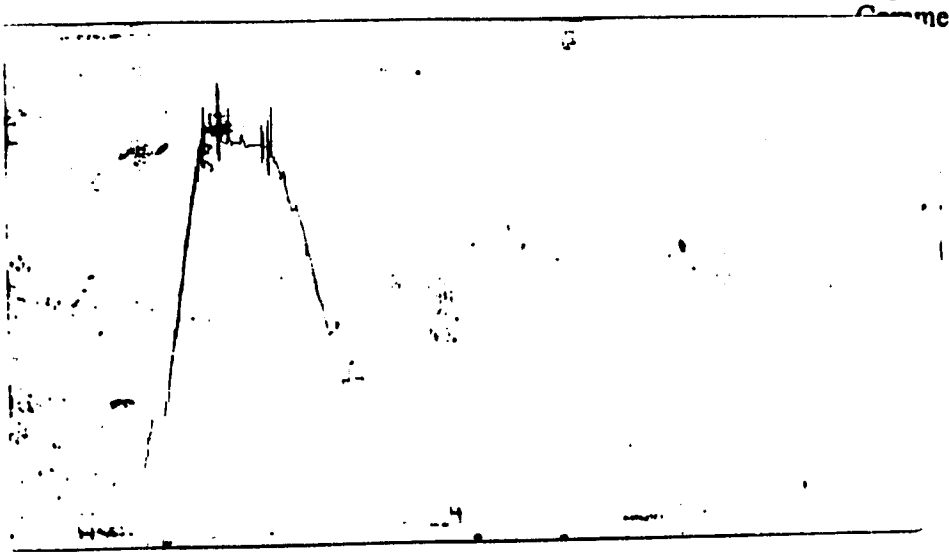
		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	33277	
2	Start of 1st Flow	8005	
3	End of 1st Flow	12000	10.0
4	End of 1st Shut-in	33120	60.0
14	Final Hydrostatic	33277	

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

Recorder# 22561

Depth: 3,272.00 m
Location: Inside

Recorder Type: K-3
Capacity: 41,200 kPag
Comments: Below interval

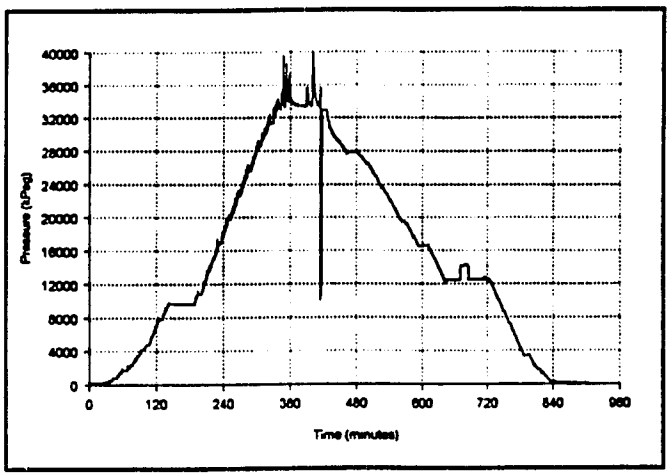


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	33966	
14	Final Hydrostatic	33966	

Recorder# R62

Depth: 3,254.00 m
Location: Outside

Recorder Type: ZI
Capacity: 68,900 kPag
Comments: Invalid data

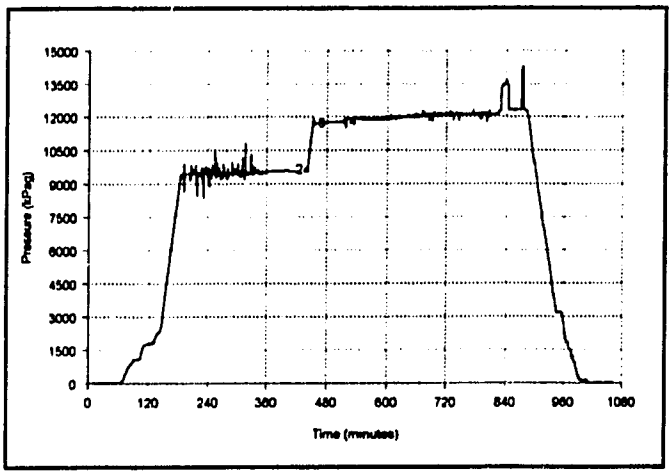


PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 2

Recorder# S58

Depth: 3,238.00 m
Location: Inside

Recorder Type: ZI
Capacity: 68,900 kPag



		Pressure (kPag)	Time (min)
2	Start of 1st Flow	9591	
3	End of 1st Flow	11676	10.0
4	End of 1st Shut-in	11772	60.0

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BAKER HUGHES

Baker Oil Tools

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3

Formation: Slave Point
Interval - from: 3,033.00 **to:** 3,044.00 meters

Test Date: 1999-03-01
Test Type : Inflate Straddle

Recorder# 20657 at 3,035.00 meters

		Pressure (kPag)	Time (min)	Extrapolated Pressure (kPag)
1	Initial Hydrostatic	31464		
2	Start of 1st Flow	19403		
3	End of 1st Flow	26039	10.0	
4	End of 1st Shut-in	30131	60.0	30201.2
5	Start of 2nd Flow	30163		
6	End of 2nd Flow	30293	60.0	
7	End of 2nd Shut-in	30312	120.0	
14	Final Hydrostatic	31464		

Liquid Recovery 1,700.00 meters

Salinity : 142 000 g/m3

Recovery	Description
870.00 m	Invert cushion
830.00 m	Gasified salt water

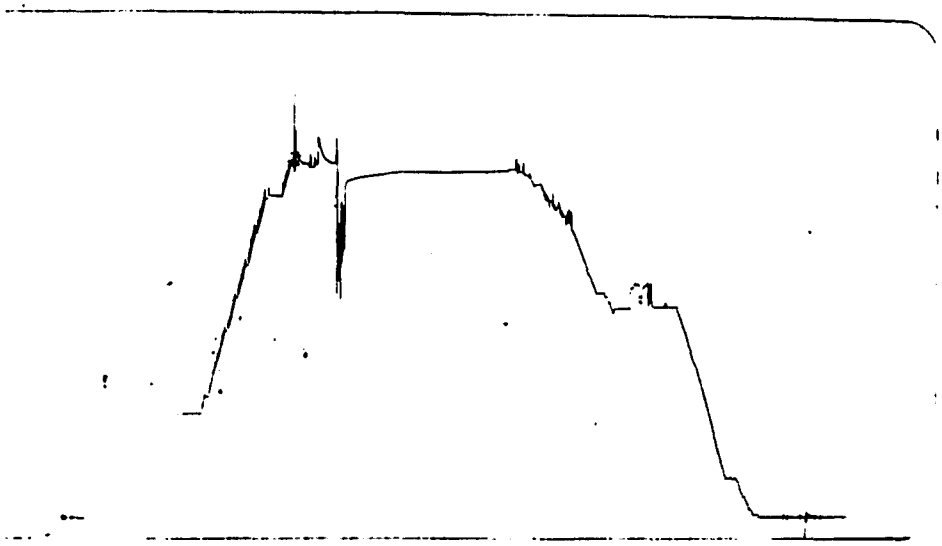
Blow Description:

PREFLOW: Strong air blow in 4 minutes then steady throughout. No gas to surface.

FINAL FLOW: Opened tool had no blow. Cycled tool several times still no blow.

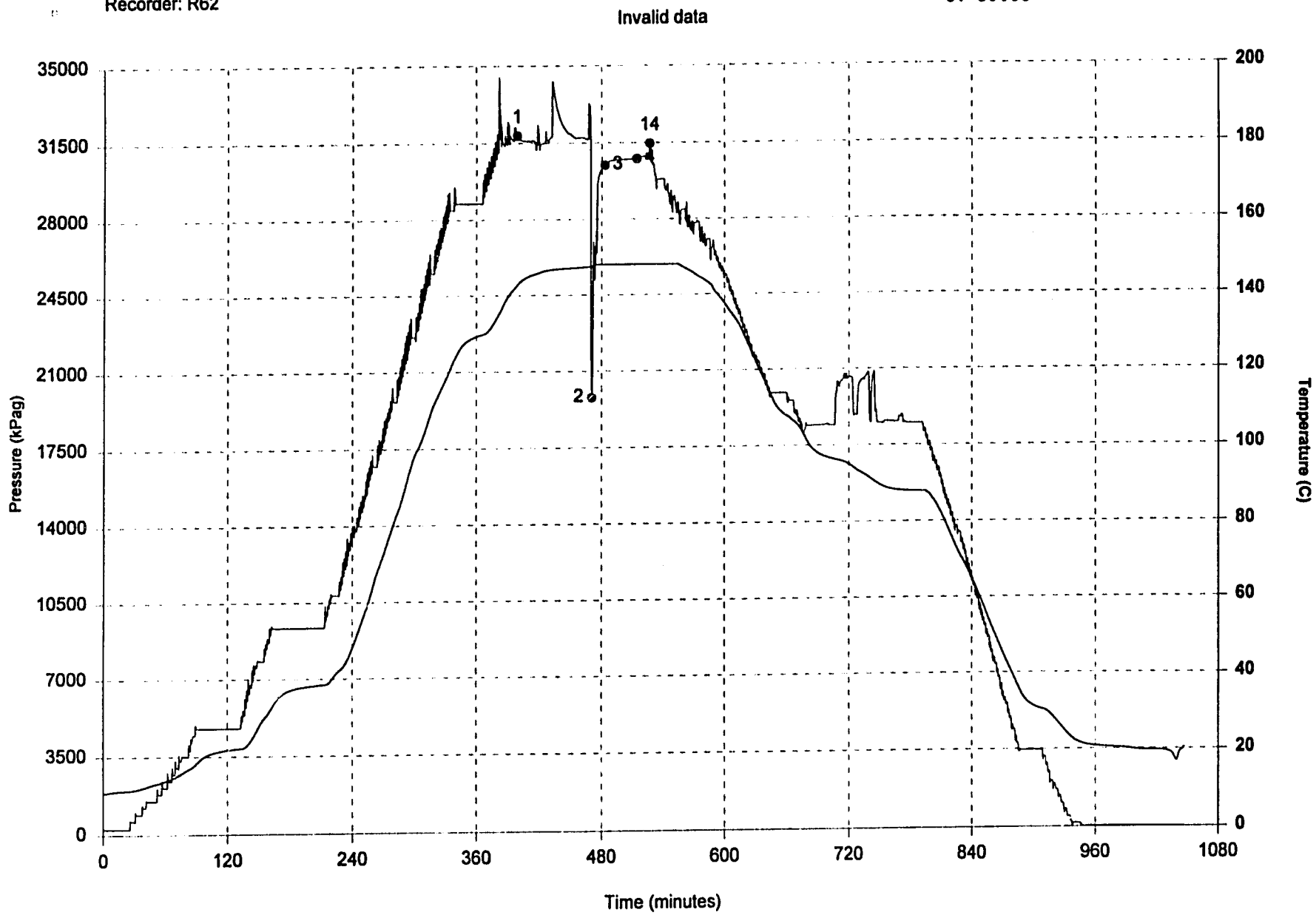
Remarks:

The test results indicate a zone of relatively high permeability. The flow pressures indicate some plugging during the preflow and total plugging of the tool during the final flow. No valid electronic gauge data from the interval recorder was obtained due to the high temperature. The salt water has lots of gas trapped with it under the fluid cushion. Very noticeable break between cushion and produced water. One drill collar was plugged completely with sand. The top recorder carrier, pressure activated pump out sub and cross-over sub all plugged.



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 3
Recorder: R62

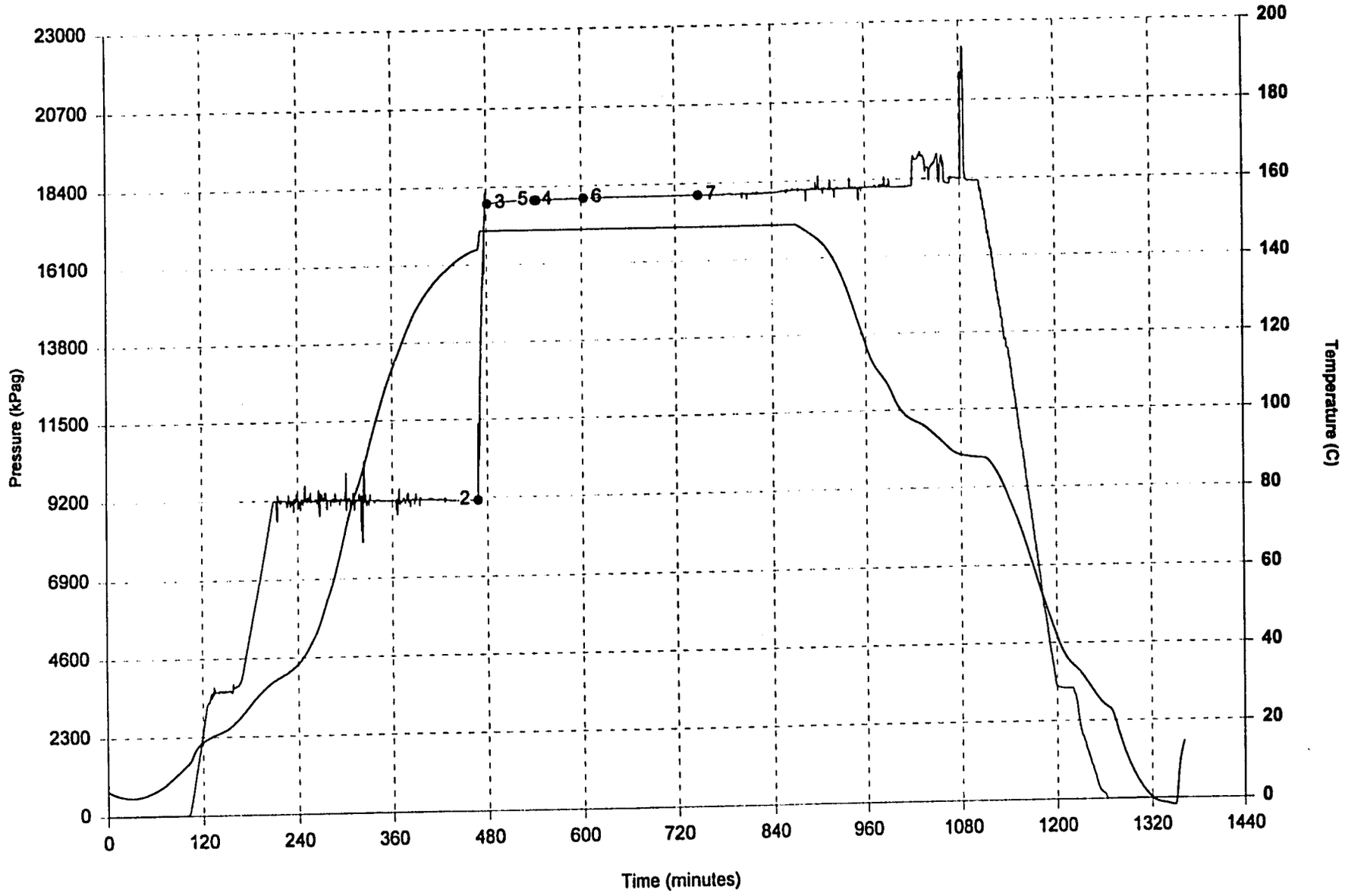
Pressure (kPag) at Critical Points:
1: 31822 4: 30745
2: 19781 14: 31444
3: 30466



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 3
Recorder: S58

Pressure (kPag) at Critical Points:

2: 9120	5: 17995
3: 17914	6: 18026
4: 17995	7: 18049



PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3

General Information:

Operator: Paramount Resources Ltd.
4000, 350 - 7th Avenue S.W.
Calgary Alberta T2P 3W5

Tester: Willis K
Ticket#: 808844
Reverse Circulated? N
KB Elevation: 387.00 meters
Ground Elevat'n: 380.50 meters
Total Depth: 3,301.00 meters
Cushion: Invert 870.00 meters

Mud Data:

Weight: 1070 kg/m3
Type: Invert
Viscosity: 54 s/l

Hole Data:

Drilled Hole Size: 156 mm
Calipered Hole Size: 156 mm
Hole Condition at Test Time: Fair
Conditioned prior to this test? N

Recorder Summary:

Recorder#	Type	Position	Capacity	Units	Depth	Comments
S58	ZI	Inside	68900	kPag	3,019.00	
13085	K-3	Inside	42000	kPag	3,024.00	Above interval - clock stopped
20657	K-3	Outside	42400	kPag	3,035.00	
R62	ZI	Outside	68900	kPag	3,035.00	Invalid data

Distributions:

Reports Sent To: Wayne Tomm
Fluid Samples - no of: 8 Sent To: AGAT

Bottom Hole Sampler #	Sent To
Yes	AGAT

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3

Tool Sequence:

Diagram	*Description*	*Length*
	Pump Out Sub	0.33 m
	Cross Over Sub	0.30 m
	Pump Out Sub	0.33 m
	Recorder Carrier	1.38 m
	Hydraulic Tool	1.50 m
	Bottom Hole Sampler	1.03 m
	Bottom Hole Sampler	1.03 m
	Recorder Carrier	1.38 m
	Hydraulic Jars	2.22 m
	Safety Joint	0.65 m
	Inflate Pump	2.38 m
	Screen	1.16 m
	Top Inflate Packer	1.78 m
	Packer Stick Down	0.82 m
	Port Sub	0.42 m
	Recorder Carrier	2.06 m
	Spacing	7.28 m
	Packer Stick Up	0.42 m
	Bottom Inflate Packer	1.90 m
	Perforations	0.61 m
	Belly Spring	2.00 m

Tool String Length:	30.98 m
Drill Collar I.D.: 61 mm	304.08 m
Drill Pipe O.D.: 89 mm	2,718.54 m
Collar Pipe Total:	3,022.62 m
Stick Up:	5.09 m
Tool Above:	15.47 m
Interval Tested:	11.00 m
Bottom Hole Choke Size:	25.40 mm

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3
Recorder# R62

Build-up and Flow Curve Increments

Flow# 1

Chart Label	Time (min)	Pressure (kPag)
2	0.0	19403
3	10.0	26039

Shut-in# 1

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
	0.0		26039		
	0.7	3029	29068	15.6628	
	3.0	3477	29516	4.2884	
	4.9	3544	29583	3.0576	
	7.4	3610	29649	2.3532	
	9.5	3642	29681	2.0502	*
	11.6	3679	29718	1.8645	*
	13.6	3711	29750	1.7376	*
	15.4	3745	29784	1.6491	*
	17.9	3771	29810	1.5585	*
	19.8	3791	29830	1.5055	*
	21.7	3812	29851	1.4611	*
	23.5	3833	29872	1.4254	*
	25.2	3849	29888	1.3962	*
	27.5	3874	29913	1.3635	*
	29.9	3892	29931	1.3344	*
	32.4	3920	29959	1.3089	*
	34.9	3936	29975	1.2867	*
	37.5	3961	30000	1.2669	*
	40.2	3981	30020	1.2488	*
	44.1	4012	30051	1.2270	*
	47.5	4037	30076	1.2104	*
	50.9	4059	30098	1.1966	*
	54.4	4071	30110	1.1839	*
4	60.0	4092	30131	1.1667	*

Flow# 2

Chart Label	Time (min)	Pressure (kPag)
5	0.0	30163
6	60.0	30293

Shut-in# 2

Chart Label	Time (min)	Delta P (kPag)	Pressure (kPag)	Abscissa (T+dT)/dT	Used for Extrap
7	120.0	20	30312	1.5833	

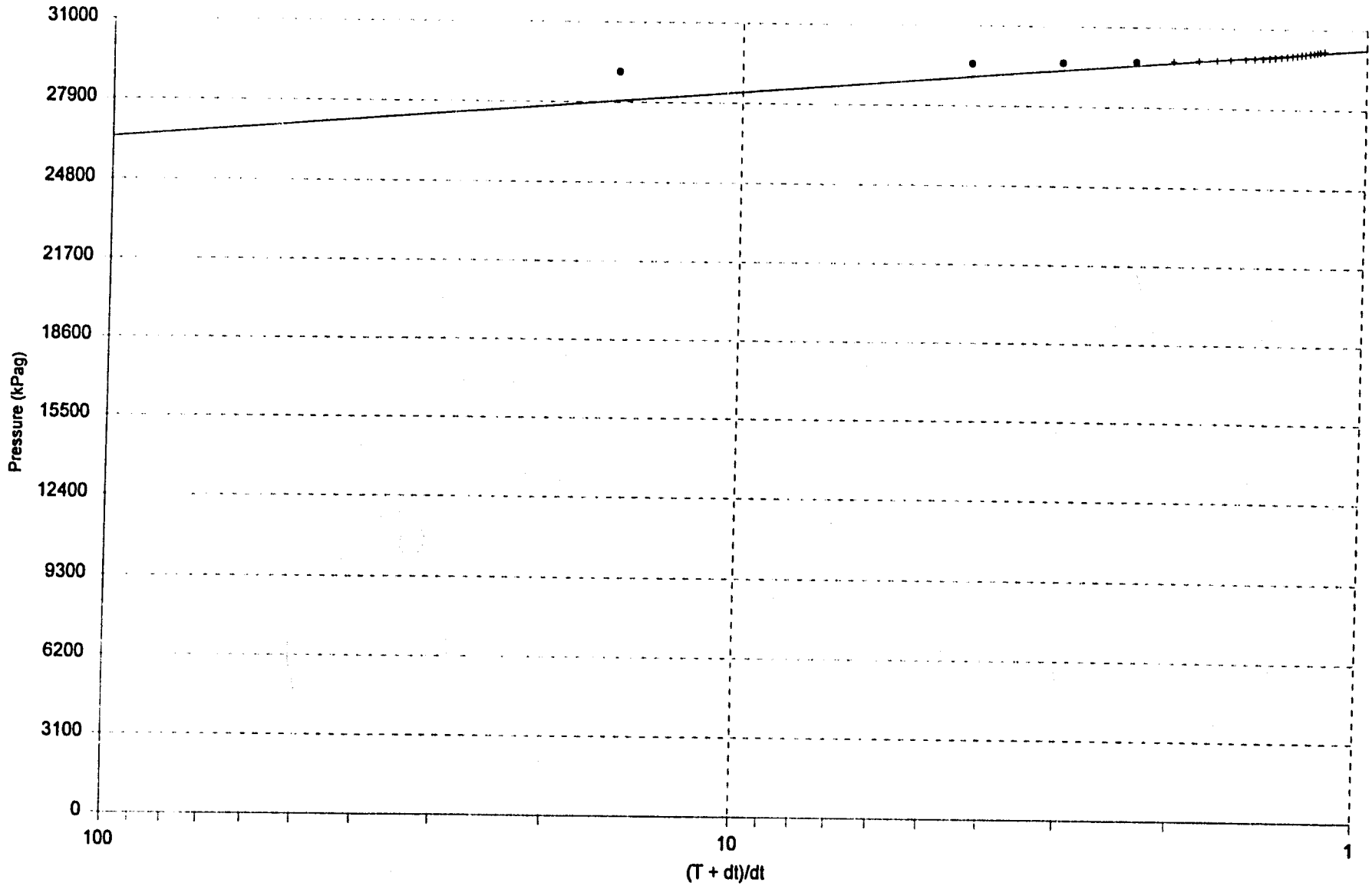
Horner Extrapolation:

Shut-in#	Extrapolated Pressure (kPag)	Extrapolated Slope ((kPag/cycle)
1	30201.2	1,890.94399

Note: Increment listing is filtered to include critical data only. Complete time/pressure data is available in electronic or printed format.

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST #: 3
Recorder: 20657

Shut-in #1
Slope = 1890.95 kPag/cycle
Extrapolated Pressure = 30201.20 kPag

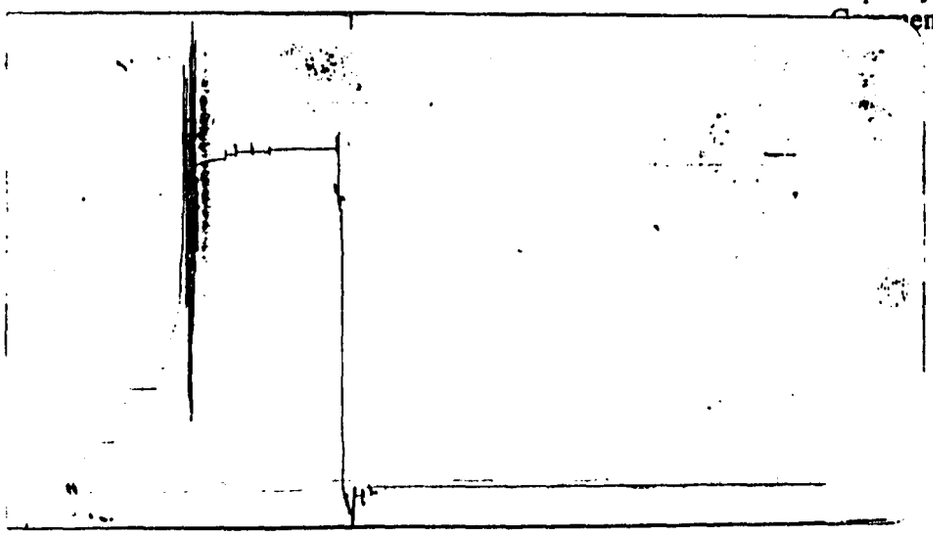


PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3

Recorder# 13085

Depth: 3,024.00 m
Location: Inside

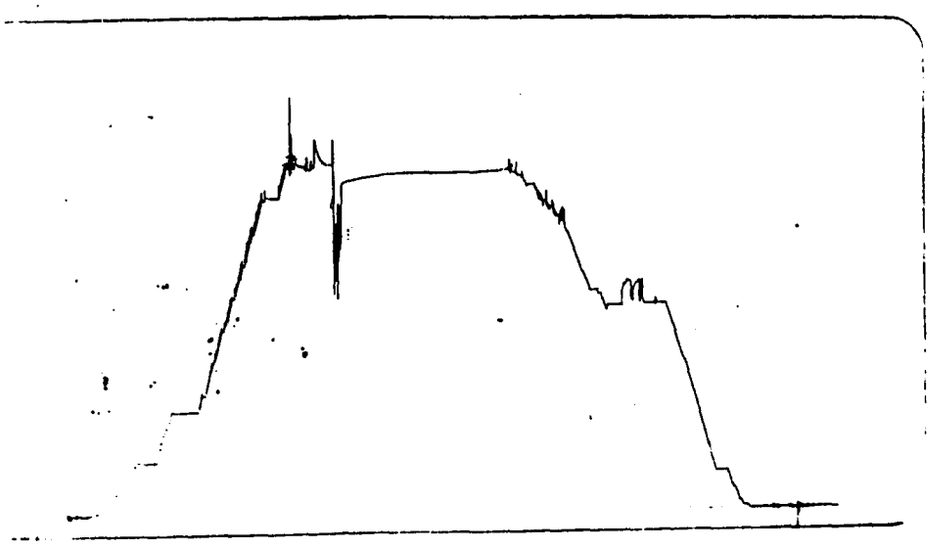
Recorder Type: K-3
Capacity: 42,000 kPag
Comments: Above interval - clock stopped



Recorder# 20657

Depth: 3,035.00 m
Location: Outside

Recorder Type: K-3
Capacity: 42,400 kPag



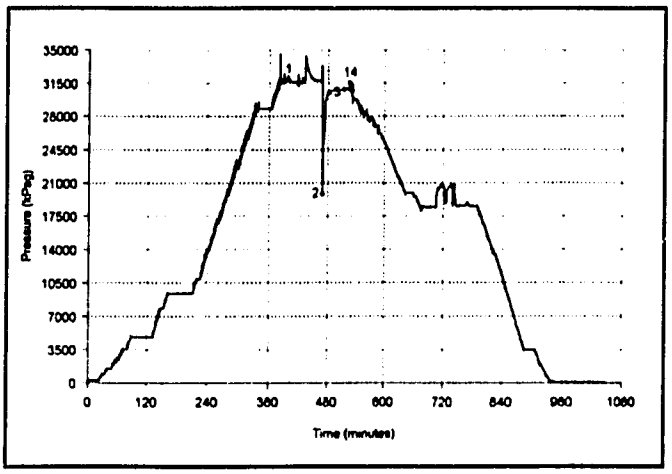
		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	31464	
2	Start of 1st Flow	19403	
3	End of 1st Flow	26039	10.0
4	End of 1st Shut-in	30131	60.0
5	Start of 2nd Flow	30163	
6	End of 2nd Flow	30293	60.0
7	End of 2nd Shut-in	30312	120.0
14	Final Hydrostatic	31464	

PARAMOUNT BERKLEY ARROWHEAD O-15
00/ 60.245 / 123.023 /0
DST# 3

Recorder# R62

Depth: 3,035.00 m
Location: Outside

Recorder Type: ZI
Capacity: 68,900 kPag
Comments: Invalid data

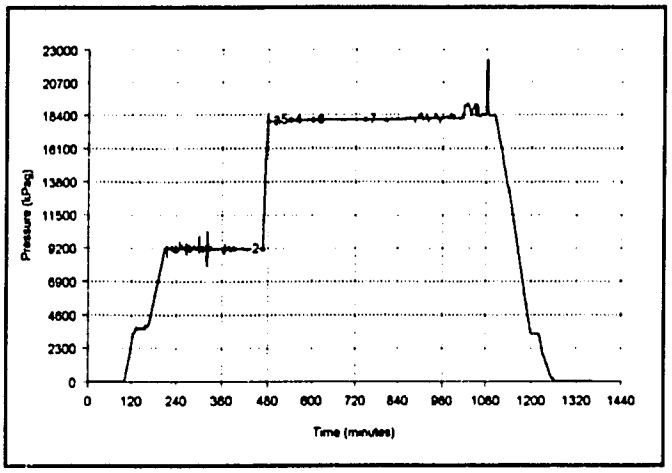


		Pressure (kPag)	Time (min)
1	Initial Hydrostatic	31822	
2	Start of 1st Flow	19781	
3	End of 1st Flow	30466	10.0
4	End of 1st Shut-in	30745	60.0
14	Final Hydrostatic	31444	

Recorder# S58

Depth: 3,019.00 m
Location: Inside

Recorder Type: ZI
Capacity: 68,900 kPag



		Pressure (kPag)	Time (min)
2	Start of 1st Flow	9120	
3	End of 1st Flow	17914	10.0
4	End of 1st Shut-in	17995	60.0
5	Start of 2nd Flow	17995	
6	End of 2nd Flow	18026	60.0
7	End of 2nd Shut-in	18049	120.0

RESISTIVITY/ CONDUCTIVITY

N.E.B. COPY

BAKER HUGHES Baker Atlas

HIGH DEFINITION INDUCTION LOG GAMMA RAY LOG

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
	WELL	PARAMOUNT ET AL ARROWHEAD Ø-15
API NO:	FIELD	FORT LIARD
	PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

3000156030123000

LOCATION:
WID:1834
Ø-15-60DEG30'-123DEG Ø'

OTHER SERVICES
DAL-GR-XY
ZDL-CN-GR-XY
CUL
TUD

PERMANENT DATUM G.L. ELEVATION 380.5 M
LOG MEASURED FROM K.B. 6.2 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 386.7 M
DF
GL 380.5 M

DATE	08-FEB-1999			
RUN / TRIP	1	1		
SERVICE ORDER	968847			
DEPTH DRILLER	2805.0 M			
DEPTH LOGGER	2804.7 M			
BOTTOM LOGGED INTERVAL	2794.2 M			
TOP LOGGED INTERVAL	1185.7 M			
CASING-DRILLER	244.5 MM	@1186.6 M	@	
CASING LOGGER	1185.7 M			
BIT SIZE	216.0 MM			
TYPE OF FLUID IN HOLE	INVERT			
DENSITY / VISCOSITY	1010 G/C3	53 S		
PH / FLUIDLOSS	-	-		
SOURCE OF SAMPLE	FLOWLINE			
RM AT MEAS. TEMP.	-	@ -	@	
RMF AT MEAS. TEMP.	-	@ -	@	
RMC AT MEAS. TEMP.	-	@ -	@	
SOURCE OF RMF / RMC	-	-		
RM AT BHT	-	@ -	@	
TIME SINCE CIRCULATION	9 HRS.			
MAX. RECORDED TEMP.	122.0 DEGC			
EQUIP. NO. / LOCATION	HL 6544	G.P.		
RECORDED BY	D.SPELAY/R.KHAFIZOV			
WITNESSED BY	C.BREDIN			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

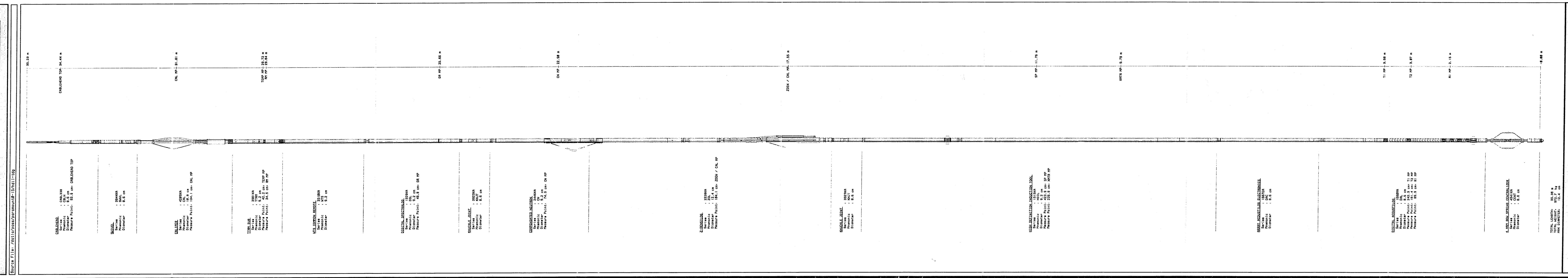
REMARKS

RUN 1 TRIP 1 : all scales and presentations as per customer request.
maximum deviation = 6.4 deg at 2312.93.
customer notified of depth discrepancy with previous run log.
last circulated: 08-feb-99 1230.
no sp presented due to invert mud.
crew: b.fusick&o.pinto

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XB	153823	FREE
1	1	CAL	4209XA	044639	CALIPER
1	1	TTRM	3981XA	180401	FREE
1	1	COMR	3510XA	168181	FREE
1	1	GR	1329XA	153174	FREE
1	1	KNJT	3923XA	167198	KNUCKLE JOINT
1	1	CN	2446XA	118263	FREE
1	1	ZDL	2228EA/2228MA	177075/172644	PAD DEVICE
1	1	KNJT	3923XA	166792	KNUCKLE JOINT
1	1	HDIL	1515EA/1515MA	177896/178647	1.5 INCH STANDOFF
1	1	DAL	1667EA	177951	CENTRALIZED
1	1	CENT	4341XA	173361	CENTRALIZER
1	1	DAL	1680MA	179617	CENTRALIZED
1	1	CENT	4341XA	168349	CENTRALIZER

INSTRUMENT CONFIGURATION



4 ARM BOW SPRING CENTRALIZER
Series : 4341XA
Mnemonic : CENT
Diameter : 8.6 cm

TOTAL LENGTH: 35.38 m
TOTAL WEIGHT: 972.7 kg
MAX DIAMETER: 12.4 cm

MAIN PASS - UPPER PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Tue Feb 9 01:17:35 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /datla/pass/paramount0-15/d777H03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1167.613 m BOTTOM DEPTH: 2810.180 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		:	:
	FILTER (.h)	light (2)		:	:
	FILTER (.l)	light (2)		:	:
GR	FILTER ()	medium (1)		:	:
HDIL	HDIL 2 FT RES	OFF		:	:
TENSION	FILTER ()	medium (1)		:	:

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X-Y CALIPER	X-Y Caliper	Average		:	:
BIT SIZE	BIT SIZE	216.000	mm	:	:
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbh#)	USE CALIPER		:	:
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh#)	216.000	mm	:	:
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		:	:
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	:	:
	MUD SAMPLE RES	1.000	ohm.m	:	:
	MUD REFERENCE TEMP	15.0	degC	:	:
	TEMP GRADIENT	2.070	0.01 degC/m	:	:

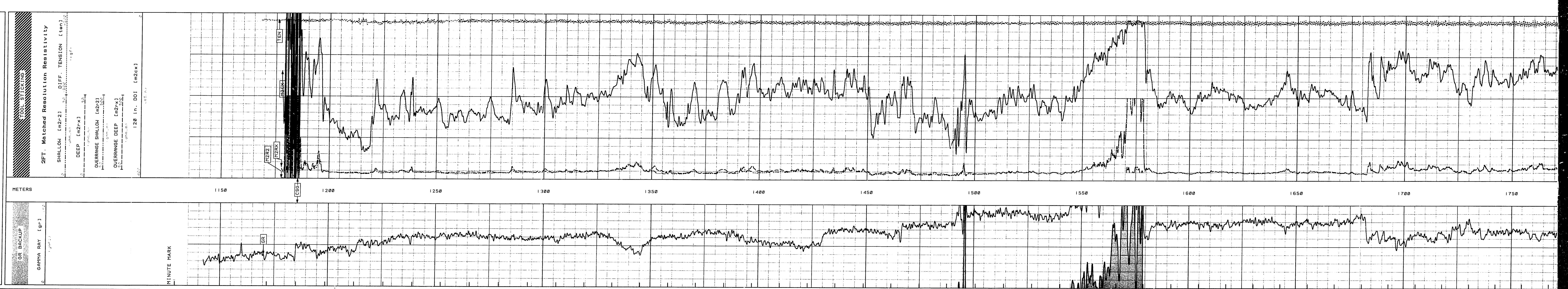
HDIL PROCESSING

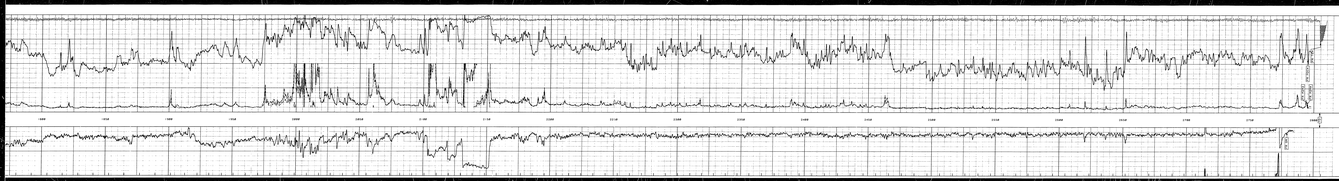
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		:	:
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		:	:
	TEMP CORR SOURCE	USE RXTEMP		:	:

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	25.68	m2r2	9.98	ten	0.00		
m2cx	9.98	m2rx	9.98				

Presentation : /datla/pass/paramount0-15/hdil_up.pdf
Data File : FI : cpu1:/datla/pass/paramount0-15/d777H03.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 1136.14 - 2810.26 Meters
Oct : d777H




-1400
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-1250
-1200
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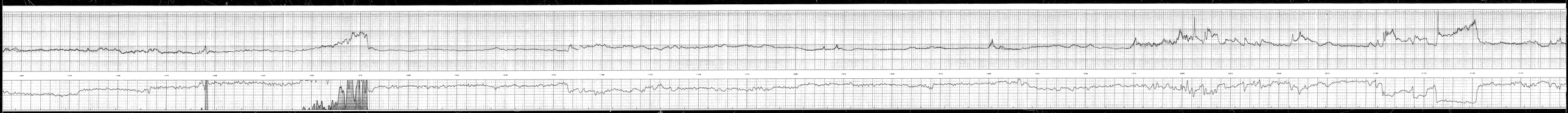
-750
-700
-650
-600
-550
-500
-450
-400
-350
-300
-250
-200
-150
-100
-50
0
PETROS
MT. Wilcox Petroleum Corporation
Well Name: Fairway Ranch #1
Location: Sec. 4, T1S, R1E
Lat: 34.0 Long: -117.5
Elevation: 1500 ft
Date: 10/1/2011
Operator: Jim Smith
Logging Engineer: Mike Johnson
Logging Unit: Unit 3
Mud Type: Water Gel
Mud Weight: 9.2 ppg
Bit Size: 8.5 in
Total Depth: 2400 ft
Drilling Time
Gas Units
Total Gas
Chromatograph
Lithology
Drilling Rate



MAIN PASS - 3 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Tue Feb 9 00:11:10 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /datla/pass/paramount0-15/d777H03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 1167.613 m BOTTOM DEPTH: 2810.180 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		:	:
	FILTER (.h)	light (2)		:	:
	FILTER (.l)	light (2)		:	:
GR	FILTER ()	medium (1)		:	:
HDIL	HDIL 2 FT RES	OFF		:	:
TENSION	FILTER ()	medium (1)		:	:

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X-Y CALIPER	X-Y Caliper	Average		:	:
BIT SIZE	BIT SIZE	216.000	mm	:	:
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbh#)	USE CALIPER		:	:
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh#)	216.000	mm	:	:
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		:	:
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	:	:
	MUD SAMPLE RES	1.000	ohm.m	:	:
	MUD REFERENCE TEMP	15.0	degC	:	:
	TEMP GRADIENT	2.870	0.01 degC/m	:	:

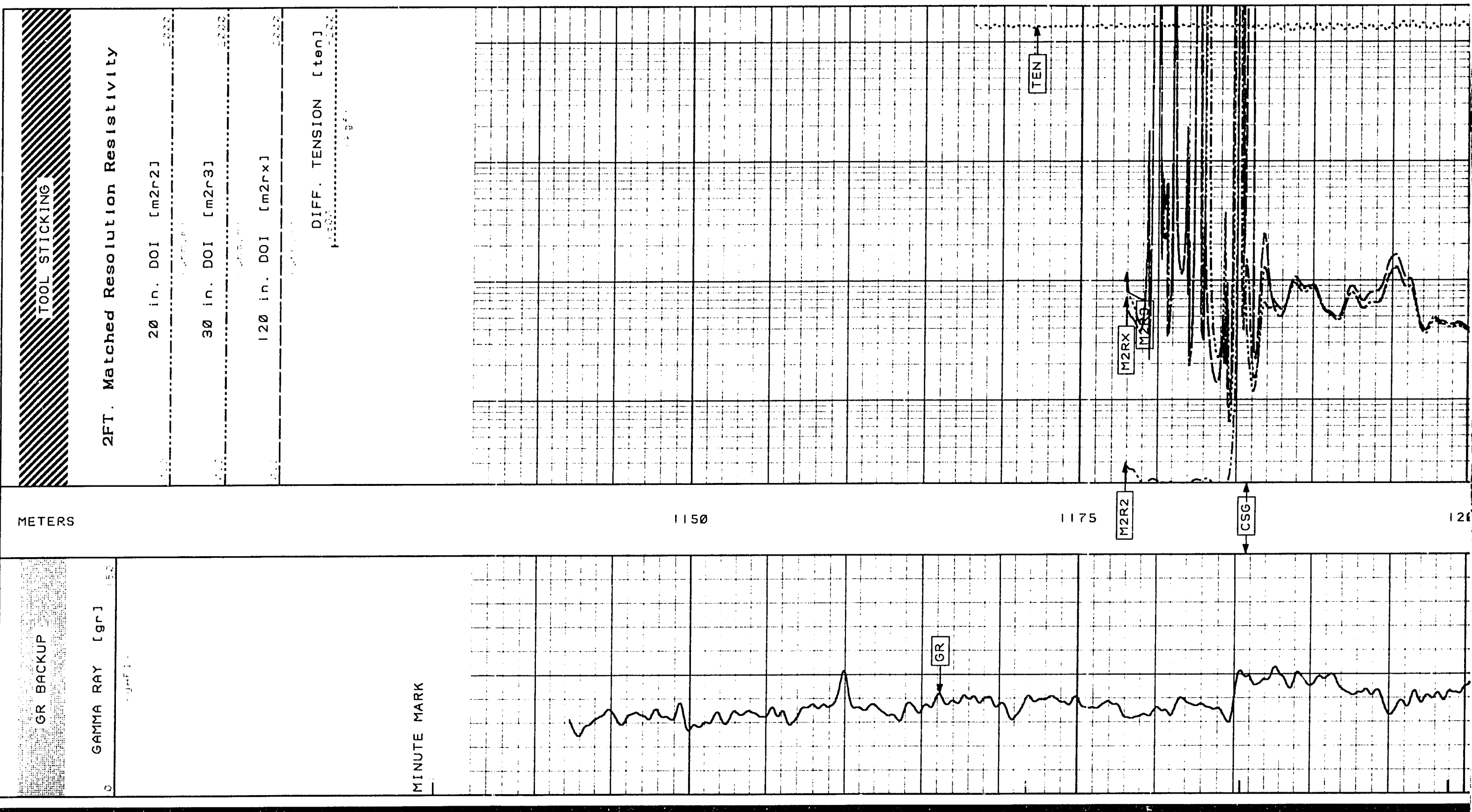
HDIL PROCESSING

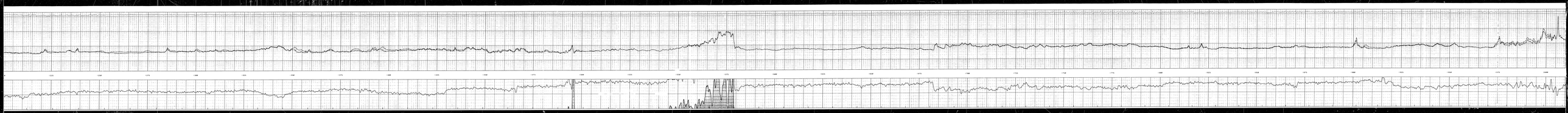
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 In STANDOFF		:	:
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		:	:
	TEMP CORR SOURCE	USE RXTEMP			

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	25.68	m2r3	9.98	ten	0.00		
m2r2	9.98	m2rx	9.98				

Presentation : /datla/pass/paramount0-15/hdil_main3.pdf
Data File : FI : cpu1:/datla/pass/paramount0-15/d777H03.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 1136.14 - 2810.26 Meters
Oct : d777H





GAMMA RAY [gr]
0 (gAPI) 150

2FT. Matched Resolution Resistivity

20 in. DOI [m2r2]
0.2 (ohm.m) 2000

30 in. DOI [m2r3]
0.2 (ohm.m) 2000

120 in. DOI [m2rx]
0.2 (ohm.m) 2000

DIFF. TENSION [ten]
1800 (kgf) -200

MINUTE MARK

REPEAT PASS - 3 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Mon Feb 8 21:45:16 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /datla/pass/paramount0-15/d777H02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2737.637 m BOTTOM DEPTH: 2809.570 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		..	..
	FILTER (.h)	light (2)		..	..
	FILTER (.l)	light (2)		..	..
GR	FILTER ()	medium (1)		..	..
HDIL	HDIL 2 FT RES	OFF		..	..
TENSION	FILTER ()	medium (1)		..	..

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X-Y CALIPER	X-Y Caliper	Average		..	..
BIT SIZE	BIT SIZE	216.000	mm	..	..
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbh#)	USE CALIPER		..	..
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh#)	216.000	mm	..	..
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		..	..
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	..	..
	MUD SAMPLE RES	1.000	ohm.m	..	..
	MUD REFERENCE TEMP	15.0	degC	..	..
	TEMP GRADIENT	2.870	0.01 degC/m	..	..

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		..	..
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		..	..
	TEMP CORR SOURCE	USE RXTEMP		..	..

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	25.68	m2r3	9.98	ten	0.00		
m2r2	9.98	m2rx	9.98				

Presentation : /datla/pass/paramount0-15/hdil_rpt3.pdf
Data File : FI : cpul:/datla/pass/paramount0-15/d777H02.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 2707.16 - 2810.71 Meters
Oct : d777H

GR BACKUP
GAMMA RAY [gr]
0 (gAPI) 150

METERS

TOOL STICKING

2FT. Matched Resolution Resistivity

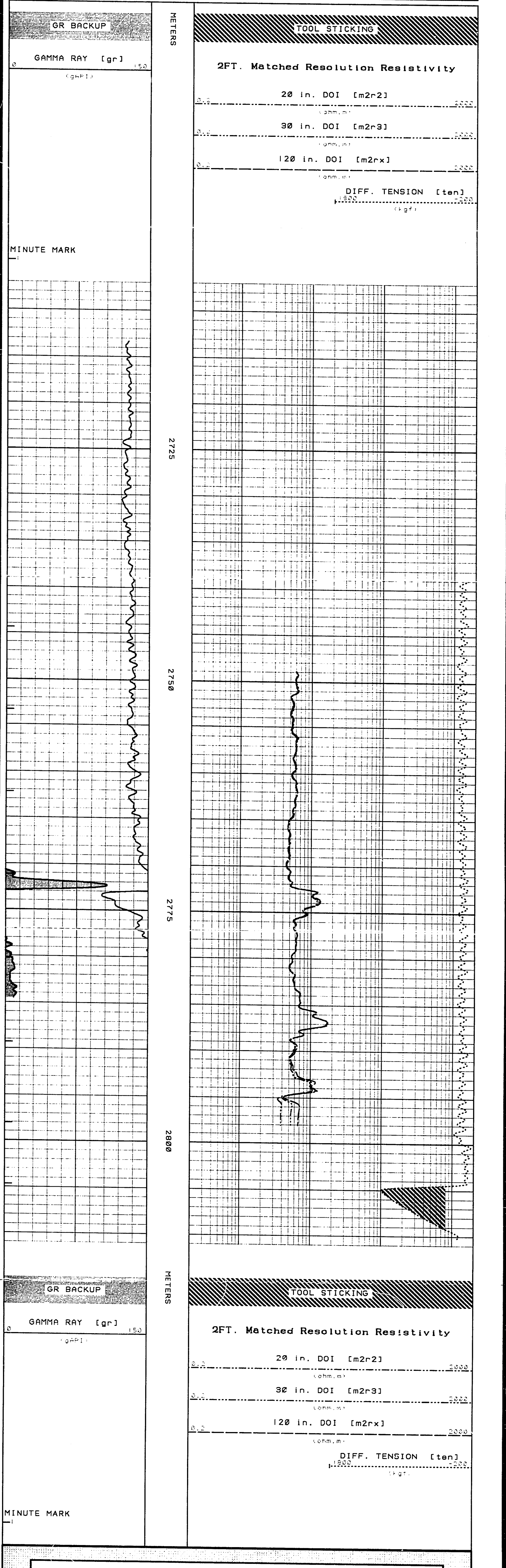
20 in. DOI [m2r2]
0.2 (ohm.m) 2000

30 in. DOI [m2r3]
0.2 (ohm.m) 2000

120 in. DOI [m2rx]
0.2 (ohm.m) 2000

DIFF. TENSION [ten]
1800 (kgf) -200

MINUTE MARK



GR BACKUP
GAMMA RAY [gr]
0 (gAPI) 150

METERS

TOOL STICKING

2FT. Matched Resolution Resistivity

20 in. DOI [m2r2]
0.2 (ohm.m) 2000

30 in. DOI [m2r3]
0.2 (ohm.m) 2000

120 in. DOI [m2rx]
0.2 (ohm.m) 2000

DIFF. TENSION [ten]
1800 (kgf) -200

MINUTE MARK

REPEAT PASS - 6 CURVE PRESENTATION

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Mon Feb 8 21:48:11 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /datla/pass/paramount0-15/d777H02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2737.637 m BOTTOM DEPTH: 2809.570 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		..	..
	FILTER (.h)	light (2)		..	..
	FILTER (.l)	light (2)		..	..
GR	FILTER ()	medium (1)		..	..
HDIL	HDIL 2 FT RES	OFF		..	..
TENSION	FILTER ()	medium (1)		..	..

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X-Y CALIPER	X-Y Caliper	Average		..	..
BIT SIZE	BIT SIZE	216.000	mm	..	..
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (mbh#)	USE CALIPER		..	..
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mbh#)	216.000	mm	..	..
MUD VALUES SOURCE	RMUD SOURCE (HDIL)	OIL BASE MUD		..	..
MUD VALUES	MUD SAMPLE TEMP	23.9	degC	..	..
	MUD SAMPLE RES	1.000	ohm.m	..	..
	MUD REFERENCE TEMP	15.0	degC	..	..
	TEMP GRADIENT	2.870	0.01 degC/m	..	..

HDIL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
HDIL BOREHOLE PARAMETERS	STANDOFF	1.5 in STANDOFF		..	..
HDIL TEMPERATURE CORRECTION	TEMP CORRECTION	ON		..	..
	TEMP CORR SOURCE	USE RXTEMP		..	..

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
gr	25.68	m2r2	9.98	m2r6	9.98	m2rx	9.98
m2r1	9.98	m2r3	9.98	m2r9	9.98	ten	0.00

Presentation : /datla/pass/paramount0-15/hdil_rpt6.pdf
Data File : FI : cpul:/datla/pass/paramount0-15/d777H02.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 2707.16 - 2810.71 Meters
Oct : d777H

GR BACKUP
GAMMA RAY [gr]
0 (gAPI) 150

METERS

TOOL STICKING

2FT. Matched Resolution Resistivity

10 in. DOI [m2r1]
0.2 (ohm.m) 2000

20 in. DOI [m2r2]
0.2 (ohm.m) 2000

30 in. DOI [m2r3]
0.2 (ohm.m) 2000

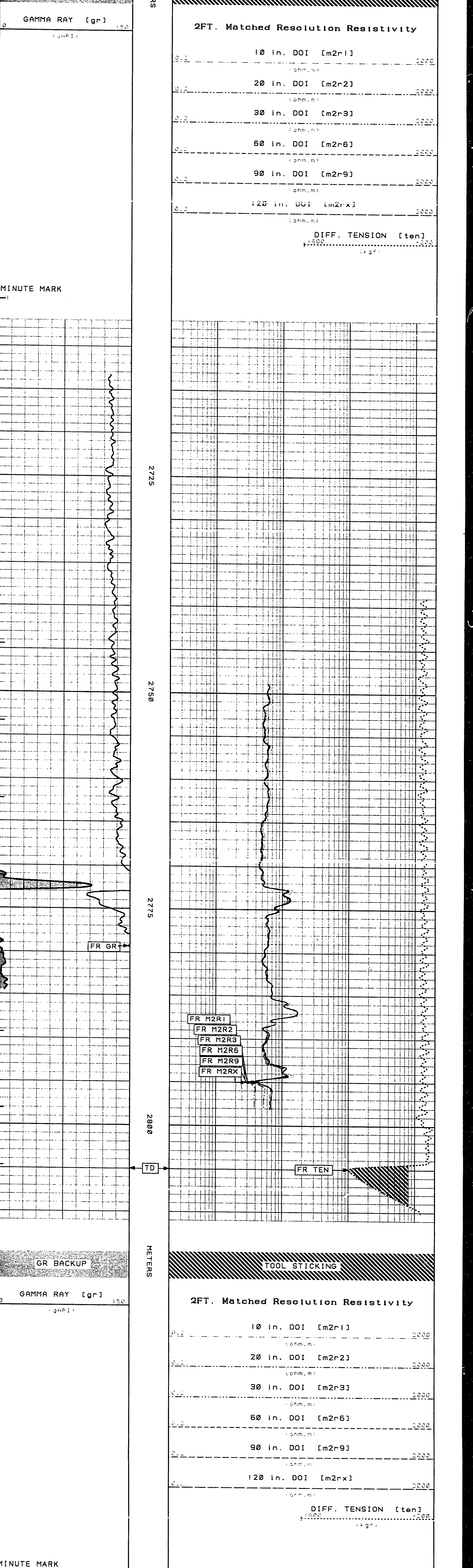
60 in. DOI [m2r6]
0.2 (ohm.m) 2000

90 in. DOI [m2r9]
0.2 (ohm.m) 2000

120 in. DOI [m2rx]
0.2 (ohm.m) 2000

DIFF. TENSION [ten]
1800 (kgf) -200

MINUTE MARK



GR BACKUP
GAMMA RAY [gr]
0 (gAPI) 150

METERS

TOOL STICKING

2FT. Matched Resolution Resistivity

10 in. DOI [m2r1]
0.2 (ohm.m) 2000

20 in. DOI [m2r2]
0.2 (ohm.m) 2000

30 in. DOI [m2r3]
0.2 (ohm.m) 2000

60 in. DOI [m2r6]
0.2 (ohm.m) 2000

90 in. DOI [m2r9]
0.2 (ohm.m) 2000

120 in. DOI [m2rx]
0.2 (ohm.m) 2000

DIFF. TENSION [ten]
1800 (kgf) -200

MINUTE MARK

CALIBRATION / VERIFICATION SUMMARY

Source File: /datla/pass/paramount0-15/d777H.tpl

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Tue Jan 19 08:41:54 1999
UNIT #: 3880TB HL6544 CALB JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	276.09	1177.18	901.1	0.166	45.96	195.96	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Tue Jan 19 08:44:58 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	276.73	1185.13	0.166	46.07	197.28	151.22

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Mon Feb 08 14:42:13 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	261.40	1181.51	0.166	43.51	196.68	153.17

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Mon Feb 08 14:44:33 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	256.40	1162.64	0.166	42.68	193.54	150.86

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 1515MA 178647 DATE/TIME PERFORMED: Mon Oct 26 18:10:06 1998
UNIT #: 5701RA 154661 GRCOND ID & DATE: 151581

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.006	-0.009	-0.006	-0.008	-0.010	-0.009	-0.008	-0.008
Coil 0 Q	0.053	0.025	0.010	0.006	0.005	0.000	-0.001	-0.003
Coil 1 R	-0.002	-0.004	-0.006	-0.006	-0.007	-0.008	-0.010	-0.011
Coil 1 Q	0.040	0.017	0.009	0.007	0.005	0.003	0.001	-0.002
Coil 2 R	-0.002	-0.011	-0.018	-0.019	-0.013	-0.005	0.005	0.017
Coil 2 Q	0.036	0.008	0.005	-0.005	-0.014	-0.020	-0.019	-0.010
Coil 3 R	-0.004	-0.004	-0.003	0.000	0.000	-0.005	-0.009	-0.014
Coil 3 Q	0.031	-0.001	0.002	0.003	0.006	0.008	0.006	0.003
Coil 4 R	-0.011	-0.015	-0.018	-0.017	-0.015	-0.015	-0.011	-0.008
Coil 4 Q	0.099	0.037	0.020	0.009	0.001	-0.003	-0.005	-0.010
Coil 5 R	-0.024	-0.044	-0.023	-0.026	-0.035	-0.028	-0.012	0.000
Coil 5 Q	0.178	0.063	0.030	0.020	0.000	-0.001	-0.019	-0.015
Coil 6 R	-0.049	-0.007	-0.052	-0.066	-0.008	-0.022	-0.007	-0.002
Coil 6 Q	0.179	0.019	0.031	0.019	-0.017	-0.010	-0.025	-0.008

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	127	126	124	121	116	111	104	96.4
Coil 0 P	7.1	22.6	37.8	53.1	68.3	83.5	98.5	113.5
Coil 1 M	226	223	218	210	201	189	176	161
Coil 1 P	7.9	24.6	41.1	57.6	73.9	90.1	106.1	122.0
Coil 2 M	443	440	433	423	409	391	369	342
Coil 2 P	7.4	23.3	39.1	54.9	70.8	86.8	102.7	118.7
Coil 3 M	719	714	704	688	667	638	603	562
Coil 3 P	7.3	22.9	38.4	53.9	69.5	85.2	100.7	116.3
Coil 4 M	1146	1138	1122	1095	1060	1012	955	885
Coil 4 P	7.7	24.1	40.4	56.8	73.2	89.9	106.4	123.0
Coil 5 M	2352	2331	2289	2221	2135	2021	1890	1738
Coil 5 P	8.0	25.0	41.9	58.7	75.6	92.5	109.1	125.6
Coil 6 M	5850	5805	5715	5568	5373	5108	4790	4410
Coil 6 P	8.3	26.1	43.7	61.4	79.2	97.2	115.1	133.0

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	335	-166	-232	-252	-259	-260	-258	-255
Coil 0 Q	1468	550	307	183	101	40	-9	-49
Coil 1 R	518	46	-12	-31	-39	-44	-47	-49
Coil 1 Q	1132	454	281	201	154	123	100	83
Coil 2 R	182.1	25.5	6.1	-0.1	-3.1	-4.6	-5.8	-6.7
Coil 2 Q	302.5	129.8	84.5	64.5	53.7	47.3	43.4	40.7
Coil 3 R	46.4	5.6	0.4	-1.2	-2.1	-3.0	-3.7	-3.4
Coil 3 Q	32.2	21.2	17.8	17.4	18.2	19.7	20.7	21.8
Coil 4 R	10.56	1.44	0.45	0.24	0.18	-0.02	-0.08	-0.24
Coil 4 Q	3.43	6.15	8.09	10.48	12.99	15.58	18.00	20.45
Coil 5 R	0.38	-0.33	-0.49	-0.48	-0.52	-0.50	-0.48	-0.52
Coil 5 Q	4.00	4.68	6.85	9.03	11.26	13.70	15.99	18.35
Coil 6 R	-2.14	-0.88	-0.58	-0.48	-0.37	-0.31	-0.38	-0.37
Coil 6 Q	-9.25	-0.29	3.04	5.74	8.43	10.91	13.25	15.61

MM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	1.028	1.025	1.020	1.020	1.019	1.017	1.016	1.017
Coil 0 P	0.066	0.244	0.325	0.309	0.289	0.257	0.224	0.186
Coil 1 M	0.999	0.997	0.992	0.991	0.989	0.988	0.987	0.987
Coil 1 P	0.131	0.319	0.378	0.404	0.385	0.358	0.342	0.303
Coil 2 M	1.003	1.000	0.999	0.998	0.997	0.996	0.995	0.995
Coil 2 P	0.024	0.074	0.113	0.172	0.219	0.248	0.235	0.234
Coil 3 M	1.021	1.020	1.019	1.019	1.018	1.018	1.020	1.019
Coil 3 P	0.028	0.047	0.090	0.121	0.124	0.090	0.110	0.239
Coil 4 M	1.022	1.021	1.021	1.020	1.020	1.019	1.018	1.018
Coil 4 P	0.035	0.062	0.067	0.100	0.099	0.117	0.112	0.091
Coil 5 M	1.031	1.031	1.031	1.030	1.030	1.030	1.028	1.028
Coil 5 P	0.036	0.010	0.092	0.128	0.133	0.121	0.198	0.213
Coil 6 M	1.018	1.020	1.019	1.017	1.017	1.022	1.022	1.021
Coil 6 P	0.025	0.103	0.062	0.190	0.090	0.063	0.094	0.014

PARMS	TCID 0	TCID 1	Cal Temp deg C	T Factor
IDs	1.620	0.930	38.9	1.04

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1515MA 178647 DATE/TIME PERFORMED: Mon Feb 08 20:32:03 1999
UNIT #: 3880TB HL6544

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.007	-0.009	-0.006	-0.008	-0.011	-0.007	-0.006	-0.006
Coil 0 Q	0.060	0.028	0.012	0.006	0.004	0.000	-0.003	-0.004
Coil 1 R	0.003	-0.002	-0.003	-0.007	-0.010	-0.010	-0.009	-0.010
Coil 1 Q	0.046	0.023	0.014	0.010	0.007	0.002	-0.003	-0.005
Coil 2 R	-0.001	-0.010	-0.019	-0.017	-0.013	-0.007	0.005	0.018
Coil 2 Q	0.039	0.011	0.006	-0.003	-0.017	-0.019	-0.021	-0.011
Coil 3 R	-0.003	-0.003	0.001	0.000	0.000	-0.001	-0.010	-0.010
Coil 3 Q	0.033	0.002	0.000	0.005	0.009	0.009	0.007	0.003
Coil 4 R	-0.013	-0.012	-0.014	-0.021	-0.017	-0.014	-0.016	-0.011
Coil 4 Q	0.109	0.042	0.023	0.013	0.002	-0.002	-0.007	-0.016
Coil 5 R	-0.025	-0.039	-0.030	-0.034	-0.039	-0.023	-0.011	0.004
Coil 5 Q	0.215	0.059	0.022	0.017	0.000	-0.010	-0.017	-0.014
Coil 6 R	-0.023	-0.033	-0.047	-0.055	-0.012	-0.006	-0.016	0.003
Coil 6 Q	0.252	0.063	0.051	0.015	-0.001	0.012	-0.020	-0.015

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	128	127	125	121	117	111	104	97
Coil 0 P	7.2	22.7	37.9	53.2	68.5	83.8	98.8	113.8
Coil 1 M	226	223	218	211	201	190	177	162
Coil 1 P	7.9	24.7	41.2	57.7	74.0	90.4	106.4	122.3
Coil 2 M	443	440	433	423	410	391	370	343
Coil 2 P	7.4	23.4	39.2	55.0	71.0	87.1	103.0	119.1
Coil 3 M	721	715	705	689	667	638	604	563
Coil 3 P	7.3	23.0	38.6	54.1	69.8	85.5	101.1	116.7
Coil 4 M	1149	1140	1124	1097	1061	1014	956	887
Coil 4 P	7.7	24.2	40.6	57.0	73.5	90.2	106.7	123.4
Coil 5 M	2357	2335	2293	2225	2139	2026	1894	1743
Coil 5 P	8.0	25.1	42.0	58.9	75.8	92.8	109.4	126.0
Coil 6 M	5858	5811	5721	5575	5381	5116	4797	4417

Coil 6 P	8.3	26.2	43.8	61.6	79.5	97.5	115.4	133.4
	7.0 10.0	22.0 32.0	36.0 54.0	51.0 76.0	65.0 98.0	80.0 120.0	94.0 140.0	110.0 160.0

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 1515MA 178647

DATE/TIME PERFORMED: Mon Feb 08 23:54:42 1999

UNIT #: 3880TB HL6544

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.006	-0.010	-0.007	-0.009	-0.009	-0.007	-0.006	-0.006
	-0.097 0.074	-0.064 0.031	-0.036 0.024	-0.058 0.022	-0.047 0.019	-0.037 0.023	-0.036 0.024	-0.036 0.024
Coil 0 Q	0.060	0.027	0.009	0.005	0.004	-0.001	-0.002	-0.003
	0.020 0.100	0.092 0.146	-0.018 0.042	-0.024 0.036	-0.026 0.034	-0.030 0.030	-0.033 0.027	-0.034 0.026
Coil 1 R	0.003	-0.002	-0.004	-0.006	-0.010	-0.010	-0.008	-0.009
	-0.077 0.063	-0.052 0.048	-0.033 0.027	-0.037 0.023	-0.040 0.020	-0.040 0.020	-0.039 0.021	-0.042 0.020
Coil 1 Q	0.047	0.022	0.011	0.008	0.006	0.002	-0.001	-0.005
	-0.354 0.446	-0.077 0.123	-0.016 0.044	-0.020 0.040	-0.023 0.037	-0.028 0.032	-0.033 0.027	-0.035 0.025
Coil 2 R	-0.001	-0.012	-0.019	-0.019	-0.012	-0.004	0.009	0.018
	-0.071 0.069	-0.040 0.020	-0.049 0.011	-0.047 0.013	-0.043 0.017	-0.037 0.023	-0.025 0.035	-0.012 0.049
Coil 2 Q	0.041	0.013	0.008	-0.005	-0.018	-0.020	-0.019	-0.011
	-0.311 0.389	-0.085 0.111	-0.024 0.036	-0.033 0.027	-0.047 0.013	-0.049 0.011	-0.051 0.009	-0.041 0.019
Coil 3 R	-0.005	-0.006	-0.004	-0.002	0.001	-0.003	-0.009	-0.010
	-0.043 0.037	-0.043 0.037	-0.039 0.041	-0.040 0.040	-0.040 0.040	-0.041 0.039	-0.050 0.030	-0.050 0.030
Coil 3 Q	0.040	0.001	0.002	0.007	0.005	0.006	0.006	-0.001
	-0.167 0.233	-0.078 0.082	-0.040 0.042	-0.035 0.045	-0.031 0.049	-0.031 0.049	-0.033 0.047	-0.037 0.043
Coil 4 R	-0.004	-0.013	-0.020	-0.021	-0.018	-0.013	-0.009	-0.009
	-0.073 0.047	-0.072 0.046	-0.074 0.046	-0.091 0.039	-0.077 0.043	-0.074 0.046	-0.076 0.044	-0.071 0.049
Coil 4 Q	0.113	0.043	0.026	0.009	0.003	-0.006	-0.006	-0.012
	-0.191 0.409	-0.058 0.142	-0.037 0.063	-0.047 0.073	-0.058 0.062	-0.062 0.058	-0.067 0.053	-0.076 0.044
Coil 5 R	-0.021	-0.041	-0.033	-0.038	-0.041	-0.030	-0.004	-0.004
	-0.145 0.095	-0.159 0.081	-0.150 0.090	-0.154 0.086	-0.159 0.081	-0.143 0.097	-0.131 0.109	-0.116 0.124
Coil 5 Q	0.226	0.078	0.024	0.010	0.004	-0.008	-0.012	-0.010
	-0.365 0.815	-0.191 0.389	-0.099 0.142	-0.123 0.127	-0.122 0.122	-0.130 0.114	-0.137 0.103	-0.134 0.106
Coil 6 R	-0.031	-0.050	-0.070	-0.053	-0.038	-0.007	-0.013	0.011
	-0.323 0.277	-0.333 0.267	-0.347 0.253	-0.355 0.245	-0.312 0.285	-0.306 0.294	-0.316 0.284	-0.297 0.303
Coil 6 Q	0.266	0.074	0.037	0.005	0.005	-0.030	-0.010	-0.006
	-1.248 1.752	-0.537 0.663	-0.349 0.351	-0.285 0.315	-0.301 0.299	-0.285 0.312	-0.320 0.280	-0.315 0.285

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	128	127	125	121	117	111	104	96
	125 130	124 129	122 127	119 124	114 119	109 113	102 107	95 99
Coil 0 P	7.2	22.8	38.1	53.4	68.8	84.1	99.3	114.3
	4.2 10.2	19.7 25.7	34.9 40.3	50.2 56.2	65.5 71.5	80.9 85.8	95.6 101.8	110.9 116.8
Coil 1 M	226	223	218	211	201	190	176	161
	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
Coil 1 P	7.9	24.8	41.4	57.9	74.4	90.7	106.9	122.8
	4.9 10.9	21.7 27.7	38.2 44.2	54.7 60.7	71.2 77.0	87.4 93.4	103.4 109.4	119.3 125.3
Coil 2 M	443	440	433	423	409	391	368	341
	434 452	431 448	425 442	415 432	402 416	384 399	362 377	336 350
Coil 2 P	7.4	23.5	39.4	55.3	71.3	87.3	103.5	119.5
	4.4 10.4	20.4 26.4	36.2 42.2	52.0 58.0	68.0 74.0	84.1 90.1	100.0 106.0	116.1 122.1
Coil 3 M	722	716	706	689	667	638	603	561
	706 735	701 730	691 719	675 702	654 681	625 651	592 616	551 574
Coil 3 P	7.3	23.1	38.7	54.3	70.0	85.8	101.6	117.1
	4.3 10.3	20.0 26.0	35.6 41.6	51.1 57.1	66.8 72.8	82.5 88.5	98.1 104.1	113.7 119.7
Coil 4 M	1151	1142	1125	1098	1061	1014	955	884
	1126 1172	1117 1163	1101 1148	1075 1119	1040 1083	994 1034	937 975	869 904
Coil 4 P	7.7	24.3	40.7	57.2	73.8	90.4	107.3	123.9
	4.7 10.7	21.2 27.2	37.6 43.6	54.0 60.0	70.5 76.5	87.2 93.2	103.7 109.7	120.4 126.4
Coil 5 M	2359	2337	2293	2226	2136	2024	1890	1736
	2310 2404	2288 2382	2247 2339	2181 2270	2095 2182	1985 2066	1856 1932	1708 1778
Coil 5 P	8.0	25.2	42.2	59.1	76.1	93.0	109.9	126.4
	5.0 11.0	22.1 28.1	39.0 45.0	55.9 61.9	72.8 78.8	89.6 95.6	106.4 112.4	123.0 129.0
Coil 6 M	5869	5822	5726	5581	5377	5114	4787	4401
	5741 5975	5695 5927	5607 5836	5463 5686	5273 5489	5014 5219	4701 4893	4329 4506
Coil 6 P	8.4	26.3	44.0	61.8	79.8	97.8	116.0	133.9
	5.4 11.3	23.2 29.2	40.8 46.8	58.6 64.6	76.5 82.5	94.5 100.5	112.4 119.4	130.4 136.4

BAKER HUGHES

Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.	FILE NO:
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	
FIELD	FORT LIARD	API NO:
PROVINCE	NORTHWEST TERRITORIES	

LOCATION:

WID:1834

0-15-60DEG30'-123DEG 0'

ELEVATIONS

KB 386.7 M

DF

GL 390.5 M

3000156030123000

DATE 08-FEB-1999

N.E.B. COPY

Baker Atlas

THREE VERTICAL DEPTH
HIGH DEFINITION INDUCTION LOG
GAMMA RAY LOG

FILE NO:	COMPANY: PARAMOUNT RESOURCES LTD.
WELL:	WELL: KUGLUKTUK O-14, SUBSURFACE K-13
API NO:	FIELD: WILDCAT
	PROVINCE: NORTHWEST TERRITORIES
Twp: 7-15	SECTION:
4000-2400-2000	RGE: W-MERIDIAN / DEGS W
PERMANENT DATUM: G.L. ELEVATION: 380.5 M	ELEVATIONS: KB: 380.5 M
LOG MEASURED FROM: K.B. ABOVE P.D. M	DF: 380.5 M
DRILL MEAS. FROM: KELLY BUSHING	GL: 380.5 M

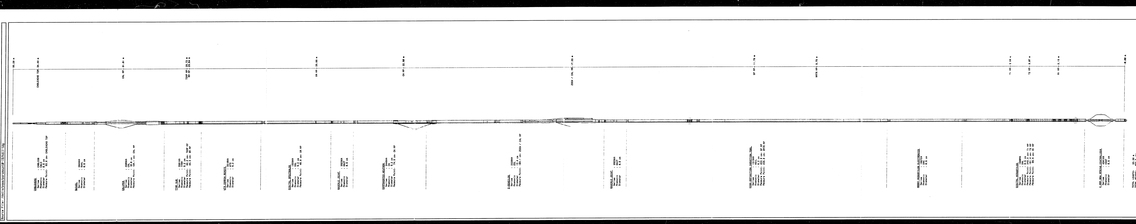
RUN	ONE		
DATE	26-DEC-198		
LOGGING UNIT	8000		
DEPTH DRILLER	2400.0 M		
DEPTH LOGGER	2400.0 M		
BOTTOM LOGGED INTERVAL	2400.0 M		
TOP LOGGED INTERVAL	1000.0 M		
CASING DRILLER	1000.0 M @ 1000.0 M		0 @ 0.0 M
CASING LOGGER	1000.0 M		0.0 M
BIT SIZE	311.1 MM		
TYPE OF FLUID IN HOLE	GEL CHEM		
DENSITY / VISCOSITY	0.0 G/CC	0 S	
PH / FLUID LOSS			
SOURCE OF SAMPLE	FLOWLINE		
RM AT MEAS. TEMP.	0		0
RMF AT MEAS. TEMP.	0		0
RMC AT MEAS. TEMP.	0		0
SOURCE OF RMF / RMC			
RM AT BHT	0		0
TIME SINCE CIRCULATION	0 HR		
MAX. REC. TEMP.	0 DEG		
EQUIPMENT LOCATION	8 MILE		
RECORDED BY	WILLIAMSON		
WITNESSED BY	MR. GOUCHER		

THIS DATA HAS BEEN COLLECTED AND PROCESSED IN ACCORDANCE WITH THE INSTRUCTIONS GIVEN TO US BY THE CLIENT. AS THE MATERIAL AND DATA PROCESSED BY BAKER ATLAS IS BASED ON INFORMATION SUPPLIED TO US, WE CANNOT GUARANTEE THE ACCURACY OF THE RESULTS.

CONDITIONS

RUN 1 - 27 JUNE 1978 DIFFERENTIAL GPS SURVEY
CASING SHOE AT 2400 M, 1000 M
TD TO CASING SHOE ON TRIP OUT
TD TO CASING SHOE ON TRIP IN

INSTRUMENT COPY / QUALITY LOG



DIRECTIONAL SURVEY

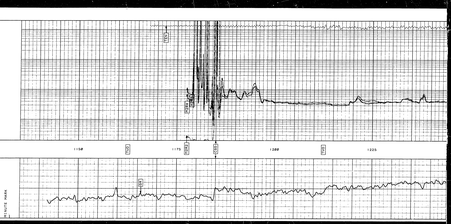
MAIN PASS - 3 CURVE INTERPRETATION

Date: 26-Dec-1980	Time: 8:45
Depth Unit: METERS	Depth Mode: Tape
Log Speed: 1.0 M/MIN	Log Direction: Down
CURVE MEASURE ERLAT OFFSET	
LAMB: 0.000	DPHRF: 0.000
DPHRF: 0.000	DPHRF: 0.000
DPHRF: 0.000	DPHRF: 0.000
DPHRF: 0.000	DPHRF: 0.000

Curve Scale: 1 Inch = 10 Units
Curve Offset: 0.000 Units
Curve Scale: 1 Inch = 10 Units
Curve Offset: 0.000 Units
Curve Scale: 1 Inch = 10 Units
Curve Offset: 0.000 Units

TECHNOLOGY

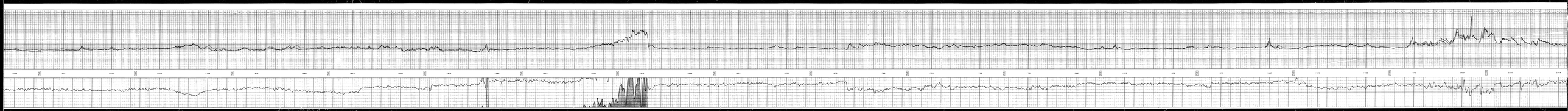
SFT - Medium Resolution Resistivity
IM (0.000 - 200) (OHMM)
SFL (0.000 - 200) (OHMM)
GR (0.000 - 150) (GAPI)
TEN (0.000 - 2000) (LBS)
SPEED (0.000 - 100) (M/MIN)
SPEED TENSION (Lbs)

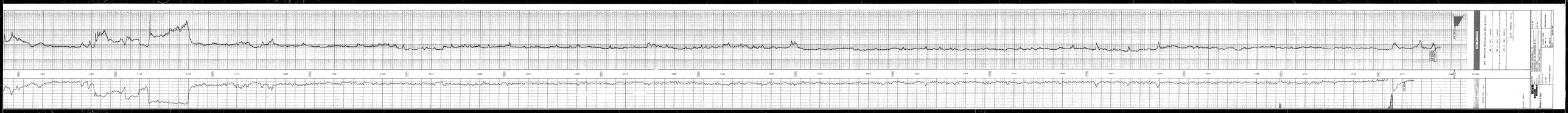


METERS

GR GAMMA RAY (GAPI)

DEPTH MARK




Pressure Transducer
Model 1000
Serial No. 1000
Range 0-100 psi
Calibration Date 10-15-2001
Calibration Factor 1.000
Calibration Offset 0.000
Calibration Method Dead Weight
Calibration Source Ashcroft
Calibration Operator Jim Hall
Calibration Notes Calibrated at 0

N.E.B. COPY

BAKER HUGHES

Baker Atlas

HIGH DEFINITION INDUCTION LOG
GAMMA RAY LOG

FILE NO:	
API NO:	
COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARAMOUNT ET AL ARROWHEAD Ø-15
FIELD	FORT LIARD
PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

3000156030123000

LOCATION:
WID:1834

Ø-15-60DEG30'-123DEG Ø'

OTHER SERVICES
MAC-GR-CAL
ZDL-CN-GR-XY
HDIP-GR
CUL

PERMANENT DATUM G.L. ELEVATION 380.5 M
LOG MEASURED FROM K.B. 6.2 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 386.7 M
DF
GL 380.5 M

DATE		24-FEB-1999			
RUN	TRIP	2	1		
SERVICE ORDER		972508			
DEPTH DRILLER		3301.0 M			
DEPTH LOGGER		3299.3 M			
BOTTOM LOGGED INTERVAL		3296.9 M			
TOP LOGGED INTERVAL		2804.6 M			
CASING-DRILLER		177.8 MM	@2804.7 M		@
CASING LOGGER		2304.6 M			
BIT SIZE		156 MM			
TYPE OF FLUID IN HOLE		INVERT			
DENSITY	VISCOSITY	1075 G/C3	54 S		
PH	FLUIDLOSS	-	-		
SOURCE OF SAMPLE		FLOWLINE			
RM AT MEAS. TEMP.		-	@ -		@
RMF AT MEAS. TEMP.		-	@ -		@
RMC AT MEAS. TEMP.		-	@ -		@
SOURCE OF RMF	RMC	-	-		
RM AT BHT		-	@ -		@
TIME SINCE CIRCULATION		8.25 HRS			
MAX. RECORDED TEMP.		147.2 DEGC			
EQUIP. NO.	LOCATION	HL 6544	G.P.		
RECORDED BY		N.LESAGE			
WITNESSED BY		C.BREDIN			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1 : time last circulated:23-feb-1999, 23:50

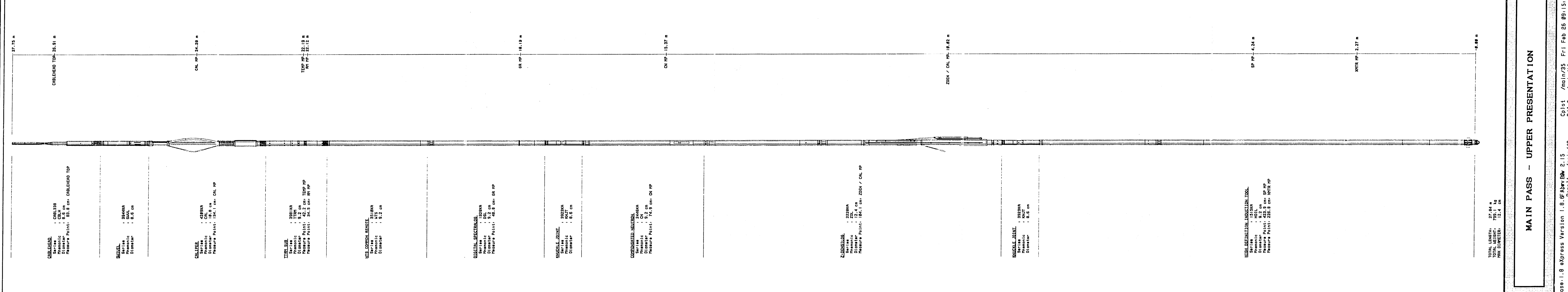
-all scales and presentations as per customer request.
-tied into atlas logs from 08-feb-1999.
-hdil recorded with 1.0 inch standoff and txtemp correction.
-hdil recorded in combination with zdl-cn.
-no sp presented due to invert mud.

crew: s.marsh,o.pinto

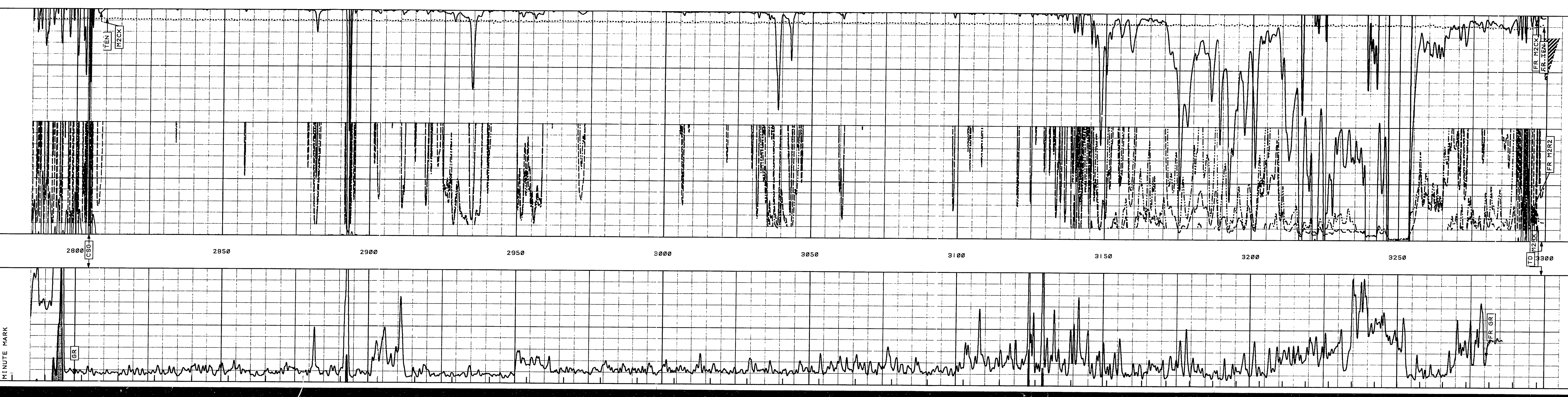
EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XB	153823	FREE
1	1	CAL	4209XA	044639	CALIPER
1	1	TTRM	3981XA	180401	FREE
1	1	COMR	3510XA	168181	FREE
1	1	GR	1329XA	153174	FREE
1	1	KNJT	3923XA	167198	KNUCKLE JOINT
1	1	CN	2446XA	118263	FREE
1	1	ZDL	2228EA/2228MA	177075/172644	PAD DEVICE
1	1	KNJT	3923XA	166792	KNUCKLE JOINT
1	1	HDIL	1515EA/1515MA	177896/178647	1.5 INCH STANDOFF

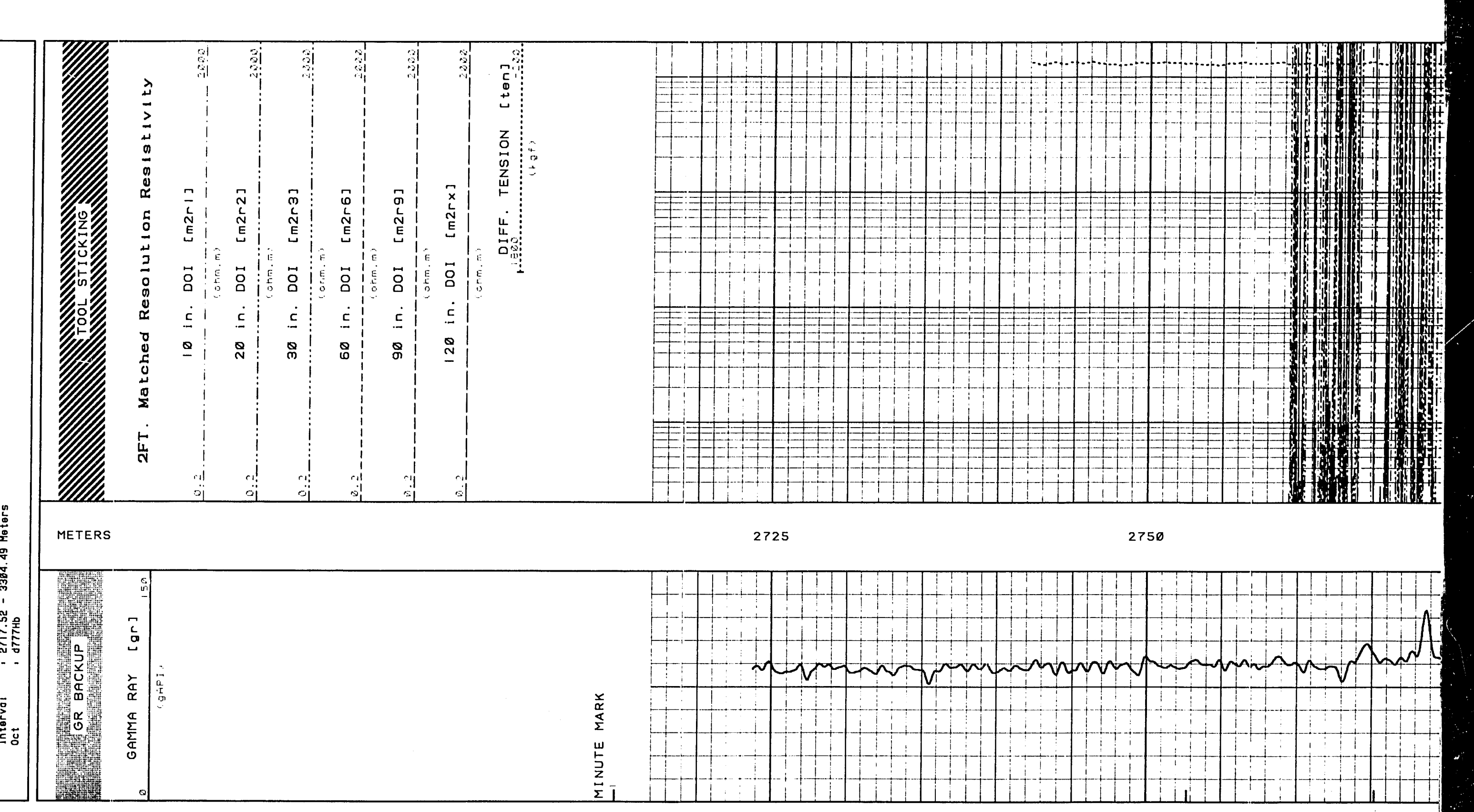
INSTRUMENT CONFIGURATION

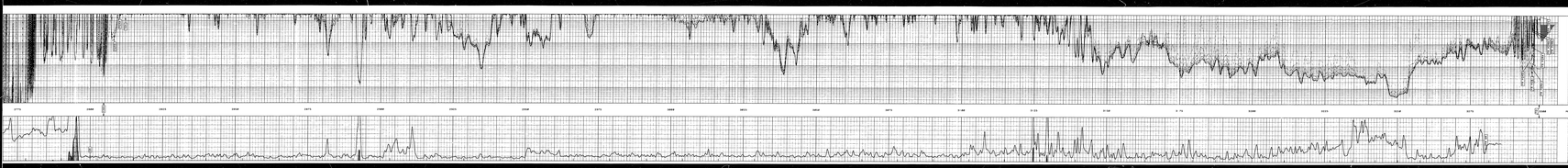


MAIN PASS - UPPER PRESENTATION



MAIN PASS - 6 CURVE PRESENTATION




MAIN PASS - 5 CURVE COMBINATION
SP1 - Microsec Resistivity Resistivity
SP2 - Resistivity
SP3 - Resistivity
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SP6 - Resistivity
SP7 - Resistivity
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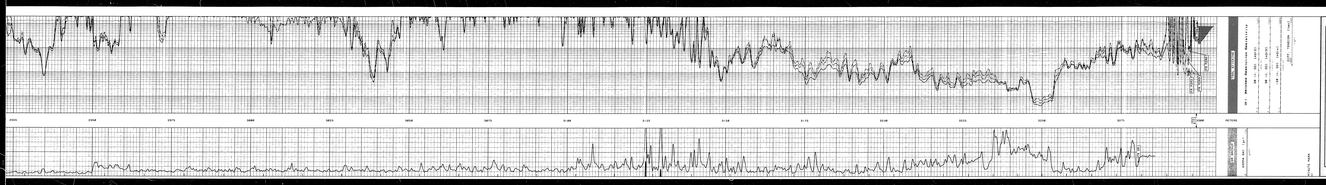
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CORE TIME 10:16:00
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GR BACKUP

GAMMA RAY [gr]

0 (gAPI) 150

ETERS

TOOL STICKING

2FT. Matched Resolution Resistivity

10 in. DOI [m2r1]

0.2 (ohm.m) 2000

20 in. DOI [m2r2]

0.2 (ohm.m) 2000

30 in. DOI [m2r3]

0.2 (ohm.m) 2000

60 in. DOI [m2r6]

0.2 (ohm.m) 2000

90 in. DOI [m2r9]

0.2 (ohm.m) 2000

120 in. DOI [m2rx]

0.2 (ohm.m) 2000

DIFF. TENSION [ten]

1800 (kgf)

MINUTE MARK

CALIBRATION / VERIFICATION SUMMARY

Source File: /datla/pass/paramount0-15/d777H.tpl

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Fri Feb 19 14:48:25 1999

UNIT #: 3880TB HL6544 CALB JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	214.51	1109.82	895.3	0.159	35.94	185.94	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Fri Feb 19 14:54:57 1999

UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	214.87	1102.64	0.168	36.00	184.74	148.74

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Wed Feb 24 02:22:51 1999

UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	169.22	1109.13	0.168	28.35	185.82	157.47

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Wed Feb 24 10:19:03 1999

UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	173.62	1083.51	0.168	29.09	181.53	152.44

HDIL PRIMARY CALIBRATION SUMMARY

TOOL #: 1515MA 178647 DATE/TIME PERFORMED: Mon Oct 26 18:10:06 1998

UNIT #: 5701RA 154661 GRCOND ID & DATE: 151581

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.006	-0.009	-0.006	-0.008	-0.010	-0.009	-0.008	-0.008
Coil 0 Q	0.053	0.025	0.010	0.006	0.005	0.000	-0.001	-0.003
Coil 1 R	-0.002	-0.004	-0.006	-0.006	-0.007	-0.008	-0.010	-0.011
Coil 1 Q	0.040	0.017	0.009	0.007	0.005	0.003	0.001	-0.002
Coil 2 R	-0.002	-0.011	-0.018	-0.019	-0.013	-0.005	0.005	0.017
Coil 2 Q	0.036	0.008	0.005	-0.005	-0.014	-0.020	-0.019	-0.010
Coil 3 R	-0.004	-0.004	-0.003	0.000	0.000	-0.005	-0.009	-0.014
Coil 3 Q	0.031	-0.001	0.002	0.003	0.006	0.008	0.006	0.003
Coil 4 R	-0.011	-0.015	-0.018	-0.017	-0.015	-0.015	-0.011	-0.008
Coil 4 Q	0.099	0.037	0.020	0.009	0.001	-0.003	-0.005	-0.010
Coil 5 R	-0.024	-0.044	-0.023	-0.026	-0.035	-0.028	-0.012	0.000
Coil 5 Q	0.178	0.063	0.030	0.020	0.000	-0.001	-0.019	-0.015
Coil 6 R	-0.049	-0.007	-0.052	-0.066	-0.008	-0.022	-0.007	-0.002
Coil 6 Q	0.179	0.019	0.031	0.019	-0.017	-0.010	-0.025	-0.008

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	127	126	124	121	116	111	104	96.4
Coil 0 P	7.1	22.6	37.8	53.1	68.3	83.5	98.5	113.5
Coil 1 M	226	223	218	210	201	189	176	161
Coil 1 P	7.9	24.6	41.1	57.6	73.9	90.1	106.1	122.0
Coil 2 M	443	440	433	423	409	391	369	342
Coil 2 P	7.4	23.3	39.1	54.9	70.8	86.8	102.7	118.7
Coil 3 M	719	714	704	688	667	638	603	562
Coil 3 P	7.3	22.9	38.4	53.9	69.5	85.2	100.7	116.3
Coil 4 M	1146	1138	1122	1095	1060	1012	955	885
Coil 4 P	7.7	24.1	40.4	56.8	73.2	89.9	106.4	123.0
Coil 5 M	2352	2331	2289	2221	2135	2021	1890	1738
Coil 5 P	8.0	25.0	41.9	58.7	75.6	92.5	109.1	125.6
Coil 6 M	5850	5805	5715	5568	5373	5108	4790	4410
Coil 6 P	8.3	26.1	43.7	61.4	79.2	97.2	115.1	133.0

AM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	335	-166	-232	-252	-259	-260	-258	-255
Coil 0 Q	1468	550	307	183	101	40	-9	-49
Coil 1 R	518	46	-12	-31	-39	-44	-47	-49
Coil 1 Q	1132	454	281	201	154	123	100	83
Coil 2 R	182.1	25.5	6.1	-0.1	-3.1	-4.6	-5.8	-6.7
Coil 2 Q	302.5	129.8	84.5	64.5	53.7	47.3	43.4	40.7
Coil 3 R	46.4	5.6	0.4	-1.2	-2.1	-3.0	-3.7	-3.4
Coil 3 Q	32.2	21.2	17.8	17.4	18.2	19.7	20.7	21.8
Coil 4 R	10.56	1.44	0.45	0.24	0.18	-0.02	-0.08	-0.24
Coil 4 Q	3.43	6.15	8.09	10.48	12.99	15.58	18.00	20.45
Coil 5 R	0.38	-0.33	-0.49	-0.48	-0.52	-0.50	-0.48	-0.52
Coil 5 Q	4.00	4.68	6.85	9.03	11.26	13.70	15.99	18.35
Coil 6 R	-2.14	-0.88	-0.58	-0.48	-0.37	-0.31	-0.38	-0.37
Coil 6 Q	-9.25	-0.29	3.04	5.74	8.43	10.91	13.25	15.61

MM Factor	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	1.028	1.025	1.020	1.020	1.019	1.017	1.016	1.017
Coil 0 P	0.066	0.244	0.325	0.309	0.289	0.257	0.224	0.186
Coil 1 M	0.999	0.997	0.992	0.991	0.989	0.988	0.987	0.987
Coil 1 P	0.131	0.319	0.378	0.404	0.385	0.358	0.342	0.303
Coil 2 M	1.003	1.000	0.999	0.998	0.997	0.996	0.995	0.995
Coil 2 P	0.024	0.074	0.113	0.172	0.219	0.248	0.235	0.234
Coil 3 M	1.021	1.020	1.019	1.019	1.018	1.018	1.020	1.019
Coil 3 P	0.028	0.047	0.090	0.121	0.124	0.090	0.110	0.239
Coil 4 M	1.022	1.021	1.021	1.020	1.020	1.019	1.018	1.018
Coil 4 P	0.035	0.062	0.067	0.100	0.099	0.117	0.112	0.091
Coil 5 M	1.031	1.031	1.031	1.030	1.030	1.030	1.028	1.028
Coil 5 P	0.036	0.010	0.092	0.128	0.133	0.121	0.198	0.213
Coil 6 M	1.018	1.020	1.019	1.017	1.017	1.022	1.022	1.021
Coil 6 P	0.025	0.103	0.062	0.190	0.090	0.063	0.094	0.014

PARMS	TCID 0	TCID 1	Cal Temp deg C	T Factor
IDs	1.620	0.930	38.9	1.04

HDIL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1515MA 178647 DATE/TIME PERFORMED: Wed Feb 24 07:03:13 1999

UNIT #: 3880TB HL6544

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.007	-0.011	-0.009	-0.009	-0.010	-0.007	-0.005	-0.007
Coil 0 Q	0.070	0.030	0.012	0.005	0.003	-0.001	-0.003	-0.004
Coil 1 R	0.001	-0.003	-0.007	-0.008	-0.009	-0.010	-0.007	-0.006
Coil 1 Q	0.054	0.023	0.013	0.009	0.004	0.000	-0.004	-0.007
Coil 2 R	-0.003	-0.011	-0.019	-0.018	-0.011	-0.003	0.010	0.019
Coil 2 Q	0.045	0.011	0.004	-0.005	-0.019	-0.022	-0.017	-0.011
Coil 3 R	-0.005	-0.005	-0.003	0.001	0.000	-0.003	-0.006	-0.006
Coil 3 Q	0.045	0.003	0.004	0.005	0.003	0.008	0.005	-0.002
Coil 4 R	-0.011	-0.024	-0.022	-0.020	-0.022	-0.012	-0.007	-0.003
Coil 4 Q	0.128	0.046	0.021	0.008	0.006	-0.009	-0.011	-0.011
Coil 5 R	-0.024	-0.049	-0.040	-0.044	-0.027	-0.021	-0.012	-0.001
Coil 5 Q	0.257	0.073	0.037	0.013	-0.009	-0.017	-0.014	-0.014
Coil 6 R	-0.042	-0.059	-0.072	-0.049	-0.028	-0.009	0.005	0.006
Coil 6 Q	0.323	0.085	0.039	0.004	0.005	-0.025	-0.030	0.003

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	129	127	125	122	118	112	105	98
Coil 0 P	7.2	22.8	38.2	53.6	69.0	84.4	99.7	114.8
Coil 1 M	227	224	219	212	202	191	178	163
Coil 1 P	7.9	24.9	41.5	58.1	74.6	91.0	107.2	123.3
Coil 2 M	445	441	435	425	411	393	371	345
Coil 2 P	7.5	23.6	39.5	55.5	71.5	87.7	103.9	120.1
Coil 3 M	725	719	709	692	670	641	607	566
Coil 3 P	7.4	23.3	38.9	54.6	70.4	86.3	102.0	117.8
Coil 4 M	1157	1147	1130	1103	1067	1020	962	892
Coil 4 P	7.8	24.5	41.0	57.5	74.2	91.0	107.8	124.6
Coil 5 M	2367	2345	2302	2235	2148	2036	1905	1754
Coil 5 P	8.0	25.3	42.3	59.4	76.4	93.5	110.3	127.1
Coil 6 M	5888	5840	5748	5602	5407	5140	4823	4447
Coil 6 P	8.4	26.4	44.2	62.1	80.2	98.3	116.5	134.6

HDIL AFTER LOG VERIFICATION SUMMARY

TOOL #: 1515MA 178647 DATE/TIME PERFORMED: Wed Feb 24 09:17:30 1999

UNIT #: 3880TB HL6544

ZERO DATA(mv)	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 R	-0.006	-0.010	-0.009	-0.008	-0.010	-0.006	-0.004	-0.004
Coil 0 Q	0.071	0.030	0.010	0.004	0.003	-0.002	-0.004	-0.003
Coil 1 R	0.000	-0.004	-0.007	-0.008	-0.008	-0.008	-0.006	-0.005
Coil 1 Q	0.053	0.022	0.012	0.008	0.003	-0.001	-0.002	-0.005
Coil 2 R	-0.003	-0.016	-0.016	-0.017	-0.011	0.000	0.011	0.021
Coil 2 Q	0.051	0.013	0.005	-0.005	-0.018	-0.019	-0.017	-0.011
Coil 3 R	-0.004	-0.009	-0.003	0.000	0.004	-0.002	-0.006	-0.006
Coil 3 Q	0.051	0.001	0.005	0.007	0.002	0.007	0.007	0.002
Coil 4 R	-0.012	-0.019	-0.020	-0.022	-0.021	-0.015	-0.009	-0.002
Coil 4 Q	0.135	0.051	0.025	0.008	-0.003	-0.010	-0.013	-0.011
Coil 5 R	-0.019	-0.057	-0.046	-0.039	-0.042	-0.021	-0.003	-0.006
Coil 5 Q	0.267	0.080	0.048	0.015	0.002	-0.021	-0.018	-0.015
Coil 6 R	-0.042	-0.098	-0.066	-0.035	-0.017	-0.020	-0.015	0.006
Coil 6 Q	0.351	0.066	0.040	0.002	-0.034	-0.035	-0.024	-0.007

ELEC. GAINS	10 KHz	30 KHz	50 KHz	70 KHz	90 KHz	110 KHz	130 KHz	150 KHz
Coil 0 M	129	128	126	122	118	112	106	98
Coil 0 P	7.2	22.9	38.4	53.8	69.3	84.8	100.2	115.4
Coil 1 M	227	225	220	212	203	191	178	163
Coil 1 P	7.9	25.0	41.7	58.4	75.0	91.4	107.8	123.9
Coil 2 M	445	442	435	426	412	394	372	346
Coil 2 P	7.5	23.6	39.6	55.7	71.9	88.1	104.4	120.7
Coil 3 M	726	721	711	695	674	645	611	570
Coil 3 P	7.4	23.2	39.0	54.7	70.6	86.5	102.4	118.2
Coil 4 M	1159	1151	1135	1109	1073	1027	968	898
Coil 4 P	7.7	24.5	41.0	57.6	74.3	91.2	108.2	125.0
Coil 5 M	2369	2347	2305	2239	2153	2041	1910	1760
Coil 5 P	8.0	25.3	42.5	59.5	76.7	93.8	110.8	127.5
Coil 6 M	5897	5852	5761	5618	5421	5158	4840	4458
Coil 6 P	8.4	26.5	44.3	62.3	80.4	98.7	117.0	135.1

BAKER HUGHES

Baker Atlas

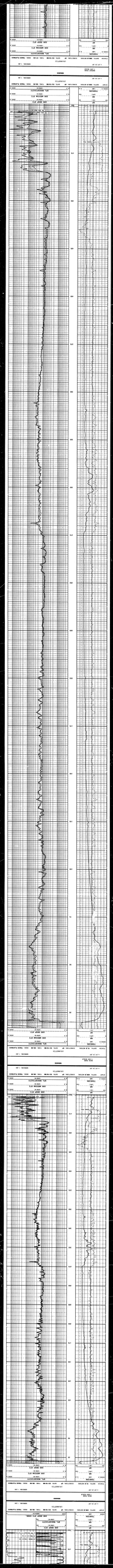
COMPANY	PARAMOUNT RESOURCES LTD.	FILE NO:
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	
FIELD	FORT LIARD	API NO:
PROVINCE	NORTHWEST TERRITORIES	

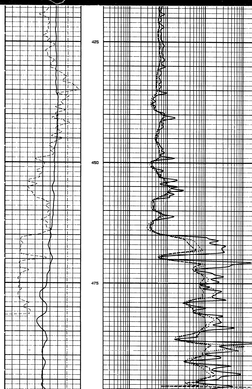
LOCATION: WID:1834 0-15-60DEG30'-123DEG 0'

ELEVATIONS: KB 386.7 M; DF; GL 380.5 M

300015603012300

DATE 24-FEB-1999





START DEPTH: 498.0 METRES DIRECTION: UP DATE: 03/10/98 TIME: 07:48 MODE: TRACE PLAYBACK
1610657T2
v.07.31.97 VERSION: 1.04

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
GAIN	GR SCALING	200.0	API
OFST	GR OFFSET	20.0	API

03/10/98 08:59 9.0 m Ver 1.04/1.04 JOB 14576

Sonde Not Before Survey Calibration
Tool Type: SDC-DOK Serial No: 8203
CALIBRATOR No: 1

Borehole Calibrator Standard Units
HO.D 708.1 140.0 GAPI
Delta Counts Per Unit: 613.K CPS/API = 3.688

03/10/98 10:05 9.0 m Ver 1.04 JOB 14576

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: SONDE SERIAL NO.:
FIRMWARE VERSION: 8.0 ELECTRONICS SERIAL NO.:

LOOP CALIBRATION: Both the Phase Error of Internal Reference

	100KHz DEEP	100KHz MEDIUM	400KHz DEEP	400KHz MEDIUM
Gain:	1.000	1.000	1.000	1.000
Lower Limit:	0.900	0.900	0.900	0.900
Upper Limit:	1.100	1.100	1.100	1.100
Phase Error(degrees):	0.03	0.10	0.40	0.30
Lower Limit:	-10.00	-10.00	-10.00	-10.00
Upper Limit:	10.00	10.00	10.00	10.00

SONDE ERROR:

	100KHz A	100KHz X	400KHz A	400KHz X
Gain:	1.0	1.0	1.0	1.0
Lower Limit:	0.9	0.9	0.9	0.9
Upper Limit:	1.1	1.1	1.1	1.1
Medium:	0.0	0.0	0.0	0.0
Lower Limit:	-10.0	-10.0	-10.0	-10.0
Upper Limit:	10.0	10.0	10.0	10.0

SHOP ELECTRONICS CALIBRATION

	100KHz A	100KHz X	400KHz A	400KHz X
Zero Error(mmho/m):	-0.0	0.0	0.0	0.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0
Upper Limit:	100.0	100.0	100.0	100.0
Gain:	0.994	0.998	0.994	0.995
Lower Limit:	0.900	0.900	0.900	0.900
Upper Limit:	1.100	1.100	1.100	1.100
Phase Error(degrees):	-0.02	-0.10	0.00	0.02
Lower Limit:	-10.00	-10.00	-10.00	-10.00
Upper Limit:	10.00	10.00	10.00	10.00

	MEDIUM A	MEDIUM X
Zero Error(mmho/m):	-0.0	0.0
Lower Limit:	-100.0	-100.0
Upper Limit:	100.0	100.0
Gain:	0.994	0.997
Lower Limit:	0.900	0.900
Upper Limit:	1.100	1.100
Phase Error(degrees):	-0.02	-0.10
Lower Limit:	-10.00	-10.00
Upper Limit:	10.00	10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	DATA	MIN	MAX
Voltage:	0.0	0.0	10.0	V	0.010	0.000	1.000
Current:	-0.1	-20.0	20.0	mA	1.013	0.900	1.200

03/10/98 09:21 9.1 m Ver 1.04 JOB 14576

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: SONDE SERIAL NO.:
FIRMWARE VERSION: 8.0 ELECTRONICS SERIAL NO.:

	100KHz A	100KHz X	400KHz A	400KHz X
Zero Error(mmho/m):	-0.1	0.0	-0.0	0.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0
Upper Limit:	100.0	100.0	100.0	100.0
Gain:	0.994	0.998	0.994	0.995
Lower Limit:	0.900	0.900	0.900	0.900
Upper Limit:	1.100	1.100	1.100	1.100
Phase Error(degrees):	-0.02	-0.10	0.00	0.02
Lower Limit:	-10.00	-10.00	-10.00	-10.00
Upper Limit:	10.00	10.00	10.00	10.00

	MEDIUM A	MEDIUM X
Zero Error(mmho/m):	-0.0	0.0
Lower Limit:	-100.0	-100.0
Upper Limit:	100.0	100.0
Gain:	0.994	0.997
Lower Limit:	0.900	0.900
Upper Limit:	1.100	1.100
Phase Error(degrees):	-0.02	-0.10
Lower Limit:	-10.00	-10.00
Upper Limit:	10.00	10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	DATA	MIN	MAX
Voltage:	-0.0	-10.0	10.0	V	0.010	0.000	1.000
Current:	-0.1	-20.0	20.0	mA	1.013	0.900	1.200

03/10/98 09:58 34.3 m Ver 1.04 JOB 14576

SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CHECK
Sonde Not Before Survey
Tool Serial No: 8203

TOOL TYPE: SONDE SERIAL NO.:
FIRMWARE VERSION: 8.0 ELECTRONICS SERIAL NO.:

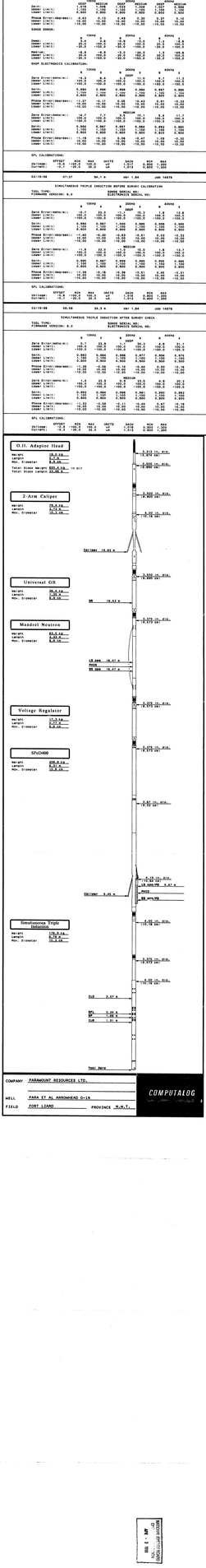
	100KHz DEEP	100KHz MEDIUM	400KHz DEEP	400KHz MEDIUM
Zero Error(mmho/m):	-0.1	0.0	-0.0	0.1
Lower Limit:	-100.0	-100.0	-100.0	-100.0
Upper Limit:	100.0	100.0	100.0	100.0
Gain:	0.993	0.998	0.998	0.970
Lower Limit:	0.900	0.900	0.900	0.900
Upper Limit:	1.100	1.100	1.100	1.100
Phase Error(degrees):	-0.20	-0.10	-0.10	-0.60
Lower Limit:	-10.00	-10.00	-10.00	-10.00
Upper Limit:	10.00	10.00	10.00	10.00

	100KHz A	100KHz X	400KHz A	400KHz X
Zero Error(mmho/m):	-1.0	0.0	0.0	-0.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0
Upper Limit:	100.0	100.0	100.0	100.0
Gain:	0.992	0.998	0.992	0.992
Lower Limit:	0.900	0.900	0.900	0.900
Upper Limit:	1.100	1.100	1.100	1.100
Phase Error(degrees):	-0.20	-0.10	-0.10	-0.60
Lower Limit:	-10.00	-10.00	-10.00	-10.00
Upper Limit:	10.00	10.00	10.00	10.00

	MEDIUM A	MEDIUM X
Zero Error(mmho/m):	-1.0	0.0
Lower Limit:	-100.0	-100.0
Upper Limit:	100.0	100.0
Gain:	0.992	0.998
Lower Limit:	0.900	0.900
Upper Limit:	1.100	1.100
Phase Error(degrees):	-0.20	-0.10
Lower Limit:	-10.00	-10.00
Upper Limit:	10.00	10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	DATA	MIN	MAX
Voltage:	-0.0	-10.0	10.0	V	0.010	0.000	1.000
Current:	-0.1	-20.0	20.0	mA	1.013	0.900	1.200



COMPANY	PARAMOUNT RESOURCES LTD.
WELL	PARA ET AL ARROWHEAD O-15
FIELD	FORT LIARD PROVINCE N.W.T.

COMPUTALOG

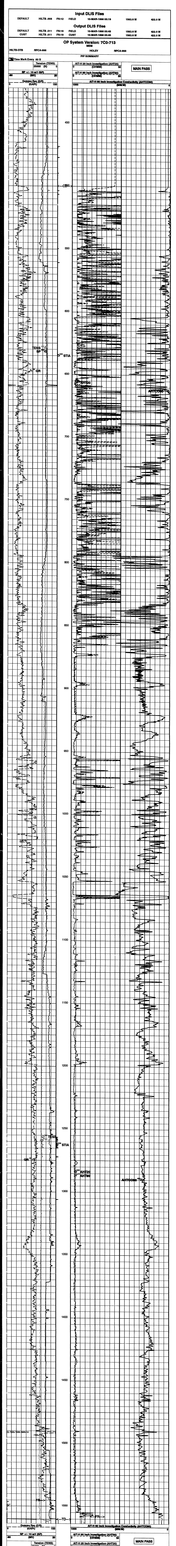
MINISTER OF FINANCE
APR - 3 1998
RECEIVED

Input DLIS Files					
DEFAULT	05-FEB-2008	FILE	01-MAR-1996 00:00	10012.00	9012.00
Output DLIS Files					
DEFAULT	05-FEB-2010	FILE	10-MAR-1996 00:00	10012.00	9012.00
CONT	05-FEB-2010	CONT	10-MAR-1996 00:00	10012.00	9012.00

OP System Version: TCS-713

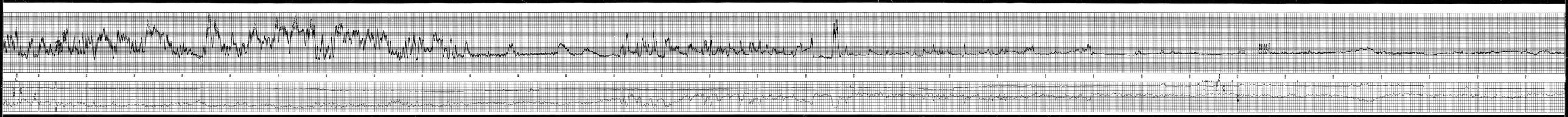
06-FEB-2010	8RC4-440	06-FEB-2010	8RC4-440
06:00		06:00	

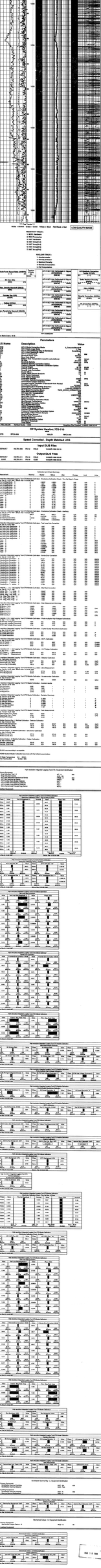
INFORMATION



INFORMATION

Parameters		
DLIS Name	Description	Value
DATE	Date of Last Job Run	6_Feb-10
DHFV	Downhole Fluid Velocity	0
DHFVQ	Downhole Fluid Velocity Quality	0
DHFVSD	Downhole Fluid Velocity Standard Deviation	0
DHFVSN	Downhole Fluid Velocity Sensor	0
DHFVTC	Downhole Fluid Velocity Time Constant	0
DHFVZ	Downhole Fluid Velocity Zero	0
DHOT	Downhole Temperature	0
DHOTC	Downhole Temperature Correction	0
DHOTZ	Downhole Temperature Zero	0
DHPR	Downhole Pressure	0
DHPRC	Downhole Pressure Correction	0
DHPRZ	Downhole Pressure Zero	0
DHSP	Downhole Spinner	0
DHSPC	Downhole Spinner Correction	0
DHSPZ	Downhole Spinner Zero	0
DHTEN	Downhole Tension	0
DHTENC	Downhole Tension Correction	0
DHTENZ	Downhole Tension Zero	0
DPTH	Depth Channel	0
DSTK	Depth Stack	0
EDTI	Edit Indicator	0
FCNT	Frame Count	0
FLOW	Flowing Indicator	0
FRAM	Frame Number	0
GR	Gamma Ray	0
GR1CAL	Gamma Ray 1 Calibrated	0
GR2CAL	Gamma Ray 2 Calibrated	0
GR3CAL	Gamma Ray 3 Calibrated	0
GR4CAL	Gamma Ray 4 Calibrated	0




Gamma Ray
Volume + Bound Water Volume + Water Water Hydrocarbon + Gas
LOG QUALITY BANDS
Sonic Porosity
Density Porosity
Neutron Porosity
Total Porosity

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

NEB COPY 1834

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

PROVINCE: NORTHWEST TERRITORIES
Field: FORT LIARD
Location: 0-15-60DEG30'-123DEG 0'
Well: PARAMOUNT ET AL ARROWHE
Company: PARAMOUNT RESOURCES LTD

9211-P33-9-2

Schlumberger

PLATFORM EXPRESS
ARRAY INDUCTION
***** TVD *****

LOCATION
0-15-60DEG30'-123DEG 0'
UWID: 3000156030123000

Elev.: K.B. 387 M; G.L. 380.5 M; D.F. 386.7 M

Permanent Datum: GROUND LEVEL — Elev.: 380.5 M
Log Measured From: KELLY BUSHING — 6.5 M above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	SECTION	TOWNSHIP	RANGE
EL 369			

Logging Date	10-MAR-1998			
Run Number	1		*** TVD ***	
Depth Driller	1557 M			
Schlumberger Depth	1560 M		1552 M	
Bottom Log Interval	1557 M		1549 M	
Top Log Interval	500 M			
Casing Driller Size @ Depth	339.700 MM	@ 500 M	@	
Casing Schlumberger	500 M			
Bit Size	311.000 MM			
Type Fluid In Hole	CUTTER D			
MUD Density / Viscosity	1100 K/M3	110 S		
MUD Fluid Loss / PH				
MUD Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.900 OHMM	@ 23 DEGC	@	
RMF @ Measured Temperature		@	@	
RMC @ Measured Temperature		@	@	
Source RMF / RMC	N/A	N/A		
RM @ MRT / RMF @ MRT	0.317 @ 105	@ 105	@	@
Maximum Recorded Temperatures	105 DEGC			
Circulation Stopped / Time	10-MAR-1998	0:00		
Logger On Bottom / Time	10-MAR-1998	4:00		
Unit Number / Location	3021	SWIFT CURRENT		
Recorded By	S. DUNN			
Witnessed By	COLIN BREDIN			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
MUD Fluid Loss / PH				
MUD Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

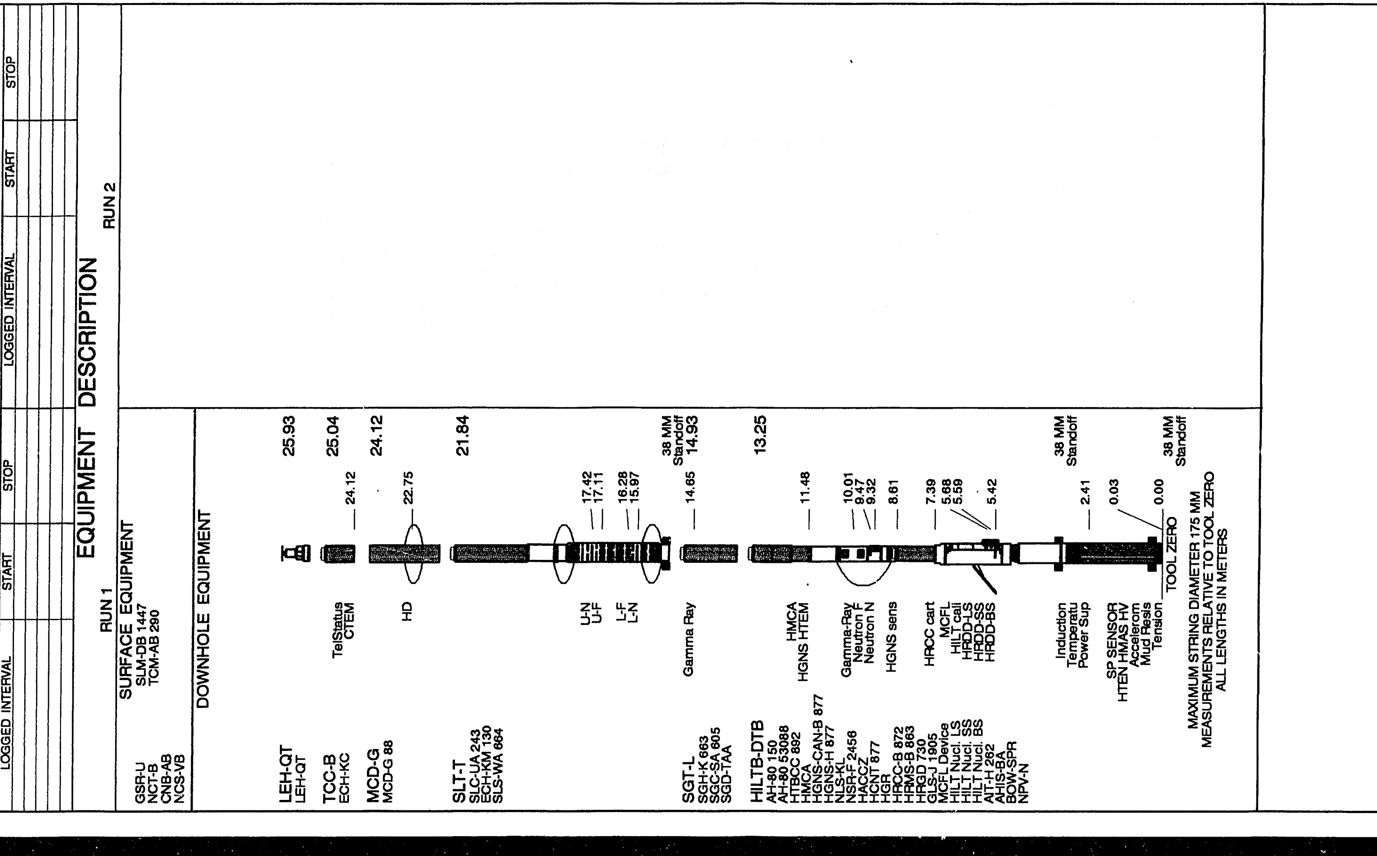
OTHER SERVICES1
OS1: PLATFORM EXPRESS
OS2: BHC SONIC
OS3: ML & XY CALIPER
OS4: TVD
OS5: LOGNET

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
RIG: PRECISION 622
PRINTS: 4 FIELD, 8 FINAL

REMARKS: RUN NUMBER 2

EQUIPMENT DESCRIPTION



LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

SONIC

N.E.B. COPY

BAKER HUGHES

DIGITAL ACOUSTILOG
GAMMA RAY LOG
XY CALIPER LOG

Baker Atlas

FILE NO.	COMPANY	PANARGON RESOURCES LTD.
	WELL	PANARGON ET AL ARBERDAVIS #13
API NO.	FIELD	WILDCAT
	PROVINCE	NORTHWEST TERRITORIES
W. P. 17	LOCATION:	
	4-51-19-W	
DIGITAL/CALIPER/GR	8-13-SECTION-TOWNS-W	

OTHER SERVICES:
DLL-MSFL-BHC
CNL-LDL
VSP
HDT
HRD

PERMANENT DATUM:	G.L.	ELEVATION: 398.5 M	ELEVATIONS
LOG MEASURED FROM:	K.B.	5.0 M ABOVE P.D.	KB: 398.5
DRILL MEAS. FROM:	KELLY BUSHING		DF:
			GL: 398.5

	DATE	
	RUN NO.	ONE
DENSITY DECAY	MIN/FT	
DENSITY SPEED	MPM	
DENSITY GAIN	DB/V	
MOTOR LOADED (INTERNAL)	MPM/V.A	
MOTOR LOADED (EXTERNAL)	MPM/V.A	
CALIPER LIMITS	25.4 IN	
CALIPER GAIN	1.0 V/IN	8.128/3.V
CALIPER OFFSET	10.2 IN	
CALIPER	10.2 IN	
DENSITY FILTER (MHZ)	2.0	
PROBE	DENSITY	MPD-BLUE 20.5
PROBE	CALIPER	
PROBE SN. NUMBER	3108-DN	
MAX WT/MEAS. TOOL		
MAX WT/MEAS. TOOL		
MAX WT/MEAS. TOOL		
CABLE SN. NO.		
CABLE SN. NO. / MFG.		
CABLE TYPE		
MAX. RECORDED CIRCULATION	1.00	
MAX. RECORDED TEMP.	12.8 DEG	
TOTAL CABLE CIRCULATION	15.00	
TOTAL RECORDED TIME	15.00 HOURS	
OPERATING RIG TIME	0.00HRS	

DIGITAL ACOUSTILOG - GAMMA RAY LOG - XY CALIPER LOG

PRINTED: 1 MAY 1986 - 10:00 AM

PANARGON RESOURCES LTD.
ARBERDAVIS #13
WILDCAT
NORTHWEST TERRITORIES

INSTRUMENT CONFIGURATION

PROBE	DENSITY	MPD-BLUE
PROBE SN.	DENSITY	3108-DN
PROBE	CALIPER	
PROBE SN.	CALIPER	
CABLE		
CABLE SN.		
CABLE TYPE		
CABLE LENGTH		
CABLE CIRCULATION		
CABLE RECORDED TIME		
CABLE OPERATING TIME		
CABLE SN.		
CABLE TYPE		
CABLE LENGTH		
CABLE CIRCULATION		
CABLE RECORDED TIME		
CABLE OPERATING TIME		

MAIN PASS - UPPER PRESENTATION

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PANARGON RESOURCES LTD.
ARBERDAVIS #13
WILDCAT
NORTHWEST TERRITORIES

FIELD PRINT OUTS

RECORDER TYPE	DIGITAL/FILM	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	GR	API
CH2	CALI	IN
CH3	DENS	G/CC
CH4	DRHO	G/CC
CH5	CORR	G/CC
CH6	DENS	G/CC
CH7	DRHO	G/CC
CH8	CORR	G/CC
RECORDER TYPE	DRHO/G & NEW	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	DRHO	G/CC
CH2	CORR	G/CC
RECORDER TYPE	CORRECTED PROBE	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	DENS	G/CC
CH2	DRHO	G/CC
RECORDER TYPE	MAGNETIC FIX CONTROL	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	MAGNETIC FIX	
CH2	MAGNETIC FIX	
CH3	MAGNETIC FIX	
CH4	MAGNETIC FIX	
CH5	MAGNETIC FIX	
CH6	MAGNETIC FIX	
CH7	MAGNETIC FIX	
CH8	MAGNETIC FIX	
RECORDER TYPE	MAGNETIC QUALITY CONTROL	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	MAGNETIC QUALITY	
CH2	MAGNETIC QUALITY	
CH3	MAGNETIC QUALITY	
CH4	MAGNETIC QUALITY	
CH5	MAGNETIC QUALITY	
CH6	MAGNETIC QUALITY	
CH7	MAGNETIC QUALITY	
CH8	MAGNETIC QUALITY	
RECORDER TYPE	MAGNETIC FIX	
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1	MAGNETIC FIX	
CH2	MAGNETIC FIX	
CH3	MAGNETIC FIX	
CH4	MAGNETIC FIX	
CH5	MAGNETIC FIX	
CH6	MAGNETIC FIX	
CH7	MAGNETIC FIX	
CH8	MAGNETIC FIX	
RECORDER TYPE		
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1		
CH2		
CH3		
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CH6		
CH7		
CH8		
RECORDER TYPE		
CHANNEL	CHANNEL DESCRIPTION	UNITS
CH1		
CH2		
CH3		
CH4		
CH5		
CH6		
CH7		
CH8		

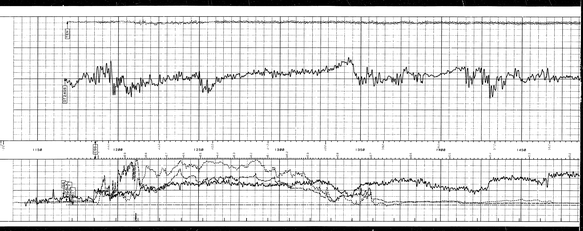
DATE: 01-MAY-86
TIME: 10:00 AM
DIGITAL ACOUSTILOG - GAMMA RAY LOG - XY CALIPER LOG

PRINTED: 1 MAY 1986 - 10:00 AM

PANARGON RESOURCES LTD.
ARBERDAVIS #13
WILDCAT
NORTHWEST TERRITORIES

CALIBRATIONS

	DATE	
	RUN NO.	ONE
	TIME	
	TOOL	
	SERIAL NO.	
	CALIBRATOR	
	CALIBRATOR SN.	
	CALIBRATOR TYPE	
	CALIBRATOR LENGTH	
	CALIBRATOR CIRCULATION	
	CALIBRATOR RECORDED TIME	
	CALIBRATOR OPERATING TIME	
	CALIBRATOR SN.	
	CALIBRATOR TYPE	
	CALIBRATOR LENGTH	
	CALIBRATOR CIRCULATION	
	CALIBRATOR RECORDED TIME	
	CALIBRATOR OPERATING TIME	
	BIT SIZE	
	PRIMARY MEAS.	



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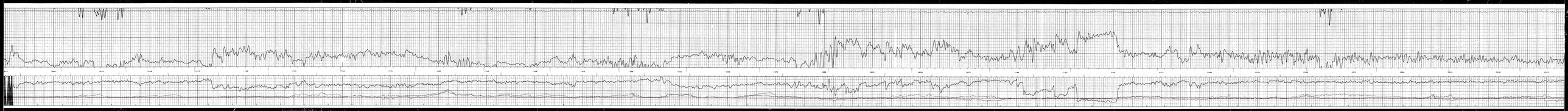
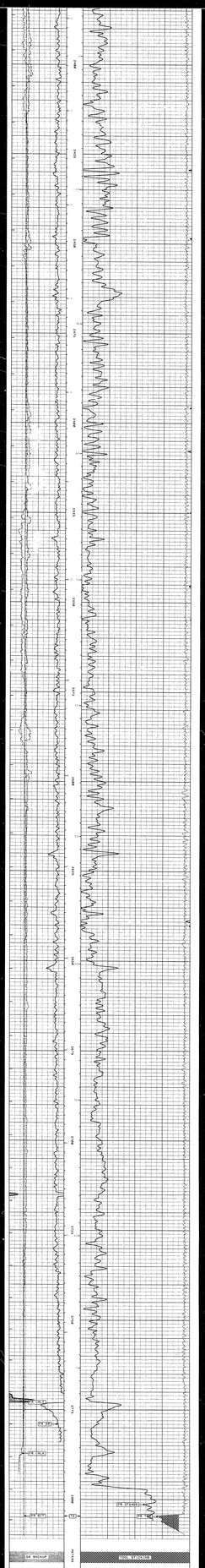
CHANNEL 986
CHANNEL 987
CHANNEL 988
CHANNEL 989
CHANNEL 990
CHANNEL 991
CHANNEL 992
CHANNEL 993
CHANNEL 994
CHANNEL 995
CHANNEL 996
CHANNEL 997
CHANNEL 998
CHANNEL 999
CHANNEL 1000

REPEAT PASS
TOOL STICKING
FR DT24QS
FR TEN
2FT. DELTA-T (SURFACE PICKS) [dt24.s]
DIFF. TENSION [ten]
2800
TD
METERS
BVOL
TT
FR BIT
GR BACKUP
XCAL < BIT
YCAL < BIT
GAMMA RAY [gr]
Caliper X [calx]
Caliper Y [caly]
BIT SIZE
MINUTE MARK
Release:3.1 Nov 18, 1998
Fileview 2.27 Pcrplt /main/46
Cplot /08/12) Pdf_Cpp /main/13
Mon Feb 8 21:39:48 1999




2900
2925
2950
2975
3000
3025
3050
3075
3100
3125
3150
3175
3200
3225
3250
3275
3300
3325
3350
3375
3400
3425
3450
3475
3500
3525
3550
3575
3600
3625
3650
3675
3700
3725
3750
3775
3800
3825
3850
3875
3900

NEB COPY

BAKER HUGHES

TRUE VERTICAL DEPTH
DIGITAL ACOUSTILOG
GAMMA RAY LOG
XY CALIPER LOG

Baker Atlas

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
API NO:	WELL	PARAMOUNT ET AL ARROWHEAD B-15
	FIELD	FORT LIARD
	PROVINCE	NORTHEST TERRITORIES
Ver 3.19	LOCATION:	OTHER SERVICES
3000150830123000	N10-1834	CN-ZDL-GR-XY
	B-15-60DEG30'-123DEG 8'	HDIL-GR
		CVL
		TUD

PERMANENT DATUM	G.L.	ELEVATION 308.5 M	ELEVATIONS
LOG MEASURED FROM	K.B.	6.2 M ABOVE P.D.	KB 306.7 M
DRILL. MEAS. FROM	KELLY BUSHING		DF
			GL 308.5 M

DATE		08-FEB-1999		TUD
RUN	TRIP	1	1	
SERVICE ORDER		5008847		
DEPTH DRILLER		2885.0 M	2882.1 M	
DEPTH LOGGER		2884.7 M	2881.8 M	
BOTTOM LOGGED INTERVAL		2882.2 M	2799.3 M	
TOP LOGGED INTERVAL		1165.7 M	1165.8 M	
CASING-DRILLER		244.5 MM @ 1189.5 M	244.5 MM @ 1189.5 M	
CASING LOGGER		1185.7 M	1185.8 M	
BIT SIZE		216.8 MM		
TYPE OF FLUID IN HOLE		INVERT		
DENSITY	VISCOSITY	1810 G/CU 53 S		
PH	FLUIDLOSS	-	-	
SOURCE OF SAMPLE		FLOWLINE		
RM AT MEAS. TEMP.		- @ -		@
RMF AT MEAS. TEMP.		- @ -		@
RMC AT MEAS. TEMP.		- @ -		@
SOURCE OF RMF	RMC	- -		
RM AT BHT		- @ -		@
TIME SINCE CIRCULATION		5 HRS		
MAX. RECORDED TEMP.		123.8 DEGC		
EQUIP. NO.	LOCATION	HL 3564	SLH	
RECORDED BY		S.SPELMYER.RMF/ZDU		
WITNESSED BY		C.BIBBIN		

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CLIENTS THE BENEFIT OF THEIR BEST OPINION. HOWEVER, ALL CONCLUSIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, AND THEREFORE WE CANNOT GUARANTEE THEIR ACCURACY OR CORRECTNESS. WE ASSUME NO LIABILITY FOR LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED IN CONNECTION WITH THE USE OF SUCH INTERPRETATIONS, EXCEPT IN CASE OF GROSS OR WILLFUL NEGLIGENCE BY THE CONTRACTOR WHO CARRIES OUT THE INTERPRETATION.

REMARKS

all scales and presentations as per customer request.

Neutron Matrix : L.S. dog at 203.00

Log depths are measured along with previous run log.

Log circulated: 08-Feb-99 1328

Other 3 fold/hole prints

RUN	TRIP	TOOL	SERIAL NO.	POSITION
		DSI	2103	FIRST
		DSI	2103	SECOND
		DSI	2103	THIRD
		DSI	2103	FOURTH
		DSI	2103	FIFTH
		DSI	2103	SIXTH
		DSI	2103	SEVENTH
		DSI	2103	EIGHTH
		DSI	2103	NINTH
		DSI	2103	TENTH
		DSI	2103	ELEVENTH
		DSI	2103	TWELFTH
		DSI	2103	THIRTEENTH
		DSI	2103	FOURTEENTH
		DSI	2103	FIFTEENTH
		DSI	2103	SIXTEENTH
		DSI	2103	SEVENTEENTH
		DSI	2103	EIGHTEENTH
		DSI	2103	NINETEENTH
		DSI	2103	TWENTIETH
		DSI	2103	TWENTY-FIRST
		DSI	2103	TWENTY-SECOND
		DSI	2103	TWENTY-THIRD
		DSI	2103	TWENTY-FOURTH
		DSI	2103	TWENTY-FIFTH
		DSI	2103	TWENTY-SIXTH
		DSI	2103	TWENTY-SEVENTH
		DSI	2103	TWENTY-EIGHTH
		DSI	2103	TWENTY-NINTH
		DSI	2103	THIRTIETH
		DSI	2103	THIRTY-FIRST
		DSI	2103	THIRTY-SECOND
		DSI	2103	THIRTY-THIRD
		DSI	2103	THIRTY-FOURTH
		DSI	2103	THIRTY-FIFTH
		DSI	2103	THIRTY-SIXTH
		DSI	2103	THIRTY-SEVENTH
		DSI	2103	THIRTY-EIGHTH
		DSI	2103	THIRTY-NINTH
		DSI	2103	FORTIETH
		DSI	2103	FORTY-FIRST
		DSI	2103	FORTY-SECOND
		DSI	2103	FORTY-THIRD
		DSI	2103	FORTY-FOURTH
		DSI	2103	FORTY-FIFTH
		DSI	2103	FORTY-SIXTH
		DSI	2103	FORTY-SEVENTH
		DSI	2103	FORTY-EIGHTH
		DSI	2103	FORTY-NINTH
		DSI	2103	FIFTIETH
		DSI	2103	FIFTY-FIRST
		DSI	2103	FIFTY-SECOND
		DSI	2103	FIFTY-THIRD
		DSI	2103	FIFTY-FOURTH
		DSI	2103	FIFTY-FIFTH
		DSI	2103	FIFTY-SIXTH
		DSI	2103	FIFTY-SEVENTH
		DSI	2103	FIFTY-EIGHTH
		DSI	2103	FIFTY-NINTH
		DSI	2103	SIXTIETH
		DSI	2103	SIXTY-FIRST
		DSI	2103	SIXTY-SECOND
		DSI	2103	SIXTY-THIRD
		DSI	2103	SIXTY-FOURTH
		DSI	2103	SIXTY-FIFTH
		DSI	2103	SIXTY-SIXTH
		DSI	2103	SIXTY-SEVENTH
		DSI	2103	SIXTY-EIGHTH
		DSI	2103	SIXTY-NINTH
		DSI	2103	SEVENTIETH
		DSI	2103	SEVENTY-FIRST
		DSI	2103	SEVENTY-SECOND
		DSI	2103	SEVENTY-THIRD
		DSI	2103	SEVENTY-FOURTH
		DSI	2103	SEVENTY-FIFTH
		DSI	2103	SEVENTY-SIXTH
		DSI	2103	SEVENTY-SEVENTH
		DSI	2103	SEVENTY-EIGHTH
		DSI	2103	SEVENTY-NINTH
		DSI	2103	EIGHTIETH
		DSI	2103	EIGHTY-FIRST
		DSI	2103	EIGHTY-SECOND
		DSI	2103	EIGHTY-THIRD
		DSI	2103	EIGHTY-FOURTH
		DSI	2103	EIGHTY-FIFTH
		DSI	2103	EIGHTY-SIXTH
		DSI	2103	EIGHTY-SEVENTH
		DSI	2103	EIGHTY-EIGHTH
		DSI	2103	EIGHTY-NINTH
		DSI	2103	NINETIETH
		DSI	2103	NINETY-FIRST
		DSI	2103	NINETY-SECOND
		DSI	2103	NINETY-THIRD
		DSI	2103	NINETY-FOURTH
		DSI	2103	NINETY-FIFTH
		DSI	2103	NINETY-SIXTH
		DSI	2103	NINETY-SEVENTH
		DSI	2103	NINETY-EIGHTH
		DSI	2103	NINETY-NINTH
		DSI	2103	HUNDRETH

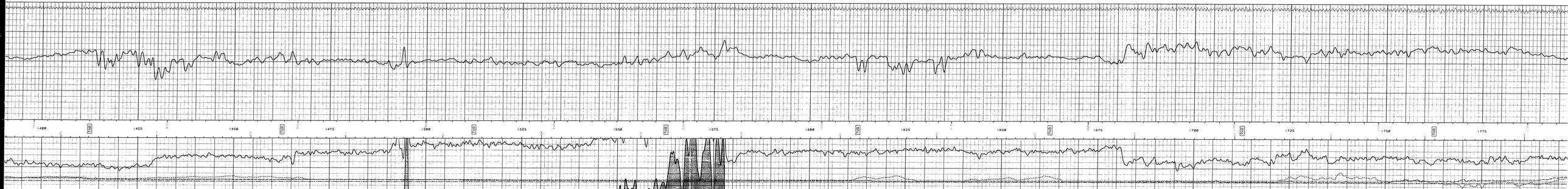
INSTRUMENT CONFIGURATION

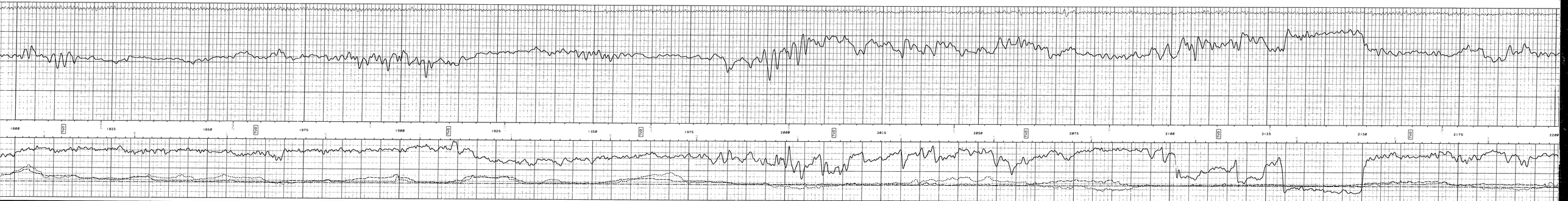
Source File: /usr/ldm/dat/parmount/1165-1165

DIRECTIONAL SURVEY

Source File: /data/spec/personal/P-15/pr151.txt

Depth	Angle	Azi
0.00	0.00	0.00
50.00	0.00	0.00
75.00	0.00	0.00
99.00	0.00	0.00
124.00	0.00	0.00
149.00	0.00	0.00
173.00	0.00	0.00
198.00	0.00	0.00
223.00	0.00	0.00
247.00	0.00	0.00


1400
1425
1450
1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775


1800
1825
1850
1875
1900
1925
1950
1975
2000
2025
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2075
2100
2125
2150
2175
2200

2225
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2300
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2350
2375
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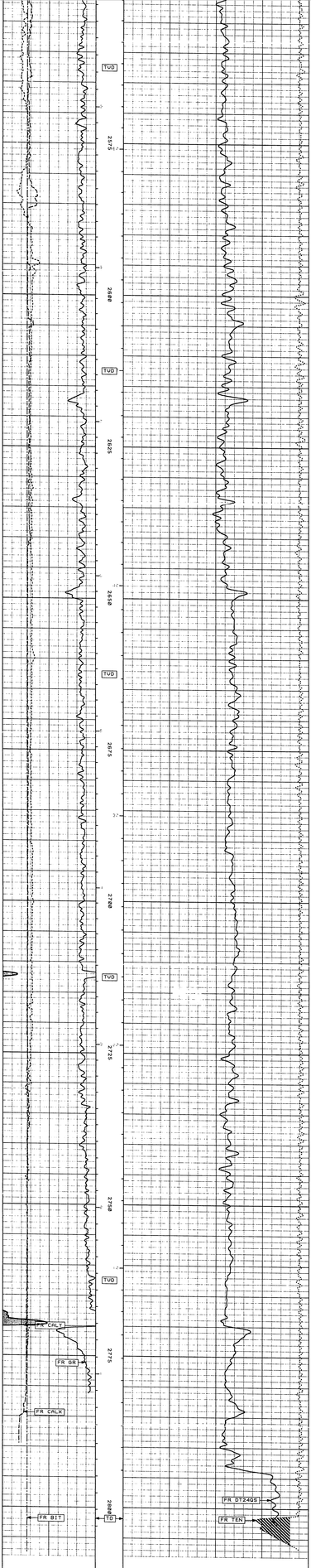
2425
2450
2475
2500
2525
2550



BAKER HUGHES

Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.	FILE NO:
WELL	PARAMOUNT ET AL ARROWHEAD B-15	API NO:
FIELD	FORT LIARD	
PROVINCE	NORTHWEST TERRITORIES	

LOCATION:
WCD:1834
B-15-80N50W*123DEG B'

ELEVATIONS
KB 300.7 M
DF
GL 300.5 M

3000:5600M:23000

DATE 26-FEB-1995

Baker Atlas

HUGHES

N.E.B. COPY

MULTI-POLE ARRAY ACOUSTILOG®
GAMMA RAY LOG
X-Y CALIPER LOG

FILE NO.	
API NO.	
COMPANY	PARAMOUNT RESOURCES LTD.
FIELD	FORT LIARD
WELL	FORT LIARD H-38 (N. AL MACDONALD B-15)
PROVINCE	NORTHWEST TERRITORIES
LOCATION	LAT 61° 48' 29.4" N LONG 123° 12' 29.4" W
	SECTION 38 TOWNSHIP 21 RANGE 1 W MERIDIAN W.M.
	ELEVATION KB 396.7 m DF 395.2 m GL 392.5 m

1st STRING	
2nd STRING	
3rd STRING	
PRIMARY DEVICE	MULTI-POLE ARRAY ACOUSTILOG
LOG MEASURED FROM	K.B. 4.1 m ABOVE PERM. DATUM
DRILL MEAS. FROM	KELLY BUSHING
DATE	23-Feb-1999
DEPTH DRILLER	2734.0 m
DEPTH LOGGER	2736.0 m
BOTTOM LOGGED INTERVAL	2732.5 m
TOP LOGGED INTERVAL	2.5 m
CASING DRILLER	339.4 m @ 339.4 m
CASING LOGGER	337.4 m
BIT SIZE	311.1 mm
TYPE FLUID IN HOLE	LIGNOSULPHONATE
DENSITY / VISCOSITY	1.05 g/cm³ / 65 s
PH / FLUID LOSS	9.5 / 6.5
SOURCE OF SAMPLE	FLOWLINE
RM @ MEAS. TEMP.	0.09 @ 24 °C
RMF @ MEAS. TEMP.	0.07 @ 24 °C
RMC @ MEAS. TEMP.	0.09 @ 24 °C
RM @ BHT	0.05 @ 50 °C
TIME SINCE CIRCULATION	15.5 HRS
MAX. RECORDED TEMP.	50 °C
LOGGING DISTRICT	FORT NELSON
LOGGED BY	S. SEBIC
WITNESSED BY	H. KOMAR

C. CASING

1	339.4	0
2		
3		

- FOLD HERE

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT, BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION, AND WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO

REMARKS

RUN 1: time lost circulated-23-feb-1999, 23-50

-all scales and presentations as per customer request.
-tied into atlas logs from 88-feb-1999.
-pulled only single repeat due to the extreme temperatures in the well as per customers request.
-ran in combination with hdip.
-did not present the images in the field as there was too much data.
-recorded calipers from run:.

crew: s.marsh,o.pinto

DELTA T CURVE FROM GEOSCIENCE CENTER CROSS CORRELATION.
LOG MARLIST- R.M. LOGGIN

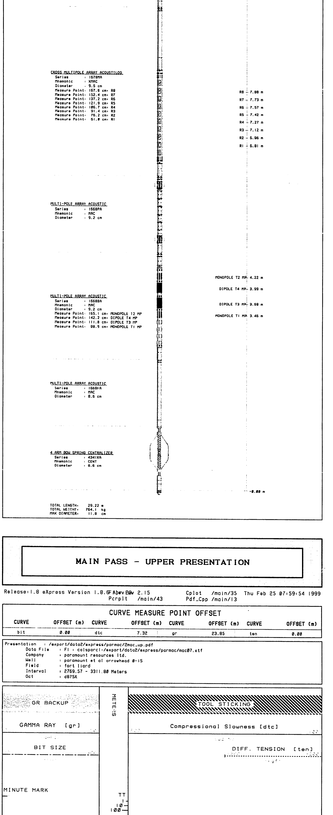
RUN 2-

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	DPHI	35:PHA	118132	FREE
1	1	GR	132NA	150174	FREE
1	1	DRIGHT	44E:HA	160738	FREE
1	1	HDIP	182BCH/420PHA	152585/152593	PAD SOUICE
1	1	KJNT	282:NA	108587	MAGNUS JOINT
1	1	LSD	306:NA	103708	FREE
1	1	MAC	187:A	121477	FREE
1	1	CENT	434:NA	172391	CENTRALIZER
1	1	MAC	187:NA	108711	CENTRALIZED
1	1	MAC	187:NA	172388	FREE
1	1	MAC	187:NA	154802	FREE
1	1	MAC	187:NA	107218	FREE
1	1	CENT	434:NA	160349	CENTRALIZER

INSTRUMENT CONFIGURATION

Source File: /export/data2/express/parmac/2mac-log



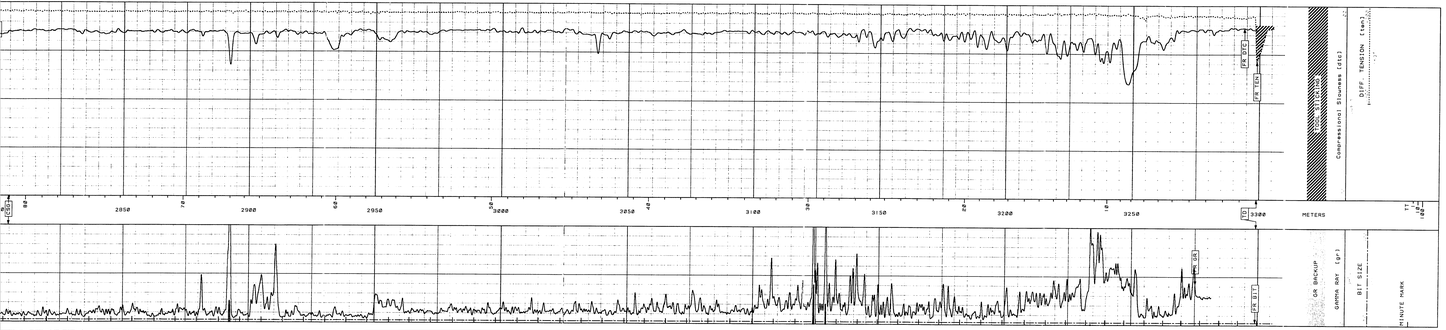
MAIN PASS - UPPER PRESENTATION

Release:1.0 eXpress Version 1.0.0 Mon Nov 02 2.15 Calst /main/35 Thu Feb 25 07:59:54 1999
Pcrall /main/43 Pdf,Cap /main/13

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	dtc	7.32	gr	23.05	ten	0.00

Presentation : /export/data2/express/parmac/2mac_up.pdf
Data File : fr: net/export/data2/express/parmac/ecd7.elf
Company : paramount resources ltd.
Well : paramount at ot arrowhead 8-15
Field : fort liard
Interval : 2732.0 - 2811.00 Meters
Job : 49756



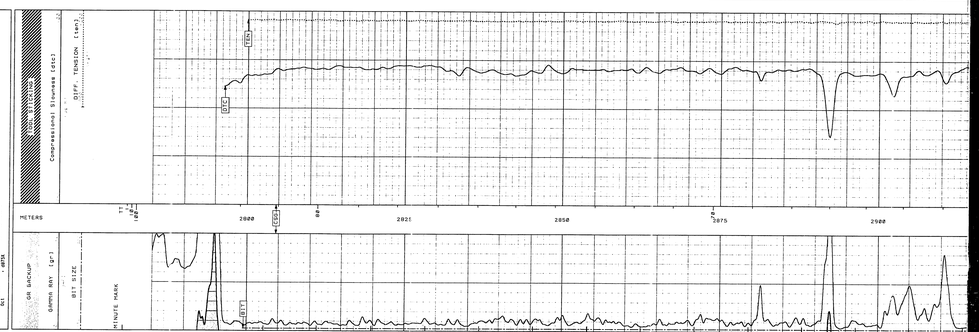
MAIN PASS - 100-300 DELTA T SCALE

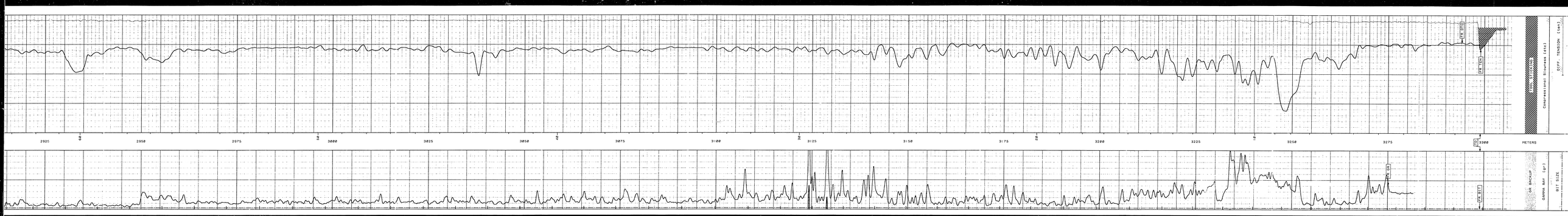
Software: 3.0 Express Version 1.0 Date: Monday Feb 22 09:41:01 1999
Field: Pointe Aux Pins Pad:Cap Pad:N/S

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
GR	0.00	TT	0.00	DTC	0.00	TEN	0.00

Presentation: /usr/prod/prod/express/bin/mkcl100.cf
Depth Scale: 1:1000 Meters
Sensors: Compensated Sonic
Tools: Dual Spacing Tool
Field: Pointe Aux Pins
Hole Size: 20.00 Meters
Alt: 0.00 m




Compressional Slowness (usec)
DIFF. TENSION (lbs)
GR BACKUP
GAMMA RAY (gr)
BIT SIZE
METERS
2925
2950
2975
3000
3025
3050
3075
3100
3125
3150
3175
3200
3225
3250
3275
3300

MINUTE MARK

TT
0
1000

MAIN PASS - 100-500 DELTA T SCALE

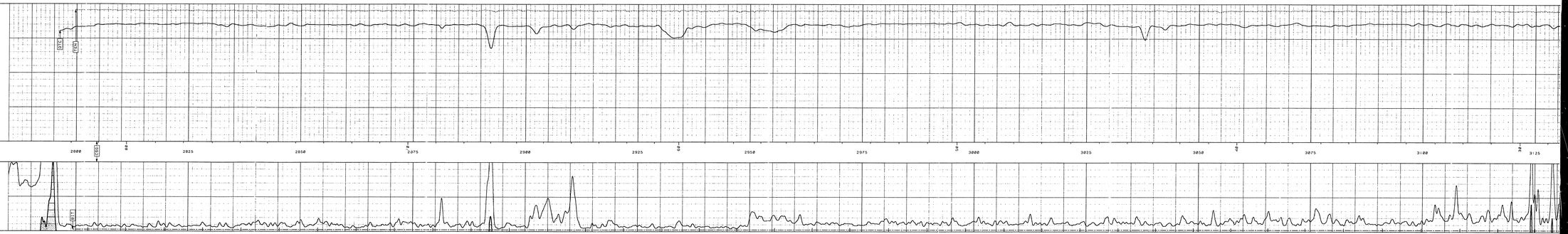
Release:1.0 Express Version 1.0 Platform 1.15
Date: Thu Feb 23 00:01:48 1999
Depth Mode: Measured
Calib: Pass(s)
Pass(s): 1

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
ALL	0.00	PI	7.30	PI	23.05	Lan	0.00

CURVE MEASURE POINT OFFSET

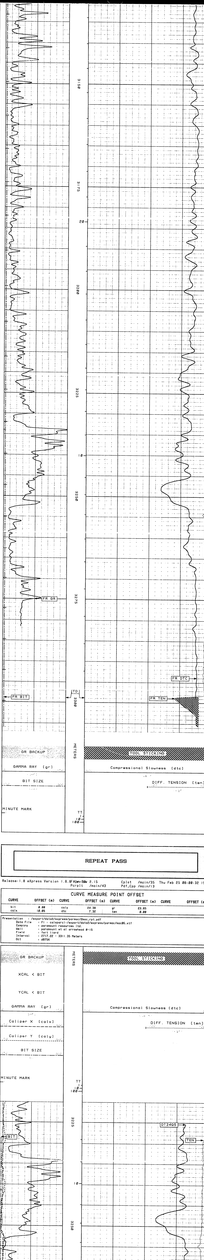
Processing Log: /home/prod/prod/processing/logs/ccl/ccl.log
Data File : /home/prod/prod/processing/data/ccl/ccl.dat
Depth Mode : Measured
Calib : Pass(s)
Pass(s) : 1
Field : 0.000
Bit : 8.5" or smaller
Mud : SG=1.00 ppg
Tool : CCL
Speed : 30 m/min
Scale : 100-500

CCL BACKUP
Gamma Ray [gr]
BIT SIZE
Compensated Siemens [ohm]
DIFF. TENSION [lbs]



MINUTE MARK

TT
0
1000



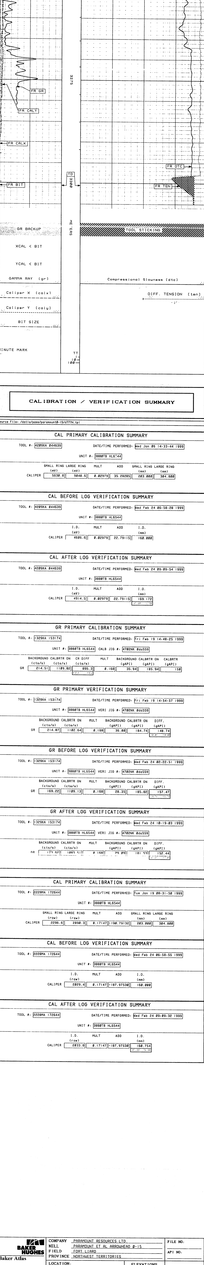
REPEAT PASS

Release:7.0 eXpress Version:7.0 **Filename:** 2.0 Date: Mar/07/ Time: The Feb 25 00:00:30 1999
Point: Inc:0.00 Point:0.00 Plot:Gamma Point:0.00

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
GR	0.00	ccl	10.00	tem	0.00		
GR2	0.00	ccl2	10.00	tem2	0.00		

Processing: 1 Total Differential Correction Applied
Cable: 7/32" Mono Conductor Armored Cable (Rev.Pol.)
Cable Head: Centralizer Integrated, Flat
Tool Type: Gamma Ray Tool Version Number 8.15
Fluid: Air
Hole Size: 12.25 in / 311.15 mm
Bit: ARTOM



CALIBRATION / VERIFICATION SUMMARY

Depth File: /home/pennzoil/pennzoil/3.0/CVs.lis

CAL PRIMARY CALIBRATION SUMMARY

TOOL # : 9CM004 8X4CDC DATE/TIME PERFORMED: Wed Jun 09 14:23:44 1993
UNIT # : DRAPER 10,K/LB
SMALL RING LARGE RING MULT ADD SMALL RING LARGE RING
(inch) (inch) (inch) (inch)
CALIBRATOR 10.00 12. 9844.52 4.9844.52 DIV DRAPER DIV DRAPER

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL # : 9CM004 8X4CDC DATE/TIME PERFORMED: Wed Feb 24 00:30:06 1999
UNIT # : DRAPER 10,K/LB
I.D. MULT ADD I.D.
(inch) (inch)
CALIBRATOR 4.9844.52 4.9844.52 20.79-10.52 -108.4880

CAL AFTER LOG VERIFICATION SUMMARY

TOOL # : 9CM004 8X4CDC DATE/TIME PERFORMED: Wed Feb 24 00:00:24 1999
UNIT # : DRAPER 10,K/LB
I.D. MULT ADD I.D.
(inch) (inch)
CALIBRATOR 20.4-10.52 4.9844.52 20.79-10.52 -108.1750

GR PRIMARY CALIBRATION SUMMARY

TOOL # : 9CM004 1X6TCW DATE/TIME PERFORMED: Fri Feb 19 14:44:25 1999
UNIT # : DRAPER 10,K/LB CHK 210 # 9TMCM 8X4CDC
BACKGROUND CALIBRTR CH. CH.DIFF MULT BACKGROUND CALIBRTR CH. CALIBRTR CH.DIFF.
(inch) (inch) (inch) (API) (API) (API) (API)
GR 21.5-1.0 -20.5 4.9844.52 4.1842 -85.1432 -85.9482 -.8

GR PRIMARY VERIFICATION SUMMARY

TOOL # : 9CM004 1X6TCW DATE/TIME PERFORMED: Fri Feb 19 14:54:07 1999
UNIT # : DRAPER 10,K/LB CHK 210 # 9TMCM 8X4CDC
BACKGROUND CALIBRTR CH. MULT BACKGROUND CALIBRTR CH. DIFF.
(inch) (inch) (inch) (API) (API) (API)
GR 19.250 -1.00 -20.25 4.9844.52 -85.1432 -87.42 -2.28

GR BEFORE LOG VERIFICATION SUMMARY

TOOL # : 9CM004 1X6TCW DATE/TIME PERFORMED: Wed Feb 24 00:31:11 1999
UNIT # : DRAPER 10,K/LB CHK 210 # 9TMCM 8X4CDC
BACKGROUND CALIBRTR CH. MULT BACKGROUND CALIBRTR CH. DIFF.
(inch) (inch) (inch) (API) (API) (API)
GR 19.250 -1.00 -20.25 4.9844.52 -85.1432 -87.42
[illegible]

GR AFTER LOG VERIFICATION SUMMARY

TOOL # : 9CM004 1X6TCW DATE/TIME PERFORMED: Wed Feb 24 00:18:01 1999
UNIT # : DRAPER 10,K/LB CHK 210 # 9TMCM 8X4CDC
BACKGROUND CALIBRTR CH. MULT BACKGROUND CALIBRTR CH. DIFF.
(inch) (inch) (inch) (API) (API) (API)
GR -.175 4.00 4.175 4.1842 -85.8921 -78.1432 -7.75
[illegible]

CAL PRIMARY CALIBRATION SUMMARY

TOOL # : 9CM004 7TEC00 DATE/TIME PERFORMED: Fri Jun 18 09:37:38 1993
UNIT # : DRAPER 10,K/LB
SMALL RING LARGE RING MULT ADD SMALL RING LARGE RING
(inch) (inch) (inch) (inch)
CALIBRATOR 4996.52 4996.52 4.17(4)52(10M PATTERN) DIV DRAPER DIV DRAPER

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL # : 9CM004 7TEC00 DATE/TIME PERFORMED: Wed Feb 24 00:50:55 1999
UNIT # : DRAPER 10,K/LB
I.D. MULT ADD I.D.
(inch) (inch)
CALIBRATOR 4996.52 4.17(4)52(10M PATTERN) 4996.52
[illegible]

CAL AFTER LOG VERIFICATION SUMMARY

TOOL # : 9CM004 7TEC00 DATE/TIME PERFORMED: Wed Feb 24 00:00:30 1999
UNIT # : DRAPER 10,K/LB
I.D. MULT ADD I.D.
(inch) (inch)
CALIBRATOR 4996.52 4.17(4)52(10M PATTERN) 4996.52
[illegible]

BAKER HUGHES / Baker Atlas	COMPANY NAME: PENNZOIL RESOURCES LTD.		FILE NO.
	WELL: PENNZOIL ET AL MERCHANT B-15		API NO.
	FIELD NAME: DOG LAKE		
	PROV.&STATE: MERCHANT TERRITORIES		
LOCATION: 4-15-58N-13W		ELEVATIONS: RB:1005.0 ft GL:1000.0 ft	5000-1243X-13000
B-15-58N13W - LEGEND 8" TAPE		DATE: 2-25-99	24-FEB-1999

COMPUTALOG

COMPANY	MARATHON CORPORATION OHIO
WELL	CONN ET AL ARMBRUSTER 2-1-15
FIELD	CONN LAKES
PROVINCE	MICHIGAN, CHEBOYGAN

Elev. K.B. 0 ft.	D.F. ft.	G.L. ft.	Date 1-2-79	Run No. 1	Depth-Driller 1000 ft.
Depth-Logger 1000 ft.	Bottom Log Interval 1000 ft.	Top Log Interval 0 ft.	Casing-Driller 0 ft. @ 0 ft.	Casing-Logger 0 ft.	Bit Size 0 in.
Type Fluid in Hole	Dens.	Visc.	pH	Fluid Loss	Source of Sample
Rm @ Meas. Temp.	Rmf @ Meas. Temp.	Rmc @ Meas. Temp.	Rm @ BHT	Time Since Circ.	Max. Rec. Temp.
Equip. No.	Location	Recorded By	Witnessed By		

Bit No.	From	To	Size	Type	Jets

Run No.	Bore-hole Record		Casing Record	
	Bit Size	To	Size	Wgt.
1	0	1000		

Run No.	Time	Size	Type	Location

Equipment	Location
Recorded By	
Witnessed By	

Time	Depth	Mud Wt.	Vis.	Pv	Yp	Gels	Fluid Loss	Chlorides	pH

Time	Depth	Temp.

Run No.	Time	Depth	Cement Type	Additives	Sacks	Mix Water	Rate	Pressure

Run No.	Time	Depth	Cement Type	Additives	Sacks	Mix Water	Rate	Pressure

Equipment	Location
Recorded By	
Witnessed By	

Time	Depth	Mud Wt.	Vis.	Pv	Yp	Gels	Fluid Loss	Chlorides	pH

Time	Depth	Temp.

Run No.	Time	Depth	Cement Type	Additives	Sacks	Mix Water	Rate	Pressure

Run No.	Time	Depth	Cement Type	Additives	Sacks	Mix Water	Rate	Pressure

REMARKS

REPEAT PASS
1:200 SCALE
500 - 100 DELTA TIME

v.07.31.97 VERSION: 1.64

437.8 METERS DIRECTION: UP DATE: 03/19/98 TIME: 10:37 MODE: TRACE PLAYBACK

15198CS1

TENSION 10000 LBS 0
X CALIPER 375 (mm) 625
GR 0 (API) 150

BCS DELTA TIME 500 (usec/m) 100

450

475

500

GR 0 (API) 150
X CALIPER 375 (mm) 625
TENSION 10000 LBS 0

BCS DELTA TIME 500 (usec/m) 100

START DEPTH: 801.3 METERS DIRECTION: UP DATE: 03/19/98 TIME: 10:31 MODE: TRACE PLAYBACK

15198CS1

v.07.31.97 VERSION: 1.64

REMARKS

REPEAT PASS
1:200 SCALE
500 - 100 DELTA TIME

v.07.31.97 VERSION: 1.64

FINISH DEPTH: 437.8 METERS DIRECTION: UP DATE: 03/19/98 TIME: 10:37 MODE: TRACE PLAYBACK

15198CS1

TENSION 10000 LBS 0
X CALIPER 375 (mm) 625
GR 0 (API) 150

BCS DELTA TIME 500 (usec/m) 100

450

475

500

GR 0 (API) 150
X CALIPER 375 (mm) 625
TENSION 10000 LBS 0

BCS DELTA TIME 500 (usec/m) 100

801.3 METERS DIRECTION: UP DATE: 03/19/98 TIME: 10:31 MODE: TRACE PLAYBACK

15198CS1

v.07.31.97 VERSION: 1.64

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
GAPI	GR STANDARD	140.0	API
DELT	GR DELTA	513.8	CPS

01/24/98 10:44 0.0 m Ver 1.64-1.64 Job 15198

Caliper Before Survey Calibration
Tool Type: XCA-CB Serial No: 8312

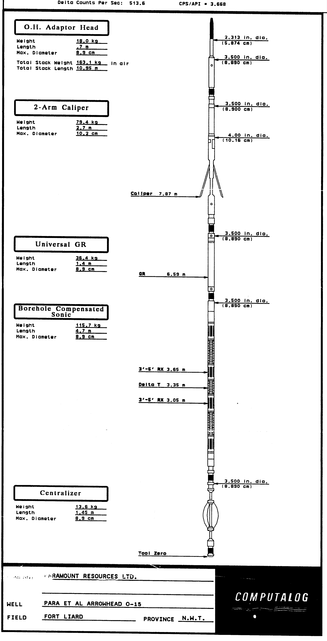
	Measured Small	Large	Units	Calibrated Small	Large	Units
CALX	3387.9	5835.0	MV	178	356	MM

02/19/98 03:59 0.0 m Ver 1.64-1.64 Job 15198

Gamma Ray Before Survey Calibration
Tool Type: SGT-HA Serial No: 8283
Calibrator Mod: 203298

	Background	Calibrator	Standard	Units
	193.5	706.1	140.0	GAPI

Delta Counts Per Sec: 513.6 CPS/API = 3.668



COMPANY: RAMOUNT RESOURCES LTD.

WELL: PARA ET AL ARROWHEAD O-15

FIELD: FORT LIARD PROVINCE: N.W.T.

COMPUTALOG

DOE - NWT
NO. 0001

FILE COPY 1834

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

PROVINCE: NORTHWEST TERRITORIES
Field: FORT LIARD
Location: 0-15-60DEG30'-123DEG 0'
Well: PARAMOUNT ET AL ARROWHEAD
Company: PARAMOUNT RESOURCES LTD

9211-P33-9-2

Schlumberger

BOREHOLE COMPENSATED SONIC

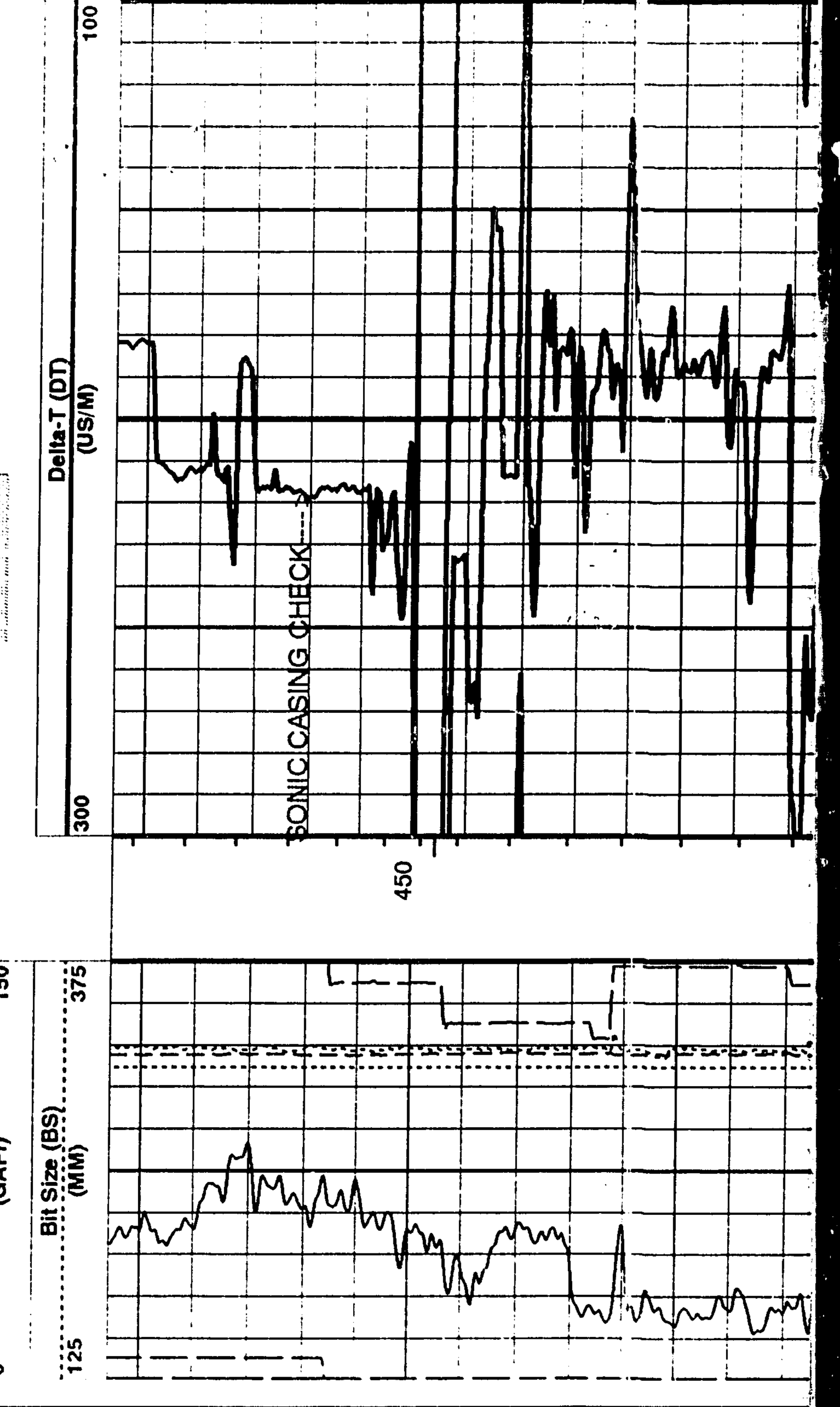
LOCATION: 0-15-60DEG30'-123DEG 0'
UWID: 300015603012300

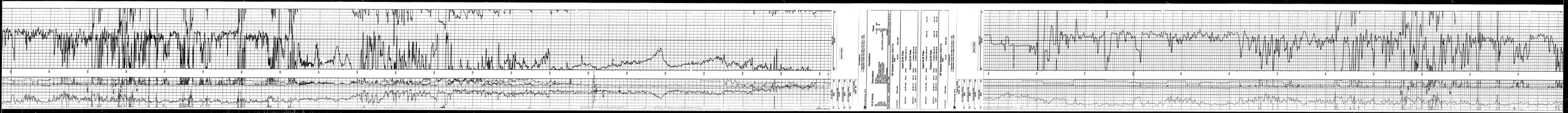
Elev.: K.B. 387 M; G.L. 380.5 M; D.F. 386.7 M

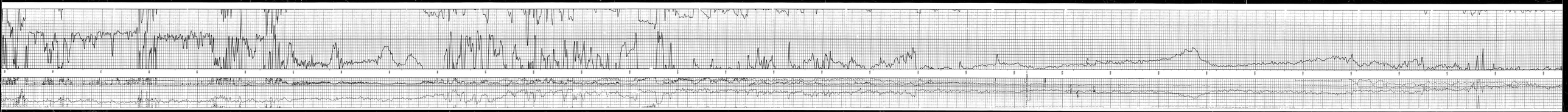
Permanent Datum: GROUND LEVEL — Elev.: 380.5 M
Log Measured From: KELLY BUSHING — 6.5 M above Perm. Datum
Drilling Measured From: KELLY BUSHING

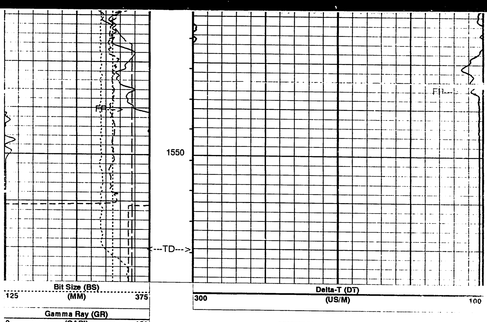
API Serial No.	SECTION	TOWNSHIP	RANGE
EL 369			

Logging Date	10-MAR-1998			
Run Number	1			
Depth Driller	1557 M			
Schlumberger Depth	1560 M			
Bottom Log Interval	1543 M			
Top Log Interval	500 M			
Casing Driller Size @ Depth	339.700 MM	@ 500 M	@	
Casing Schlumberger	500 M			
Bit Size	311.000 MM			
Type Fluid In Hole	CUTTER D			
MUD Density / Viscosity	1100 K/M3	110 S		
MUD Fluid Loss / PH				
MUD Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.900 OHMM	@ 23 DEGC	@	
RMF @ Measured Temperature		@	@	
RMC @ Measured Temperature		@	@	
Source RMF / RMC	N/A	N/A		
RM @ MRT / RMF @ MRT	0.317 @ 105	@ 105	@	@
Maximum Recorded Temperatures	105 DEGC			
Circulation Stopped / Time	10-MAR-1998	0:00		
Logger On Bottom / Time	10-MAR-1998	4:00		
Unit Number / Location	3021	SWIFT CURRENT		
Recorded By	S. DUNN			
Witnessed By	COLIN BREDIN			









MAIN PASS

PIP SUMMARY

Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BS	Bit Size	311.000 MM
DO	Depth Offset	0.0 M
DORL	Depth Offset Repeat Analysis	0.0 M
DTCM	Delta-T Computation Mode	FULL
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION
HSTI	STI Uses HILT Acceleration	YES
MODE	Firing Mode	DT
PP	Playback Processing	NORMAL

Format: SONI_SS Vertical Scale: 1:240 Graphics File Created: 10-MAR-1998 05:45

OP System Version: 7C0-713
MBM
HILTB-DTB RPCA-998 HOLEV RPCA-998

Input DLIS Files

DEFAULT	HILTB.008	FN:12	FIELD	10-MAR-1998 05:19	

Output DLIS Files

DEFAULT	HILTB.011	FN:18	FIELD	10-MAR-1998 05:45
CUST	HILTB.011	FN:19	CUST	10-MAR-1998 05:45

Input DLIS Files

DEFAULT	HILTB.008	FN:12	FIELD	10-MAR-1998 05:19		
DEFAULT	HILTB.006	FN:8	FIELD	10-MAR-1998 04:56	1563.6 M	1464.6 M

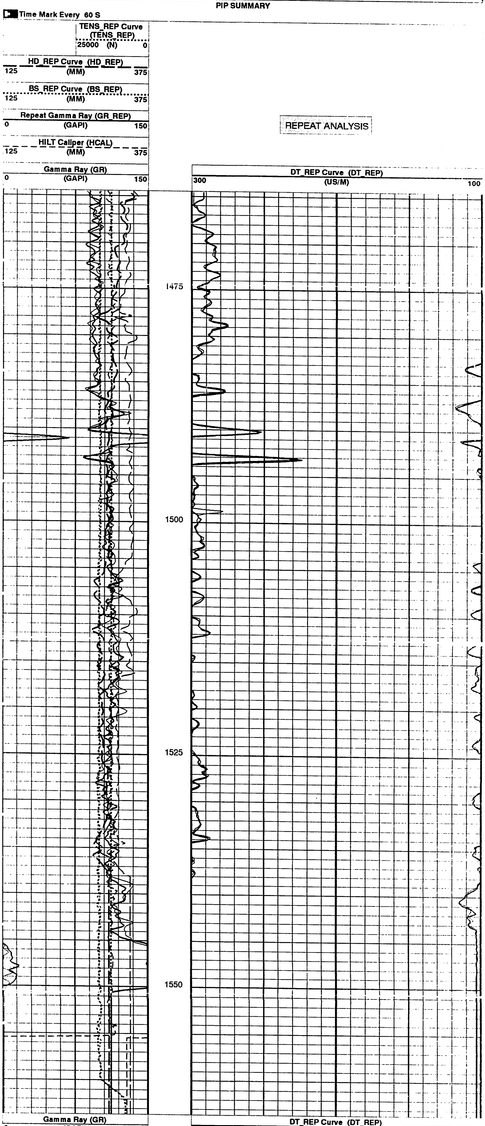
Output DLIS Files

DEFAULT	HILTB.011	FN:18	FIELD	10-MAR-1998 05:45
CUST	HILTB.011	FN:19	CUST	10-MAR-1998 05:45

OP System Version: 7C0-713
MBM
HILTB-DTB RPCA-998 HOLEV RPCA-998

PIP SUMMARY

Time Mark Every 60 S



REPEAT ANALYSIS

Gamma Ray (GR)
0 (GAPI) 150
HILT Caliper (HCAL)
125 (MM) 375
Repeat Gamma Ray (GR_REP)
0 (GAPI) 150
BS_REP Curve (BS_REP)
125 (MM) 375
HD_REP Curve (HD_REP)
125 (MM) 375
TENS_REP Curve (TENS_REP)
25000 (N) 0
DT_REP Curve (DT_REP)
300 (US/M) 100

REPEAT ANALYSIS

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
BS	Bit Size	311.000 MM
DO	Depth Offset	0.0 M
DORL	Depth Offset Repeat Analysis	0.0 M
DTCM	Delta-T Computation Mode	FULL
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION
HSTI	STI Uses HILT Acceleration	YES
MODE	Firing Mode	DT
PP	Playback Processing	NORMAL

Format: SONI_SS_REP Vertical Scale: 1:240 Graphics File Created: 10-MAR-1998 05:45

OP System Version: 7C0-713
MBM
HILTB-DTB RPCA-998 HOLEV RPCA-998

Input DLIS Files

DEFAULT	HILTB.008	FN:12	FIELD	10-MAR-1998 05:19		
DEFAULT	HILTB.006	FN:8	FIELD	10-MAR-1998 04:56	1563.6 M	1464.6 M

Output DLIS Files

DEFAULT	HILTB.011	FN:18	FIELD	10-MAR-1998 05:45
CUST	HILTB.011	FN:19	CUST	10-MAR-1998 05:45

MAR 1 8 1998

COMPANY:	PARAMOUNT RESOURCES LTD.	BOTTOM LOG INTERVAL	1543 M
WELL:	PARAMOUNT ET AL ARROWHEAD 0-15	SCHLUMBERGER DEPTH	1560 M
FIELD:	FORT LIARD	DEPTH DRILLER	1557 M
PROVINCE:	NORTHWEST TERRITORIES	KELLY BUSHING	387 M
		DRILL FLOOR	386 7 M
		GROUND LEVEL	360 5 M

Schlumberger

BOREHOLE COMPENSATED SONIC

N.E.B. COPY

1834

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

PROVINCE: NORTHWEST TERRITORIES
Field: FORT LIARD
Location: 0-15-60DEG30'-123DEG 0'
Well: PARAMOUNT ET AL ARROWHEAD
Company: PARAMOUNT RESOURCES LTD.

9211-P33-9-2

Schlumberger

BOREHOLE COMPENSATED SONIC
*** TVD ***

LOCATION

0-15-60DEG30'-123DEG 0'
UWID: 3000156030123000

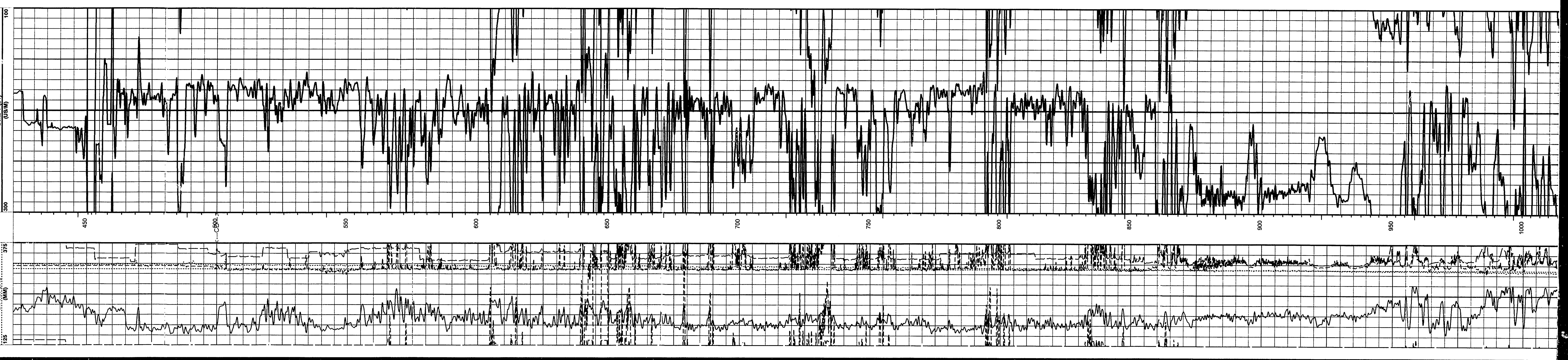
Elev.: K.B. 387 M
G.L. 380.5 M
D.F. 386.7 M

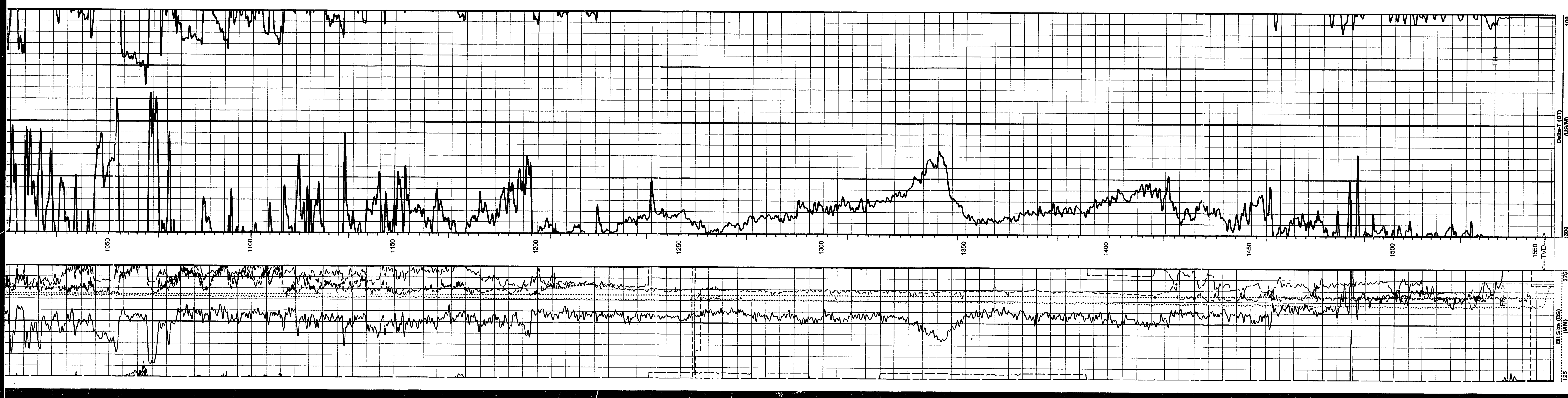
Permanent Datum: GROUND LEVEL Elev.: 380.5 M
Log Measured From: KELLY BUSHING 6.5 M above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	SECTION	TOWNSHIP	RANGE
EL 369			

Logging Date	10-MAR-1998	
Run Number	1	*** TVD ***
Depth Driller	1557 M	
Schlumberger Depth	1560 M	1552 M
Bottom Log Interval	1543 M	1535 M
Top Log Interval	500 M	
Casing Driller Size @ Depth	339.700 MM @ 500 M	@
Casing Schlumberger	500 M	
Bit Size	311.000 MM	
Type Fluid In Hole	CUTTER D	
MUD Density / Viscosity	1100 K/M3 / 110 S	
MUD Fluid Loss / PH		
MUD Source Of Sample	FLOWLINE	
RM @ Measured Temperature	0.900 OHMM @ 23 DEGC	@
RMF @ Measured Temperature	@	@
RMC @ Measured Temperature	@	@
Source RMF / RMC	N/A / N/A	
RM @ MRT / RMF @ MRT	0.317 @ 105 / @ 105	@ / @
Maximum Recorded Temperatures	105 DEGC	
Circulation Stopped / Time	10-MAR-1998 / 0:00	
Logger On Bottom / Time	10-MAR-1998 / 4:00	
Unit Number / Location	3021 / SWIFT CURRENT	
Recorded By	S. DUNN	
Witnessed By	COLIN BREDIN	

EQUIPMENT DESCRIPTION





MAIN PASS

TRUE VERTICAL DEPTH

<---TVD--->

125	Bit Size (BS) (MM)	375
0	Gamma Ray (GR) (GAPI)	150
125	Hole Diameter (HD) (MM)	375
125	HILT Caliper (HCAL) (MM)	375
25000	Tension (TENS) (N)	0
300	Delta-T (DT) (US/M)	100

Time Mark Every 60 S

PIP SUMMARY

Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Name of alternate depth channel	TVDE	
BS	Bit Size	311.000	MM
DO	Depth Offset	0.0	M
DTCM	Delta-T Computation Mode	FULL	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSTI	STI Uses HILT Acceleration	YES	
MODE	Firing Mode	DT	
PBVSADP	Use alternate depth channel for playback	YES	
PP	Playback Processing	NORMAL	

Format: SONI_S2 Vertical Scale: 1:600 Graphics File Created: 10-MAR-1998 07:37

OP System Version: 7C0-713

MBM

HILTB-DTB	RPCA-998	HOLEV	RPCA-998

Playback indexed by True Vertical Depth

Input DLIS Files

DEFAULT	HILTB .008	FN:12	FIELD	10-MAR-1998 05:19	1563.6 M	422.0 M

Output DLIS Files

DEFAULT	HILTB .019	FN:29	FIELD	10-MAR-1998 07:37
CUST	HILTB .019	FN:30	CUST	10-MAR-1998 07:37

Input DLIS Files

DEFAULT	HILTB .008	FN:12	FIELD	10-MAR-1998 05:19	1563.6 M	422.0 M

Output DLIS Files

DEFAULT	HILTB .019	FN:29	FIELD	10-MAR-1998 07:37
CUST	HILTB .019	FN:30	CUST	10-MAR-1998 07:37

Playback indexed by True Vertical Depth

OP System Version: 7C0-713

MBM

HILTB-DTB	RPCA-998	HOLEV	RPCA-998

PIP SUMMARY

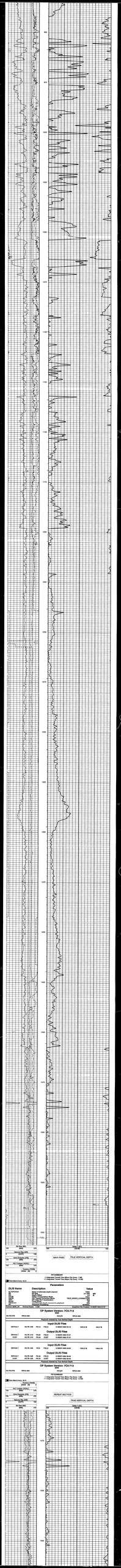
Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

25000	Tension (TENS) (N)	0
125	HILT Caliper (HCAL) (MM)	375
125	Hole Diameter (HD) (MM)	375
0	Gamma Ray (GR) (GAPI)	150
125	Bit Size (BS) (MM)	375
300	Delta-T (DT) (US/M)	100

MAIN PASS

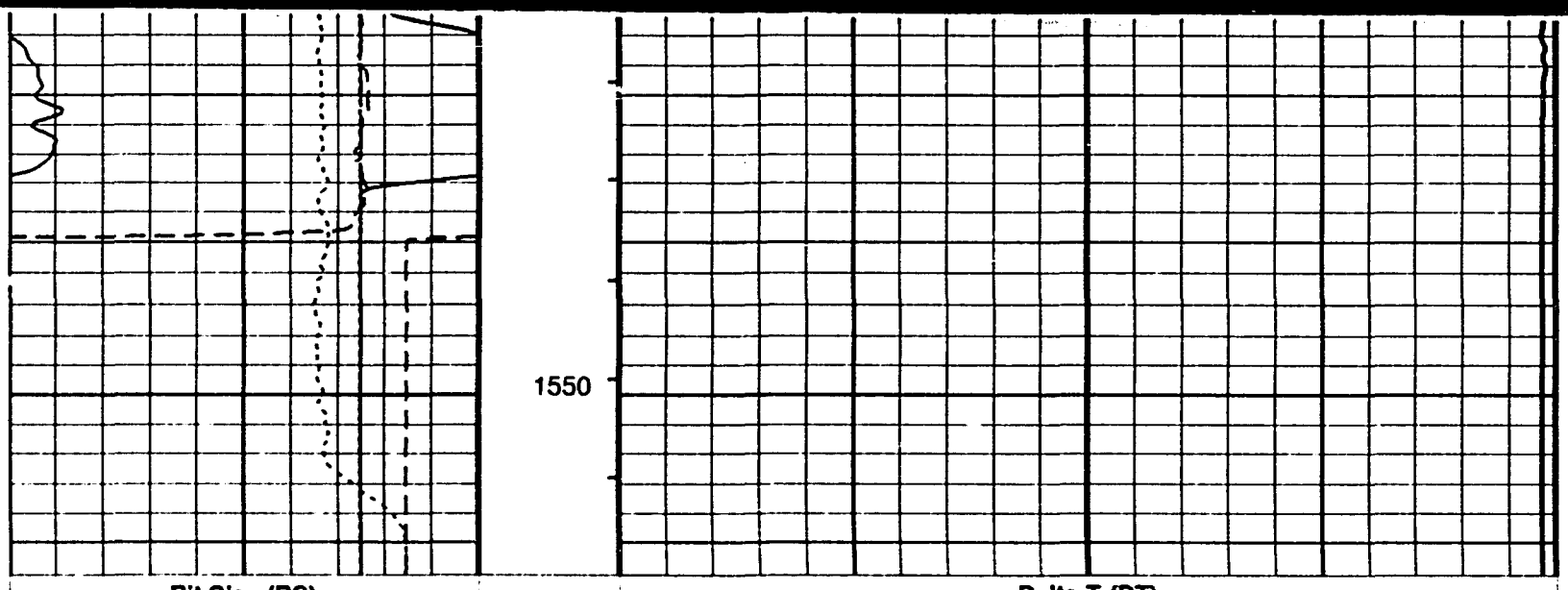
TRUE VERTICAL DEPTH



NT SUMMARY
1 Hydrogen Tracer Time Mark Pip Every 1.00S
1 Hydrogen Tracer Time Mark Pip Every 10.00S

Parameters

DLIS Name	Description	Value
CHANNEL	Channel number	27
DEPTH	Depth	2**27
DELTA	Delta	2
TRCS	Tracer Controller Mode	TRCS_SPEED_CONNECTED



Bit Size (BS)
125 (MM) 375

Gamma Ray (GR)
0 (GAPI) 150

Hole Diameter (HD)
125 (MM) 375

HILT Caliper (HCAL)
125 (MM) 375

Tension (TENS)
25000 (N) 0

Delta-T (DT)
300 (US/M) 100

REPEAT SECTION

TRUE VERTICAL DEPTH

PIP SUMMARY

Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Name of alternate depth channel	TVDE	
BS	Bit Size	311.000	MM
DO	Depth Offset	0.0	M
DTCM	Delta-T Computation Mode	FULL	
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSTI	STI Uses HILT Acceleration	YES	
MODE	Firing Mode	DT	
PBVSADP	Use alternate depth channel for playback	YES	
PP	Playback Processing	NORMAL	

Format: SONI_S5 Vertical Scale: 1:240 Graphics File Created: 10-MAR-1998 08:43

OP System Version: 7C0-713
MBM

HILTB-DTB RPCA-998 HOLEV RPCA-998

Playback Indexed by True Vertical Depth

Input DLIS Files

DEFAULT	HILTB .006	FN:8	FIELD	10-MAR-1998 04:56	1563.6 M	1464.6 M

Output DLIS Files

DEFAULT	HILTB .026	FN:38	FIELD	10-MAR-1998 08:44
CUST	HILTB .026	FN:39	CUST	10-MAR-1998 08:44

Directional Survey Manually-Entered Deviation Summary

Depth	Deviation	Depth	Deviation
-30.48 M	0.00 DEG	1341.00 M	11.56 DEG
500.00 M	0.00 DEG	1442.00 M	14.55 DEG
550.00 M	0.32 DEG	1458.15 M	13.79 DEG
660.32 M	0.35 DEG	1479.00 M	12.90 DEG
774.00 M	0.46 DEG	1486.99 M	13.08 DEG
886.00 M	0.81 DEG	1515.87 M	13.17 DEG
1001.00 M	2.77 DEG	1534.76 M	12.48 DEG
1113.00 M	4.10 DEG	19812.00 M	12.48 DEG
1227.00 M	5.09 DEG		

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

BOTTOM LOG INTERVAL	1543 M
SCHLUMBERGER DEPTH	1560 M
DEPTH DRILLER	1557 M
KELLY BUSHING	387 M
DRILL FLOOR	386.7 M
GROUND LEVEL	380.5 M

Schlumberger

BOREHOLE COMPENSATED SONIC
***** TVD *****

DENSITY

N.E.B. COPY

Baker Atlas

BAKER HUGHES

COMPENSATED Z-DENSILOG℠
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
XY CALIPER LOG

FILE NO:	COMPANY	PARAMOUNT RESOURCES LTD.
	WELL	PARAMOUNT ET AL ARROWHEAD 0-15
API NO:	FIELD	FORT LIARD
	PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

300015603012300

LOCATION:
WID:1834
0-15-60DEG30'-123DEG 0'

OTHER SERVICES
DAL-GR-XY
HDIL-GR
CUL
TUD

PERMANENT DATUM G.L. ELEVATION 380.5 M
LOG MEASURED FROM K.B. 6.2 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 386.7 M
DF
GL 380.5 M

DATE		08-FEB-1999		
RUN	TRIP	1	1	
SERVICE ORDER		968847		
DEPTH DRILLER		2805.0 M		
DEPTH LOGGER		2804.7 M		
BOTTOM LOGGED INTERVAL		2786.9 M		
TOP LOGGED INTERVAL		1185.7 M		
CASING-DRILLER		244.5 MM	@1186.6 M	@
CASING LOGGER		1185.7 M		
BIT SIZE		216.0 MM		
TYPE OF FLUID IN HOLE		INUERT		
DENSITY	VISCOSITY	1010 G/C3	53 S	
PH	FLUIDLOSS	-	-	
SOURCE OF SAMPLE		FLOWLINE		
RM AT MEAS. TEMP.		-	@ -	@
RMF AT MEAS. TEMP.		-	@ -	@
RMC AT MEAS. TEMP.		-	@ -	@
SOURCE OF RMF	RMC	-	-	
RM AT BHT		-	@ -	@
TIME SINCE CIRCULATION		9 HRS.		
MAX. RECORDED TEMP.		122.0 DEGC		
EQUIP. NO.	LOCATION	HL 6544	G.P.	
RECORDED BY		D.SPELAY/R.KHAFIZOU		
WITNESSED BY		C.BREDIN		

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 1 TRIP 1 :

all scales and presentations as per customer request.

maximum deviation = 6.4 deg at 2312.93.

customer notified of depth discrepancy with previous run log.

last circulated: 08-feb-99 1230.

cn and zdl recorded and presented in limestone matrix.
cnc average caliper corrected.

density anomaly at 1430-1390 meters due to drilled out cement plug.

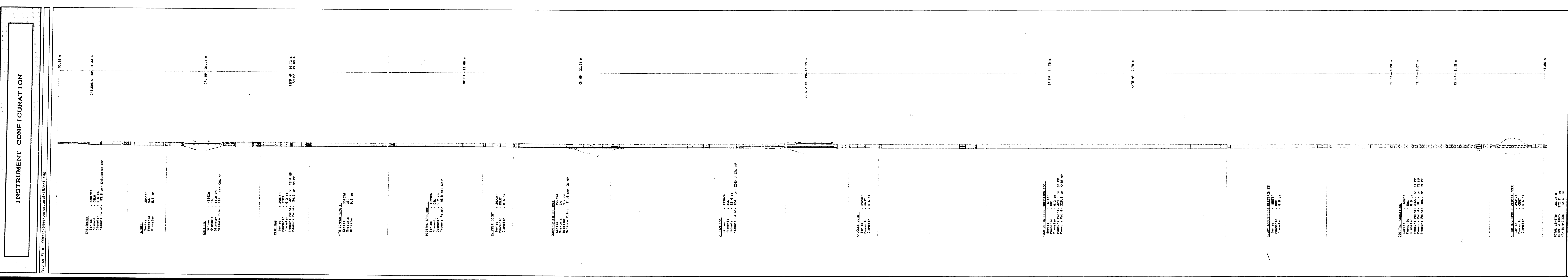
crew: b.fusick@o.pinto

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XB	153823	FREE
1	1	CAL	4209XA	044639	CALIPER
1	1	TTRM	3981XA	180401	FREE
1	1	COMR	3510XA	168181	FREE
1	1	GR	1329XA	153174	FREE
1	1	KNJT	3923XA	167198	KNUCKLE JOINT
1	1	CN	2446XA	118263	FREE
1	1	ZDL	2228EA/2228MA	177075/172644	PAD DEVICE
1	1	KNJT	3923XA	166792	KNUCKLE JOINT
1	1	HDIL	1515EA/1515MA	177896/178647	1.5 INCH STANDOFF
1	1	DAL	1667EA	177951	CENTRALIZED
1	1	CENT	4341XA	173361	CENTRALIZER
1	1	DAL	1680MA	179617	CENTRALIZED
1	1	CENT	4341XA	168349	CENTRALIZER

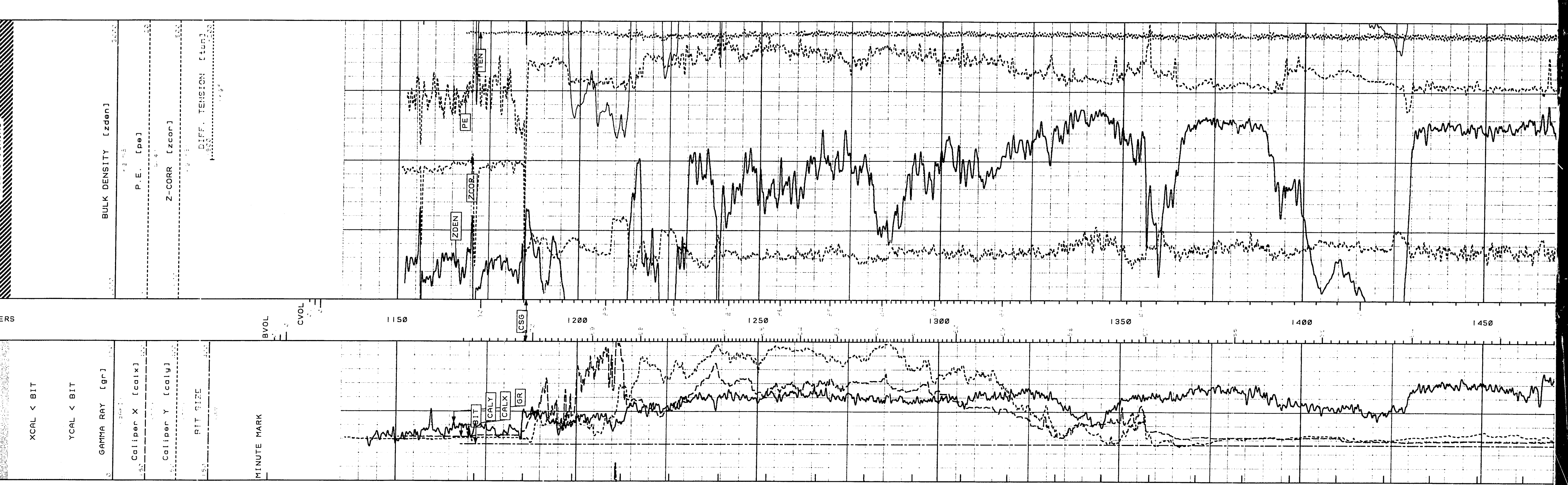
INSTRUMENT CONFIGURATION

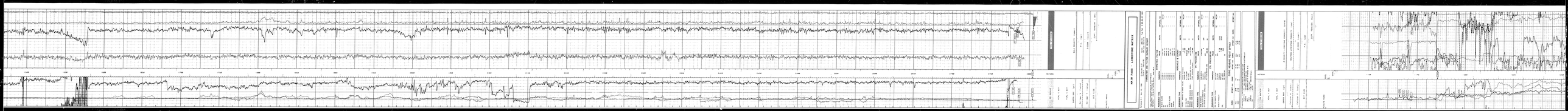
Source File: /data/pass/paramount0-15/zdl-tdg



MAIN PASS - UPPER PRESENTATION

PARAMETER AND FILTER SUMMARY REPORT




MAIN PASS - LIMESTONE MOUNTAIN
TRACKED BY CYLINDRICAL SONDE
CONDITIONS
MAX RECORDED TEMP
TIME SINCE CIRC
TIME SINCE LAST PUMPED
TIME SINCE LAST OPERATED
RECORDED BY
WITNESSED BY
RUN NUMBER
DATE
DEPTH DRILLER
DEPTH LOGGER
BOTTOM LOGGED INTERVAL
TOP LOGGED INTERVAL
CASING DRILLER
CASING LOGGER
BIT SIZE
TYPE FLUID IN HOLE
DENSITY / VISC
PH / FLUID LOSS
SOURCE OF SAMPLE
RM @ MEAS TEMP
RMF @ MEAS TEMP
RMC @ MEAS TEMP
SOURCE RMF / RMC
RM @ BHT
MAX REC TEMP
EQUIPMENT
LOCATION
RECORDED BY
WITNESSED BY
NEUTRON
DENSITY
GAMMA RAY
CALIPER
CALIBRATION
CALIBRATION
CALIBRATION

REPEAT PASS - LIMESTONE MATRIX

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Mon Feb 8 21:38:08 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /data/pass/paramount0-15/d777H02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2737.637 m BOTTOM DEPTH: 2809.570 m

SYMMETRIC FILTER

XCAL < BIT

YCAL < BIT

GAMMA RAY [gr] 0 – 150

Caliper X [calx] 150 – 400

Caliper Y [caly] 150 – 400

BIT SIZE 150 – 400

MINUTE MARK

BVOL

CVOL

Z-DENSITY LIMESTONE POROSITY [porz] 45 – -15

NEUTRON LIMESTONE POROSITY [cnc] 45 – -15

Z-CORR [zcor] -500 – 500

P.E. [pe] 0 – 20

DIFF. TENSION [ten]

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)		..	..
GR	FILTER ()	medium (1)		..	..
CN	FILTER ()	medium (1)		..	..
ZDL	FILTER ()	medium (1)		..	..
Y AXIS CALIPER	FILTER ()	light (2)		..	..
SPEED	FILTER ()	medium (1)		..	..
TENSION	FILTER ()	medium (1)		..	..

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING THICKNESS	0.000	mm	..	..
	CASING O.D.	177.800	mm	..	..
X-Y CALIPER	X-Y Caliper	Average		..	..
BIT SIZE	BIT SIZE	216.000	mm	..	..
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (cnbh#)	USE CALIPER		..	..
BOREHOLE CORR DIAMETER	FIXED DIAMETER (cnbh#)	216.000	mm	..	..

CN PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
2446 CN MATRIX	2446 MATRIX	LIMESTONE			
CN SALINITY CORRECTION	SALINITY	0	ppm	..	..
CN CASING & CEMENT CORRECTION	CORRECTION	OFF		..	..
	BIT SIZE BEHIND CSNG	200.025	mm	..	..

ZDL PROCESSING

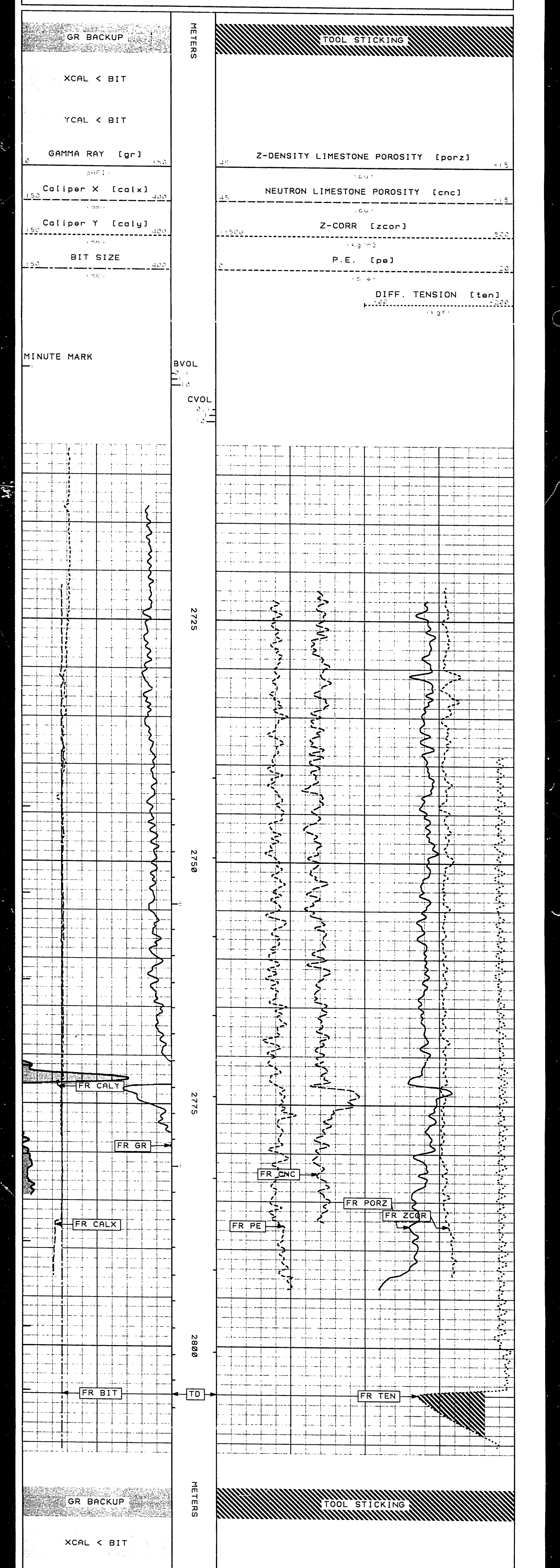
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
ZDL CHI-SMOOTH FILTER	DEN CHISM	ON			
	PE CHISM	OFF		..	..
DENSITY POROSITY	RHOmatrix	2.710	g/cm3	..	..
	RHOfluid	1.000	g/cm3	..	..
ZDL	ZDL GAIN	2291		..	..
	ZDL TRACKING	ON		..	..

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	cnc	22.86	porz	17.45		
calx	17.45	gr	25.68	ten	0.00		
caly	31.78	pe	17.45	zcor	17.45		

Presentation : /datla/pass/paramount0-15/zdl_rpt.pdf
Data File : FI : cpu1:/datla/pass/paramount0-15/d777H02.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 2707.16 - 2810.71 Meters
Oct : d777H

GR BACKUP
XCAL < BIT
YCAL < BIT
GAMMA RAY [gr] 0 – 150 (gAPI)
Caliper X [calx] 150 – 400 (mm)
Caliper Y [caly] 150 – 400 (mm)
BIT SIZE 150 – 400 (mm)
MINUTE MARK
METERS
BVOL
CVOL
TOOL STICKING
Z-DENSITY LIMESTONE POROSITY [porz] 45 – -15 (pu)
NEUTRON LIMESTONE POROSITY [cnc] 45 – -15 (pu)
Z-CORR [zcor] -1500 – 500 (kg/m3)
P.E. [pe] 0 – 10 (b/e)
DIFF. TENSION [ten] (kgf)



GR BACKUP
XCAL < BIT
YCAL < BIT
GAMMA RAY [gr]
Caliper X [calx]
Caliper Y [caly]
BIT SIZE
MINUTE MARK
BVOL
CVOL
TOOL STICKING
Z-DENSITY LIMESTONE POROSITY [porz]
NEUTRON LIMESTONE POROSITY [cnc]
Z-CORR [zcor]
P.E. [pe]
DIFF. TENSION [ten]

CALIBRATION / VERIFICATION SUMMARY

Source File: /datla/pass/paramount0-15/d777H.tpl

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 4209XA 044639 DATE/TIME PERFORMED: Wed Jan 06 14:33:44 1999
UNIT #: 3880TB HL6544

	SMALL RING (mV)	LARGE RING (mV)	MULT	ADD	SMALL RING (mm)	LARGE RING (mm)
CALIPER	5630.8	9048.6	0.02979	35.28285	203.000	304.800

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 4209XA 044639 DATE/TIME PERFORMED: Mon Feb 08 20:21:40 1999
UNIT #: 3880TB HL6544

	I.D. (mV)	MULT	ADD	I.D. (mm)
CALIPER	6133.4	0.02979	35.28285	217.968

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 4209XA 044639 DATE/TIME PERFORMED: Mon Feb 08 23:52:24 1999
UNIT #: 3880TB HL6544

	I.D. (mV)	MULT	ADD	I.D. (mm)
CALIPER	6225.7	0.02979	35.28285	220.718

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Tue Jan 19 08:41:54 1999
UNIT #: 3880TB HL6544 CALB JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	276.09	1177.18	901.1	0.166	45.96	195.96	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Tue Jan 19 08:44:58 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	276.73	1185.13	0.166	46.07	197.28	151.22

GR BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Mon Feb 08 14:42:13 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	261.40	1181.51	0.166	43.51	196.68	153.17

GR AFTER LOG VERIFICATION SUMMARY

TOOL #: 1329XA 153174 DATE/TIME PERFORMED: Mon Feb 08 14:44:33 1999
UNIT #: 3880TB HL6544 VERI JIG #: 4702NK 0da559

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	256.40	1162.64	0.166	42.68	193.54	150.86

CN PRIMARY CALIBRATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Wed Jan 06 15:35:03 1999
UNIT #: 3880TB HL6544 CALIBRATOR #: 2437XB 114700 SOURCE #: 4717XS 038365

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	NOMINAL SSN/LSN	CORRECTION FACTOR	POROSITY (pu)
LSN	629.97	639.64				
SSN	1685.24	1744.02				
RATIO			2.72656	2.75100	1.00896	
CN						21.358

CN PRIMARY VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Wed Jan 06 15:55:54 1999
UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	910.72	931.10				
SSN	1638.57	1694.12				
RATIO			1.81948	1.00896	1.83812	
CN						9.551

CN BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Mon Feb 08 14:39:42 1999
UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	891.19	910.69				
SSN	1648.76	1705.01				
RATIO			1.87222	1.00896	1.89118	
CN						10.179

CN AFTER LOG VERIFICATION SUMMARY

TOOL #: 2446XA 118263 DATE/TIME PERFORMED: Mon Feb 08 14:42:19 1999
UNIT #: 3880TB HL6544 ICE BLOCK #: 4717ND 00d091

	MEASURED CPS	DEADTM CORR CPS	DTC SSN/LSN	CORRECTION FACTOR	DTC CORR SSN/LSN	POROSITY (pu)
LSN	889.54	908.97				
SSN	1629.23	1684.14				
RATIO			1.85279	1.00896	1.87147	
CN						9.944

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Tue Jan 19 08:31:50 1999
UNIT #: 3880TB HL6544

	SMALL RING (raw)	LARGE RING (raw)	MULT	ADD	SMALL RING (mm)	LARGE RING (mm)
CALIPER	2296.6	2890.3	0.17147	-190.79132	203.000	304.800

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Feb 08 20:22:07 1999
UNIT #: 3880TB HL6544

	I.D. (raw)	MULT	ADD	I.D. (mm)
CALIPER	2448.9	0.17147	-190.79132	229.114

CAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Feb 08 23:52:29 1999
UNIT #: 3880TB HL6544

	I.D. (raw)	MULT	ADD	I.D. (mm)
CALIPER	2451.8	0.17147	-190.79132	229.612

ZDL PRIMARY CALIBRATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Jan 18 17:10:09 1999
UNIT #: 3880TB HL6544 CALB. BLOCK SET: 2225XA 150415 CS SOURCE #: 4703NT 000798

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
MG BLOCK (LO PE)	10451.5	4247.4	4989.7	0.720	1687.000	7.000	2.293
AL BLOCK	5193.6	433.9	536.0		2686.000	-13.000	
AL+SHIM (CORR)	7240.6	751.0	902.8		2601.000	166.000	
MG+SHIM (HI PE)		2101.2	2706.2	0.276			10.580
RATIO MG/AL	2.01	9.79	9.31				

BACKGROUND (cts/s)	CS PEAK CHANNEL #	AM PEAK CHANNEL #
1280.5	229.9	22.7

ZDL PRIMARY VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Jan 18 17:18:17 1999
UNIT #: 3880TB HL6544 VERI. JIG #: 4704NA 119127

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	10010.7	2227.5	5268.9	0.187	1821.020	34.194	14.897

ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Feb 08 14:39:47 1999
UNIT #: 3880TB HL6544 VERI. JIG #: 4704NA 119127

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	9835.3	2199.5	5279.1	0.184	1805.172	17.201	15.050

ZDL AFTER LOG VERIFICATION SUMMARY

TOOL #: 2228MA 172644 DATE/TIME PERFORMED: Mon Feb 08 14:42:39 1999
UNIT #: 3880TB HL6544 VERI. JIG #: 4704NA 119127

	SSD-NDTC (cts/s)	HRD1-NDTC (cts/s)	HRD2-NDTC (cts/s)	SHR	DEN (kg/m3)	CORR (kg/m3)	PE (b/e)
FIELD BLOCK	9741.5	2161.7	5334.8	0.178	1794.206	7.103	15.373

BAKER HUGHES
Baker Atlas

COMPANY PARAMOUNT RESOURCES LTD.
WELL PARAMOUNT ET AL ARROWHEAD 0-15
FIELD FORT LIARD
PROVINCE NORTHWEST TERRITORIES
FILE NO:
API NO:
LOCATION:
WID:1834
0-15-60DEG30'-123DEG 0'
ELEVATIONS
KB 386.7 M
DF
GL 380.5 M
DATE 08-FEB-1999
300015603012300

Baker Atlas

BAKER HUGHES

TRUE VERTICAL DEPTH
COMPENSATED Z-DENSILOG
COMPENSATED NEUTRON LOG
GAMMA RAY LOG
XY CALIPER LOG

FILE NO:		COMPANY	PARAMOUNT RESOURCES LTD.
		WELL	PARAMOUNT ET AL ARROWHEAD 0-15
API NO:		FIELD	FORT LIARD
		PROVINCE	NORTHWEST TERRITORIES
Ver 3.19		LOCATION: WID:1834	OTHER SERVICES: DAL-GR-XY, HDIL-GR, CUL
300015603012300 0		0-15-60DEG30'-123DEG 0'	

PERMANENT DATUM	G.L.	ELEVATION 380.5 M		ELEVATIONS	
LOG MEASURED FROM	K.B.	6.2 M	ABOVE P.D.	KB	386.7 M
DRILL. MEAS. FROM	KELLY BUSHING			DF	
				GL	380.5 M

DATE	08-FEB-1999		TVD
RUN	1	1	
TRIP	1	1	
SERVICE ORDER	968047		
DEPTH DRILLER	2805.0 M		2802.1 M
DEPTH LOGGER	2804.7 M		2801.8 M
BOTTOM LOGGED INTERVAL	2786.9 M		2784.0 M
TOP LOGGED INTERVAL	1185.7 M		1185.0 M
CASING-DRILLER	244.5 MM @ 1186.6 M		244.5 MM @ 1185.9 M
CASING LOGGER	1185.7 M		1185.0 M
BIT SIZE	216.0 MM		
TYPE OF FLUID IN HOLE	INVERT		
DENSITY / VISCOSITY	1010 G/C3	53 S	
PH / FLUIDLOSS	-	-	
SOURCE OF SAMPLE	FLOWLINE		
RM AT MEAS. TEMP.	- @ -		@
RMF AT MEAS. TEMP.	- @ -		@
RMC AT MEAS. TEMP.	- @ -		@
SOURCE OF RMF / RMC	- -		
RM AT BHT	- @ -		@
TIME SINCE CIRCULATION	9 HRS.		
MAX. RECORDED TEMP.	122.0 DEGC		
EQUIP. NO. / LOCATION	HL 6544	G.P.	
RECORDED BY	D.SPELAY/R.KHAFIZDU		
WITNESSED BY	C.BREDIN		

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crew: b.fusick*o.pinto

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1	1	ZDL	2228EA/2228MA	177075/172644	PAD DEVICE
1	1	KNJT	3923XA	166792	KNUCKLE JOINT
1	1	HDIL	1515EA/1515MA	177896/178647	1.5 INCH STANDOFF
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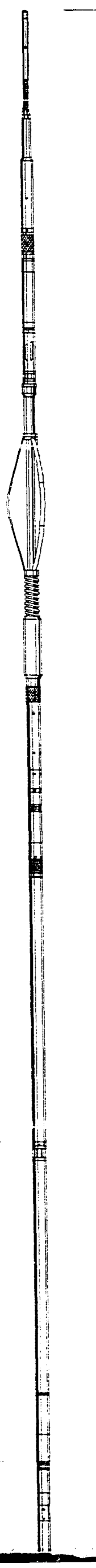
1	1	CENT	4341XA	173361	CENTRALIZER
1	1	DAL	1680MA	179617	CENTRALIZED
1	1	CENT	4341XA	168349	CENTRALIZER

INSTRUMENT CONFIGURATION

Source File: /data/pass/paramount0-15/zdl-tdg



35.28 m

CABLEHEAD TOP 34.44 m

CABLEHEAD
Series : CABL338
Mnemonic : CBLH
Diameter : 8.6 cm
Measure Point: 83.8 cm: CABLEHEAD TOP

SWIVEL
Series : 3944XA
Mnemonic : SWVL
Diameter : 8.6 cm

CAL MP 31.81 m

CALIPER
Series : 4209XA
Mnemonic : CAL
Diameter : 10.8 cm
Measure Point: 134.1 cm: CAL MP

TTRM SUB
Series : 3981XA
Mnemonic : TTRM
Diameter : 9.2 cm
Measure Point: 42.2 cm: TEMP MP
Measure Point: 34.5 cm: RM MP

TEMP MP 29.72 m
RM MP 29.64 m

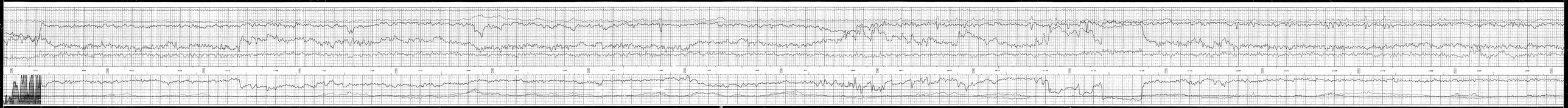
WTS COMMON REMOTE
Series : 3510XA
Mnemonic : WTS
Diameter : 9.2 cm

DIGITAL SPECTRALOG
Series : 1329XA
Mnemonic : DSL
Diameter : 9.2 cm
Measure Point: 48.8 cm: GR MP

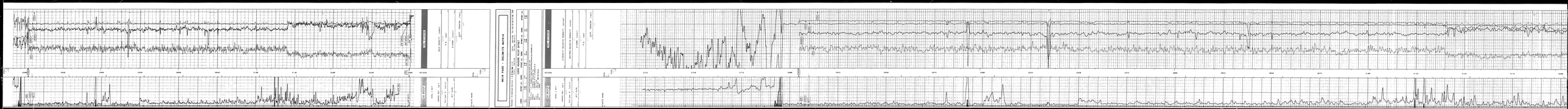
GR MP 25.66 m

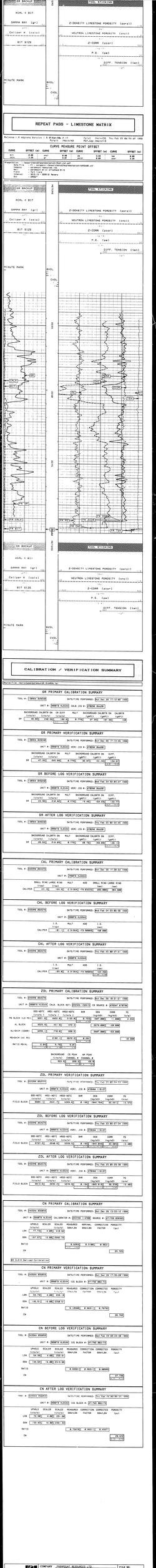
KNUCKLE JOINT
Series : 3923XA
Mnemonic : KNJT
Diameter : 8.6 cm

STRUCTURAL DIPMAP
MAX FLOW - LIMITING METER
CONTROL
DEPTH
CALIPER
DIP
AZIMUTH
DIP
AZIMUTH
DIP
AZIMUTH



2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625
2650
2675
2700
2725
2750
2775
2800
METERS


BATH FAULT - DOWNTIME ANALYSIS
RECORDER
BATH PRESSURE (BARS)
P.W. (BAR)
STROKE (%)
ACTUAL STROKE (%)
METERS
2750
2700
2650
2600
2550
2500
2450
2400
2350
2300
2250
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750
1700
1650
1600
1550
1500
1450
1400
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
RECORDER
ANNULAR PRESSURE (BARS)
ANNULAR VOLUME (LITRES)
STROKE (%)
P.W. (BAR)
ACTUAL STROKE (%)
METERS
2750
2700
2650
2600
2550
2500
2450
2400
2350
2300
2250
2200
2150
2100
2050
2000
1950
1900
1850
1800
1750
1700
1650
1600
1550
1500
1450
1400
1350
1300
1250
1200
1150
1100
1050
1000
950
900
850
800
750
700
650
600
550
500
450
400
350
300
250
200
150
100
50
0
RECORDER
ANNUL. BLEED
ANNULAR VOLUME (LITRES)
ACTUAL STROKE (%)
BLT RATE
STROKE RATE



CALIBRATION / VERIFICATION SUMMARY

Macro File: /dbt/scripts/parameter/dr.tmplts.lp

DR PRIMARY CALIBRATION SUMMARY

TOOL # : SMRA 8400(R) DATE/TIME PERFORMED: Sat Mar 28 17:10:40 1998

UNIT # : DRBPE HLASA1 CALB JOB # DRBAM 8400R1

	BACKGROUND CALIBRATN (cts/sec)	DR EQPT (cts/sec)	MULT (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	DR CALIBRTN (gmcc)	DOPT (gmcc)
DR	48.882	248.000	36.52	8.7752	37.192	147.992

DR PRIMARY VERIFICATION SUMMARY

TOOL # : SMRA 8400(R) DATE/TIME PERFORMED: Sat Mar 28 17:14:40 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 8400R1

	BACKGROUND CALIBRATN (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	MULT (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	DOPT (gmcc)	DOPT (gmcc)
DR	47.882	248.400	8.7752	36.972	191.922	148.920

DR BEFORE LOG VERIFICATION SUMMARY

TOOL # : SMRA 8400(R) DATE/TIME PERFORMED: Sat Feb 28 03:04:47 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 8400R1

	BACKGROUND CALIBRATN (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	MULT (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	DOPT (gmcc)	DOPT (gmcc)
DR	24.982	248.400	8.7752	19.142	184.922	148.920

DR AFTER LOG VERIFICATION SUMMARY

TOOL # : SMRA 8400(R) DATE/TIME PERFORMED: Sat Feb 28 03:05:40 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 8400R1

	BACKGROUND CALIBRATN (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	MULT (cts/sec)	BACKGROUND CALIBRATN (cts/sec)	DOPT (gmcc)	DOPT (gmcc)
DR	26.842	248.400	8.7752	20.72	184.922	148.920

CAL PRIMARY CALIBRATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Mar 28 17:38:54 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 8940R1

	SMALL RING (cmd)	LARGE RING (cmd)	MULT	HOD	SMALL RING (cmd)	LARGE RING (cmd)
CALIPER	27.92	155.71	2.3[illegible]	79.8[illegible]	193.882	347.982

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:06:08 1998

UNIT # : DRBPE HLASA1

	I.D. (cmd)	MULT	HOD	I.D. (cmd)
CALIPER	27.[illegible]	2.3[illegible]	79.9[illegible]	184.882

CAL AFTER LOG VERIFICATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:47:57 1998

UNIT # : DRBPE HLASA1

	I.D. (cmd)	MULT	HOD	I.D. (cmd)
CALIPER	28.[illegible]	2.3[illegible]	79.9[illegible]	184.882

ZDL PRIMARY CALIBRATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Mar 28 18:31:21 1998

UNIT # : DRBPE HLASC1 CALB JOB # DRBAM 1[illegible] CS SOURCE # DRTEN 2[illegible]

	BKG-NEPT (counts)	AMS1-NEPT (counts)	AMS2-NEPT (counts)	DUN (kg/m3)	CORR (kg/m3)	PE (barns)
MB BLOCK (LS PE)	507.[illegible]	4[illegible].[illegible]	3[illegible].[illegible]	8.7[illegible]	147.982	4.852
AL BLOCK	4[illegible].[illegible]	4[illegible].[illegible]	3[illegible].[illegible]	2.[illegible]	2[illegible].[illegible]	2.[illegible]
ALUMINUM CORRN	107[illegible]	7[illegible].[illegible]	5[illegible].[illegible]	7[illegible].[illegible]	147.982	1[illegible].[illegible]
MEASRDCN (AS PE)	2.[illegible]	2.[illegible]	2.[illegible]	2.[illegible]		1.[illegible]
RATIO (MEAS)	2.[illegible]	8.[illegible]	9.[illegible]			

	BACKGROUND (counts)	CS PEAK (counts)	WR PEAK (counts)
CHANNEL A	503.[illegible]	2[illegible].[illegible]	8.[illegible]
CHANNEL B	503.[illegible]	2[illegible].[illegible]	8.[illegible]

ZDL PRIMARY VERIFICATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Mar 27 07:42:13 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 1[illegible]27

FIELD BLOCK	BKG-NEPT (counts)	AMS1-NEPT (counts)	AMS2-NEPT (counts)	DUN (kg/m3)	DCN (kg/m3)	CORR (kg/m3)	PE (barns)
	8[illegible].[illegible]	2[illegible].[illegible]	5[illegible].[illegible]	8.[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]

ZDL BEFORE LOG VERIFICATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:07:34 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 1[illegible]27

FIELD BLOCK	BKG-NEPT (counts)	AMS1-NEPT (counts)	AMS2-NEPT (counts)	DUN (kg/m3)	DCN (kg/m3)	CORR (kg/m3)	PE (barns)
	8[illegible].[illegible]	2[illegible].[illegible]	5[illegible].[illegible]	8.[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]

ZDL AFTER LOG VERIFICATION SUMMARY

TOOL # : DSSEN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:29:38 1998

UNIT # : DRBPE HLASA1 VERI JOB # DRBAM 1[illegible]27

FIELD BLOCK	BKG-NEPT (counts)	AMS1-NEPT (counts)	AMS2-NEPT (counts)	DUN (kg/m3)	DCN (kg/m3)	CORR (kg/m3)	PE (barns)
	8[illegible].[illegible]	2[illegible].[illegible]	5[illegible].[illegible]	8.[illegible]	[illegible].[illegible]	[illegible].[illegible]	[illegible].[illegible]

CN PRIMARY CALIBRATION SUMMARY

TOOL # : DASSN 8940(R) DATE/TIME PERFORMED: Sat Mar 28 19:51:12 1998

UNIT # : DRBPE HLASA1 CALIBRATION # DRTEN 1[illegible] SOURCE # DRTEN 8940(R)

	SPUDLE (counts)	SCALER (counts)	SCALED (counts)	MEASURED BKGN/LBN	NORMAL BKGN/LBN	CORRECTION FACTOR	CORRECTED PORSDITY (pu)
LBN	27.[illegible]	4[illegible].[illegible]	2[illegible].[illegible]				
BKN	12.[illegible]	1[illegible].[illegible]	2[illegible].[illegible]				
RATIO				0.[illegible]	0.[illegible]	0.[illegible]	
CN				2[illegible].[illegible]			

BK Derived Calibration

CN PRIMARY VERIFICATION SUMMARY

TOOL # : DASSN 8940(R) DATE/TIME PERFORMED: Sat Mar 28 17:31:28 1998

UNIT # : DRBPE HLASA1 CCS BLOCK # DRTTBC 8940(R)

	SPUDLE (counts)	SCALER (counts)	SCALED (counts)	MEASURED BKGN/LBN	CORRECTION FACTOR	CORRECTED BKGN/LBN	PORSDITY (pu)
LBN	27.[illegible]	4[illegible].[illegible]	2[illegible].[illegible]				
BKN	12.[illegible]	1[illegible].[illegible]	2[illegible].[illegible]				
RATIO				1.[illegible]	0.[illegible]	0.[illegible]	
CN				2[illegible].[illegible]			

CN BEFORE LOG VERIFICATION SUMMARY

TOOL # : DASSN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:10:18 1998

UNIT # : DRBPE HLASA1 CCS BLOCK # DRTTBC 8940(R)

	SPUDLE (counts)	SCALER (counts)	SCALED (counts)	MEASURED BKGN/LBN	CORRECTION FACTOR	CORRECTED BKGN/LBN	PORSDITY (pu)
LBN	26.[illegible]	4[illegible].[illegible]	2[illegible].[illegible]				
BKN	7.[illegible]	1[illegible].[illegible]	2[illegible].[illegible]				
RATIO				0.[illegible]	0.[illegible]	0.[illegible]	
CN				2[illegible].[illegible]			

CN AFTER LOG VERIFICATION SUMMARY

TOOL # : DASSN 8940(R) DATE/TIME PERFORMED: Sat Feb 28 03:47:11 1998

UNIT # : DRBPE HLASA1 CCS BLOCK # DRTTBC 8940(R)

	SPUDLE (counts)	SCALER (counts)	SCALED (counts)	MEASURED BKGN/LBN	CORRECTION FACTOR	CORRECTED BKGN/LBN	PORSDITY (pu)
LBN	26.[illegible]	4[illegible].[illegible]	2[illegible].[illegible]				
BKN	7.[illegible]	1[illegible].[illegible]	2[illegible].[illegible]				
RATIO				0.[illegible]	0.[illegible]	0.[illegible]	
CN				2[illegible].[illegible]			

Baker Atlas

COMPANY : PANTHEON RESOURCES LTD.
WELL : PANTHEON RESOURCES LTD. BRUNSWICK 2-1
FIELD : BRUNSWICK
FROM INDC : NORTHWEST TERRITORIES

FILE NO:
API NO:

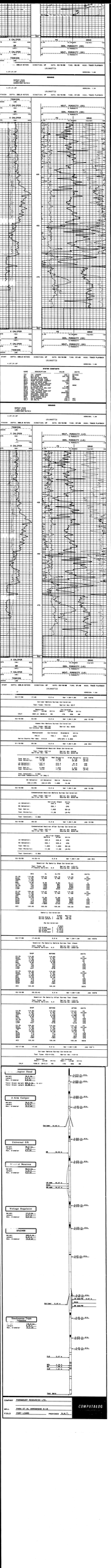
LOCATION
WID-1004

ELEVATIONS
KB 200.7 M
DF
GL 198.5 M

DATUM SPECIFICATION BLOCK
SMRA:SSASM:CSMAM

R-O-REDOXIM -CSDSS #
RUN2 TMP MAX

RECORDED
14-FEB-1998


X CALIPER
GR
TENSION
DEPTH
DENSITY (GRAM)
DEL. POROSITY (%)
NEUT. POROSITY (%)
DEL. POROSITY (%)
NEUT. POROSITY (%)
DEL. POROSITY (%)
NEUT. POROSITY (%

Nolasco COPY 1834

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

PROVINCE: NORTHWEST TERRITORIES
Field: FORT LIARD
Location: 0-15-60DEG30'-123DEG 0'
Well: PARAMOUNT ET AL ARROWHE
Company: PARAMOUNT RESOURCES LTD

9211-P33-9-2

Schlumberger

PLATFORM EXPRESS
COMPENSATED NEUTRON
LITHO DENSITY

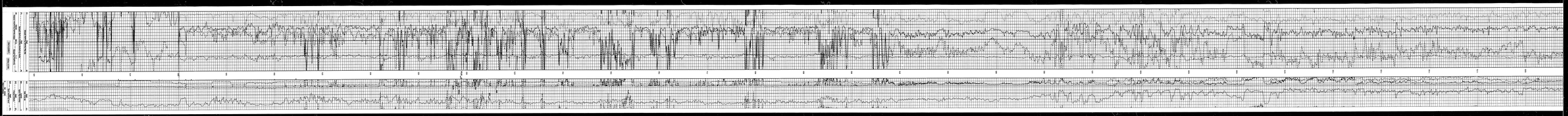
LOCATION: 0-15-60DEG30'-123DEG 0'
UWID: 3000156030123000

Elev.: K.B. 387 M; G.L. 380.5 M; D.F. 386.7 M

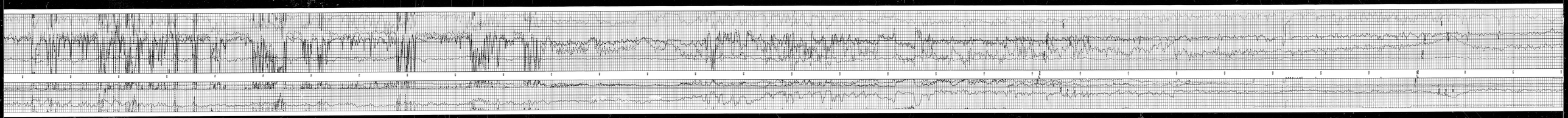
Permanent Datum: GROUND LEVEL — Elev.: 380.5 M
Log Measured From: KELLY BUSHING — 6.5 M above Perm. Datum
Drilling Measured From: KELLY BUSHING

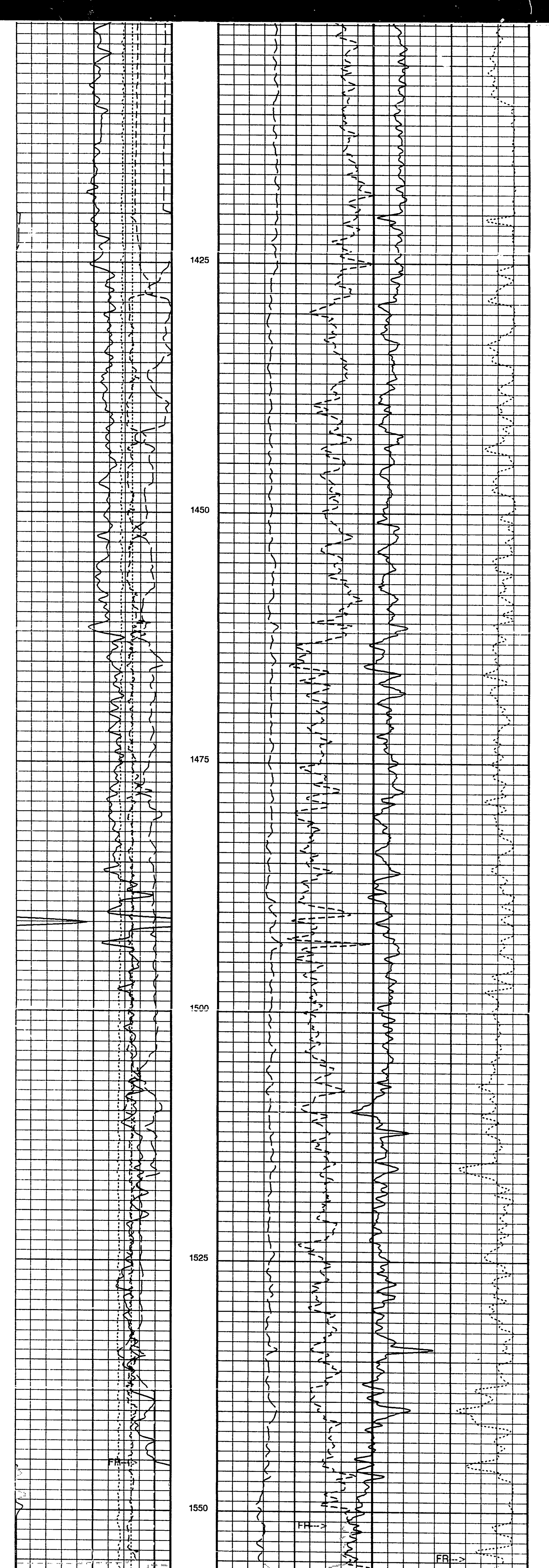
API Serial No.	SECTION	TOWNSHIP	RANGE
EL 369			

	Run 1		Run 2
Logging Date	10-MAR-1998		
Run Number	1		
Depth Driller	1557 M		
Schlumberger Depth	1560 M		
Bottom Log Interval	1554 M		
Top Log Interval	500 M		
Casing Driller Size @ Depth	339.700 MM	@ 500 M	@
Casing Schlumberger	500 M		
Bit Size	311.000 MM		
Type Fluid In Hole	CUTTER D		
MUD Density / Viscosity	1100 K/M3	110 S	
MUD Fluid Loss / PH			
MUD Source Of Sample	FLOWLINE		
RM @ Measured Temperature	0.900 OHMM	@ 23 DEGC	@
RMF @ Measured Temperature		@	@
RMC @ Measured Temperature		@	@
Source RMF / RMC	N/A	N/A	
RM @ MRT / RMF @ MRT	0.317 @ 105	@ 105	@ / @
Maximum Recorded Temperatures	105 DEGC		
Circulation Stopped / Time	10-MAR-1998	0:00	
Logger On Bottom / Time	10-MAR-1998	4:00	
Unit Number / Location	3021	SWIFT CURRENT	
Recorded By	S. DUNN		
Witnessed By	COLIN BREDIN		



Patients
Patients
Patients





Parameters

DLIS Name	Description	Value	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	311.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CWEI	Casing Weight	81.10	KG/M
DFD	Drilling Fluid Density	1100.00	K/M3
DHC	Density Hole Correction	BS	
DO	Depth Offset	0.0	M
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSCO	Hole Size Correction Option	YES	
HSTI	STI Uses HILT Acceleration	YES	
MATR	Rock Matrix Type	DOLOMITE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2850	K/M3
MST	Mud Sample Temperature	23.00	DEGC
MWCO	Mud Weight Correction Option	NO	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PP	Playback Processing	NORMAL	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	32	DEGC
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	NO	
STKT	STI Stuck Threshold	0.762	M

Format: PORO Vertical Scale: 1:240 Graphics File Created: 10-MAR-1998 07:34

OP System Version: 7C0-713

MBM

HILTB-DTB RPCA-998 HOLEV RPCA-998

Input DLIS Files

DEFAULT HILTB .008 FN:12 FIELD 10-MAR-1998 05:19 1563.6 M 422.0 M

Output DLIS Files

DEFAULT HILTB .018 FN:27 FIELD 10-MAR-1998 07:34
CUST HILTB .018 FN:28 CUST 10-MAR-1998 07:34

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Thru Cal Mag. & Phase Master: Dec 21 14:42 1997 Before: Mar 10 03:28 1998							
Thru Cal Magnitude - 0	0	0.6237	0.6281	N/A	N/A	N/A	V
Thru Cal Magnitude - 1	0	1.281	1.289	N/A	N/A	N/A	V
Thru Cal Magnitude - 2	0	0.6339	0.6380	N/A	N/A	N/A	V
Thru Cal Magnitude - 3	0	0.7205	0.7255	N/A	N/A	N/A	V
Thru Cal Magnitude - 4	0	1.349	1.357	N/A	N/A	N/A	V
Thru Cal Magnitude - 5	0	1.957	1.972	N/A	N/A	N/A	V
Thru Cal Magnitude - 6	0	1.953	1.967	N/A	N/A	N/A	V
Thru Cal Magnitude - 7	0	1.408	1.421	N/A	N/A	N/A	V
Phase - 0	0	56.27	55.34	N/A	N/A	N/A	DEG
Phase - 1	0	55.28	54.35	N/A	N/A	N/A	DEG
Phase - 2	0	51.60	50.70	N/A	N/A	N/A	DEG
Phase - 3	0	50.79	49.90	N/A	N/A	N/A	DEG
Phase - 4	0	44.59	43.74	N/A	N/A	N/A	DEG
Phase - 5	0	42.78	41.95	N/A	N/A	N/A	DEG
Phase - 6	0	42.80	41.97	N/A	N/A	N/A	DEG
Phase - 7	0	39.17	38.61	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Electronics Calibration Check - Auxiliary Master: Dec 21 14:42 1997 Before: Mar 10 03:29 1998							
AIT-H SPA Plus	990.5	994.3	995.0	N/A	N/A	N/A	MV
AIT-H SPA Zero	0	-0.08168	-0.1010	N/A	N/A	N/A	MV
AIT-H Temperature Plus	0.9150	0.9209	0.9215	N/A	N/A	N/A	V
AIT-H Temperature Zero	0	-0.00007986	-0.00009853	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Test Loop Gain Correction Master: Dec 21 14:42 1997							
Test Loop Gain Magnitude - 0	0	1.047	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 1	0	1.045	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 2	0	1.029	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 3	0	1.030	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 4	0	1.010	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 5	0	0.9922	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 6	0	1.003	N/A	N/A	N/A	N/A	V
Test Loop Gain Magnitude - 7	0	1.019	N/A	N/A	N/A	N/A	V
Phase - 0	0	0.3856	N/A	N/A	N/A	N/A	DEG
Phase - 1	0	0.7479	N/A	N/A	N/A	N/A	DEG
Phase - 2	0	-0.01594	N/A	N/A	N/A	N/A	DEG
Phase - 3	0	0.09603	N/A	N/A	N/A	N/A	DEG
Phase - 4	0	0.008929	N/A	N/A	N/A	N/A	DEG
Phase - 5	0	-0.2558	N/A	N/A	N/A	N/A	DEG
Phase - 6	0	0.08459	N/A	N/A	N/A	N/A	DEG
Phase - 7	0	-0.2346	N/A	N/A	N/A	N/A	DEG
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Sonde Error Correction Master: Dec 21 14:42 1997							
R Sonde Error Correction - 0	0	-73.57	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 1	0	168.6	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 2	0	108.6	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 3	0	61.09	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 4	0	23.83	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 5	0	13.07	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 6	0	9.377	N/A	N/A	N/A	N/A	MM/M
R Sonde Error Correction - 7	0	-0.4853	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 0	0	-59.50	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 1	0	-292.7	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 2	0	5.670	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 3	0	-46.47	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 4	0	-3.855	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 5	0	4.464	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 6	0	-4.521	N/A	N/A	N/A	N/A	MM/M
X Sonde Error Correction - 7	0	2.159	N/A	N/A	N/A	N/A	MM/M
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Mud Gain Correction Master: Dec 21 14:42 1997							
Coarse - Mag, Real, Imag - 0	0	0.6647	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 1	0	0.6649	N/A	N/A	N/A	N/A	
Coarse - Mag, Real, Imag - 2	0	0.6649	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 0	0	1.320	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 1	0	1.328	N/A	N/A	N/A	N/A	
Fine - Mag, Real, Imag - 2	0	1.328	N/A	N/A	N/A	N/A	
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Stab Measurement Summary Before: Mar 10 03:38 1998							
BS Window Ratio	0.9955	N/A	1.002	N/A	N/A	N/A	
BS Window Sum	15860	N/A	15860	N/A	N/A	N/A	CPS
SS Window Ratio	0.4612	N/A	0.4559	N/A	N/A	N/A	
SS Window Sum	11190	N/A	11170	N/A	N/A	N/A	CPS
LS Window Ratio	0.2997	N/A	0.3060	N/A	N/A	N/A	
LS Window Sum	1323	N/A	1327	N/A	N/A	N/A	CPS
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Photo-multiplier High Voltages Calibrations Before: Mar 10 03:38 1998							
BS PM High Voltage (Command)	1925	N/A	1906	N/A	N/A	N/A	V
SS PM High Voltage (Command)	1836	N/A	1910	N/A	N/A	N/A	V
LS PM High Voltage (Command)	1713	N/A	1747	N/A	N/A	N/A	V
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Crystal Quality Resolutions Calibration Before: Mar 10 03:38 1998							
BS Crystal Resolution	12.50	N/A	12.04	N/A	N/A	N/A	%
SS Crystal Resolution	10.31	N/A	11.26	N/A	N/A	N/A	%
LS Crystal Resolution	9.210	N/A	9.086	N/A	N/A	N/A	%
High resolution Integrated Logging Tool-CTS Wellsite Calibration - MCFL Calibration Before: Mar 10 03:40 1998							
Raw B0 Resistivity	3875	N/A	3897	N/A	N/A	N/A	OHMM
Raw B1 Resistivity	3830	N/A	3853	N/A	N/A	N/A	OHMM
Raw B2 Resistivity	3830	N/A	3875	N/A	N/A	N/A	OHMM
High resolution Integrated Logging Tool-CTS Wellsite Calibration - HILT Caliper Calibration Before: Mar 10 03:43 1998							
HILT Caliper Zero Measurement	203.2	N/A	202.2	N/A	N/A	N/A	MM
HILT Caliper Plus Measurement	304.8	N/A	310.2	N/A	N/A	N/A	MM
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Detector Calibration Before: Calibration not done							
Gamma Ray Background	30.00	N/A	36.16	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	N/A	N/A	N/A	N/A	N/A	N/A	GAPI
Gamma Ray (Calibrated)	165.0	N/A	N/A	N/A	N/A	15.00	GAPI
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Zero Measurement Master: Feb 24 15:33 1998 Before: Mar 10 03:29 1998							
CNTC Background	27.79	27.79	27.61	N/A	N/A	4.160	CPS
CFTC Background	25.84	25.84	26.58	N/A	N/A	3.876	CPS
High resolution Integrated Logging Tool-CTS Wellsite Calibration - Accelerometer Calibration Before: Mar 10 03:27 1998							
Z-Axis Acceleration	9.810	N/A	9.824	N/A	N/A	N/A	M/S2
High resolution Integrated Logging Tool-CTS Master Calibration - Inversion results Master: Feb 24 16:46 1998							
Rho Aluminium	2596	2602	--	--	--	--	K/M3
Rho Magnesium	1686	1685	--	--	--	--	K/M3
Pe Aluminium	2.570	2.526	--	--	--	--	
Pe Magnesium	2.650	2.642	--	--	--	--	
High resolution Integrated Logging Tool-CTS Master Calibration - Deviation Summary Master: Feb 24 16:46 1998							
BS Average Deviation	0	0.1864	--	--	--	--	%
BS Max Deviation	0	0.6857	--	--	--	--	%
SS Average Deviation	0	0.1835	--	--	--	--	%
SS Max Deviation	0	0.5998	--	--	--	--	%
LS Average Deviation	0	0.5740	--	--	--	--	%
LS Max Deviation	0	1.167	--	--	--	--	%
High resolution Integrated Logging Tool-CTS Master Calibration - Tank Measurement Master: Feb 24 15:33 1998							
Thermal Near Corr. (Tank)	6031	6025	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2618	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.301	--	--	--	--	
Scintillation Gamma-Ray - L Wellsite Calibration - Detector Calibration Before: Mar 10 03:42 1998							
Gamma Ray Background	30.00	N/A	39.27	N/A	N/A	N/A	GAPI
Gamma Ray (Jig - Bkg)	157.2	N/A	157.2	N/A	N/A	14.29	GAPI
Gamma Ray (Calibrated)	165.0	N/A	165.0	N/A	N/A	15.00	GAPI
Mechanical Caliper - G Wellsite Calibration - Electronics Calibration Before: Mar 10 03:26 1998							
MCDG Counts Plus	377.0	N/A	379.6	N/A	N/A	N/A	
MCDG Counts Zero	103.0	N/A	103.6	N/A	N/A	N/A	
Mechanical Caliper - G Wellsite Calibration - Caliper Calibration Before: Mar 10 03:57 1998							
Diameter Large Ring	304.8	N/A	318.4	N/A	N/A	N/A	MM
Diameter Small Ring	203.2	N/A	188.6	N/A	N/A	N/A	MM

The GLS-VJ source activity is acceptable.

The HGNS Neutron Master Calibration was done with the following parameters :

NCT-B Water Temperature 8.5 DEGC.
Thermal Housing Size 85.852 MM.

High resolution Integrated Logging Tool-CTS / Equipment Identification

Primary Equipment:

Array Induction Tool - H	AIT - H	262
Array Induction Sonde	AHIS - BA	
HILT high-Resolution Mechanical Sonde	HRMS - B	863
HILT Rxo Gamma-ray Device	HRGD -	730
HILT Nuclear Back-Scatter Detector	HILT -	
HILT Nuclear Short-Spacing Detector	HILT -	
HILT Nuclear Long-Spacing Detector	HILT -	
Micro Cylindrically Focused Log Device	MCFL -	

Auxiliary Equipment:

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6237		0.6050	56.27		71.00
	Before	0.6281			55.34		
1	Master	1.281		1.270	55.28		70.00
	Before	1.289			54.35		
2	Master	0.6339		0.6230	51.60		66.00
	Before	0.6380			50.70		
3	Master	0.7205		0.7040	50.79		65.00
	Before	0.7255			49.90		
4	Master	1.349		1.337	44.59		59.00
	Before	1.357			43.74		
5	Master	1.957		1.955	42.78		57.00
	Before	1.972			41.95		
6	Master	1.953		1.955	42.80		57.00
	Before	1.967			41.97		
7	Master	1.408		1.415	39.17		53.00
	Before	1.421			38.61		
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: Dec 21 14:42 1997 Before: Mar 10 03:28 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Electronics Calibration Check - Auxiliary

Phase	AIT-H SPA Plus MV	Value	Phase	AIT-H SPA Zero MV	Value
Master		994.3	Master		-0.08168
Before		995.0	Before		-0.1010
	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)			-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	
Phase	AIT-H Temperature Plus V	Value	Phase	AIT-H Temperature Zero V	Value
Master		0.9209	Master		-7.986E-05
Before		0.9215	Before		-9.853E-05
	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)			-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	

Master: Dec 21 14:42 1997 Before: Mar 10 03:28 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V (Minimum / Nominal / Maximum)	Value	Phase DEG (Minimum / Nominal / Maximum)
0	1.047	0.9500 / 1.000 / 1.050	0.3856	-3.000 / 0 / 3.000
1	1.045	0.9500 / 1.000 / 1.050	0.7479	-3.000 / 0 / 3.000
2	1.029	0.9500 / 1.000 / 1.050	-0.01594	-3.000 / 0 / 3.000
3	1.030	0.9500 / 1.000 / 1.050	0.09603	-3.000 / 0 / 3.000
4	1.010	0.9500 / 1.000 / 1.050	0.008929	-3.000 / 0 / 3.000
5	0.9922	0.9500 / 1.000 / 1.050	-0.2558	-3.000 / 0 / 3.000
6	1.003	0.9500 / 1.000 / 1.050	0.08459	-3.000 / 0 / 3.000
7	1.019	0.9500 / 1.000 / 1.050	-0.2346	-3.000 / 0 / 3.000

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M (Minimum / Nominal / Maximum)	Value	X Sonde Error Correction MM/M (Minimum / Nominal / Maximum)
0	-73.57	-231.0 / -56.00 / 119.0	-59.50	-2250 / 0 / 2250
1	168.6	114.0 / 159.0 / 204.0	-292.7	-625.0 / 0 / 625.0
2	108.6	66.00 / 111.0 / 156.0	5.670	-350.0 / 0 / 350.0
3	61.09	39.00 / 64.00 / 89.00	-46.47	-250.0 / 0 / 250.0
4	23.83	15.00 / 25.00 / 35.00	-3.855	-63.00 / 0 / 63.00
5	13.07	4.000 / 14.00 / 24.00	4.464	-50.00 / 0 / 50.00
6	9.377	5.000 / 10.00 / 15.00	-4.521	-30.00 / 0 / 30.00
7	-0.4853	-5.000 / 0 / 5.000	2.159	-30.00 / 0 / 30.00

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag (Minimum / Nominal / Maximum)	Value	Fine - Mag, Real, Imag (Minimum / Nominal / Maximum)
0	0.6647	0.6000 / 1.000 / 1.400	1.320	0.6000 / 1.000 / 1.400
1	0.6649	0.6000 / 1.000 / 1.400	1.328	0.6000 / 1.000 / 1.400
2	0.6649	0.6000 / 1.000 / 1.400	1.328	0.6000 / 1.000 / 1.400

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Stab Measurement Summary

Phase	BS Window Ratio	Value	Phase	SS Window Ratio	Value	Phase	LS Window Ratio	Value
Before	0.9457 (Minimum) 0.9955 (Nominal) 1.045 (Maximum)	1.002	Before	0.4382 (Minimum) 0.4612 (Nominal) 0.4843 (Maximum)	0.4559	Before	0.2847 (Minimum) 0.2997 (Nominal) 0.3147 (Maximum)	0.3060
Phase	BS Window Sum CPS	Value	Phase	SS Window Sum CPS	Value	Phase	LS Window Sum CPS	Value
Before	15070 (Minimum) 15860 (Nominal) 16650 (Maximum)	15860	Before	10630 (Minimum) 11190 (Nominal) 11750 (Maximum)	11170	Before	1256 (Minimum) 1323 (Nominal) 1389 (Maximum)	1327

Before: Mar 10 03:38 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Photo-multiplier High Voltages Calibrations

Phase	BS PM High Voltage (Command) V	Value	Phase	SS PM High Voltage (Command) V	Value	Phase	LS PM High Voltage (Command) V	Value
Before	1825 (Minimum) 1925 (Nominal) 2025 (Maximum)	1906	Before	1736 (Minimum) 1836 (Nominal) 1936 (Maximum)	1910	Before	1613 (Minimum) 1713 (Nominal) 1813 (Maximum)	1747

Before: Mar 10 03:38 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Crystal Quality Resolutions Calibration

Phase	BS Crystal Resolution %	Value	Phase	SS Crystal Resolution %	Value	Phase	LS Crystal Resolution %	Value
Before	11.50 (Minimum) 12.50 (Nominal) 13.50 (Maximum)	12.04	Before	9.310 (Minimum) 10.31 (Nominal) 11.31 (Maximum)	11.26	Before	8.210 (Minimum) 9.210 (Nominal) 10.21 (Maximum)	9.086

Before: Mar 10 03:38 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
MCFL Calibration

Phase	Raw B0 Resistivity OHMM	Value	Phase	Raw B1 Resistivity OHMM	Value	Phase	Raw B2 Resistivity OHMM	Value
Before	3565 (Minimum) 3875 (Nominal) 4185 (Maximum)	3897	Before	3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	3853	Before	3524 (Minimum) 3830 (Nominal) 4136 (Maximum)	3875

Before: Mar 10 03:40 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
HILT Caliper Calibration

Phase	HILT Caliper Zero Measurement MM	Value	Phase	HILT Caliper Plus Measurement MM	Value
Before	152.4 (Minimum) 203.2 (Nominal) 254.0 (Maximum)	202.2	Before	228.6 (Minimum) 304.8 (Nominal) 381.0 (Maximum)	310.2

Before: Mar 10 03:43 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	36.16	Before	NOT DONE; N/A (Minimum) N/A (Nominal) N/A (Maximum)	N/A	Before	NOT DONE; 150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)	N/A

Before: Calibration not done

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.79	Master		25.84
Before		27.61	Before		26.58
	5.000 (Minimum) 27.79 (Nominal) 40.00 (Maximum)			5.000 (Minimum) 25.84 (Nominal) 40.00 (Maximum)	

Master: Feb 24 15:33 1998 Before: Mar 10 03:29 1998

High resolution Integrated Logging Tool-CTS Wellsite Calibration
Accelerometer Calibration

Phase	Z-Axis Acceleration M/S2	Value
Before	9.610 (Minimum) 9.810 (Nominal) 10.01 (Maximum)	9.824

Before: Mar 10 03:27 1998

High resolution Integrated Logging Tool-CTS Master Calibration
Electronics Calibration Check - Thru Cal Mag. & Phase

Idx	Phase	Value	Thru Cal Magnitude V	Nominal	Value	Phase DEG	Nominal
0	Master	0.6237		0.6050	56.27		71.00
1	Master	1.281		1.270	55.28		70.00
2	Master	0.6339		0.6230	51.60		66.00
3	Master	0.7205		0.7040	50.79		65.00
4	Master	1.349		1.337	44.59		59.00
5	Master	1.957		1.955	42.78		57.00
6	Master	1.953		1.955	42.80		57.00
7	Master	1.408		1.415	39.17		53.00
		60.00 % (Minimum)	(Nominal)	140.0 % (Maximum)	Nom -60.00 (Minimum)	(Nominal)	Nom + 60.00 (Maximum)

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Master Calibration
Electronics Calibration Check - Auxiliary

Phase	AIT-H SPA Plus MV	Value	Phase	AIT-H SPA Zero MV	Value
Master	941.0 (Minimum) 990.5 (Nominal) 1040 (Maximum)	994.3	Master	-50.00 (Minimum) 0 (Nominal) 50.00 (Maximum)	-0.08168
Phase	AIT-H Temperature Plus V	Value	Phase	AIT-H Temperature Zero V	Value
Master	0.8700 (Minimum) 0.9150 (Nominal) 0.9600 (Maximum)	0.9209	Master	-0.05000 (Minimum) 0 (Nominal) 0.05000 (Maximum)	-7.986E-05

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Master Calibration
Test Loop Gain Correction

Idx	Value	Test Loop Gain Magnitude V (Minimum / Nominal / Maximum)	Value	Phase DEG (Minimum / Nominal / Maximum)
0	1.047	0.9500 / 1.000 / 1.050	0.3856	-3.000 / 0 / 3.000
1	1.045	0.9500 / 1.000 / 1.050	0.7479	-3.000 / 0 / 3.000
2	1.029	0.9500 / 1.000 / 1.050	-0.01594	-3.000 / 0 / 3.000
3	1.030	0.9500 / 1.000 / 1.050	0.09603	-3.000 / 0 / 3.000
4	1.010	0.9500 / 1.000 / 1.050	0.008929	-3.000 / 0 / 3.000
5	0.9922	0.9500 / 1.000 / 1.050	-0.2558	-3.000 / 0 / 3.000
6	1.003	0.9500 / 1.000 / 1.050	0.08459	-3.000 / 0 / 3.000
7	1.019	0.9500 / 1.000 / 1.050	-0.2346	-3.000 / 0 / 3.000

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Master Calibration
Sonde Error Correction

Idx	Value	R Sonde Error Correction MM/M (Minimum / Nominal / Maximum)	Value	X Sonde Error Correction MM/M (Minimum / Nominal / Maximum)
0	-73.57	-231.0 / -56.00 / 119.0	-59.50	-2250 / 0 / 2250
1	168.6	114.0 / 159.0 / 204.0	-292.7	-625.0 / 0 / 625.0
2	108.6	66.00 / 111.0 / 156.0	5.670	-350.0 / 0 / 350.0
3	61.09	39.00 / 64.00 / 89.00	-46.47	-250.0 / 0 / 250.0
4	23.83	15.00 / 25.00 / 35.00	-3.855	-63.00 / 0 / 63.00
5	13.07	4.000 / 14.00 / 24.00	4.464	-50.00 / 0 / 50.00
6	9.377	5.000 / 10.00 / 15.00	-4.521	-30.00 / 0 / 30.00
7	-0.4853	-5.000 / 0 / 5.000	2.159	-30.00 / 0 / 30.00

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Master Calibration
Mud Gain Correction

Idx	Value	Coarse - Mag, Real, Imag (Minimum / Nominal / Maximum)	Value	Fine - Mag, Real, Imag (Minimum / Nominal / Maximum)
0	0.6647	0.6000 / 1.000 / 1.400	1.320	0.6000 / 1.000 / 1.400
1	0.6649	0.6000 / 1.000 / 1.400	1.328	0.6000 / 1.000 / 1.400
2	0.6649	0.6000 / 1.000 / 1.400	1.328	0.6000 / 1.000 / 1.400

Master: Dec 21 14:42 1997

High resolution Integrated Logging Tool-CTS Master Calibration
Inversion results

Phase	Rho Aluminium K/M3	Value	Phase	Rho Magnesium K/M3	Value
Master	2586 (Minimum) 2596 (Nominal) 2606 (Maximum)	2602	Master	1676 (Minimum) 1686 (Nominal) 1696 (Maximum)	1685
Phase	Pe Aluminium	Value	Phase	Pe Magnesium	Value
Master	2.470 (Minimum) 2.570 (Nominal) 2.670 (Maximum)	2.526	Master	2.550 (Minimum) 2.650 (Nominal) 2.750 (Maximum)	2.642

Master: Feb 24 16:46 1998

High resolution Integrated Logging Tool-CTS Master Calibration
Deviation Summary

Phase	BS Average Deviation %	Value	Phase	SS Average Deviation %	Value	Phase	LS Average Deviation %	Value
Master	-0.6000 (Minimum) 0 (Nominal) 0.6000 (Maximum)	0.1864	Master	-1.000 (Minimum) 0 (Nominal) 1.000 (Maximum)	0.1835	Master	-1.500 (Minimum) 0 (Nominal) 1.500 (Maximum)	0.5740
Phase	BS Max Deviation %	Value	Phase	SS Max Deviation %	Value	Phase	LS Max Deviation %	Value
Master	-1.600 (Minimum) 0 (Nominal) 1.600 (Maximum)	0.6857	Master	-2.500 (Minimum) 0 (Nominal) 2.500 (Maximum)	0.5998	Master	-3.500 (Minimum) 0 (Nominal) 3.500 (Maximum)	1.167

Master: Feb 24 16:46 1998

High resolution Integrated Logging Tool-CTS Master Calibration
Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master	5000 (Minimum) 6031 (Nominal) 7200 (Maximum)	6025	Master	2075 (Minimum) 2793 (Nominal) 3125 (Maximum)	2618	Master	2.120 (Minimum) 2.159 (Nominal) 2.540 (Maximum)	2.301

Master: Feb 24 15:33 1998

Scintillation Gamma-Ray - L / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge	SGC - SA	605
Scintillation Gamma Detector	SGD - TAA	

Auxiliary Equipment:

Scintillation Gamma Housing	SGH - K	663
Gamma Source Radioactive	GSR - U	

Scintillation Gamma-Ray - L Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before	0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	39.27	Before	142.9 (Minimum) 157.2 (Nominal) 171.5 (Maximum)	157.2	Before	150.0 (Minimum) 165.0 (Nominal) 180.0 (Maximum)	165.0

Before: Mar 10 03:42 1998

Mechanical Caliper - G / Equipment Identification

Primary Equipment:
Mechanical Caliper Device - G MCD - G 88

Auxiliary Equipment:

Mechanical Caliper - G Wellsite Calibration
Electronics Calibration

Phase	MCDG Counts Plus	Value	Phase	MCDG Counts Zero	Value
Before	320.5 (Minimum) 377.0 (Nominal) 433.5 (Maximum)	379.6	Before	87.55 (Minimum) 103.0 (Nominal) 118.4 (Maximum)	103.6

Before: Mar 10 03:26 1998

Mechanical Caliper - G Wellsite Calibration
Caliper Calibration

Phase	Diameter Large Ring MM	Value	Phase	Diameter Small Ring MM	Value
Before	259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)	318.4	Before	172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)	188.6

Before: Mar 10 03:57 1998

MAR 1 6 1998

Schlumberger

COMPANY:	PARAMOUNT RESOURCES LTD.	BOTTOM LOG INTERVAL	1554 M
WELL:	PARAMOUNT ET AL ARROWHEAD 0-15	SCHLUMBERGER DEPTH	1560 M
FIELD:	FORT LIARD	DEPTH DRILLER	1557 M
PROVINCE:	NORTHWEST TERRITORIES	KELLY BUSHING	387 M
		DRILL FLOOR	386.7 M
		GROUND LEVEL	380.5 M

PLATFORM EXPRESS
COMPENSATED NEUTRON
LITHO DENSITY

N.E.B. COPY 1834

COMPANY: PARAMOUNT RESOURCES LTD.

WELL: PARAMOUNT ET AL ARROWHEAD 0-15

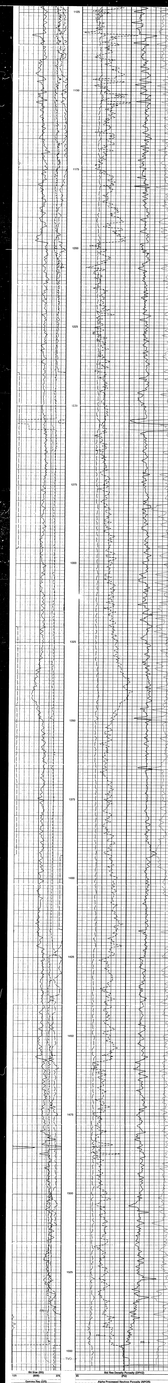
FIELD: FORT LIARD

PROVINCE: NORTHWEST TERRITORIES

92H-P33-9-2

Schlumberger

PLATFORM EXPRESS
NEUTRON LITHO DENSITY
***** TVD *****



Parameters

DLIS Name	Description	Value
BITSIZEMS	Name of DEVICE block channel	TOOL
CALI	Caliper	CALI
DRHO	Density Correction	DRHO
GR	Gamma Ray	GR
HDRA	Density Balance Correction	HDRA
HDRB	Density Balance Correction Option	0
HDRC	Density Correction Option	0.25
HDRD	Density Correction Method	APCO
HDRE	Density Correction Error Limit	0.5
HDRF	Density Filter	0
HDRG	Total Gain	1000
HDRH	Density Gain	1000
HDRI	Density Correction Option	0
HDRJ	Density Correction Option	0
HDRK	Density Correction Option	0
HDRL	Density Correction Method	TRUE_VERTICAL_DEPTH
HDRM	Density Correction Mode	0
HDRN	Density Correction Source	LIMESTONE
HDRO	Density Correction Source Option	0
HDRP	Density Correction Source Option	0
HDRQ	Mud Density	2.00
HDRR	Mud Density Source	TOOL
HDRS	Mud Density Source Option	0
HDRT	Density Correction Source Option	0
HDRU	Density Correction Source Option	0
HDRV	Full Scale Density Gain	1000
HDRW	Density Correction Source Option	0
HDRX	Density Correction Source Option	0
HDRY	Density Correction Source Option	0
HDRZ	Density Correction Source Option	0
HMNR	Neutron Matrix	0
HMNU	Neutron Matrix Source	TOOL
HMNV	Neutron Matrix Source Option	0
HMNW	Neutron Matrix Source Option	0
HMNX	Neutron Matrix Source Option	0
HMNY	Neutron Matrix Source Option	0
HMNZ	Neutron Matrix Source Option	0
HNPO	Neutron Porosity	NPOR
HNPS	Neutron Porosity Source	TOOL
HNPT	Neutron Porosity Source Option	0
HNPU	Neutron Porosity Source Option	0
HNPV	Neutron Porosity Source Option	0
HNPW	Neutron Porosity Source Option	0
HNPX	Neutron Porosity Source Option	0
HNPY	Neutron Porosity Source Option	0
HNPZ	Neutron Porosity Source Option	0
HTNP	Neutron Porosity Table	NPHI
HTNU	Neutron Porosity Table Unit	PU
HTNV	Neutron Porosity Table Value Offset	0
HTNW	Neutron Porosity Table Value Multiplier	1
HTNX	Neutron Porosity Table Dimension	1
HTNY	Neutron Porosity Table Axis Unit	DIMENSIONLESS
HTNZ	Neutron Porosity Table Axis Value	0
HVPU	Velocity Pulse Rate	10000
HVPV	Velocity Pulse Value	0.1
HVPW	Velocity Pulse Source	TOOL
HVPX	Velocity Pulse Source Option	0
HVPY	Velocity Pulse Source Option	0
HVPZ	Velocity Pulse Source Option	0
TENS	Tension	TENS

Parameters Total Number: 0 DLIS Input Lines: 0

OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600

Input DLIS Files

DEFAULT	05/29 1400	PB-01	FULL	12-MAR-1998 08:14	1000.00	600.00

Output DLIS Files

DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 07:47

Input DLIS Files

DEFAULT	05/29 1400	PB-01	FULL	12-MAR-1998 08:14	1000.00	1000.00

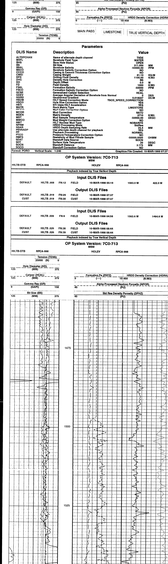
Output DLIS Files

DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14
DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14

OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600



Parameters

DLIS Name	Description	Value
BITSIZEMS	Name of DEVICE block channel	TOOL
CALI	Caliper	CALI
DRHO	Density Correction	DRHO
GR	Gamma Ray	GR
HDRA	Density Balance Correction	HDRA
HDRB	Density Balance Correction Option	0
HDRC	Density Correction Option	0.25
HDRD	Density Correction Method	APCO
HDRE	Density Correction Error Limit	0.5
HDRF	Density Filter	0
HDRG	Total Gain	1000
HDRH	Density Gain	1000
HDRI	Density Correction Option	0
HDRJ	Density Correction Option	0
HDRK	Density Correction Option	0
HDRL	Density Correction Method	TRUE_VERTICAL_DEPTH
HDRM	Density Correction Mode	0
HDRN	Density Correction Source	LIMESTONE
HDRO	Density Correction Source Option	0
HDRP	Density Correction Source Option	0
HDRQ	Mud Density	2.00
HDRR	Mud Density Source	TOOL
HDRS	Mud Density Source Option	0
HDRT	Density Correction Source Option	0
HDRU	Density Correction Source Option	0
HDRV	Full Scale Density Gain	1000
HDRW	Density Correction Source Option	0
HDRX	Density Correction Source Option	0
HDRY	Density Correction Source Option	0
HDRZ	Density Correction Source Option	0
HMNR	Neutron Matrix	0
HMNU	Neutron Matrix Source	TOOL
HMNV	Neutron Matrix Source Option	0
HMNW	Neutron Matrix Source Option	0
HMNX	Neutron Matrix Source Option	0
HMNY	Neutron Matrix Source Option	0
HMNZ	Neutron Matrix Source Option	0
HNPO	Neutron Porosity	NPOR
HNPS	Neutron Porosity Source	TOOL
HNPT	Neutron Porosity Source Option	0
HNPU	Neutron Porosity Source Option	0
HNPV	Neutron Porosity Source Option	0
HNPW	Neutron Porosity Source Option	0
HNPX	Neutron Porosity Source Option	0
HNPY	Neutron Porosity Source Option	0
HNPZ	Neutron Porosity Source Option	0
HTNP	Neutron Porosity Table	NPHI
HTNU	Neutron Porosity Table Unit	PU
HTNV	Neutron Porosity Table Value Offset	0
HTNW	Neutron Porosity Table Value Multiplier	1
HTNX	Neutron Porosity Table Dimension	1
HTNY	Neutron Porosity Table Axis Unit	DIMENSIONLESS
HTNZ	Neutron Porosity Table Axis Value	0
HVPU	Velocity Pulse Rate	10000
HVPV	Velocity Pulse Value	0.1
HVPW	Velocity Pulse Source	TOOL
HVPX	Velocity Pulse Source Option	0
HVPY	Velocity Pulse Source Option	0
HVPZ	Velocity Pulse Source Option	0
TENS	Tension	TENS

Parameters Total Number: 0 DLIS Input Lines: 0

OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600

Input DLIS Files

DEFAULT	05/29 1400	PB-01	FULL	12-MAR-1998 08:14	1000.00	1000.00

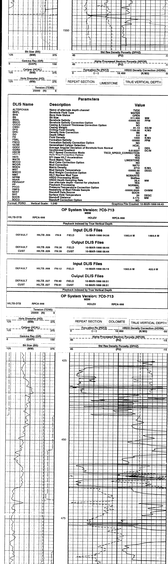
Output DLIS Files

DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14
DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14

OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600



Parameters

DLIS Name	Description	Value
BITSIZEMS	Name of DEVICE block channel	TOOL
CALI	Caliper	CALI
DRHO	Density Correction	DRHO
GR	Gamma Ray	GR
HDRA	Density Balance Correction	HDRA
HDRB	Density Balance Correction Option	0
HDRC	Density Correction Option	0.25
HDRD	Density Correction Method	APCO
HDRE	Density Correction Error Limit	0.5
HDRF	Density Filter	0
HDRG	Total Gain	1000
HDRH	Density Gain	1000
HDRI	Density Correction Option	0
HDRJ	Density Correction Option	0
HDRK	Density Correction Option	0
HDRL	Density Correction Method	TRUE_VERTICAL_DEPTH
HDRM	Density Correction Mode	0
HDRN	Density Correction Source	LIMESTONE
HDRO	Density Correction Source Option	0
HDRP	Density Correction Source Option	0
HDRQ	Mud Density	2.00
HDRR	Mud Density Source	TOOL
HDRS	Mud Density Source Option	0
HDRT	Density Correction Source Option	0
HDRU	Density Correction Source Option	0
HDRV	Full Scale Density Gain	1000
HDRW	Density Correction Source Option	0
HDRX	Density Correction Source Option	0
HDRY	Density Correction Source Option	0
HDRZ	Density Correction Source Option	0
HMNR	Neutron Matrix	0
HMNU	Neutron Matrix Source	TOOL
HMNV	Neutron Matrix Source Option	0
HMNW	Neutron Matrix Source Option	0
HMNX	Neutron Matrix Source Option	0
HMNY	Neutron Matrix Source Option	0
HMNZ	Neutron Matrix Source Option	0
HNPO	Neutron Porosity	NPOR
HNPS	Neutron Porosity Source	TOOL
HNPT	Neutron Porosity Source Option	0
HNPU	Neutron Porosity Source Option	0
HNPV	Neutron Porosity Source Option	0
HNPW	Neutron Porosity Source Option	0
HNPX	Neutron Porosity Source Option	0
HNPY	Neutron Porosity Source Option	0
HNPZ	Neutron Porosity Source Option	0
HTNP	Neutron Porosity Table	NPHI
HTNU	Neutron Porosity Table Unit	PU
HTNV	Neutron Porosity Table Value Offset	0
HTNW	Neutron Porosity Table Value Multiplier	1
HTNX	Neutron Porosity Table Dimension	1
HTNY	Neutron Porosity Table Axis Unit	DIMENSIONLESS
HTNZ	Neutron Porosity Table Axis Value	0
HVPU	Velocity Pulse Rate	10000
HVPV	Velocity Pulse Value	0.1
HVPW	Velocity Pulse Source	TOOL
HVPX	Velocity Pulse Source Option	0
HVPY	Velocity Pulse Source Option	0
HVPZ	Velocity Pulse Source Option	0
TENS	Tension	TENS

Parameters Total Number: 0 DLIS Input Lines: 0

OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600

Input DLIS Files

DEFAULT	05/29 1400	PB-01	FULL	12-MAR-1998 08:14	1000.00	1000.00

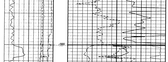
Output DLIS Files

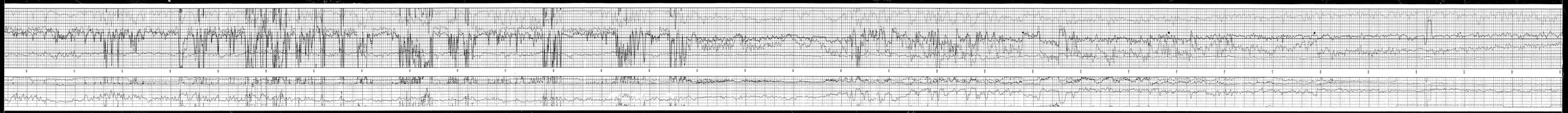
DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14
DEFAULT	05/29 1400	PB-00	DISK	12-MAR-1998 08:14

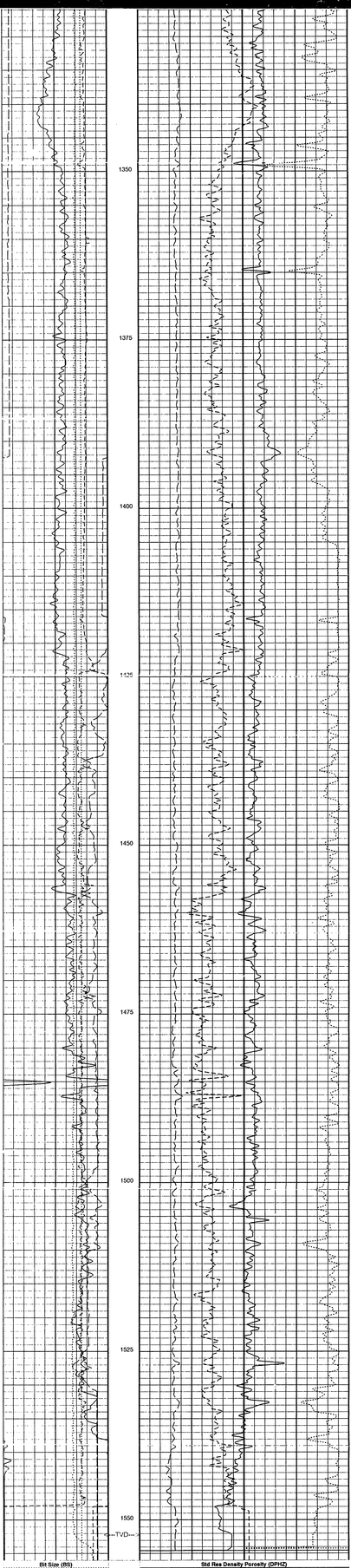
OP System Version: PCD-713

CN/WN/FN	SPEED/MM	SPEED/MM
	PULLER	SPEED/MM

Physical Output Tape Density (BPI): 1600







Bit Size (BS) 125 (MM) 375	Std Res Density Porosity (DPHZ) 45 (PU) -15
Gamma Ray (GR) 0 (GAPI) 150	Alpha Processed Neutron Porosity (NPOR) 45 (PU) -15
Caliper (HCAL) 125 (MM) 375	Formation Px (PEFZ) 0 (----) 10 / HRDD Density Correction (HDRA) 450 (K/M3) -50
Hole Diameter (HD) 125 (MM) 375	
Tension (TENS) 25000 (N) 0	

REPEAT SECTION | TRUE VERTICAL DEPTH

DOLOMITE

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Name of alternate depth channel	TDRE	
BHF	Borehole Fluid Type	WATER	
BHS	Borehole Status	OPEN	
BS	Bit Size	311.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CWEI	Casing Weight	81.10	KG/M
DFD	Drilling Fluid Density	1100.00	K/M3
DHC	Density Hole Correction	50	
FD	Fluid Density	0.0	M
FO	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01823	DC/M
HSCM	HILT Speed Correction Mode	TSCD_SPEED_CORRECTION	
HSCO	Hole Size Correction Option	YES	
HSD	HILT Speed Deceleration	YES	
MATR	Rock Matrix Type	DOLOMITE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2850	K/M3
MST	Mud Sample Temperature	23.00	DEGC
MWCO	Mud Weight Correction Option	NO	
NMT	HILT Nuclear Mud Type	NOBARITE	
NSCR	Neutron Scrubber Mode	Shifted	
NSAR	HRDD Depth Sampling Rate	25.4	MM
PBVSADP	Use alternate depth channel for playback	YES	
PP	Playback Processing	NORMAL	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	20.00	DEGC
SOCN	Standoff Distance	3.175	MM
SOCO	Standoff Correction Option	NO	

Format: PORO Vertical Scale: 1:240 Graphics File Created: 10-MAR-1998 08:51

OP System Version: 7C0-713

MBM

HILTB-DTB	RPCA-998	HOLEV	RPCA-998

Playback Indexed by True Vertical Depth

Input DLIS Files

DEFAULT	HILTB.027	FN:19	FIELD	10-MAR-1998 05:19	1563.6 M	422.0 M	

Output DLIS Files

DEFAULT	HILTB.027	FN:40	FIELD	10-MAR-1998 08:51	
CUST	HILTB.027	FN:41	CUST	10-MAR-1998 08:51	

MAR 1 8 1998

Directional Survey Manually-Entered Deviation Summary

Depth	Deviation	Depth	Deviation
-30.48 M	0.00 DEG	1341.00 M	11.58 DEG
500.00 M	0.00 DEG	1442.00 M	14.55 DEG
550.00 M	0.32 DEG	1458.15 M	13.79 DEG
660.32 M	0.35 DEG	1478.00 M	12.90 DEG
774.00 M	0.46 DEG	1488.99 M	13.08 DEG
886.00 M	0.81 DEG	1515.87 M	13.17 DEG
1001.00 M	2.77 DEG	1534.76 M	12.48 DEG
1113.00 M	4.10 DEG	19812.00 M	12.48 DEG
1227.00 M	5.09 DEG		

COMPANY:	PARAMOUNT RESOURCES LTD.	BOTTOM LOG INTERVAL	1554 M
		SCHLUMBERGER DEPTH	1560 M
WELL:	PARAMOUNT ET AL ARROWHEAD 0-15	DEPTH DRILLER	1557 M
FIELD:	FORT LIARD	KELLY BUSHING	387 M
PROVINCE:	NORTHWEST TERRITORIES	DRILL FLOOR	386.7 M
		GROUND LEVEL	360.5 M

Schlumberger

PLATFORM EXPRESS
NEUTRON LITHO DENSITY
***** TVD *****

MICRO

N.E.B. COPY

COMPANY: PARAMOUNT RESOURCES LTD.
WELL: PARAMOUNT ET. AL. ARROWHEAD 0-1E
FIELD: FORT LIARD
PROVINCE: NORTHWEST TERRITORIES

PLATFORM EXPRESS
MICROLOG

Schlumberger

PROVINCE: NORTHWEST TERRITORIES
County:
Location: 0-15-60E63d0-123d0E0 0
Well: PARAMOUNT ET AL ARROWHEAD
Company: PARAMOUNT RESOURCES LT

LOCATION
WGS: 300015600001230000
Permanent Datum: GROUND LEVEL
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

	Elev.	Above Perm. Datum
K.B.	3001.M	
G.L.	3000.M	
D.F.	3000.M	
E.S. M.	3000.M Perm. Datum	

API Serial No.	SECTION	TOWNSHIP	RANGE
EL 50001/1998			

Schlumberger

Logging Date
Run Number
Depth Driller
Depth Logger
Bottom Log Interval
Top Log Interval
Casing Driller Size at Depth
Casing Logger Size at Depth
Bit Size
Type Fluid in Hole
Density
Viscosity
PH
Fluid Loss
Source of Sample
Rm @ Measured Temperature
Rmf @ Measured Temperature
Rmc @ Measured Temperature
Source of Rmf / Rmc
Rm @ BHT
Maximum Recorded Temperature
Equipment / Location
Recorded By
Witnessed By

Logging Date			
Run Number	ONE	TWO	THREE
Depth Driller	1555.M		
Depth Logger	1554.M		
Bottom Log Interval	1554.M		
Top Log Interval	300.0000 KM		
Casing Driller Size at Depth	311.0000 KM	@	@
Casing Logger Size at Depth	311.0000 KM	@	@
Bit Size	311.0000 KM		
Type Fluid in Hole	LIGHT MUD		
Density	1100.KG/M3		
Viscosity	0.0 S		
PH	10.0		
Fluid Loss	0.0 C3		
Source of Sample	FLOWLINE		
Rm @ Measured Temperature	0.100 @ 25.000C	@	@
Rmf @ Measured Temperature	0.100 @ 25.000C	@	@
Rmc @ Measured Temperature	0.100 @ 25.000C	@	@
Source of Rmf / Rmc	MEAS		
Rm @ BHT	0.100 @ 25.000C	@	@
Maximum Recorded Temperature	25.000C		
Equipment / Location	1109 / DAWSON		
Recorded By	D. HOLDEN		
Witnessed By	D. DUNCAN		

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES1
CR1 PLATFORM EXPRESS
CS2 BHC SONIC
CS3 ML & XY CALIPER
CS4 TVD
CS5 LDGNET
REMARKS: RUN NUMBER 1
HR2 PRECISION 500
HR4TS 4 FIELD, 8 FINAL

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:
REMARKS: RUN NUMBER 2

ALL CURVES AND PRESENTATIONS AS PER CLIENTS REQUEST
NO DEG BOWSPRING RUN ON NEUTRON TOOL
38 MM STANDOFFS ON AIT
CMF 2 AND 38 MM STANDOFF ON SONIC FOR CENTRALIZATION

NO MUD CAKE AVAILABLE AFTER SEVERAL REQUESTS
RUN1RB FOUND IN GAC CALIPER ON RIG OUT

THANK YOU FOR USING SCHLUMBERGER

RUN 1				RUN 2			
SERVICE ORDER #:				SERVICE ORDER #:			
PROGRAM VERSION:	1218396			PROGRAM VERSION:			
FLUID LEVEL:	7C0-713			FLUID LEVEL:			
LOGGED INTERVAL	START	STOP		LOGGED INTERVAL	START	STOP	

EQUIPMENT DESCRIPTION

RUN 1 | RUN 2

SURFACE EQUIPMENT
DSI-U SLM-DB 1447
CAL-A TCM-AB 260
CBL-AB
NCS VIII

DOWNHOLE EQUIPMENT

LEH-QT
LEH-QT

TCC-B
TCC-B

MCD-G
MCD G 88

SLT-T
SLT-UN 243
SLT-UF 130
SLS-WA 664

HILTB-DTB
AH 80 150
AH 80-53088
HMCA 80 800
HMCA
HGNS CAN B 677
HGNS H B 677
HCCC
HRA-F 2456
HRCC-A
HCNT 877
HCFL
HRCC B 812
HRDD-B 803
HRDD-SS
GLS-7 1905
MCFL Device
HR T Nucl SS
HR T Nucl SS
HR T Nucl SS
AIT-B 2A
AIRS-BAC
TLW-SPR
NFV-N

MAXIMUM STRING DIAMETER 175 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	HILTB .008	FN:12	FIELD	10-MAR-1998 05:19	1563.6 M	422.0 M

Output DLIS Files

DEFAULT	HILTB .011	FN:18	FIELD	10-MAR-1998 05:45	1563.6 M	422.0 M
CUST	HILTB .011	FN:19	CUST	10-MAR-1998 05:45	1563.6 M	422.0 M

OP System Version: 7C0-713

	MSM		
HILTB-DTB	RPCA-998	HOLEV	RPCA-998

PIP SUMMARY

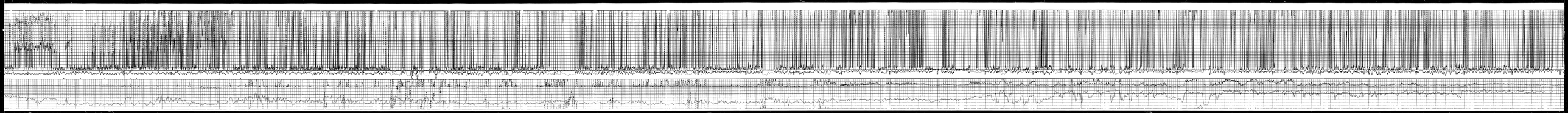
Time Mark Every 60 S

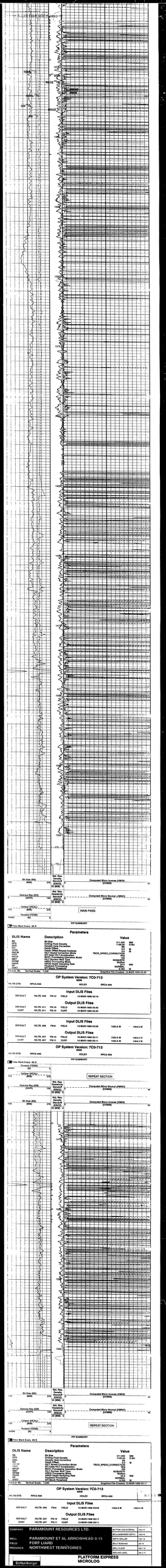
Tension (TENS)			
50000	(N)	0	
Caliper (HCAL)			
125	(MM)	375	
Gamma Ray (GR)			
0	(GAPI)	150	
Bit Size (BS)			
125	(MM)	375	

MAIN PASS

Std. Res. Resistivity Standoff (RSOC) 20 (MM) 0
Computed Micro Normal (HMNO) 0 (OHMM) 40

Std. Res. Density Standoff (DSOC) 20 (MM) 0
Computed Micro Inverse (HMNI) 0 (OHMM) 40





COMPANY	PARAMOUNT RESOURCES LTD.	BOTTOM LOG INTERVAL	1504 M
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	TOP LOG INTERVAL (GAPI)	1000 M
FIELD	FORT LIARD	DEPTH DRILLER	1507 M
PROVINCE	NORTHWEST TERRITORIES	DEPTH LOGGER	1507 M
		BELOW ROTARY	20 M
		DRILL FLOOR	350.5 M
		GROUND LEVEL	345.5 M

Schlumberger

PLATFORM EXPRESS
MICROLOG

Input DLIS Files

DEFAULT	HILTB .008	FN:12	FIELD	10-MAR-1998 05:19	1563.6 M	422.0 M

Output DLIS Files

DEFAULT	HILTB .019	FN:29	FIELD	10-MAR-1998 07:37
CUST	HILTB .019	FN:30	CUST	10-MAR-1998 07:37

Playback indexed by True Vertical Depth

OP System Version: 7C0-713

MBM

HILTB-DTB RPCA-998 HOLEV RPCA-998

PIP SUMMARY

Time Mark Every 80 S

Tension (TENS) 50000 (N) 0

Caliper (HCAL) 125 (MM) 375

MAIN PASS

TRUE VERTICAL DEPTH

Gamma Ray (GR) 0 (GAPI) 150

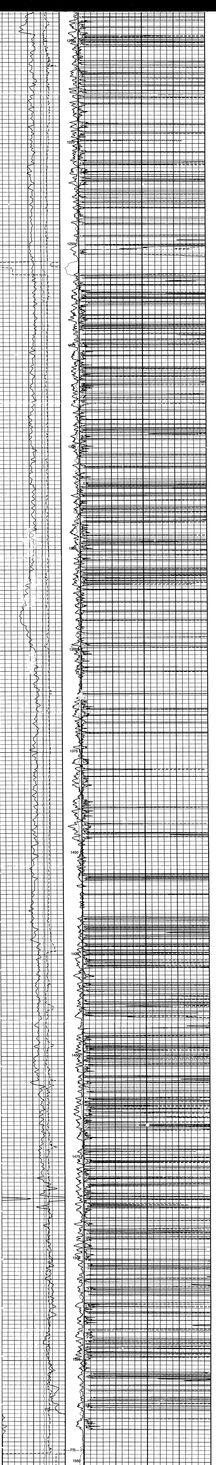
Std. Res. Resistivity Standoff (RSOZ) 25 (MM) 0

Computed Micro Normal (HMNO) 0 (OHMM) 40

Bit Size (BS) 125 (MM) 375

Std. Res. Density Standoff (DSOZ) 25 (MM) 0

Computed Micro Inverse (HMIN) 0 (OHMM) 40



PIP SUMMARY

Parameters

DLIS Name	Description	Value
ALTSPCMN	Name of alternate depth channel	TIME
ZFR	Frame Spacing	0.5000 SEC
ZUN	Zonal Units	FEET
DFPL	Depth Offset Plus	0.0000 M
DFMN	Depth Offset Minus	0
CMCF	CMINV Correction Mode	TRDS_SPEED_CORRECTED
CSIZ	CMINV Caliper Selection Mode	0
CSPF	CMINV Speed Correction Mode	0
NPHF	NPHI Processing Mode	0
NPRM	NPHI Processing Matrix	SANDSTONE
DENSF	DENS Processing Mode	0
PROVER	Prover Name Used for playback	1
PP	Playback Processing	NORMAL

Format: DL Vertical Scale: 1:240 Graphics File Created: 15-MAR-1988 05:57

OP System Version: 7C0-713

HILTB-DTB	RPCA-000	RPCA-000

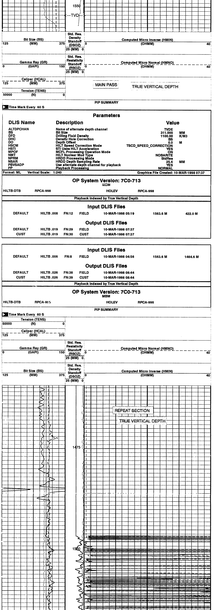
Playback Advised to Use Vertical Depth

Input DLIS Files

DEFAULT	HILTB .000	FN:10	FSLD	15-MAR-1988 05:19	1553.5 M	453.0 M

Output DLIS Files

DEFAULT	HILTB .001	FN:99	FSLD	15-MAR-1988 07:57		
CUST	HILTB .002	FN:50	CUST	15-MAR-1988 07:57		



PIP SUMMARY

Parameters

DLIS Name	Description	Value
ALTSPCMN	Name of alternate depth channel	TIME
ZFR	Frame Spacing	0.5000 SEC
ZUN	Zonal Units	FEET
DFPL	Depth Offset Plus	0.0000 M
DFMN	Depth Offset Minus	0
CMCF	CMINV Correction Mode	TRDS_SPEED_CORRECTED
CSIZ	CMINV Caliper Selection Mode	0
CSPF	CMINV Speed Correction Mode	0
NPHF	NPHI Processing Mode	0
NPRM	NPHI Processing Matrix	SANDSTONE
DENSF	DENS Processing Mode	0
PROVER	Prover Name Used for playback	1
PP	Playback Processing	NORMAL

Format: DL Vertical Scale: 1:240 Graphics File Created: 15-MAR-1988 06:00

OP System Version: 7C0-713

HILTB-DTB	RPCA-000	RPCA-000

Playback Advised to Use Vertical Depth

Input DLIS Files

DEFAULT	HILTB .000	FN:9	FSLD	15-MAR-1988 04:04	1553.5 M	1664.0 M

Output DLIS Files

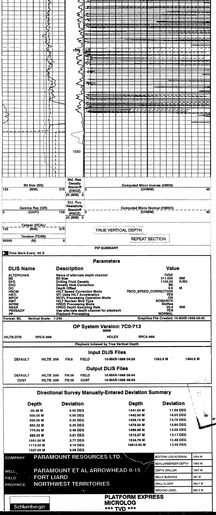
DEFAULT	HILTB .000	FN:99	FSLD	15-MAR-1988 04:44	
CUST	HILTB .001	FN:50	CUST	15-MAR-1988 08:44	

Playback Advised to Use Vertical Depth

OP System Version: 7C0-713

HILTB-DTB	RPCA-000	RPCA-000

PIP SUMMARY



PIP SUMMARY

Parameters

DLIS Name	Description	Value
ALTSPCMN	Name of alternate depth channel	TIME
ZFR	Frame Spacing	0.5000 SEC
ZUN	Zonal Units	FEET
DFPL	Depth Offset Plus	0.0000 M
DFMN	Depth Offset Minus	0
CMCF	CMINV Correction Mode	TRDS_SPEED_CORRECTED
CSIZ	CMINV Caliper Selection Mode	0
CSPF	CMINV Speed Correction Mode	0
NPHF	NPHI Processing Mode	0
NPRM	NPHI Processing Matrix	SANDSTONE
DENSF	DENS Processing Mode	0
PROVER	Prover Name Used for playback	1
PP	Playback Processing	NORMAL

Format: DL Vertical Scale: 1:240 Graphics File Created: 15-MAR-1988 06:00

OP System Version: 7C0-713

HILTB-DTB	RPCA-000	RPCA-000

Playback Advised to Use Vertical Depth

Input DLIS Files

DEFAULT	HILTB .000	FN:8	FSLD	15-MAR-1988 04:04	1553.5 M	1664.0 M

Output DLIS Files

DEFAULT	HILTB .000	FN:99	FSLD	15-MAR-1988 04:44	
CUST	HILTB .001	FN:50	CUST	15-MAR-1988 08:44	

Playback Advised to Use Vertical Depth

OP System Version: 7C0-713

HILTB-DTB	RPCA-000	RPCA-000

PIP SUMMARY

Directional Survey Manually-Entered Deviation Summary

Depth	Deviation	Depth	Deviation
35.48 M	0.00 DEG	1341.00 M	1.00 DEG
100.00 M	0.00 DEG	1377.00 M	1.00 DEG
200.00 M	0.00 DEG	1406.10 M	1.75 DEG
300.00 M	0.00 DEG	1476.00 M	1.00 DEG
400.00 M	0.00 DEG	1511.00 M	1.00 DEG
500.00 M	0.00 DEG	1546.00 M	1.00 DEG
600.00 M	0.00 DEG	1610.87 M	1.00 DEG
1001.00 M	0.77 DEG	1634.76 M	1.00 DEG
1037.00 M	0.75 DEG	1665.00 M	1.00 DEG
1337.00 M	0.00 DEG		

COMPANY	PARAMOUNT RESOURCES LTD.	SECTION-LOG NOTES	2D-2-B
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	DATA-ARRANGEMENT	2D-2-C
FIELD	FORT LIARD	DEPTH-DRILLER	2D-2-D
PROVINCE	NORTHWEST TERRITORIES	DEPTH-LOGGER	2D-2-E
		CALIBRATIONS	2D-2-F
		DRILLING-DATA	2D-2-G
		DEVIATION	2D-2-H

Schlumberger

PLATFORM EXPRESS
MICROLOG
***** TVD *****

DIPMETER/ CALIPER

N.E.B. COPY

Baker Atlas

HEXAGONAL 3-PLUG
GAMMA RAY LOG

FILE NO.	COMPANY	PANARCTIC RESOURCES LTD.
WELL	WELL	PANARCTIC ET AL HOMEBASE B-15
FIELD	FIELD	COPPERMINE RIVER
PROV/STATE	PROV/STATE	NORTHWEST TERRITORIES
Sec 8 TR	LOCATION	OTHER SERVICES
	2-D SEISMIC LINE	DIL-SP-GR-BHC-CAL-CNL-FDC-GR-DIPLOG
PERM DATUM/ELEV	0-0 GROUND LEVEL	DIL-GR
		DIPLOG
PERMANENT DATUM	G.L.	ELEVATION 280.5 M
LOG MEASURED FROM	K.B.	ABOVE P.D. 10.5 M
DRILL MEAS FROM	KELLY BUSHING	ELEVATION 290.5 M

DATE	1-DEC-1984	
RUN NO.	ONE	
DEPTH-DRILLER	1.5	
DEPTH-LOGGER	1.5	
BTM LOG INTERVAL	1.5	
TOP LOG INTERVAL	0.0	
CASING-DRILLER	0.0 @ 0.0	
CASING-LOGGER	0.0	
BIT SIZE	0.0	
TYPE FLUID IN HOLE	WATER	
DENSITY / VISCOSITY	1.0 /	
PH / FLUID LOSS	/	
SOURCE OF SAMPLE	FLOWLINE	
RM @ MEAS TEMP	/ @	
RMF @ MEAS TEMP	/ @	
RMC @ MEAS TEMP	/ @	
SOURCE RMF / RMC	/	
RM @ BHT	/ @	
MAX REC TEMP	0.0 DEG	
EQUIP. / LOCATION	0.0 DEG	
RECORDED BY	R. WEBB	
WITNESSED BY	D. GRAY	

N.E.B. COPY

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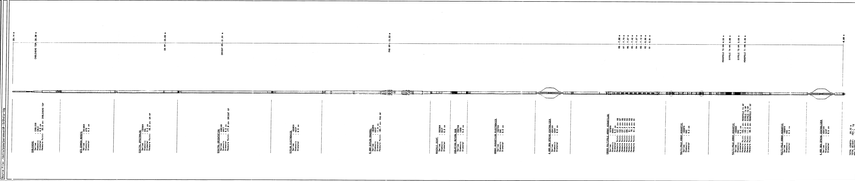
DIPLOG

LIMITS/SENSITIVITY CODE/TRACK LOG



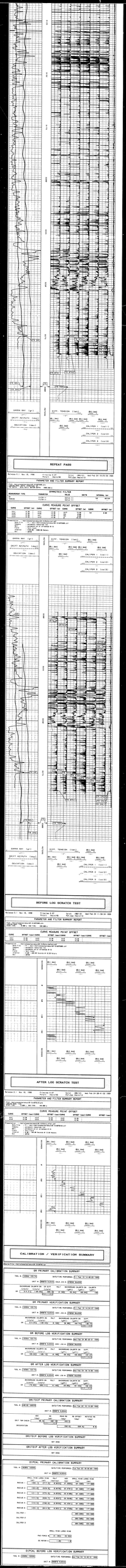
MAX P-PADS

Printed: Sat 01 Dec 1984 Time: 10:00:00 Page: 1

PANARCTIC RESOURCES LTD.	PANARCTIC ET AL HOMEBASE B-15	COPPERMINE RIVER	NORTHWEST TERRITORIES

PANARCTIC RESOURCES LTD.
PANARCTIC ET AL HOMEBASE B-15
COPPERMINE RIVER
NORTHWEST TERRITORIES

DATE	1-DEC-1984		
RUN NO.	ONE		
DEPTH-DRILLER	1.5		
DEPTH-LOGGER	1.5		
BTM LOG INTERVAL	1.5		
TOP LOG INTERVAL	0.0		
CASING-DRILLER	0.0 @ 0.0		
CASING-LOGGER	0.0		
BIT SIZE	0.0		
TYPE FLUID IN HOLE	WATER		
DENSITY / VISCOSITY	1.0 /		
PH / FLUID LOSS	/		
SOURCE OF SAMPLE	FLOWLINE		
RM @ MEAS TEMP	/ @		
RMF @ MEAS TEMP	/ @		
RMC @ MEAS TEMP	/ @		
SOURCE RMF / RMC	/		
RM @ BHT	/ @		
MAX REC TEMP	0.0 DEG		
EQUIP. / LOCATION	0.0 DEG		
RECORDED BY	R. WEBB		
WITNESSED BY	D. GRAY		


REPEAT PASS
PARAMETER AND FILTER SUMMARY REPORT
BEFORE LOG SCRATCH TEST
PARAMETER AND FILTER SUMMARY REPORT
AFTER LOG SCRATCH TEST
PARAMETER AND FILTER SUMMARY REPORT
CALIBRATION / VERIFICATION SUMMARY
GR PRIMARY CALIBRATION SUMMARY
GR PRIMARY VERIFICATION SUMMARY
GR BEFORE LOG VERIFICATION SUMMARY
GR AFTER LOG VERIFICATION SUMMARY
ORITSUF PRIMARY CALIBRATION SUMMARY
ORITSUF BEFORE LOG VERIFICATION SUMMARY
ORITSUF AFTER LOG VERIFICATION SUMMARY
DIPOLE PRIMARY CALIBRATION SUMMARY
DIPOLE BEFORE LOG VERIFICATION SUMMARY

	I.D. (mV)	MULT	ADD	I.D. (mm pct V)	CASING SIZE (mm)
RADIUS 1	947.3	0.05525	27.66617	80.004	
RADIUS 2	937.5	0.05696	25.67810	79.074	
RADIUS 3	1015.6	0.05583	22.81002	79.517	
RADIUS 4	944.8	0.05675	26.92400	80.541	
RADIUS 5	1054.7	0.05593	22.25914	81.253	
RADIUS 6	1027.8	0.05514	22.57279	79.252	
CALIPER 1				160.545	25.400
CALIPER 2				160.326	
CALIPER 3				158.769	
PAD FORCE				-5.776	
DC MOTOR V				1.3	

DIPCAL AFTER LOG VERIFICATION SUMMARY

TOOL #: 1020MA 152695 DATE/TIME PERFORMED: Wed Feb 24 19:57:30 1999

UNIT #: 3880TB HL6544

	I.D. (mV)	MULT	ADD	I.D. (mm pct V)	CASING SIZE (mm)
RADIUS 1	1038.6	0.05525	27.66617	85.049	
RADIUS 2	978.0	0.05696	25.67810	81.382	
RADIUS 3	1005.9	0.05583	22.81002	78.972	
RADIUS 4	905.8	0.05675	26.92400	78.324	
RADIUS 5	1037.6	0.05593	22.25914	80.297	
RADIUS 6	1086.4	0.05514	22.57279	82.483	
CALIPER 1				163.373 147.845 173.245	25.400
CALIPER 2				161.679 147.625 173.026	
CALIPER 3				161.454 146.069 171.463	
PAD FORCE				5.380	
DC MOTOR V				1.3	

BAKER HUGHES

Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.	FILE NO:
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	
FIELD	FORT LIARD	API NO:
PROVINCE	NORTHWEST TERRITORIES	

LOCATION:

WID:1834

0-15-60DEG30'-123DEG 0'

ELEVATIONS

KB 386.7 M

DF

GL 380.5 M

30001560301230 00

DATE 24-FEB-1999

N.E.B. COPY

BAKER HUGHES

Baker Atlas

HEXAGONAL DIPLOG
GAMMA RAY LOG
STRATAGON DIP ANALYSIS

FILE NO:		COMPANY	PARAMOUNT RESOURCES LTD.
API NO:		WELL	PARAMOUNT ET AL ARROWHEAD 0-15
		FIELD	FORT LIARD
		PROVINCE	NORTHWEST TERRITORIES

300015603012300 0

LOCATION:
WID:1834

0-15-60DEG30'-123DEG 0'
SEC ____ TWP ____ RGE ____

OTHER SERVICES
MAC-GR-CAL
ZDL-CN-GR-XY
CVL
HDIL-GR

PERMANENT DATUM G.L. ELEVATION 380.5 M
LOG MEASURED FROM K.B. 6.2 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 386.7 M
DF
GL 380.5 M

DATE	24-FEB-1999		
RUN	2		
SERVICE ORDER	972508		
DEPTH DRILLER	3301.0 M		
DEPTH LOGGER	3298.2 M		
BOTTOM LOGGED INTERVAL	3282.6 M		
TOP LOGGED INTERVAL	2804.6 M		
CASING - DRILLER	177.8 MM	@2804.7 M	@
CASING LOGGER	2804.6 M		
BIT SIZE	156 MM		
TYPE OF FLUID IN HOLE	INVERT		
DENSITY / VISCOSITY	1075 G/L	54 S	
PH / FLUID LOSS	-	- C3	
SOURCE OF SAMPLE	FLOWLINE		
RM AT MEAS. TEMP.	- OHMM	@- DEGC	@
RMF AT MEAS. TEMP.	- OHMM	@- DEGC	@
RMC AT MEAS. TEMP.	- OHMM	@- DEGC	@
SOURCE OF RMF./ RMC.	-	-	
RM AT BHT	- OHMM	@- DEGC	@
TIME SINCE CIRCULATION	18.5 HRS		
MAX. RECORDED TEMP.	158.2 DEGC		
EQUIP. NO. / LOCATION	HL 6544	G.P.	
RECORDED BY	N.LESAGE		
WITNESSED BY	C.BREDIN		

FOLD HERE

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD

BIT SIZE	FROM	TO

CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO

REMARKS

RUN 1: time last circulated:23-feb-1999, 23:50

-all scales and presentations as per customer request.
-tied into atlas logs from 08-feb-1999.
-pulled only single repeat due to the extreme temperatures in the well as per customers request.
-ran in combination with mac.

crew: s.marsh,o.pinto

WINDOW LENGTH = 2.0 METERS
STEP LENGTH = 1.0 METERS

LOG ANALYST: A.M. LOGAN

RUN 2:

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	COMR	3510XA	106132	FREE
1	1	GR	1329XA	153174	FREE
1	1	ORIENT	4401XB	166790	FREE
1	1	HDIP	1020EA/1020MA	152685/152695	PAD DEVICE
1	1	KJNT	3923XA	166637	KNUCKLE JOINT
1	1	ISO	3967XA	103788	FREE
1	1	MAC	1667EA	121977	FREE
1	1	CENT	4341XA	173361	CENTRALIZER
1	1	MAC	1678MA	108711	CENTRALIZED
1	1	MAC	1678PA	172688	FREE
1	1	MAC	1678BA	154067	FREE
1	1	MAC	1678FA	167218	FREE
1	1	CENT	4341XA	168349	CENTRALIZER

STRATAGON DIP ANALYSIS

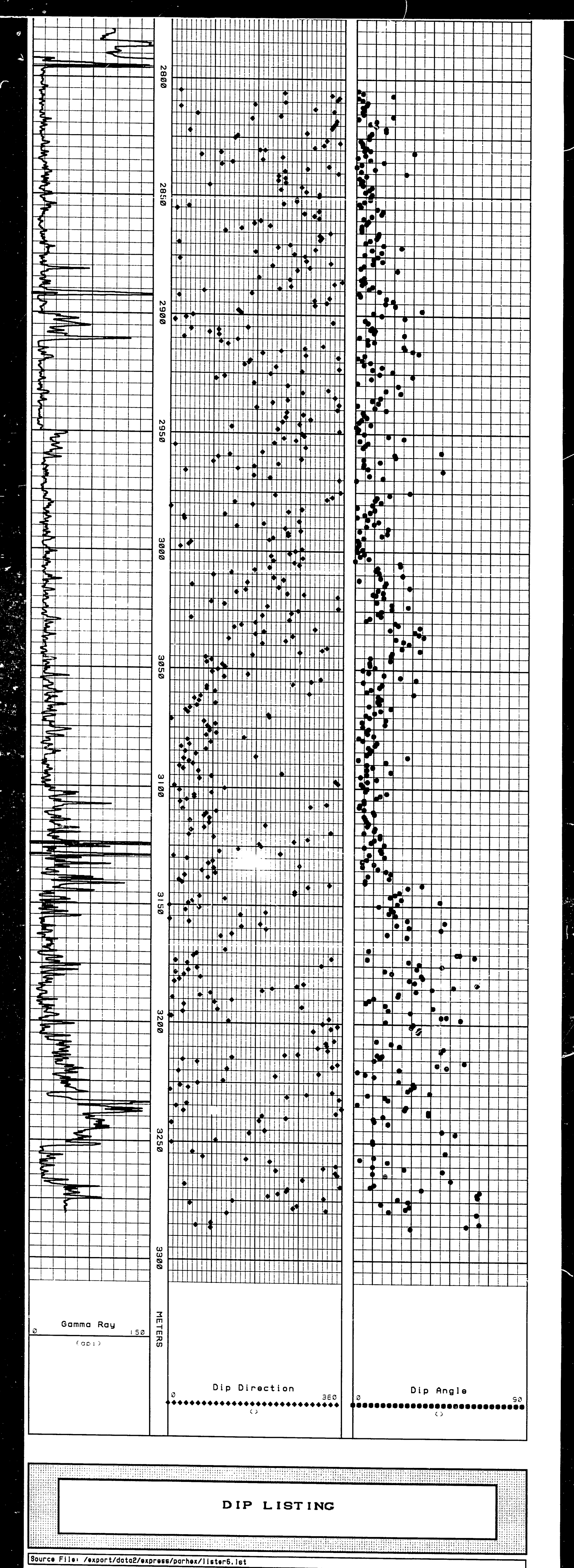
DIP AZIMUTH - DIP DIRECTION VS. DEPTH

Dip Angle 0 90

Dip Direction 0 360

METERS

Gamma Ray (api) 0 150



DIP LISTING

Source File: /export/data2/express/parhex/lister6.lst

Company: Paramount Resources Ltd.
Well: Paramount Et Al Arrowhead 0-15
Field: Fort Liard
Prov.: Northwest Territories
Log Date: 24 February 1999

	*** FORMATION DIP ***				***** BOREHOLE *****		
DEPTH	DIP	DIR	BEARING	GRADE	DEV	DAZ	BEARING
2805.00	0.9	19	N 19 E	93	1.2	222	S 42 W
2806.00	3.3	235	S 55 W	76	1.2	44	N 44 E
2807.00	18.9	333	N 27 W	84	1.2	216	S 36 W
2808.00	0.9	348	N 12 W	91	1.4	50	N 50 E
2809.00	3.0	344	N 16 W	93	1.5	196	S 16 W
2810.00	5.7	236	S 56 W	84	1.6	32	N 32 E
2811.00	5.2	173	S 7 E	91	1.6	182	S 2 W
2812.00	3.2	19	N 19 E	84	1.6	183	S 3 W
2813.00	3.9	298	N 62 W	74	1.5	21	N 21 E
2814.00	3.1	337	N 23 W	74	1.5	240	S 60 W
2815.00	3.6	54	N 54 E	65	1.4	66	N 66 E
2816.00	18.9	227	S 47 W	76	1.5	220	S 40 W
2817.00	1.0	167	S 13 E	82	1.5	70	N 70 E
2818.00	10.3	342	N 18 W	77	1.7	242	S 62 W
2819.00	7.1	341	N 19 W	78	1.8	91	S 89 E
2820.00	10.2	336	N 24 W	84	1.8	250	S 70 W
2821.00	15.2	333	N 27 W	81	1.8	52	N 52 E
2822.00	15.3	38	N 38 E	93	1.8	226	S 46 W
2823.00	7.8	281	N 79 W	88	1.7	41	N 41 E
2824.00	6.5	137	S 43 E	85	1.6	253	S 73 W
2825.00	6.5	132	S 48 E	86	1.6	23	N 23 E
2826.00	2.1	322	N 38 W	68	1.6	168	S 12 E
2827.00	3.0	349	N 11 W	76	1.7	174	S 6 E
2828.00	3.3	316	N 44 W	84	1.8	174	S 6 E
2829.00	5.2	297	N 63 W	85	1.9	171	S 9 E
2829.97	7.2	183	S 3 W	100	2.0	166	S 14 E
2830.00	4.1	194	S 14 W	68	2.0	167	S 13 E
2830.99	19.6	0	N 0 E	0	1.9	164	S 16 E
2831.00	30.0	103	S 77 E	67	1.9	163	S 17 E
2832.00	4.6	62	N 62 E	91	1.9	162	S 18 E
2833.00	0.7	231	S 51 W	85	1.8	162	S 18 E
2834.00	7.2	189	S 9 W	89	1.7	164	S 16 E
2835.00	14.2	127	S 53 E	82	1.7	169	S 11 E
2836.00	2.6	104	S 76 E	74	1.7	172	S 8 E
2837.00	0.1	326	N 34 W	83	1.8	173	S 7 E
2838.00	9.6	282	N 78 W	73	1.9	171	S 9 E
2839.00	2.4	235	S 55 W	63	1.9	170	S 10 E
2840.00	25.9	346	N 14 W	93	1.9	166	S 14 E
2841.00	5.1	222	S 42 W	84	1.9	162	S 18 E
2842.00	1.5	236	S 56 W	84	1.8	160	S 20 E
2843.00	3.2	222	S 42 W	85	1.6	162	S 18 E
2844.00	2.3	237	S 57 W	87	1.5	164	S 16 E
2845.00	3.4	79	N 79 E	86	1.5	167	S 13 E
2846.00	8.0	271	N 89 W	80	1.5	171	S 9 E
2847.00	6.6	227	S 47 W	85	1.6	171	S 9 E
2848.00	4.6	280	N 80 W	92	1.7	169	S 11 E
2849.00	8.0	307	N 53 W	94	1.7	167	S 13 E
2850.00	7.3	306	N 54 W	85	1.7	163	S 17 E
2851.00	7.2	260	S 80 W	86	1.7	160	S 20 E
2852.00	4.1	260	S 80 W	92	1.6	159	S 21 E
2853.00	1.5	233	S 53 W	93	1.5	159	S 21 E
2854.00	2.3	36	N 36 E	91	1.4	161	S 19 E
2855.00	10.8	12	N 12 E	91	1.4	166	S 14 E
2856.00	13.7	306	N 54 W	94	1.4	169	S 11 E
2857.00	13.0	276	N 84 W	94	1.5	170	S 10 E
2858.00	7.9	297	N 63 W	86	1.6	167	S 13 E
2859.00	3.7	306	N 54 W	85	1.6	164	S 16 E
2860.00	6.3	185	S 5 W	85	1.6	158	S 22 E
2861.00	5.2	172	S 8 E	85	1.5	156	S 24 E
2862.00	2.8	205	S 25 W	89	1.5	153	S 27 E
2863.00	2.7	146	S 34 E	91	1.4	154	S 26 E
2864.00	2.8	112	S 68 E	90	1.3	157	S 23 E
2865.00	11.7	330	N 30 W	92	1.3	163	S 17 E
2866.00	11.3	308	N 52 W	87	1.3	166	S 14 E
2867.00	10.5	313	N 47 W	75	1.4	166	S 14 E
2868.00	7.1	309	N 51 W	76	1.4	163	S 17 E
2869.00	4.8	16	N 16 E	92	1.5	159	S 21 E
2870.00	14.1	247	S 67 W	86	1.5	155	S 25 E
2871.00	23.5	222	S 42 W	80	1.5	151	S 29 E
2872.00	8.2	299	N 61 W	83	1.4	149	S 31 E
2873.00	13.1	175	S 5 E	64	1.3	150	S 30 E
2874.00	4.4	256	S 76 W	76	1.2	156	S 24 E
2875.00	11.2	278	N 82 W	83	1.2	159	S 21 E
2876.00	9.0	18	N 18 E	85	1.3	164	S 16 E
2877.00	13.6	280	N 80 W	82	1.4	164	S 16 E
2878.00	8.6	331	N 29 W	89	1.4	162	S 18 E
2879.00	4.0	210	S 30 W	83	1.5	159	S 21 E
2880.00	2.3	287	N 73 W	84	1.5	153	S 27 E
2881.00	21.4	262	S 82 W	70	1.5	150	S 30 E
2884.00	4.1	182	S 2 W	78	1.2	157	S 23 E
2885.00	2.6	247	S 67 W	85	1.2	162	S 18 E
2886.00	4.6	355	N 5 W	92	1.3	164	S 16 E
2887.00	3.0	339	N 21 W	87	1.4	165	S 15 E
2888.00	8.5	249	S 69 W	94	1.5	162	S 18 E
2889.00	6.7	226	S 46 W	92	1.6	158	S 22 E
2890.00	12.0	69	N 69 E	92	1.6	152	S 28 E
2891.00	1.5	167	S 13 E	93	1.5	150	S 30 E
2892.00	2.2	16	N 16 E	91	1.4	149	S 31 E
2893.00	15.6	329	N 31 W	95	1.3	151	S 29 E
2894.00	19.2	297	N 63 W	82	1.3	155	S 25 E
2895.00	15.2	323	N 37 W	78	1.3	159	S 21 E
2896.00	20.3	298	N 62 W	55	1.4	163	S 17 E
2898.00	34.1	140	S 40 E	40	1.5	160	S 20 E
2899.00	9.0	145	S 35 E	43	1.6	158	S 22 E
2900.00	13.3	46	N 46 E	75	1.5	152	S 28 E
2901.00	25.2	31	N 31 E	84	1.5	150	S 30 E
2902.00	4.7	9	N 9 E	61	1.4	150	S 30 E
2903.00	6.2	336	N 24 W	79	1.3	152	S 28 E
2904.00	36.2	335	N 25 W	0	1.2	157	S 23 E
2905.00	8.3	160	S 20 E	35	1.2	162	S 18 E
2905.[illegible]	7.5	42	N 42 E	100	1.2	165	S 15 E
2906.00	9.9	99	S 81 E	57	1.3	165	S 15 E
2907.00	9.4	80	N 80 E	76	1.4	165	S 15 E
2908.00	25.0	100	S 80 E	80	1.4	160	S 20 E
2909.00	1.7	27	N 27 E	91	1.5	157	S 23 E
2910.00	6.0	139	S 41 E	76	1.4	154	S 26 E
2911.00	9.5	104	S 76 E	64	1.4	152	S 28 E
2912.00	6.2	119	S 61 E	92	1.3	153	S 27 E
2913.00	24.7	316	N 44 W	93	1.2	156	S 24 E
2914.00	25.4	278	N 82 W	96	1.2	161	S 19 E
2915.00	29.4	229	S 49 W	91	1.2	167	S 13 E
2916.00	32.5	190	S 10 W	87	1.3	170	S 10 E
2917.00	4.5	280	N 80 W	93	1.3	171	S 9 E
2918.00	0.9	347	N 13 W	90	1.4	169	S 11 E
2919.00	3.2	165	S 15 E	70	1.4	164	S 16 E
2920.00	7.5	162	S 18 E	76	1.4	158	S 22 E
2921.00	4.2	153	S 27 E	78	1.3	157	S 23 E
2922.00	13.5	218	S 38 W	62	1.2	157	S 23 E
2923.00	8.6	349	N 11 W	64	1.2	160	S 20 E
2924.00	19.0	272	N 88 W	74	1.1	164	S 16 E
2925.00	12.3	207	S 27 W	74	1.2	168	S 12 E
2926.00	29.4	112	S 68 E	55	1.3	170	S 10 E
2927.00	8.0	94	S 86 E	50	1.4	168	S 12 E
2928.00	80.4	127	S 53 E	0	1.4	166	S 14 E
2928.88	0.9	173	S 7 E	100	1.5	161	S 19 E
2930.00	22.0	243	S 63 W	43	1.4	156	S 24 E
2931.00	78.2	357	N 3 W	0	1.3	154	S 26 E
2932.00	15.6	327	N 33 W	32	1.2	154	S 26 E
2933.00	23.3	274	N 86 W	55	1.1	158	S 22 E
2934.00	75.4	212	S 32 W	0	1.1	163	S 17 E
2935.00	12.8	341	N 19 W	77	1.1	169	S 11 E
2936.00	8.6	243	S 63 W	57	1.1	175	S 5 E
2937.00	11.7	212	S 32 W	63	1.2	173	S 7 E
2938.00	0.9	349	N 11 W	74	1.3	170	S 10 E
2939.00	9.9	178	S 2 E	69	1.3	165	S 15 E
2940.00	15.8	346	N 14 W	65	1.2	160	S 20 E
2941.00	3.8	241	S 61 W	90	1.2	158	S 22 E
2942.00	4.4	275	N 85 W	93	1.1	159	S 21 E
2943.00	5.8	239	S 59 W	85	1.0	161	S 19 E
2944.00	3.0	290	N 70 W	93	0.9	171	S 9 E
2945.00	1.7	232	S 52 W	95	0.9	177	S 3 E
2946.00	7.8	268	S 88 W	83	1.0	179	S 1 E
2947.00	0.3	127	S 53 E	84	1.1	177	S 3 E
2948.00	1.5	222	S 42 W	91	1.1	172	S 8 E
2949.00	0.9	350	N 10 W	91	1.2	171	S 9 E
2950.00	4.5	272	N 88 W	85	1.1	171	S 9 E
2951.00	17.0	277	N 83 W	76	1.0	165	S 15 E
2952.00	25.0	235	S 55 W	69	0.9	166	S 14 E
2953.00	2.2	260	S 80 W	75	0.8	167	S 13 E
2954.00	6.4	215	S 35 W	71	0.7	177	S 3 E
2955.00	5.0	10	N 10 E	68	0.7	183	S 3 W
2956.00	3.8	280	N 80 W	45	0.8	193	S 13 W
2958.00	44.4	191	S 11 W	64	1.0	187	S 7 W
2959.00	20.2	123	S 57 E	85	1.0	181	S 1 W
2960.00	20.8	99	S 81 E	85	1.0	176	S 4 E
2961.00	4.2	271	N 89 W	92	0.9	171	S 9 E
2962.00	12.7	89	N 89 E	91	0.8	168	S 12 E
2963.00	4.3	224	S 44 W	68	0.7	171	S 9 E
2964.00	4.0	173	S 7 E	83	0.7	180	S 0 E
2965.00	6.4	139	S 41 E	92	0.7	191	S 11 W
2966.00	45.2	31	N 31 E	82	0.8	198	S 18 W
2967.00	50.0	15	N 15 E	0	0.9	195	S 15 W
2968.00	7.2	173	S 7 E	73	0.9	190	S 10 W
2969.00	14.2	206	S 26 W	94	0.9	188	S 8 W
2970.00	0.4	350	N 10 W	78	0.9	180	S 0 E
2975.00	28.2	353	N 7 W	73	0.7	201	S 21 W
2976.00	17.7	218	S 38 W	73	0.6	204	S 24 W
2977.00	11.2	336	N 24 W	81	0.9	201	S 21 W
2978.00	10.2	325	N 35 W	79	0.9	196	S 16 W
2979.00	13.3	134	S 46 E	78	0.9	192	S 12 W
2980.00	8.8	171	S 9 E	77	0.9	185	S 5 W
2981.00	0.9	1	N 1 E	55	0.8	182	S 2 W
2982.00	10.0	273	N 87 W	93	0.7	182	S 2 W
2983.00	7.6	245	S 65 W	94	0.6	190	S 10 W
2984.00	4.8	113	S 67 E	93	0.6	198	S 18 W
2985.00	0.9	28	N 28 E	73	0.7	208	S 28 W
2986.00	6.4	29	N 29 E	71	0.8	213	S 33 W
2987.00	12.0	267	S 87 W	74	0.9	207	S 27 W
2988.00	9.7	194	S 14 W	90	0.9	203	S 23 W
2989.00	5.7	138	S 42 E	87	0.9	195	S 15 W
2990.00	17.0	238	S 58 W	92	0.8	191	S 11 W
2991.00	2.2	270	N 90 W	91	0.7	189	S 9 W
2992.00	16.5	244	S 64 W	76	0.6	193	S 13 W
2993.00	13.7	245	S 65 W	81	0.6	201	S 21 W
2994.00	4.3	213	S 33 W	93	0.6	215	S 35 W
2995.00	1.1	206	S 26 W	91	0.6	218	S 38 W
2996.00	1.8	43	N 43 E	96	0.8	215	S 35 W
2997.00	1.8	38	N 38 E	96	0.8	212	S 32 W
2998.00	0.9	21	N 21 E	92	0.8	203	S 23 W
2999.00	3.8	273	N 87 W	87	0.8	196	S 16 W
3000.00	1.3	260	S 80 W	76	0.7	191	S 11 W
3001.00	4.7	248	S 68 W	85	0.6	189	S 9 W
3002.00	2.5	209	S 29 W	86	0.5	193	S 13 W
3003.00	7.1	275	N 85 W	95	0.5	203	S 23 W
3004.00	0.0	214	S 34 W	74	0.5	216	S 36 W
3005.00	23.2	257	S 77 W	93	0.6	221	S 41 W
3006.00	23.4	268	S 88 W	88	0.7	219	S 39 W
3007.00	11.6	206	S 26 W	94	0.7	217	S 37 W
3008.00	10.7	175	S 5 E	92	0.8	211	S 31 W
3009.00	12.5	127	S 53 E	93	0.7	203	S 23 W
3010.00	24.6	90	N 90 E	91	0.7	196	S 16 W
3011.00	13.1	215	S 35 W	74	0.6	192	S 12 W
3012.00	2.0	236	S 56 W	76	0.5	198	S 18 W
3013.00	16.0	160	S 20 E	92	0.5	209	S 29 W
3014.00	15.3	45	N 45 E	74	0.5	216	S 36 W
3015.00	28.2	225	S 45 W	92	0.6	226	S 46 W
3016.00	11.9	156	S 24 E	82	0.8	225	S 45 W
3017.00	14.5	137	S 43 E	73	0.9	220	S 40 W
3017.65	9.2	243	S 63 W	100	0.9	217	S 37 W
3018.00	10.8	277	N 83 W	62	0.9	213	S 33 W
3019.00	14.8	347	N 13 W	74	0.9	209	S 29 W
3020.07	28.5	35	N 35 E	0	0.8	205	S 25 W
3020.10	9.7	51	N 51 E	0	0.8	204	S 24 W
3021.00	11.2	85	N 85 E	81	0.8	207	S 27 W
3022.00	19.0	113	S 67 E	89	0.8	211	S 31 W
3023.00	27.5	202	S 22 W	88	0.7	219	S 39 W
3024.00	19.0	349	N 11 W	93	0.7	224	S 44 W
3025.00	13.6	266	S 86 W	91	0.9	226	S 46 W
3026.00	11.8	252	S 72 W	84	1.0	222	S 42 W
3027.00	13.4	191	S 11 W	85	1.1	221	S 41 W
3028.00	7.6	43	N 43 E	85	1.2	216	S 36 W
3029.00	5.8	248	S 68 W	84	1.2	209	S 29 W
3030.00	20.8	177	S 3 E	66	1.1	209	S 29 W
3031.00	22.4	148	S 32 E	61	1.1	209	S 29 W
3032.00	33.6	133	S 47 E	72	1.0	213	S 33 W
3033.00	18.2	301	N 59 W	44	0.9	218	S 38 W
3034.00	31.0	195	S 15 W	86	1.0	222	S 42 W
3035.00	33.1	177	S 3 E	86	1.1	226	S 46 W
3036.00	35.6	254	S 74 W	54	1.2	223	S 43 W
3037.00	21.2	122	S 58 E	66	1.3	220	S 40 W
3038.00	25.1	240	S 60 W	84	1.3	216	S 36 W
3039.00	28.0	191	S 11 W	91	1.3	209	S 29 W
3041.00	24.3	326	N 34 W	62	1.1	206	S 26 W
3042.00	33.7	316	N 44 W	57	1.1	207	S 27 W
3043.00	19.3	270	N 90 W	63	1.0	211	S 31 W
3044.00	18.7	171	S 9 E	61	1.1	218	S 38 W
3045.00	8.0	74	N 74 E	57	1.1	223	S 43 W
3046.00	18.4	86	N 86 E	70	1.2	223	S 43 W
3047.00	7.6	76	N 76 E	85	1.3	220	S 40 W
3048.00	7.8	109	S 71 E	85	1.4	217	S 37 W
3049.00	10.4	114	S 66 E	87	1.4	211	S 31 W
3050.00	4.2	99	S 81 E	92	1.3	208	S 28 W
3051.00	7.2	88	N 88 E	91	1.2	207	S 27 W
3052.00	15.1	162	S 18 E	76	1.1	207	S 27 W
3053.00	23.6	113	S 67 E	58	1.2	211	S 31 W
3054.00	31.7	313	N 47 W	83	1.2	216	S 36 W
3055.00	4.4	294	N 66 W	77	1.2	218	S 38 W
3056.00	14.1	255	S 75 W	83	1.4	220	S 40 W
3057.00	12.8	77	N 77 E	85	1.5	218	S 38 W
3058.00	8.4	76	N 76 E	89	1.6	215	S 35 W
3059.00	6.2	94	S 86 E	79	1.7	210	S 30 W
3060.00	30.5	290	N 70 W	70	1.6	206	S 26 W
3061.00	12.1	64	N 64 E	80	1.6	204	S 24 W
3062.00	13.7	51	N 51 E	93	1.5	203	S 23 W
3063.00	11.8	60	N 60 E	93	1.5	206	S 26 W
3064.00	12.7	95	S 85 E	91	1.5	211	S 31 W
3065.00	7.4	56	N 56 E	91	1.5	216	S 36 W
3066.00	18.7	42	N 42 E	79	1.6	217	S 37 W
3067.00	13.4	33	N 33 E	92	1.7	216	S 36 W
3068.00	10.3	37	N 37 E	92	1.8	212	S 32 W
3069.00	5.8	204	S 24 W	80	1.8	209	S 29 W
3070.00	7.7	207	S 27 W	90	1.8	204	S 24 W
3071.00	16.1	4	N 4 E	93	1.6	203	S 23 W
3072.00	3.7	71	N 71 E	94	1.6	203	S 23 W
3073.00	15.7	95	S 85 E	65	1.5	205	S 25 W
3074.00	4.1	78	N 78 E	95	1.5	209	S 29 W
3075.00	7.2	83	N 83 E	91	1.5	211	S 31 W
3076.00	6.3	83	N 83 E	85	1.6	214	S 34 W
3077.00	6.6	97	S 83 E	86	1.7	214	S 34 W
3078.00	9.8	76	N 76 E	91	1.7	210	S 30 W
3079.00	2.1	154	S 26 E	90	1.8	206	S 26 W
3080.00	4.2	37	N 37 E	88	1.7	202	S 22 W
3081.00	11.5	85	N 85 E	91	1.7	199	S 19 W
3082.00	10.5	41	N 41 E	93	1.6	198	S 18 W
3083.00	7.1	24	N 24 E	72	1.5	200	S 20 W
3084.00	8.5	75	N 75 E	91	1.4	202	S 22 W
3085.00	7.8	32	N 32 E	82	1.5	205	S 25 W
3086.00	6.2	54	N 54 E	73	1.5	210	S 30 W
3087.00	27.4	179	S 1 E	60	1.6	211	S 31 W
3088.00	1.9	29	N 29 E	75	1.6	210	S 30 W
3089.00	16.2	40	N 40 E	83	1.7	205	S 25 W
3090.00	6.3	48	N 48 E	91	1.7	202	S 22 W
3091.00	9.3	20	N 20 E	94	1.6	198	S 18 W
3092.00	6.3	28	N 28 E	82	1.5	195	S 15 W
3093.00	18.7	59	N 59 E	82	1.5	196	S 16 W
3094.00	6.2	233	S 53 W	74	1.4	199	S 19 W
3095.00	3.0	87	N 87 E	78	1.4	203	S 23 W
3096.00	11.4	62	N 62 E	85	1.4	207	S 27 W
3097.00	6.6	344	N 16 W	93	1.5	208	S 28 W
3098.00	3.4	349	N 11 W	92	1.6	207	S 27 W
3099.00	4.4	10	N 10 E	92	1.6	204	S 24 W
3100.00	6.4	114	[illegible]	[illegible]	[illegible]	199	S 19 W
3101.00	5.6	20	N 20 E	93	1.6	195	S 15 W
3102.00	16.6	87	N 87 E	95	1.5	194	S 14 W
3103.00	13.3	51	N 51 E	74	1.4	194	S 14 W
3104.00	11.3	51	N 51 E	78	1.3	194	S 14 W
3105.00	4.9	35	N 35 E	92	1.3	199	S 19 W
3106.00	5.0	22	N 22 E	93	1.3	203	S 23 W
3107.00	2.8	326	N 34 W	93	1.4	205	S 25 W
3108.00	2.4	293	N 67 W	93	1.4	204	S 24 W
3109.00	4.9	27	N 27 E	92	1.5	202	S 22 W
3110.00	9.7	97	S 83 E	90	1.5	196	S 16 W
3111.00	10.3	76	N 76 E	90	1.5	191	S 11 W
3112.00	4.9	71	N 71 E	92	1.5	189	S 9 W
3113.00	5.6	83	N 83 E	95	1.3	187	S 7 W
3114.00	6.2	42	N 42 E	95	1.3	188	S 8 W
3115.00	7.3	82	N 82 E	66	1.2	194	S 14 W
3116.00	6.6	199	S 19 W	74	1.2	198	S 18 W
3117.00	10.7	72	N 72 E	68	1.2	200	S 20 W
3118.00	10.2	45	N 45 E	93	1.3	201	S 21 W
3119.00	4.9	335	N 25 W	95	1.3	199	S 19 W
3120.00	13.3	40	N 40 E	98	1.4	193	S 13 W
3121.00	13.3	92	S 88 E	93	1.4	187	S 7 W
3122.00	10.3	287	N 73 W	92	1.3	183	S 3 W
3123.00	8.6	258	S 78 W	92	1.2	180	S 0 E
3124.00	15.4	186	S 6 W	93	1.1	181	S 1 W
3125.00	5.1	190	S 10 W	84	1.1	182	S 2 W
3126.00	13.5	143	S 37 E	83	1.0	190	S 10 W
3127.00	14.1	104	S 76 E	79	1.0	195	S 15 W
3128.00	7.7	230	S 50 W	92	1.1	196	S 16 W
3129.00	15.6	9	N 9 E	80	1.2	194	S 14 W
3130.00	6.4	37	N 37 E	74	1.3	191	S 11 W
3131.00	4.0	90	N 90 E	83	1.3	185	S 5 W
3132.00	10.1	81	N 81 E	89	1.2	177	S 3 E
3133.00	4.2	270	N 90 W	81	1.1	173	S 7 E
3134.00	12.2	92	S 88 E	58	1.0	169	S 11 E
3135.00	16.4	68	N 68 E	77	0.9	172	S 8 E
3136.00	18.8	96	S 84 E	86	0.9	176	S 4 E
3137.00	7.0	31	N 31 E	79	0.8	184	S 4 W
3138.00	18.0	80	N 80 E	85	0.9	187	S 7 W
3139.00	5.6	20	N 20 E	78	1.0	189	S 9 W
3140.00	5.5	26	N 26 E	82	1.1	186	S 6 W
3141.00	35.0	332	N 28 W	76	1.1	182	S 2 W
3142.00	27.7	288	N 72 W	69	1.1	176	S 4 E
3144.00	23.4	260	S 80 W	47	1.0	165	S 15 E
3145.00	21.1	260	S 80 W	63	0.9	167	S 13 E
3146.00	18.6	62	N 62 E	41	0.8	169	S 11 E
3147.00	24.3	115	S 65 E	72	0.8	176	S 4 E
3148.00	44.4	48	N 48 E	59	0.8	181	S 1 W
3149.00	22.3	[illegible]	[illegible]	[illegible]	[illegible]	185	[illegible]
3150.00	12.7	1	N 1 E	85	1.0	183	S 3 W
3151.00	19.0	62	N 62 E	72	1.0	177	S 3 E
3152.00	20.2	34	N 34 E	70	1.1	171	S 9 E
3153.00	17.9	200	S 20 W	78	1.1	166	S 14 E
3154.00	21.4	148	S 32 E	74	1.1	160	S 20 E
3155.00	24.0	26	N 26 E	0	1.0	160	S 20 E
3156.00	27.5	1	N 1 E	52	0.9	160	S 20 E
3157.00	46.8	41	N 41 E	43	0.8	166	S 14 E
3158.00	22.0	189	S 9 W	43	0.8	173	S 7 E
3159.00	28.4	150	S 30 E	84	0.9	174	S 6 E
3160.00	45.0	201	S 21 W	86	1.0	177	S 3 E
3161.00	41.0	197	S 17 W	0	1.0	172	S 8 E
3161.15	23.0	247	S 67 W	0	1.1	172	S 8 E
3162.00	17.1	130	S 50 E	58	1.1	168	S 12 E
3163.00	27.3	107	S 73 E	43	1.1	162	S 18 E
3166.00	84.3	210	S 30 W	0	0.9	154	S 26 E
3167.00	82.9	172	S 8 E	0	0.8	157	S 23 E
3168.51	7.5	116	S 64 E	100	0.7	171	S 9 E
3169.00	65.8	125	S 55 E	0	0.7	171	S 9 E
3170.00	53.2	57	N 57 E	51	0.8	176	S 4 E
3170.01	54.6	56	N 56 E	100	0.8	176	S 4 E
3171.00	62.3	50	N 50 E	76	0.9	176	S 4 E
3172.00	68.2	27	N 27 E	0	0.9	172	S 8 E
3172.04	6.8	337	N 23 W	100	0.9	172	S 8 E
3173.00	28.3	13	N 13 E	33	1.0	166	S 14 E
3174.00	33.7	38	N 38 E	69	1.0	163	S 17 E
3175.00	45.5	316	N 44 W	57	1.0	156	S 24 E
3176.00	32.5	58	N 58 E	46	0.9	155	S 25 E
3177.00	15.9	40	N 40 E	83	0.8	152	S 28 E
3178.00	19.5	14	N 14 E	76	0.8	154	S 26 E
3179.00	34.8	31	N 31 E	56	0.7	161	S 19 E
3180.00	35.6	65	N 65 E	62	0.7	168	S 12 E
3181.00	28.6	21	N 21 E	77	0.7	177	S 3 E
3182.00	31.4	11	N 11 E	66	0.9	179	S 1 E
3183.00	63.5	279	N 81 W	82	0.9	173	S 7 E
3184.00	51.5	266	S 86 W	67	1.0	169	S 11 E
3185.00	40.4	214	S 34 W	91	1.0	165	S 15 E
3186.00	32.1	193	S 13 W	89	1.0	160	S 20 E
3187.00	23.1	86	N 86 E	89	0.9	157	S 23 E
3188.00	22.7	64	N 64 E	79	0.8	153	S 27 E
3189.00	10.2	7	N 7 E	86	0.7	156	S 24 E
3190.00	7.8	130	S 50 E	81	0.7	167	S 13 E
3191.00	6.1	94	S 86 E	36	0.7	174	S 6 E
3192.00	16.2	31	N 31 E	58	0.8	181	S 1 W
3193.00	40.9	275	N 85 W	45	0.8	183	S 3 W
3194.00	17.7	100	S 80 E	45	0.9	182	S 2 W
3195.00	29.2	28	N 28 E	44	1.0	177	S 3 E
3196.00	48.0	31	N 31 E	0	1.0	173	S 7 E
3196.83	47.8	2	N 2 E	100	1.0	170	S 10 E
3197.00	45.1	5	N 5 E	48	1.0	170	S 10 E
3198.00	55.1	332	N 28 W	45	1.0	168	S 12 E
3199.00	16.4	123	S 57 E	38	0.9	171	S 9 E
3200.00	30.7	319	N 41 W	74	0.9	173	S 7 E
3201.00	29.7	350	N 10 W	79	0.9	185	S 5 W
3202.00	33.9	336	N 24 W	73	0.9	193	S 13 W
3203.00	33.2	300	N 60 W	83	1.0	198	S 18 W
3204.00	46.4	353	N 7 W	0	1.1	200	S 20 W
3206.00	54.5	94	S 86 E	0	1.4	195	S 15 W
3207.00	11.7	343	N 17 W	33	1.4	192	S 12 W
3208.00	19.3	326	N 34 W	53	1.4	190	S 10 W
3209.00	23.6	328	N 32 W	34	1.3	190	S 10 W
3210.00	46.3	309	N 51 W	72	1.3	188	S 8 W
3211.00	45.0	330	N 30 W	86	1.2	190	S 10 W
3212.00	80.7	357	N 3 W	0	1.1	195	S 15 W
3212.72	12.1	268	S 88 W	100	1.2	198	S 18 W
3213.00	14.7	240	S 60 W	49	1.2	200	S 20 W
3214.00	13.5	131	S 49 E	60	1.2	203	S 23 W
3215.00	10.5	29	N 29 E	51	1.2	205	S 25 W
3216.00	57.2	59	N 59 E	79	1.4	205	S 25 W
3217.00	43.1	350	N 10 W	92	1.4	205	S 25 W
3218.00	48.0	339	N 21 W	56	1.5	203	S 23 W
3219.00	23.5	121	S 59 E	66	1.6	200	S 20 W
3220.00	1.9	20	N 20 E	68	1.6	200	S 20 W
3221.00	5.9	311	N 49 W	68	1.6	200	S 20 W
3222.00	10.5	221	S 41 W	77	1.5	202	S 22 W
3224.00	23.3	113	S 67 E	58	1.4	213	S 33 W
3225.00	30.7	60	N 60 E	75	1.5	217	S 37 W
3226.00	31.4	23	N 23 E	45	1.6	220	S 40 W
3227.00	29.6	40	N 40 E	67	1.7	219	S 39 W
3228.00	27.9	3	N 3 E	84	1.8	219	S 39 W
3229.00	39.3	339	N 21 W	53	1.8	217	S 37 W
3230.00	7.2	286	N 74 W	50	1.8	214	S 34 W
3231.00	16.2	246	S 66 W	42	1.8	212	S 32 W
3232.00	17.8	354	N 6 W	41	1.8	213	S 33 W
3234.00	1.9	37	N 37 E	46	1.7	218	S 38 W
3235.00	27.1	15	N 15 E	45	1.7	222	S 42 W
3236.00	26.4	358	N 2 W	74	1.8	228	S 48 W
3237.00	38.7	31	N 31 E	79	1.8	230	S 50 W
3238.00	38.7	347	N 13 W	64	2.0	232	S 52 W
3239.00	15.2	194	S 14 W	64	2.0	233	S 53 W
3240.00	10.2	243	S 63 W	73	2.1	233	S 53 W
3241.00	10.7	188	S 8 W	53	2.1	232	S 52 W
3242.00	17.8	6	N 6 E	60	2.1	231	S 51 W
3244.00	57.1	150	S 30 E	0	2.0	233	S 53 W
3245.00	45.7	199	S 19 W	0	2.0	236	S 56 W
3246.00	52.5	167	S 13 E	77	[illegible]	239	S 59 W
3249.00	9.8	98	S 82 E	62	2.2	251	S 71 W
3250.00	18.0	6	N 6 E	73	2.4	251	S 71 W
3251.00	60.3	12	N 12 E	0	2.4	250	S 70 W
3252.00	73.0	357	N 3 W	0	2.5	248	S 68 W
3252.58	32.4	0	N 0 E	0	2.5	246	S 66 W
3253.00	57.6	266	S 86 W	0	2.5	246	S 66 W
3254.00	47.4	49	N 49 E	39	2.5	246	S 66 W
3255.00	61.5	267	S 87 W	0	2.4	250	S 70 W
3256.00	10.4	71	N 71 E	65	2.5	253	S 73 W
3257.00	3.2	160	S 20 E	47	2.5	257	S 77 W
3258.00	17.5	210	S 30 W	49	2.5	261	S 81 W
3260.00	9.8	347	N 13 W	52	2.7	267	S 87 W
3261.00	26.1	321	N 39 W	42	2.9	268	S 88 W
3262.00	46.0	222	S 42 W	38	3.0	266	S 86 W
3263.00	9.8	346	N 14 W	50	3.0	267	S 87 W
3264.00	16.4	350	N 10 W	38	3.1	265	S 85 W
3266.00	53.2	278	N 82 W	41	3.2	265	S 85 W
3267.00	62.2	258	S 78 W	0	3.2	267	S 87 W
3268.00	10.5	33	N 33 E	44	3.2	267	S 87 W
3269.00	8.6	356	N 4 W	45	3.2	268	S 88 W
3270.00	35.1	246	S 66 W	33	3.2	270	N 90 W
3271.00	65.1	244	S 64 W	43	3.2	271	N 89 W
3272.00	63.8	227	S 47 W	47	3.3	273	N 87 W
3273.00	64.1	206	S 26 W	49	3.4	273	N 87 W
3274.00	22.8	322	N 38 W	53	3.6	273	N 87 W
3275.00	28.2	133	S 47 E	40	3.6	272	N 88 W
3276.00	14.1	44	N 44 E	49	3.6	271	N 89 W
3277.00	28.8	266	S 86 W	47	3.7	269	S 89 W
3278.00	26.9	258	S 78 W	38	3.7	268	S 88 W
3279.00	18.2	326	N 34 W	46	3.6	267	S 87 W
3280.00	63.6	120	S 60 E	32	3.5	268	S 88 W
3281.00	64.3	341	N 19 W	0	3.5	269	S 89 W
3282.00	67.1	319	N 41 W	0	3.6	270	N 90 W
3283.00	63.5	288	N 72 W	0	3.7	271	N 89 W
3284.00	64.9	88	N 88 E	44	3.7	272	N 88 W
3285.00	58.3	57	N 57 E	55	3.8	273	N 87 W
3286.00	29.4	87	N 87 E	76	3.9	272	N 88 W

BAKER HUGHES
Baker Atlas

COMPANY	PARAMOUNT RESOURCES LTD.	FILE NO:	
WELL	PARAMOUNT ET AL ARROWHEAD 0-15	API NO:	
FIELD	FORT LIARD		
PROVINCE	NORTHWEST TERRITORIES		
LOCATION: WID:1834 0-15-60DEG30'-123DEG 0'		ELEVATIONS KB 386.7 M DF GL 380.5 M	300015603012300
SEC ____ TWP ____ RGE ____		DATE 24-FEB-1999	

MISCELLANEOUS

N... COPY

BAKER HUGHES
Baker Atlas

CEMENT VOLUME LOG FOR 156 MM BOREHOLE AND 114.3 MM CASING

FILE NO:		COMPANY	PARAMOUNT RESOURCES LTD.
		WELL	PARAMOUNT ET AL ARROWHEAD Ø-15
API NO:		FIELD	FORT LIARD
		PROVINCE	NORTHWEST TERRITORIES

Ver 3.19

3000156030123000

LOCATION:
WID:1834
Ø-15-60DEG30'-123DEG Ø'

OTHER SERVICES
MAC-GR-CAL
ZDL-CN-GR-XY
HDIP-GR
HDIL-GR

PERMANENT DATUM G.L. ELEVATION 380.5 M
LOG MEASURED FROM K.B. 6.2 M ABOVE P.D.
DRILL. MEAS. FROM KELLY BUSHING

ELEVATIONS
KB 386.7 M
DF
GL 380.5 M

DATE		24-FEB-1999			
RUN	TRIP	2	1		
SERVICE ORDER		972508			
DEPTH DRILLER		3301.0 M			
DEPTH LOGGER		3299.3 M			
BOTTOM LOGGED INTERVAL		3289.3 M			
TOP LOGGED INTERVAL		2804.6 M			
CASING-DRILLER		177.8 MM	@ 2804.7 M	@	
CASING LOGGER		2804.6 M			
BIT SIZE		156 MM			
TYPE OF FLUID IN HOLE		INVERT			
DENSITY	VISCOSITY	1075 G/C3	54 S		
PH	FLUIDLOSS	-	-		
SOURCE OF SAMPLE		FLOWLINE			
RM AT MEAS. TEMP.		-	@ -	@	
RMF AT MEAS. TEMP.		-	@ -	@	
RMC AT MEAS. TEMP.		-	@ -	@	
SOURCE OF RMF	RMC	-	-		
RM AT BHT		-	@ -	@	
TIME SINCE CIRCULATION		8.25 HRS			
MAX. RECORDED TEMP.		147.2 DEGC			
EQUIP. NO.	LOCATION	HL 6544	G.P.		
RECORDED BY		N.LESAGE			
WITNESSED BY		C.BREDIN			

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1 : time last circulated:23-feb-1999, 23:50

-all scales and presentations as per customer request.
-tied into atlas logs from 08-feb-1999.
-calipers taken from hdil-zdl-cn run.
-right ticks=cement volume.
-left ticks=borehole volume.
-small ticks=0.1 m3

crew: s.marsh,o.pinto

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	SWIVEL	3944XB	153823	FREE
1	1	CAL	4209XA	044639	CALIPER
1	1	TTRM	3981XA	180401	FREE
1	1	COMR	3510XA	168181	FREE
1	1	GR	1329XA	153174	FREE
1	1	KNJT	3923XA	167198	KNUCKLE JOINT
1	1	CN	2446XA	118263	FREE
1	1	ZDL	2228EA/2228MA	177075/172644	PAD DEVICE
1	1	KNJT	3923XA	166792	KNUCKLE JOINT
1	1	HDIL	1515EA/1515MA	177896/178647	1.5 INCH STANDOFF

CEMENT VOLUME LOG

Release:3.1 Nov 18, 1998 Fileview 2.27 Pcrplt /main/46 Cplot /08/12) Pdf_Cpp /main/13 Wed Feb 24 09:31:07 1999

PARAMETER AND FILTER SUMMARY REPORT

FILE: /datla/pass/paramount0-15/d777H07.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2741.223 m BOTTOM DEPTH: 3304.204 m

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
X AXIS CALIPER	FILTER ()	light (2)			
GR	FILTER ()	medium (1)		..	..
Y AXIS CALIPER	FILTER ()	light (2)		..	..
TENSION	FILTER ()	medium (1)		..	..

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (m) TOP	BOTTOM
CASING - BOREHOLE & CEMENT VOLUME	CASING O.D.	114.300	mm		
X-Y CALIPER	X-Y Caliper	Average		..	..
BIT SIZE	BIT SIZE	156.000	mm	..	..

CURVE MEASURE POINT OFFSET

CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)	CURVE	OFFSET (m)
bit	0.00	calx	10.06	gr	18.21		
cal	10.06	caly	24.38	ten	0.00		

Presentation : /datla/pass/paramount0-15/2cvl.pdf
Data File : F1 : cpu1:/datla/pass/paramount0-15/d777H07.xtf
Company : paramount resources ltd.
Well : paramount et al arrowhead 0-15
Field : fort liard
Interval : 2717.14 - 3304.11 Meters
Oct : d777Hb

BAKER HUGHES Baker Atlas
COMPANY PARAMOUNT RESOURCES LTD.
WELL PARAMOUNT ET AL ARROWHEAD Ø-15
FIELD FORT LIARD
PROVINCE NORTHWEST TERRITORIES
FILE NO:
API NO:
LOCATION:
WID:1834
Ø-15-60DEG30'-123DEG Ø'
ELEVATIONS
KB 386.7 M
DF
GL 380.5 M
3000156030123000
DATE 24-FEB-1999

N.E.B. COPY

CS400

COMPUTALOG

CEMENT QUALITY PLUG LOG

FILE NO.	
LSD.	
SEC.	
TWP.	
RGE.	
W.	

COMPANY PARAMOUNT RESOURCES LIMITED

WELL PARAMOUNT ET AL ARROWHEAD O-15

O-15 60 DEG 30, N 123 DEG 0' W

FIELD FORT LIARD

PROVINCE NORTHWEST TERRITORIES

LOCATION
LSD ____ Sec. ____ Twp. ____ Rge. ____

Other Services: NONE

Perm. Datum Ground Level Elev. 380.5 | Elev. K.B. 385.7
Log meas. from 5.2 m above Perm.Datum | D.F. ____
Drilling measured from KELLY BUSHING | G.L. 380.5

Date	03MAR89	03MAR89	03MAR89		
Run #	---	---	ONE		
Plug #	ONE(A)	ONE(B)	ONE(C)		
Btm. Log Int.	3301	3004	2954		
Top Log Int. - Driller	3151	2954	2785		
Top Log Int. - Logger	---	---	DID NOT		
Plug Top	3151	2782	PUMP		
Cement - Vol.	3.2	3.2	PLUG		
Date	1976	1976	1976		
Casing Size	Surface - 219.10	Set @		Hole Size - 158.0mm	
	Intermediate - 177.8	Set @ 2804.7			

Unit # 405 District FORT ST. JOHN S.O. # 68043

Recorded By T. GUTTAU
Witnessed By W. CALIHOO

Panel # CS400177AA I # GRCT126/FD01 Source # E-329

Equipment Type GRICCL\DENS BHT 155.3 Deg. C

Cementing Co. NOWSCO

Run #	ONE(A)	ONE(B)
Date	03MAR89	03MAR89
Time Job Began	---	---
Casing Time - Start	1136	1229
- Finish	1147	1250
Plug Bottom - Driller	2954	2785
Plug Top - Driller	3151	2955
Excess Meters	30	31
Displ. Volume	2.1	2.0
Spill Pipe Vol.	3250	2955
Plug Lost ? - Logger	---	NO LOG
Cement Class	GENERAL-LOW	GENERAL-LOW
Additives	---	---
Density Kg/cu.m	1878	1878
Slurry Kg/cu.m	1878	1878
Excess Volume cu.m	0.8	0.8
Yield	1.0	1.0
Total Volume cu.m	3.2	3.2
Top of Cement	3.4	3.4
Mud Type	0.4BENT	0.4BENT
Density Kg/cu.m	950	950
Viscosity Sec.	---	---
pH Before Cu.m	---	---
Mud Behind Cu.m	---	---
Total Displacement cu.m	3133	2938
Shoe Joint Top	3125	2930
Shoe Joint Bot.	3133	2938

LOG CORRELATED TO BAKER HUGHES CEMENT VOLUME LOG FOR 158mm BOREHOLE AND 114.3mm CASING.
AVERAGE DRILLPIPE LENGTH: 9.14
AVERAGE DRILLPIPE DISPLACEMENT: 0.0026 METERS PER
ON PLUG ONE(A) CEMENT WAS SAND AND DRILL PIPE WAS STUCK IN HOLE AND TO
SET METHANEPROD TO COME OUT AND BACK OFF PIPE
AFTER ONE(A) PUMP PRESSURE BUILT UP
BACKED OFF PIPE AT 2156m
PLUG ONE(B) WAS SET UP WHEN PLUG WAS LOGGED COULD NOT SET INTO PLUG
PUMP PRESSURE BUILT UP AND PARAMOUNT DECIDED TO BACK OFF PIPE
PIPE WAS STUCK IN HOLE GET METHANEPROD TO BACK OFF PIPE AGAIN.
ARM BRIDGEPLUG AND SHOT BALLED CEMENT ONCE BIG CREW LAID DOWN DRILLPIPE
ARM BRIDGEPLUG AT 2800m
8m CEMENT ON TOP OF PLUG

SERVICE ORDER: 68043
REG. PRECISION #503

REMARKS:

BRIDGE PLUG WOULD NOT GO BELOW 2800 METERS.

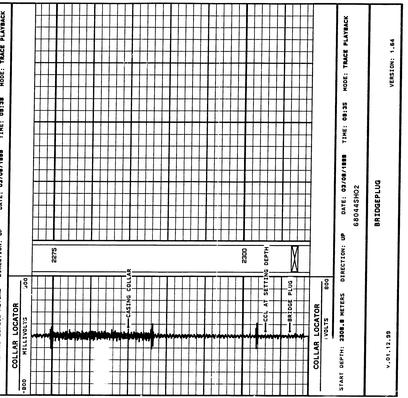
VERSION: 1.64

V.01.12.89

BRIDGEPLUG

68043SPG2

FINISH DEPTH: 2772.5 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 08:38 MODE: TRACE PLAYBACK



START DEPTH: 2800.4 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 08:30 MODE: TRACE PLAYBACK

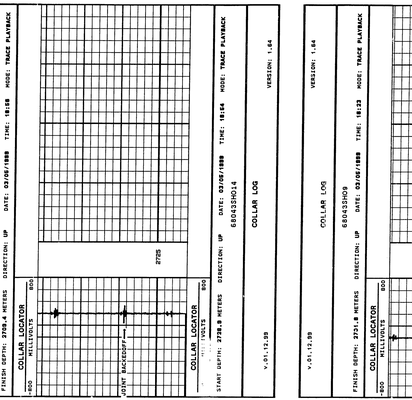
VERSION: 1.64

V.01.12.89

COLLAR LOG

68043SPG14

FINISH DEPTH: 2780.4 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 18:58 MODE: TRACE PLAYBACK



START DEPTH: 2780.4 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 18:54 MODE: TRACE PLAYBACK

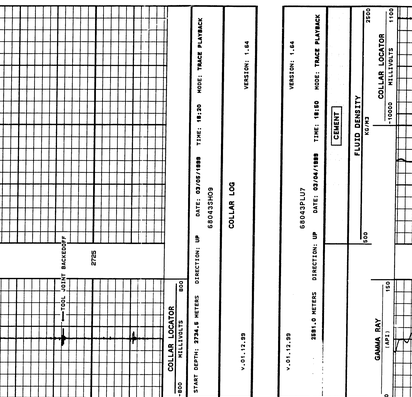
VERSION: 1.64

V.01.12.89

COLLAR LOG

68043SPG15

FINISH DEPTH: 2731.8 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 18:23 MODE: TRACE PLAYBACK



START DEPTH: 2780.4 METERS DIRECTION: UP DATE: 03/06/1989 TIME: 18:20 MODE: TRACE PLAYBACK

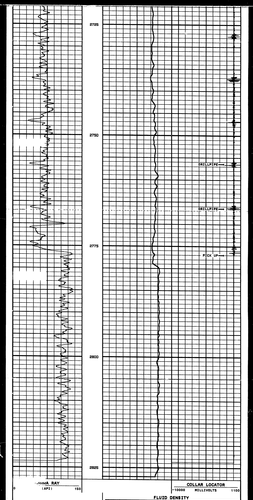
VERSION: 1.64

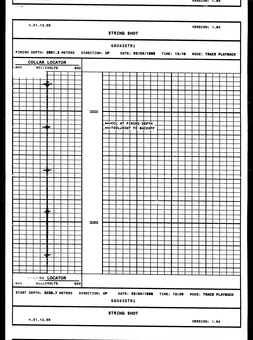
V.01.12.89

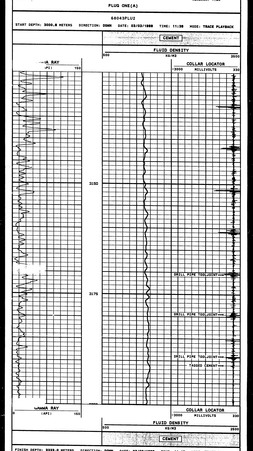
COLLAR LOG

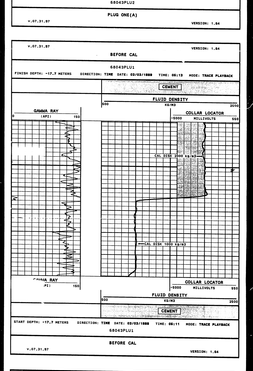
68043SPL17

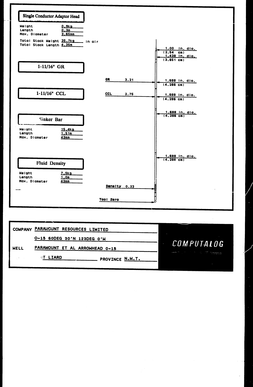
FINISH DEPTH: 2981.0 METERS DIRECTION: UP DATE: 02/06/1989 TIME: 18:50 MODE: TRACE PLAYBACK











COMPANY PARAGONT RESOURCES LIMITED
0-10 BODES 50'N LEGODES 8'W
WELL PARAGONT ET AL ARROWHEAD D-18
T LEAND PROVINCE N.W.T.

COMPUTALOG