AUTHORITY TO DRILL A WELL

CANADA

Exploratory ☒X
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: CDN FOREST ET AL FLETT N-61

Operator: CANADIAN FOREST OIL LTD.
Drilling Program No.: NA

Contractor: NABORS DRILLING LTD.
Permit or Lease No.: ---

Drilling Rig or Unit: 24
Estimated Well Cost: $11,253,700.00

Location-Unit: N
Section: 61
Grid Area: 60° 40'N, 123° 30'W

Coordinates: Lat.: 60° 30' 46.690"N (Est)
Long.: 123° 42' 32.512"W (Est)

Area: FLETT
Field/Pool: WILDCAT

Elevation-RT/KB: ELV: 603.7m, KB 611.0m (ASL)
Seafloor: NA (BRT)

Approx. Spud Date: FEBRUARY 28, 1999
Estimated Days on Location: 210 DAYS

Anticipated Total Depth: 3290mKB
Target Horizon(s) NAHANNI CARBONATE

EVALUATION PROGRAM

Ten-metre sample intervals ---

Five-metre sample intervals SURFACE BEDROCK TO T.D.

Canned sample intervals EVERY 10m, SURFACE BEDROCK TO T.D.

Conventional cores at NO CORES PLANNED AT THIS TIME

Logs and Tests SEE ATTACHED SHEET

CASING AND CEMENTING PROGRAM

Setting Depth

O.D.	Weight:	Grade:	Below Seafloor:	Cementing Program (Volumes):
762mm	CONDUCTOR PIPE		30mKB	GROUT TO SURFACE
508mm	139.9 kg/m	K-55	190mKB	53.2m³
339.7mm	101.2 kg/m	K-55	730mKB	94.3m³
244.5mm	59.53 kg/m	L-80HC	2000mKB	34.1m³
244.5mm	64.74 kg/m	L-80	2920mKB	49.9m³
177.8mm	43.16 kg/m	L-80	2770-3290mKB	8.4m³

B.O.P. Equipment:
AS PER CANADA OIL AND GAS DRILLING REGULATIONS, SECTION 60.
SEE DRILLING RIG INVENTORY SHEET ATTACHED.

Other Information:

Signed: [signature] P.ENG.
Title: VICE PRESIDENT, MANAGER OF PROJECTS

Date: DECEMBER 23, 1998
Company: PAJAK ENGINEERING LTD. FOR CANADIAN FOREST OIL LTD.

APPROVAL

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

Signed: [signature]
Chief Conservation Officer

Date: February 18, 1999

File: 9211-C131-1-3, WID 1863

UWI 300N616040123300

Canada

Final Well Report (dated September 1999)

N.E.B. COPY

FINAL WELL REPORT

CANADIAN FOREST LTD.

DATALOG

CANADIAN FOREST ET AL NORTH LIARD N-61

N61-60-40-123-30

NATIONAL ENERGY BOARD
OCT 1 2 1999

SEPTEMBER 1999

INTRODUCTION

Datalog was mobilized on April 20, 1999 and services were completed on September 7, 1999. A two man logging unit commenced logging at 432 meters and terminated at 3383 metres.

Hydrocarbon gas detection was provided to evaluate any potential zone of interest and determine any oil/water contacts.

* * *

DATALOG SYSTEM

Datalog Technology Inc. was contracted to provide mudlogging for CDN FOREST et al NORTH LIARD N-61, N61-60-40-123-30. Continuous data acquisition with both database and real-time monitoring was provided via the QLOG system. This system was interfaced with a high speed chromatograph to monitor, collect and evaluate hydrocarbons.

To ensure accurate data, a number of field tests were performed periodically by the mud logger while drilling the well. The chromatograph was calibrated on a regular basis to ensure and maintain its optimum performance. Checks were made on the lag time at regular intervals, and hole depth was checked against the driller's pipe tally at each connection.

The monitoring and analysis of gases in the drilling fluid was undertaken using an electric degasser mounted in the shaker box. By stirring the mud with a high-speed rotating agitator and thus reducing its surface tension, the gas was released from the drilling mud and drawn to the logging unit with a sample pump.

Gas compositional determination was made with the gas chromatograph, which permitted continuous high speed resolution of C1 to C5 and CO2 every 30 seconds, accurate to 10 ppm. Water vapour was removed from the incoming gas stream by using glycol, calcium chloride and magnesium perchlorate as drying agents. These chemicals have no effect on the hydrocarbons, CO2 or H2S content of the analyzed gas.

In addition to the recording of background and liberated gas shows, any trip and connection produced gases were also monitored for use in safety evaluation.

Gas concentrations are reported on a percent by volume basis.

WELL SUMMARY

Company: CANADIAN FOREST OIL LTD.

Well Name: CDN FOREST et al NORTH LIARD N-61

Surface Location: N61-60-40-123-30

Target Location: N61-60-30-123-42

K.B.: 610.7 m

GRD.: 604.0 m

Driller Depth: 3384 m

Spud Date: March 21, 1999

Date Completed: September 7,1999

Drilling Contractor: AKITA

Rig No: 58

Drilling Foreman:

Geologist: Bill Godwin
Doug McKenzie
Rob Kelly

Mudlogging Personnel: Darren Pearson
Kurt Coonfer
Doug Haugen

Mudlogging Commenced: April 20, 1999 @ 432 m

Mudlogging Completed: September 11,1999

Sample Description: 425 m to 3380 m

Hole Size:	660 mm	0 m to 185 m
	444 mm	185 m to 736 m
	311 mm	736 m to 3147 m
	216 mm	3147 m to 3384 m

Casing:	503.0 mm	@	185.0 m
	339.0 mm	@	736.0 m
	244.0 mm	@	3147.0 m

Mud Type: Gel Chem 0 to 736m
K-Polymer 736m to 3147m
Polymer 3147m to 3384m

CDN FOREST et al NORTH LIARD N-61
N61-60-40-123-30

BIT RECORD

BIT NO	SIZE (mm)	TYPE	JETS (mm)			DEPTH IN (m)	DEPTH OUT (m)	MADE (m)	HOURS hrs	COND. OUT T/B/G
1A	660	Western R3	22.0	22.0	22.0	00.0	70.0	39	14.00	
2A	660	RBI 3CJC	17.5	17.5	17.5	70.0	128.0	58	62.00	
3A-RR	660	HW R3	25.0	25.0	25.0	126.0	134.0	7	18.25	
4A	660	HW RJ4	25.0	25.0	25.0	134.0	137.0	3	11.25	
5A	660	Smith 2JS	25.0	25.0	25.0	137.0	153.0	16	43.50	
6A	444	RBI C5	25.0	25.0	25.0	153.0	185.0	33	37.00	
7A-RR	660	Smith 2JS	25.0	25.0	25.0	153.0	185.0	33	35.25	
8-1B	444	Smith 3JS	22.0	22.0	22.0	185.0	267.0	82	40.50	
9-2BRR	444	Smith 3JS	22.0	22.0	22.0	267.0	335.0	68	59.25	
10-3B	444	Smith 3JS	28.0	28.0	28.0	335.0	442.0	87	75.50	
11-4B	444	Smith 3JS	28.0	28.0	28.0	442.0	493.0	71	80.50	
12-5B	444	Smith 4JS	28.0	28.0	28.0	493.0	601.0	108	121.2	
13-6B	444	Smith 4JS	28.0	28.0	28.0	601.0	678.0	77	88.75	
14-7B	444	RBI C5	28.0	28.0	28.0	678.0	722.0	44	68.75	
15-8B	444	RBI-RR C5	open	open	open	722.0	727.0	5	18.75	
16-9B	444	Smith 3JS	28.0	28.0	28.0	727.0	736.0	9	10.75	
17-1C	311	HW ATJ-33	11.9	11.9	11.9	736.0	756.0	20	13.75	
18-2RR	311	HW ATJ-33	11.9	11.9	11.9	756.0	840.0	84	52.25	
19-3C	311	RBI C-4	12.7	12.7	12.7	840.0	892.0	52	41.75	
20-4C	311	RBI C-45	12.7	12.7	12.7	892.0	933.0	41	29.00	
21-5C	311	Reed HP-63	12.7	12.7	12.7	933.0	992.0	59	49.25	
22-6C	311	Smith F57	12.7	12.7	12.7	992.0	1057.0	65	46.75	
23-7C	311	Reed HP-63	12.7	12.7	12.7	1057.0	1146.0	89	59.25	
24-8C	311	HC GT-28	12.7	12.7	12.7	1146.0	1258.0	112	80.25	
25-9C	311	Reed HP53A	14.3	14.3	14.3	1258.0	1305.0	47	27.75	

CDN FOREST et al NORTH LIARD N-61
N61-60-40-123-30

BIT RECORD

BIT NO	SIZE (mm)	TYPE	JETS (mm)			DEPTH IN (m)	DEPTH OUT (m)	MADE (m)	HOURS hrs	COND. OUT T/B/G
26-10C	311	Reed RR HP53	12.7	12.7	12.7	1305.0	1391.0	86	71.00	
27-11C	311	Sec M44NG	12.7	12.7	12.7	1391.0	1406.0	15	18.25	
28-12C	311	Reed EHP53A	12.7	12.7	12.7	1406.0	1487.0	81	68.00	
29-13C	311	Sec FM2743	7 x 10.3			1487.0	1550.0	63	48.00	
30-14C	311	HC ATJ-S33	14.3	14.3	14.3	1550.0	1693.0	143	74.75	
31-15C	311	Reed HP-63	14.3	14.3	14.3	1693.0	1852.0	159	123.2	
32-16C	311	Reed EHP53A	15.9	15.9	15.9	1852.0	1884.0	32	16.75	
33-17C	311	Reed RR a/a	15.9	15.9	15.9	1884.0	2076.0	192	115.0	
34-18C	311	Reed EHP53A	15.9	15.9	15.9	2076.0	2284.0	208	138.3	
35-19C	311	Reed EHP51H	15.9	15.9	15.9	2284.0	2422.0	138	45.0	
36-20C	311	HC GT28D	15.9	15.9	15.9	2422.0	2479.0	57	40.5	
37-21C	311	HC GS884F	15.9	15.9	15.9	2479.0	2579.0	100	57.0	
38-22C	311	HC GT28D	15.9	15.9	15.9	2579.0	2757.0	178	102.5	
39-23C	311	Reed EPH53A	15.9	15.9	15.9	2757.0	2916.0	159	120.0	
40-24C	311	Reed EHP53A	15.9	15.9	15.9	2916.0	2968.0	52	66.75	
41-25C	311	Sec GS86F	15.9	15.9	15.9	2968.0	3050.0	82	58.50	
42-26C	311	Reed HP61A	15.9	15.9	15.9	3050.0	3115.0	65	57.75	
43-27C	311	Smith F4	15.9	15.9	15.9	3115.0	3147.0	32	18.50	
44- 1D	216	HC J7	9.5	9.5	9.5	3147.0	3380.0	233	100.5	
45- 2D	216	Reed EPH53A	9.5	9.5	9.5	3380.0	3384.0	4	2	

FORMATION TOPS

KB = 610.7 m

FORMATION	PROGNOSIS	SAMPLE		
	SUBSEA (m)	M.D. (m)	T.V.D. (m)	SUBSEA (m)
Mattson	+611	0.0	0.0	610.7
Flett	+375	1051.5	1048.5	- 437.8
Flett Lime Marker	N/A	N/A	N/A	N/A
Besa River Shale	-754.9	1366.7	1363.0	- 752.3
Besa River Seismic Mkr	-1404.0	N/A	N/A	N/A
First Black Shale	-1546.5	2164.0	2157.2	-1546.5
Lower Besa River	-1852.5	2470.0	2463.2	-1852.5
Horn River/Sec Bk Sh	-2176.0	2951.5	2944.5	-2333.8
Nahanni	-2256.0	3141.5	3134.7	-2530.8

MUDLOGGING REPORT

Start logging in Mattson @ 432.0 m M.D. to 1051.5 m MD 1048.5 m TVD

There were no significant FORMATION or PRODUCED gas responses from this interval.

NOTE**Mud density was very high (1600 kg/m3) to hold back formation water from surface to 736 m where surface casing was set.

BACKGROUND GAS VALUES (min/max)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
432- 630		0.0062 0.0737	0.0037 0.0229	0.0007 0.0074	0.0000 0.0116	0.0001 0.0060	0.0007 0.0149	0.0003 0.0047	0.0007 0.0063
630-1056		0.0071 0.4028	0.0008 0.3492	0.0001 0.0182	0.0009 0.0219	0.0026 0.0034	0.0014 0.0066	0.0005 0.0025	0.0008 0.0010

FLETT 1051.5-1366.7 m M.D. (top at 1048.5 m TVD)

There were no significant FORMATION or PRODUCED gas responses from this interval.

The FLETT formation includes the Flett Lime Marker at 1393.3 m TVD and Seismic Marker One at 1426.0 m TVD

BACKGROUND GAS VALUES (min/max)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
1056-1393		0.0399 0.4581	0.0313 0.3643	0.0046 0.0514	0.0018 0.0221	0.0007 0.0059	0.0008 0.0088	0.0003 0.0027	0.0004 0.0029

FLETT 1051.5-1366.7 m M.D. cont. (top at 1048.5 m TVD)

SIGNIFICANT GAS RESPONSES (max/background)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
1109-1109		2.2422 0.1140	2.0484 0.0930	0.1441 0.0105	0.0319 0.0045	0.0055 0.0015	0.0079 0.0022	0.0021 0.0008	0.0023 0.0015
1155-1156		0.9296 0.0602	0.8040 0.0456	0.0793 0.0076	0.0269 0.0029	0.0060 0.0015	0.0085 0.0013	0.0022 0.0005	0.0027 0.0008
1192-1193		0.4581 0.1561	0.3643 0.1213	0.0514 0.0177	0.0221 0.0079	0.0059 0.0029	0.0088 0.0035	0.0027 0.0013	0.0029 0.0015

PRODUCED GAS

Nature of produced gas	Bit depth m	Hydc/background %	Pumps off hh:mm
Trip	1057	1.0706/ 0.0822	07:50
Survey Gas	1077	0.2179/ 0.1130	00:25
Trip	1146	0.3476/ 0.0977	06:30
Trip	1305	0.3779/ 0.1030	08:00
DTG	1341	0.3072/ 0.0977	00:05
Survey Gas	1352	0.2539/ 0.0930	00:26
Survey Gas	1363	0.2431/ 0.0760	00:25

BESA RIVER SHALE 1366.7-2951.5m M.D. (top at 1363.0 m TVD)

THE BESA RIVER CONSISTS OF:
- FIRST BLACK SHALE (EXSHAW) @ 2164.0 m md 2157.2 m TVD
- LOWER BESA RIVER @ 2470.0 m md 2463.2 m TVD

The BESA RIVER FORMATION could have an economically significant hydrocarbon bearing zone at 1611 m. Pixler plots indicate a producable light oil.

BACKGROUND GAS VALUES (min/max)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
1393-1426		0.1344 0.6523	0.1047 0.5312	0.0154 0.0694	0.0057 0.0295	0.0024 0.0069	0.0028 0.0093	0.0017 0.0035	0.0017 0.0025
1426-1611		0.1389 0.9095	0.1144 0.7696	0.0143 0.0840	0.0049 0.0307	0.0017 0.0077	0.0018 0.0095	0.0011 0.0045	0.0007 0.0035
1612-1690		4.1197 13.6179	3.6152 11.8983	0.2855 0.9912	0.0971 0.3420	0.0347 0.1242	0.0377 0.1237	0.0302 0.0879	0.0193 0.0506
1691-1829		0.6090 1.1440	0.5857 1.0587	0.0156 0.0450	0.0031 0.0137	0.0013 0.0052	0.0013 0.0073	0.0012 0.0080	0.0008 0.0061
1830-1902		0.5011 1.0831	0.4811 1.0258	0.0124 0.0410	0.0037 0.0094	0.0012 0.0021	0.0013 0.0027	0.0007 0.0012	0.0007 0.0010
1903-2046		0.1183 1.0667	0.1149 1.0485	0.0023 0.0138	0.0004 0.0024	0.0005 0.0015	0.0001 0.0003	0.0000 0.0001	0.0001 0.0001
2047-2051		0.5121 0.2412	0.4822 0.2311	0.0100 0.0100	0.0005 0.0004	0.0002 0.0001	0.0001 0.0001	0.0000 0.0000	0.0000 0.0000
2051-2080		1.0324 0.4523	0.9872 0.4411	0.031 0.010	0.0006 0.0002	0.0002 0.0001	0.0001 0.0001	0.0000 0.0000	0.0000 0.0000
2080-2097		0.4710 0.3074	0.4595 0.2957	0.0076 0.0072	0.0019 0.0017	0.0006 0.0005	0.0005 0.0004	0.0004 0.0003	0.0004 0.0003
2097-2108		0.2448 0.1661	0.2408 0.1636	0.0030 0.0019	0.0005 0.0003	0.0004 0.0003	0.0001 0.0000	0.0000 0.0000	0.0000 0.0000
2108-2145		0.5464 0.2172	0.5404 0.2135	0.0049 0.0025	0.0008 0.0003	0.0001 0.0001	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
2145-2185		0.6310 0.3711	0.6240 0.3664	0.0055 0.0036	0.0009 0.0006	0.0004 0.0004	0.0001 0.0001	0.0001 0.0001	0.0001 0.0000
2185-2192		4.2265 2.5684	4.1884 2.5466	0.0346 0.0196	0.0020 0.0010	0.0012 0.0005	0.0001 0.0001	0.0001 0.0001	0.0001 0.0001
2192-2205		3.4059 2.3085	3.3731 2.2862	0.0295 0.0199	0.0020 0.0013	0.0009 0.0007	0.0002 0.0001	0.0001 0.0001	0.0001 0.0001

CDN FOREST et al NORTH LIARD N-61
N61-60-40-123-30

BESA RIVER SHALE 1366.7-2951.5 m M.D. cont. (top at 1363.0 m TVD)

BACKGROUND GAS VALUES (min/max)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
2209-2219		2.8023 1.4785	2.7713 1.4668	0.0214 0.0109	0.0014 0.0006	0.0002 0.0002	0.0001 0.0000	0.0001 0.0000	0.0001 0.0000
2219-2244		5.3742 3.3241	5.3352 3.3000	0.0362 0.0203	0.0082 0.0014	0.0002 0.0001	0.0002 0.0001	0.0002 0.0001	0.0001 0.0000
2244-2256		2.1296 0.8540	2.1143 0.8475	0.0127 0.0050	0.0003 0.0001	0.0001 0.0001	0.0001 0.0001	0.0001 0.0001	0.0001 0.0001
2257-2270		5.8441 3.7543	5.7952 3.7240	0.0475 0.0299	0.0050 0.0010	0.0002 0.0001	0.0002 0.0001	0.0002 0.0001	0.0001 0.0001
2270-2312		3.5076 1.8839	3.4694 1.8709	0.0353 0.0121	0.0020 0.0005	0.0002 0.0002	0.0003 0.0001	0.0002 0.0001	0.0001 0.0001
2312-2335		9.6151 4.1064	9.5657 4.0805	0.0480 0.0248	0.0010 0.0007	0.0002 0.0002	0.0001 0.0001	0.0001 0.0001	0.0000 0.0000
2335-2350		11.5063 7.9731	11.4471 7.9291	0.0576 0.0427	0.0012 0.0010	0.0002 0.0002	0.0001 0.0001	0.0001 0.0001	0.0001 0.0000
2350-2370		18.4024 14.9349	18.3024 14.8649	0.0947 0.0681	0.0018 0.0014	0.0003 0.0002	0.0001 0.0001	0.0001 0.0001	0.0001 0.0001
2370-2403		10.2049 6.5667	10.1615 6.5338	0.0422 0.0321	0.0008 0.0005	0.0004 0.0002	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
2403-2411		17.7010 12.5523	17.6003 12.4889	0.0984 0.0610	0.0021 0.0014	0.0002 0.0001	0.0001 0.0000	0.0000 0.0000	0.0000 0.0000
2411-2419		12.0470 9.2025	11.9912 9.1579	0.0541 0.0430	0.0013 0.0012	0.0004 0.0003	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
2419-2478		9.8807 6.4306	9.8307 6.3967	0.0388 0.0316	0.0016 0.0015	0.0005 0.0004	0.0002 0.0002	0.0001 0.0001	0.0000 0.0000
2478-2491		1.2275 0.5361	1.2173 0.5276	0.0085 0.0074	0.0012 0.0008	0.0004 0.0002	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
2491-2527		3.4635 1.5576	3.4362 1.5444	0.0232 0.0112	0.0028 0.0013	0.0003 0.0003	0.0005 0.0002	0.0003 0.0002	0.0002 0.0001
2527-2546		6.6616 1.2277	6.6328 1.2086	0.0254 0.0076	0.0017 0.0005	0.0010 0.0003	0.0004 0.0001	0.0002 0.0001	0.0001 0.0000
2546-2580		2.1838 1.2277	2.1734 1.2186	0.0093 0.0076	0.0006 0.0005	0.0002 0.0003	0.0001 0.0002	0.0000 0.0001	0.0000 0.0001
2580-2632		10.2100 6.2664	10.1726 6.2362	0.0325 0.0253	0.0027 0.0028	0.0007 0.0007	0.0006 0.0005	0.0004 0.0004	0.0003 0.0003

BESA RIVER SHALE 1366.7-2951.5 m M.D. cont. (top at 1363.0 m TVD)

BACKGROUND GAS VALUES (min/max)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
2632-2671		6.8944 4.1938	6.6852 4.1706	0.0250 0.0200	0.0019 0.0016	0.0007 0.0004	0.0007 0.0005	0.0004 0.0004	0.0003 0.0003
2671-2774		2.9270 1.2841	2.9067 1.2760	0.0173 0.0069	0.0017 0.0007	0.0003 0.0003	0.0004 0.0003	0.0003 0.0003	0.0003 0.0003
2774-2789		1.1906 0.7002	1.1735 0.6915	0.0118 0.0060	0.0029 0.0013	0.0010 0.0005	0.0007 0.0004	0.0004 0.0002	0.0003 0.0002
2789-2854		1.7760 1.1935	1.7666 1.1856	0.0081 0.0062	0.0007 0.0008	0.0003 0.0003	0.0003 0.0003	0.0002 0.0002	0.0002 0.0001
2854-2859		2.3619 2.1474	2.3508 2.1326	0.0099 0.0122	0.0006 0.0014	0.0004 0.0004	0.0001 0.0003	0.0000 0.0003	0.0000 0.0001
2859-2871		2.3241 1.2127	2.3124 1.2002	0.0104 0.0042	0.0007 0.0003	0.0004 0.0001	0.0001 0.0000	0.0003 0.0003	0.0001 0.0001
2871-2890		1.8821 1.3437	1.8128 1.3378	0.0079 0.0050	0.0007 0.0003	0.0003 0.0003	0.0001 0.0000	0.0002 0.0002	0.0001 0.0001
2890-2904		2.9645 2.1524	2.9528 2.1432	0.0103 0.0082	0.0006 0.0006	0.0005 0.0003	0.0001 0.0000	0.0002 0.0001	0.0000 0.0000
2904-2925		2.2659 1.6888	2.2539 1.6801	0.0102 0.0073	0.0009 0.0007	0.0005 0.0004	0.0001 0.0000	0.0002 0.0003	0.0001 0.0000
2925-2937		3.0563 1.7853	3.0449 1.7740	0.0092 0.0080	0.0009 0.0017	0.0007 0.0007	0.0002 0.0004	0.0003 0.0003	0.0001 0.0002
2937-2950		3.7072 2.5817	3.6946 2.5725	0.0106 0.0074	0.0011 0.0007	0.0004 0.0007	0.0002 0.0001	0.0002 0.0002	0.0001 0.0001

SIGNIFICANT GAS RESPONSES (max/background)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
1391-1392		1.9250 0.1407	1.7155 0.1120	0.1439 0.0164	0.0468 0.0067	0.0086 0.0016	0.0023 0.0023	0.0046 0.0010	0.0033 0.0007
1399-1400		4.0601 0.3913	3.3050 0.3103	0.4455 0.0437	0.2085 0.0206	0.0061 0.0031	0.0646 0.0078	0.0189 0.0032	0.0145 0.0026
1406-1407		1.4077 0.1890	1.1949 0.1355	0.1098 0.0235	0.0488 0.0135	0.0141 0.0018	0.0219 0.0069	0.0102 0.0040	0.0080 0.0038

BESA RIVER SHALE 1366.7-2951.5 m M.D. cont. (top at 1363.0 m TVD)

SIGNIFICANT GAS RESPONSES (max/background)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
1464-1465		2.5531 0.4842	2.2654 0.4005	0.1862 0.0486	0.0624 0.0188	0.0146 0.0049	0.0149 0.0062	0.0063 0.0031	0.0033 0.0021
1485-1487		1.7713 0.1210	1.6243 0.1012	0.1010 0.0116	0.0264 0.0041	0.0073 0.0012	0.0074 0.0014	0.0029 0.0008	0.0020 0.0007
1508-1509		1.4249 0.1752	1.3067 0.1467	0.0817 0.0163	0.0227 0.0065	0.0056 0.0022	0.0051 0.0019	0.0021 0.0010	0.0011 0.0006
1524-1526		1.1094 0.6357	0.9751 0.5412	0.0908 0.0513	0.0280 0.0321	0.0050 0.0020	0.0058 0.0044	0.0030 0.0029	0.0017 0.0018
1552-1553		2.6487 0.6917	2.4662 0.6175	0.1317 0.0487	0.0323 0.0140	0.0058 0.0037	0.0068 0.0040	0.0035 0.0023	0.0028 0.0015
1593-1594		1.3907 0.5512	1.1615 0.4748	0.1337 0.0499	0.0473 0.0146	0.0159 0.0036	0.0162 0.0041	0.0105 0.0025	0.0056 0.0017
1610-1611		25.9418 0.7167	22.3562 0.6042	2.3885 0.0675	0.7178 0.0237	0.1937 0.0070	0.1692 0.0075	0.0792 0.0044	0.0368 0.0024
1696-1698		2.7584 0.4140	2.6231 0.3458	0.0837 0.0273	0.0202 0.0119	0.0069 0.0050	0.0089 0.0081	0.0090 0.0091	0.0066 0.0068
1713-1714		4.1022 1.1030	3.9469 1.0445	0.1028 0.0408	0.0368 0.0080	0.0040 0.0017	0.0056 0.0031	0.0034 0.0027	0.0027 0.0022
1838-1841		5.5535 1.1722	5.2422 1.1253	0.2436 0.0340	0.0493 0.0082	0.0049 0.0009	0.0090 0.0019	0.0023 0.0010	0.0022 0.0009
1878-1890		1.3639 0.7312	1.2985 0.7092	0.0492 0.0162	0.0104 0.0034	0.0016 0.0006	0.0022 0.0010	0.0010 0.0004	0.0010 0.0004
1956-1959		3.0094 0.7815	2.9692 0.7587	0.0342 0.0176	0.0055 0.0037	0.0000 0.0008	0.0001 0.0004	0.0002 0.0001	0.0002 0.0002
2205-2208		6.1648 2.6449	6.1122 2.6222	0.0479 0.0200	0.0031 0.0014	0.0012 0.0012	0.0003 0.0001	0.0001 0.0000	0.0000 0.0000
2404-2412		17.7010 10.1304	17.6003 10.0819	0.0984 0.0472	0.0021 0.0011	0.0001 0.0002	0.0001 0.0000	0.0000 0.0000	0.0000 0.0000
2626-2627		13.5092 7.2477	13.4631 7.2180	0.0413 0.0260	0.0026 0.0019	0.0009 0.0007	0.0006 0.0005	0.0004 0.0003	0.0003 0.0003

BESA RIVER SHALE 1366.7-2951.5 m M.D. cont. (top at 1363.0 m TVD)

PRODUCED GAS

Nature of produced gas	Bit depth m	Hydc/background %	Pumps off hh:mm
Survey Gas	1458	1.17/0.62	00:25
Trip Gas	1487	1.77/0.43	24:25
Conn Gas	1487	1.34/0.27	00:05
Trip Gas	1550	2.11/0.56	20:45
Conn Gas	1579	2.22/0.73	00:03
Conn Gas	1655	13.90/12.50	00:02
Conn Gas	1664	13.40/11.50	00:03
Conn Gas	1673	17.20/11.20	00:10
Survey Gas	1675	17.30/11.40	00:03
Wiper Trip	1689	33.35/8.09	02:00
Wiper Trip	1692	12.75/1.62	02:00
Trip Gas	1693	29.22/1.63	10:10
Survey Gas	1741	2.10/0.81	00:10
Survey Gas	1759	1.71/0.58	00:10
Survey Gas	1798	1.20/0.70	00:14
Survey Gas	1817	1.48/0.87	00:10
Repair Gas	1830	7.90/0.55	n/a
Recycled Gas	1831	3.68/0.79	n/a
Survey Gas	1836	6.94/1.03	00:07
Wiper Trip	1852	23.59/1.70	01:50
DTG	1860	1.68/0.98	00:03
Survey Gas	1864	1.78/0.56	00:13
Conn Gas	1874	1.67/0.82	00:03
Trip Gas	1884	7.28/0.95	08:30

BESA RIVER SHALE 1366.7-2951.5 m M.D. cont. (top at 1363.0 m TVD)

PRODUCED GAS

Nature of produced gas	Bit depth m	Hydc/background %	Pumps off hh:mm
Survey Gas	1979	0.92/0.64	00:07
Conn Gas	1991	0.88/0.50	00:03
Survey Gas	1999	1.08/0.73	00:11
Conn Gas	2037	1.15/0.68	00:15
Survey Gas	2047	1.64/0.54	00:16
Wiper Trip	2051	4.09/0.66	01:50
Repair Gas	2076	0.71/0.33	n/a
Trip Gas	2076	7.78/0.54	13:30
Trip Gas	2284	4.28/2.59	10:50
Trip Gas	2422	18.25/10.50	46:00
Trip Gas	2479	15.57/7.50	14:00
Trip Gas	2579	16.43/2.55	19:00
Trip Gas	2757	24.77/2.44	17:30
Recycled Gas	2759	6.13/2.20	
Recycled Gas	2761	2.91/7.57	

HORN RIVER 2951.5-3141.5 m M.D. (top at 2944.5 m TVD)

There were no significant FORMATION or PRODUCED gas responses from this interval.

BACKGROUND GAS RESPONSES (max/background)

Depth m	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
2955-3050	8.2201 4.6984	8.2073 4.6872	0.0112 0.0098	0.0008 0.0008	0.0007 0.0004	0.0000 0.0001	0.0001 0.0001	0.0000 0.0000
3050-3143	4.5038 2.4809	4.4923 2.4733	0.0067 0.0062	0.0007 0.0008	0.0040 0.0002	0.0001 0.0001	0.0000 0.0002	0.0000 0.0001

SIGNIFICANT GAS RESPONSES (max/background)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
2950-2955		6.6914 3.4130	6.6789 3.4012	0.0110 0.0100	0.0009 0.0010	0.0003 0.0004	0.0001 0.0002	0.0001 0.0001	0.0001 0.0001

CDN FOREST et al NORTH LIARD N-61
N61-60-40-123-30

NAHANNI 3141.5-3380.0 m M.D. (top at 3134.7 m TVD)

The NAHANNI FORMATION FORMATION could be an economically significant gas bearing zone. Pixler plots and chromatograph analysis indicate a producable very dry gas composed of predominatly METHANE.

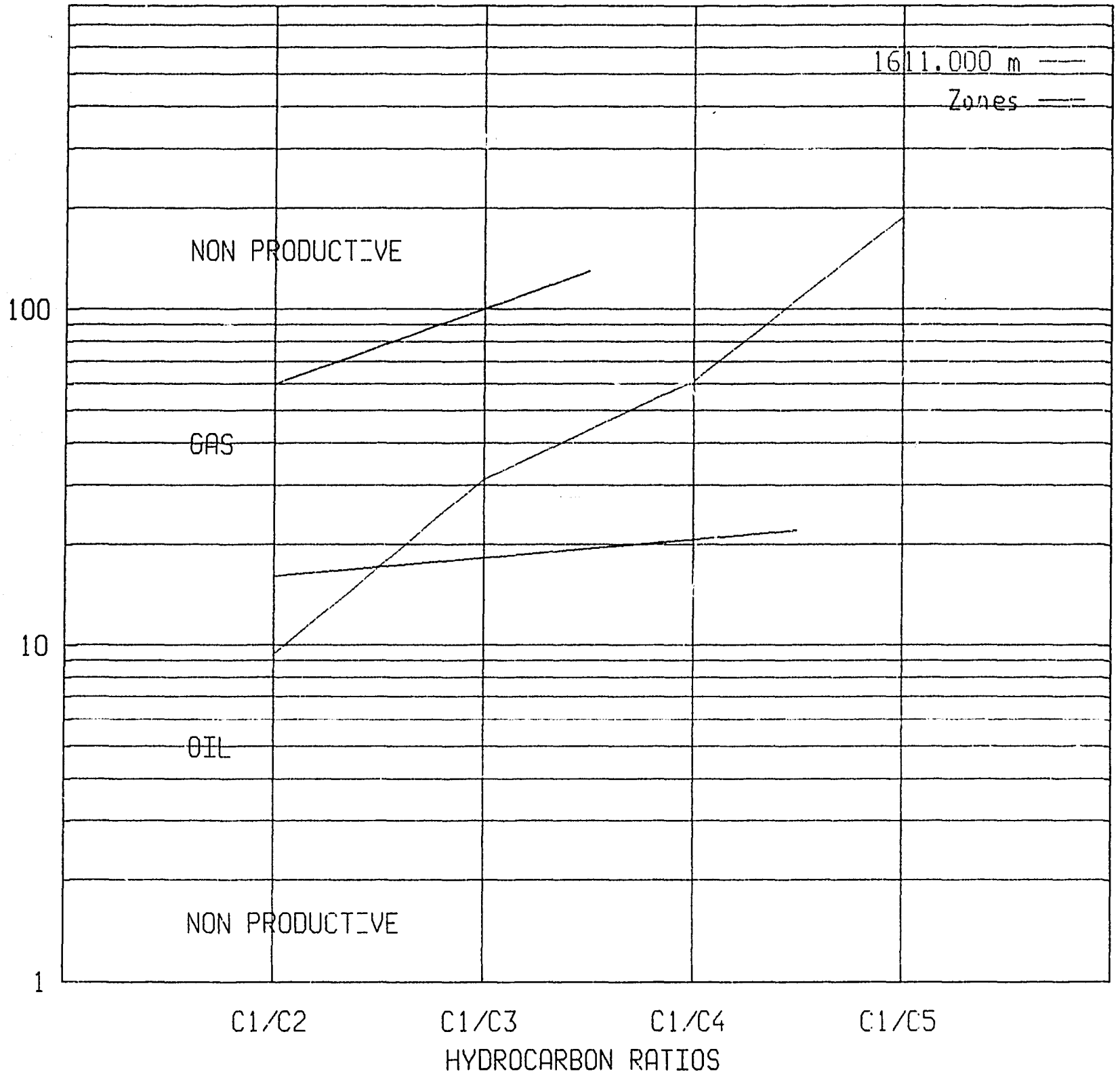
BACKGROUND GAS RESPONSES (max/background)

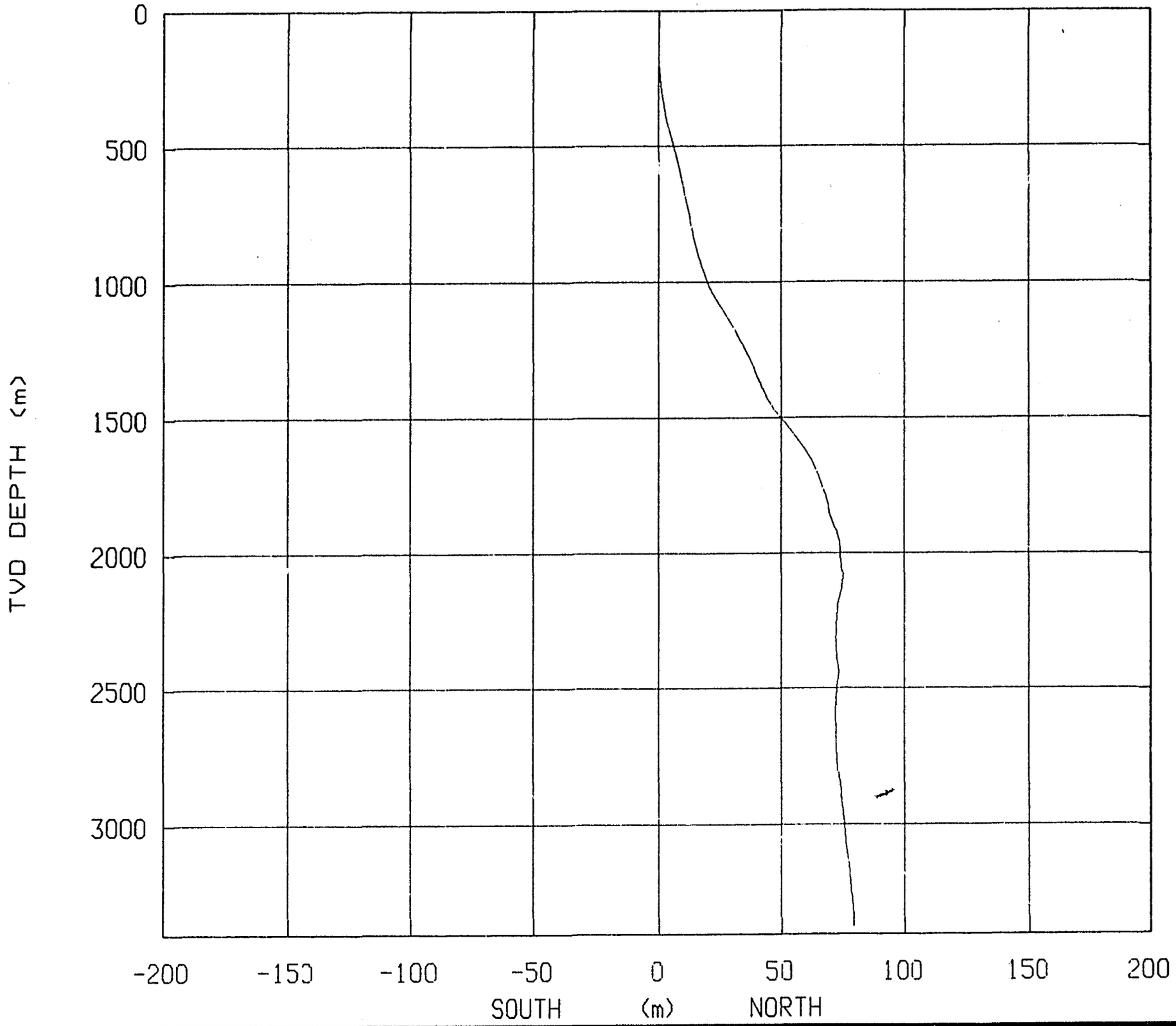
Depth m	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
3142-3215	9.3473 3.6642	9.3268 3.6479	0.0105 0.0110	0.0018 0.0018	0.0032 0.0030	0.0001 0.0001	0.0005 0.0003	0.0001 0.0001
3215-3236	9.3473 3.6642	9.3268 3.6479	0.0105 0.0110	0.0018 0.0018	0.0032 0.0030	0.0001 0.0001	0.0005 0.0003	0.0001 0.0001
3236-3319	0.7031 0.3250	0.7022 0.3214	0.0006 0.0000	0.0000 0.0004	0.0003 0.0000	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
3319-3380	0.1820 0.1111	0.1811 0.1104	0.0007 0.0005	0.0000 0.0000	0.0002 0.0001	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000

SIGNIFICANT GAS RESPONSES (max/background)

Depth m	ROP min	Hydc %	C1 %	C2 %	C3 %	iC4 %	nC4 %	iC5 %	nC5 %
3142-3143		17.3263 3.6102	17.3058 3.5976	0.0140 0.0080	0.0022 0.0011	0.0034 0.0032	0.0002 0.0000	0.0006 0.0002	0.0001 0.0001
3153-3154		20.1999 2.0146	20.1939 2.0132	0.0052 0.0005	0.0000 0.0000	0.0008 0.0009	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
3170-3171		17.5213 3.7815	17.5163 3.7587	0.0042 0.0006	0.0000 0.0000	0.0009 0.0008	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
3180-3181		18.2326 5.7069	18.2273 5.7047	0.0045 0.0014	0.0000 0.0000	0.0008 0.0008	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
3189-3190		13.7088 4.6131	13.7055 4.6114	0.0026 0.0009	0.0000 0.0000	0.0008 0.0008	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000
3230-3231		12.7397 3.0812	12.7373 3.0799	0.0018 0.0007	0.0000 0.0000	0.0006 0.0006	0.0000 0.0000	0.0000 0.0000	0.0000 0.0000

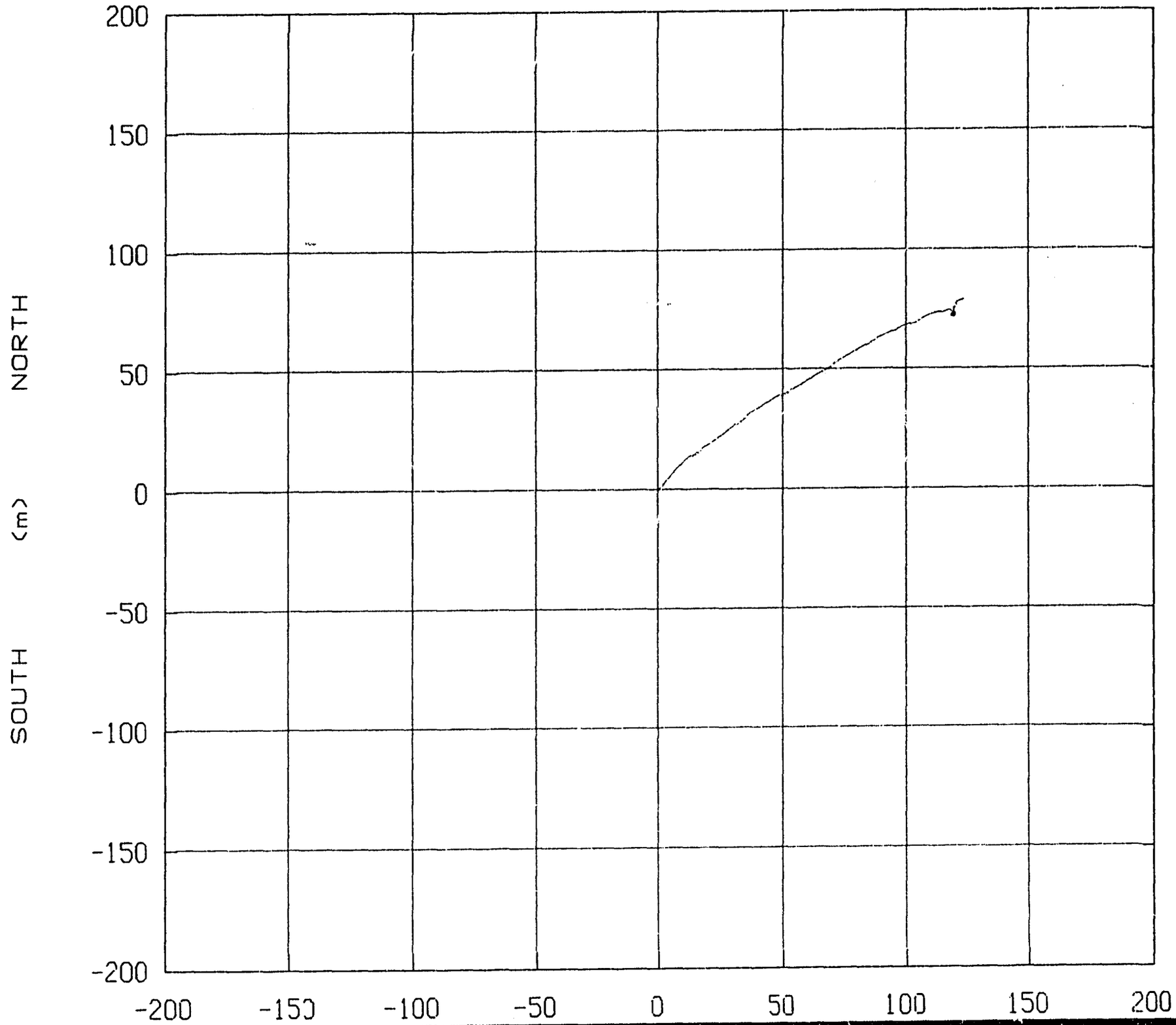
RATIO PLOT CDN Forest et al Flett N-61

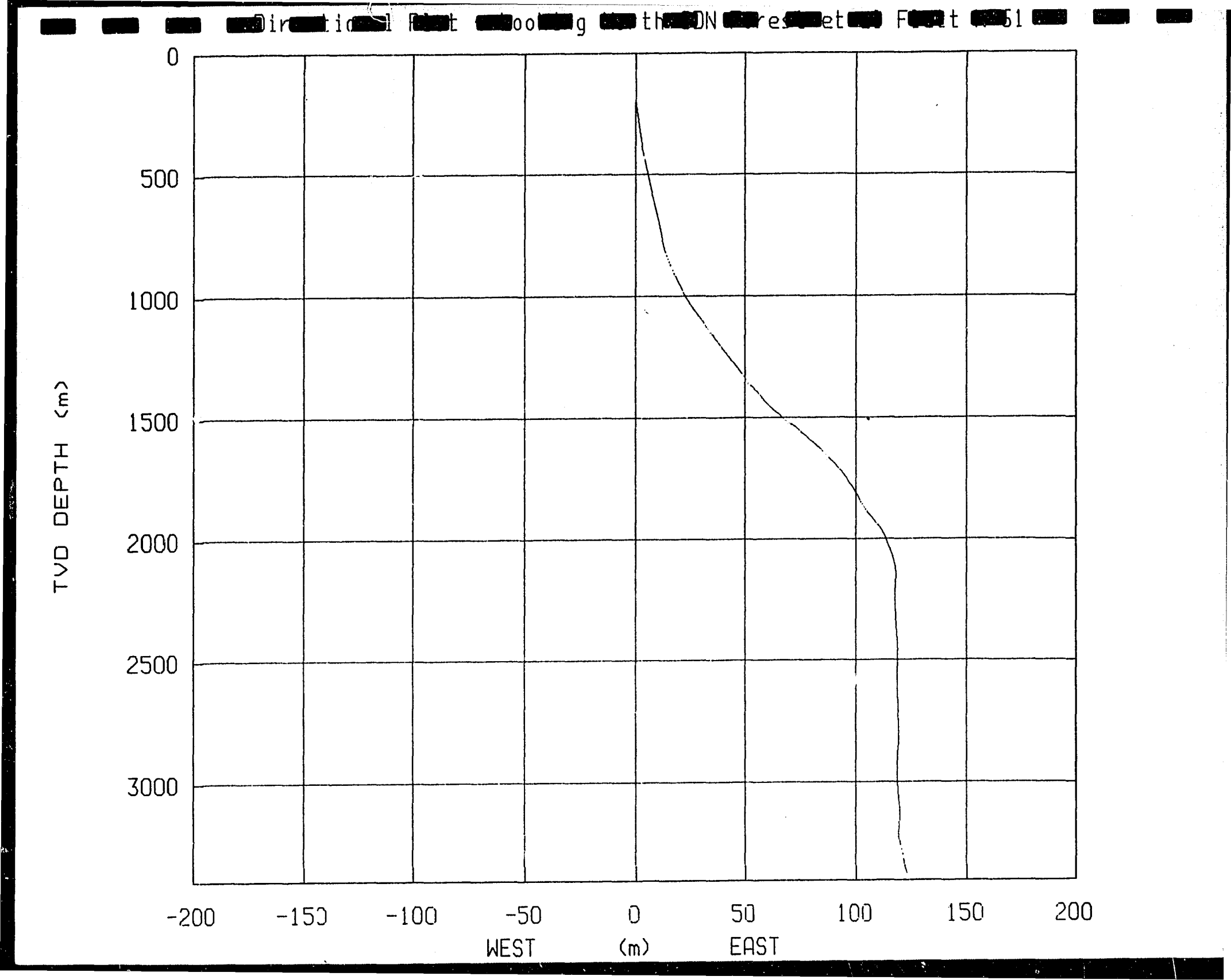




0
500
1000
1500
2000
2500
3000
TVD DEPTH (m)
-200
-150
-100
-50
0
50
100
150
200
SOUTH (m) NORTH

Di[redacted]ti[redacted]l [redacted]n [redacted]ew [redacted]N [redacted]es[redacted]t [redacted]F[redacted]t [redacted]1 [redacted]





0
500
1000
1500
2000
2500
3000
TVD DEPTH (m)
-200
-150
-100
-50
0
50
100
150
200
WEST
(m)
EAST

DATALOG

HYDROCARBON WELL LOG

LEGEND

---DRILLING DATA---
BC bit condition
BS bit size
CB core bit
CBR core bit rerun
CR core
CSG casing
DC depth correction
DIR directional survey
DS deviation survey
DST drill stem test
FOB force on bit
LC lost circulation
LCM lost circ material
MM mud motor
NB new bit
PO pump output
PP pump pressure
RPM rotary speed
RR rerun bit
SPM pump strokes
TVD true vertical depth
WLL wireline log
----MUD DATA----
CG connection gas
CL chlorides
FC filter cake
LOT logged after trip
MD mud density
NR no reading
PG produced gas
pH mud pH
SG survey gas
TG trip gas
VIS viscosity
WL water loss

SYMBOLS

Casing | Core | Drill Stem Test

Operator: Canadian Forest Oil Ltd
Well: CDN Forest et al N. LIARD
Location: N61-60-40-123-30
Country: Canada
Elevation GL: 604.0 meters
KB: 610.7 meters
Drilling Rig: Akita Drilling Rig #56
Spud Da et: March 21st 18:00hrs 1999

Logging Commenced: April 20th,1999
Depth: 432 meters
Logging Completed: September 6th,1999
Depth: 3383 meters
Personnel: Darren Pearson
Adrian Pristolnicu
Mike Pitaru
Doug Haugen

Scale Meters 1:240 (MD)

Comments: 1. Hydrocarbon Ratio Analysis
2. 1. Wetness Ratio
3. 2. Balance Ratio
4. 3. Character Ratio

Mud Data:
1. Gel Chem to 736m
2. K-Polymer from 736m to 3147m
3. Polymer 3147m to 3383m(TD)
4.
5.

Casing Data:
1. Surface casing 444.5mm set @ 735.60m
2. Intermediate 311.2mm set @ 3147.0m
3.
4.
5.

Hole Data:
1. 339.7mm to 735.5m
2. 244.5mm to 3147.0m
3. 215.9mm to 3383(TD)
4.
5.

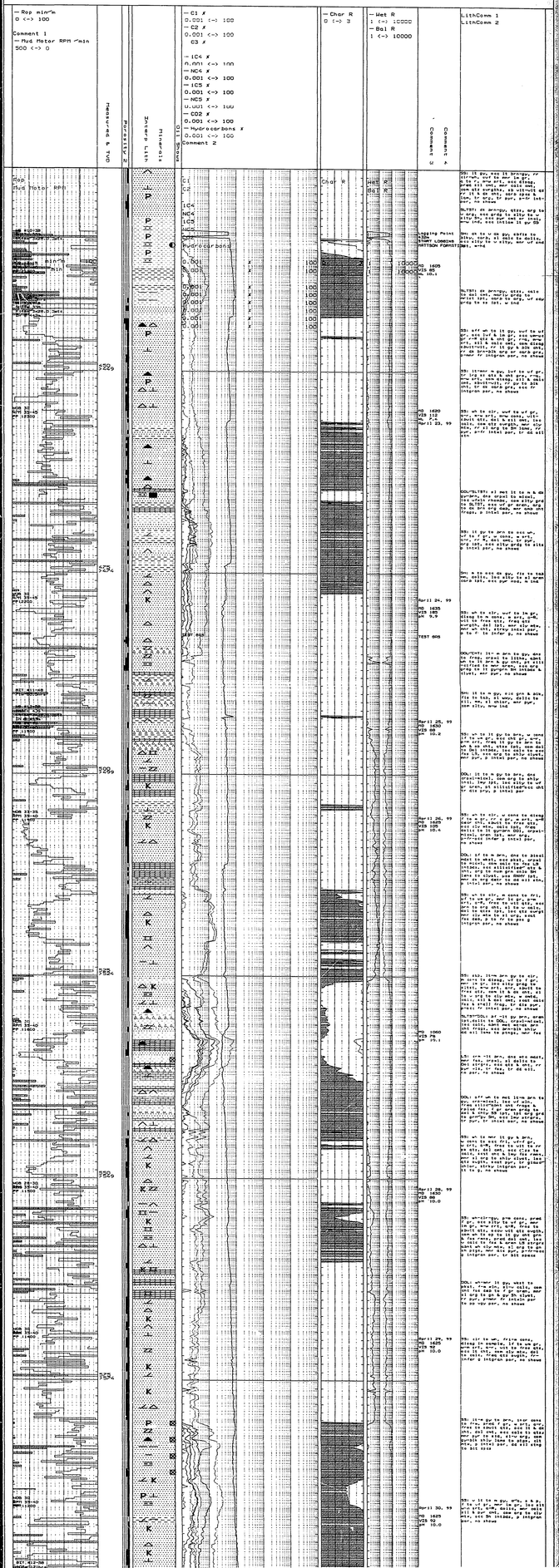
Sandstone | Siltstone | Shale | Chert | Conglomerate | Limestone | Dolomite | Anhydrite | Gypsum | Marlstone | Salt | Coal | Metamorphic | Granite | Breccia | Tuff | Claystone

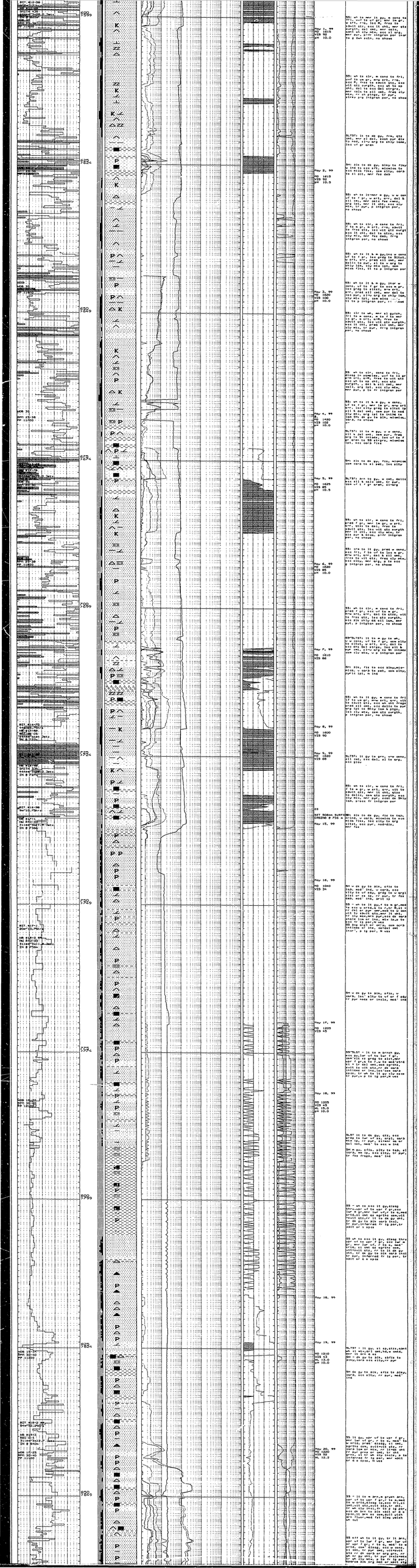
*** Minerals ***

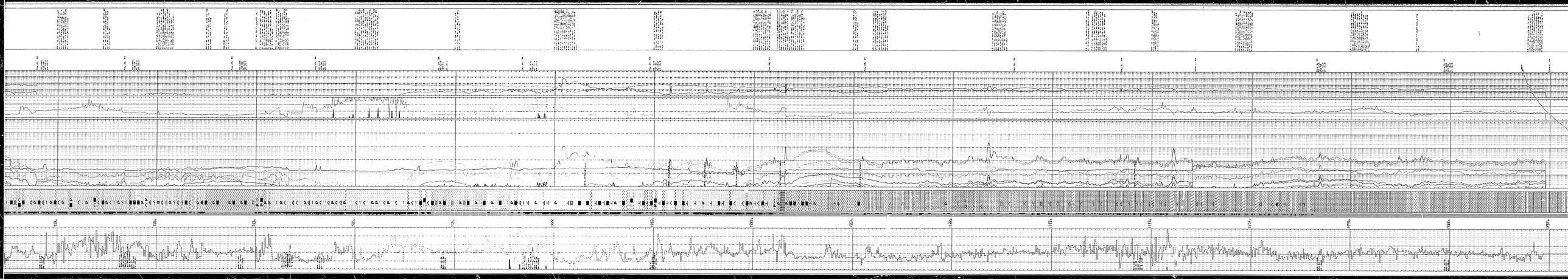
Chert Light
Chert Dark
Dolomitic
Feldspar
Ferruginous
Glauconite
Anhydrite
Gypsiferous
K Kaolinite
TT Marly
Nodules
M Mica
Mineral Crystals
Particles
Phosphate Pellets
P Pyrite
S Sulphur
Silty
Siliceous
Sandy
Salt
B Bentonite
Bituminous
Calcareous
Carbonaceous
Coal Thin Beds
Dolomitic Stringers
Ferrug Stringers
Anhy Stringers
Gypsum Stringers
Limestone Stringers
Marl Stringers
Sandstone Stringers
Argillaceous
Shale Laminae
Siltstone Stringers

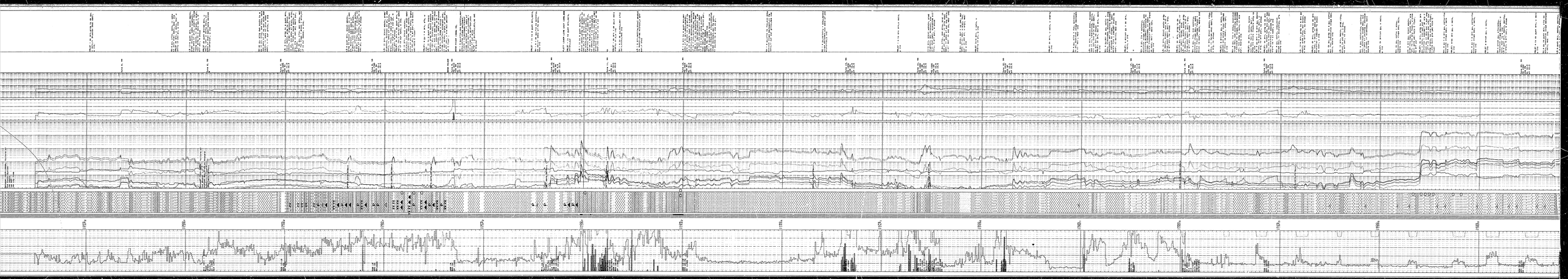
*** Oil Shows ***

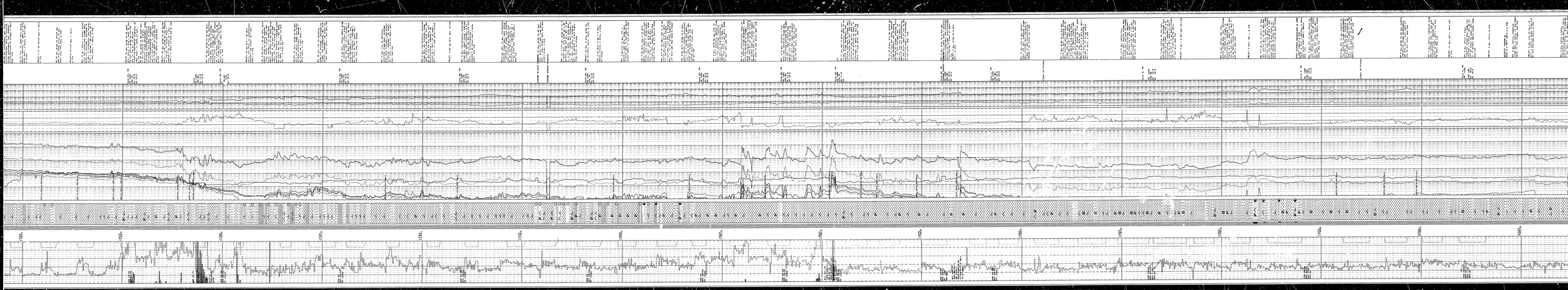
Dead OIL
Excellent
Good
Poor

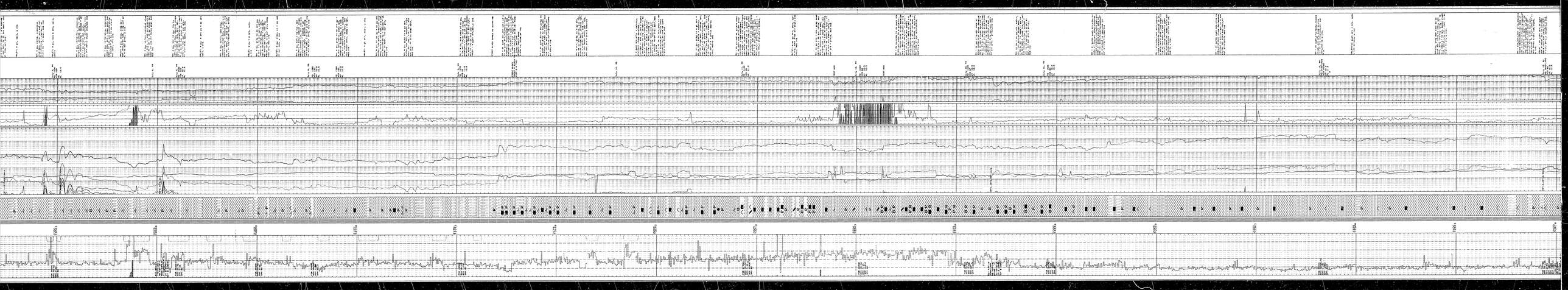


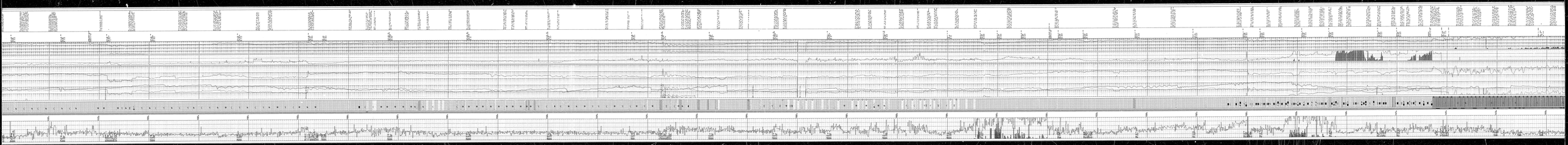


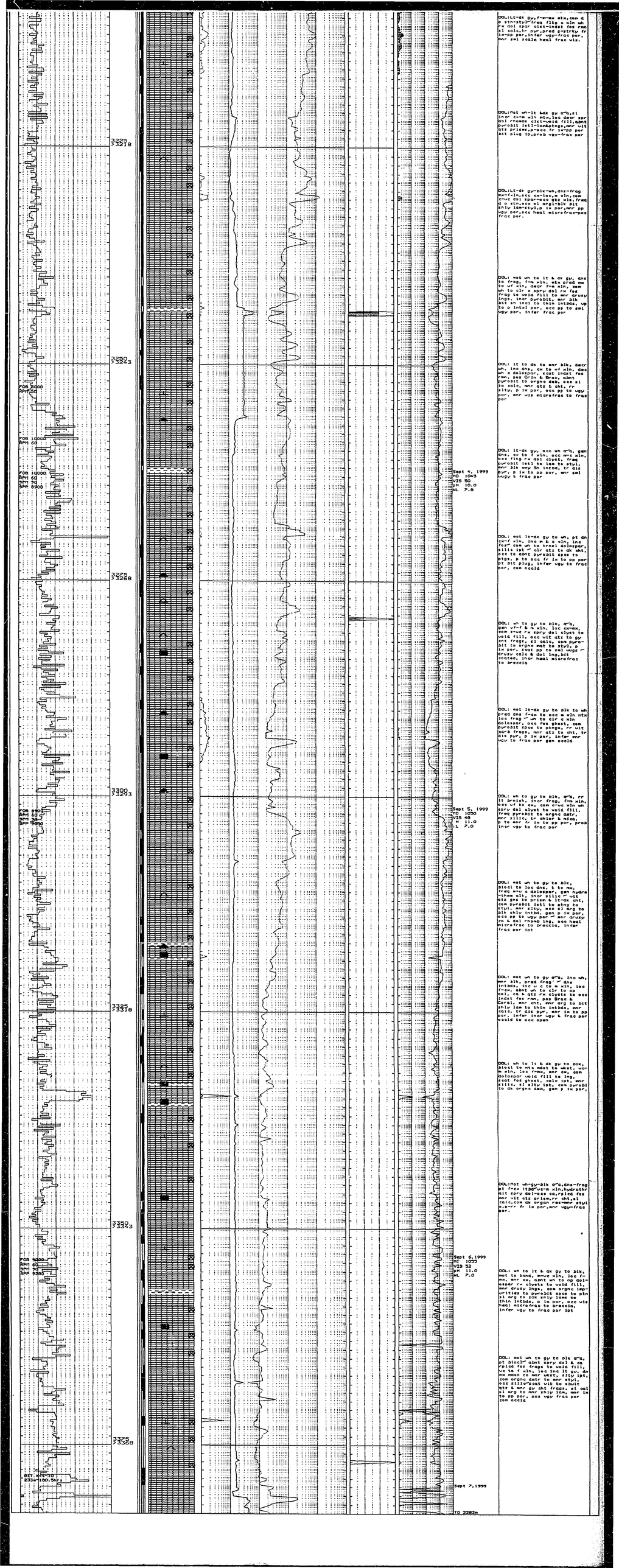











3227
3218
3250
3293
3300
3293
3325
3318
3350
3323
3375
3328
Sept 4, 1999
MD 1043
VIS 50
PH 10.0
WL 7.8
Sept 5, 1999
MD 1050
VIS 48
PH 11.0
WL 7.0
Sept 6,1999
MD 1055
VIS 52
PH 11.0
WL 7.0
Sept 7,1999
TD 3383m

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

Final Well Report (dated August 2000 with attachments)

PAJAK ENGINEERING LTD.

OILFIELD SUPERVISION & PROJECT MANAGEMENT

1660 ELVEDEN HOUSE
717 - 7th AVENUE S.W.
CALGARY, ALBERTA T2P 0Z3
24 HRS (403) 264-1197
FAX (403) 264-1584

PAJAK ENGINEERING LTD.

OILFIELD SUPERVISION &
PROJECT MANAGEMENT

FINAL WELL REPORT

CDN FOREST et al NORTH LIARD N-61

60° 30' 46.69" N
123° 42' 32.512" W

August, 2000

Prepared for

CANADIAN FOREST OIL LTD.

By

Mickey Sutherland, V.P., Manager of Projects

Pajak Engineering Ltd.
1660 Elveden House
717 - Seventh Avenue S. W.
Calgary, Alberta T2P 0Z3

SEP 2 9 2000

FINAL WELL REPORT
CDN FOREST et al NORTH LIARD N-61

INDEX

(A)	INTRODUCTION
(B)	GENERAL DATA
(C)	SUMMARY OF DRILLING OPERATIONS
(D)	GEOLOGY
(E)	WELL EVALUATION
(F)	ENVIRONMENTAL WELL REPORT
(G)	APPENDIXES TO WELL HISTORY REPORT
ATTACHMENT #1	LOCALITY MAP
ATTACHMENT #2	SURVEY PLAN
ATTACHMENT #3	BIT RECORD
ATTACHMENT #4	CASING & CEMENT REPORT
ATTACHMENT #5	DRILLING MUD PROPERTIES RECORD
ATTACHMENT #6	FORMATION PRESSURE TEST
ATTACHMENT #7	TIME DISTRIBUTION
ATTACHMENT #8	TIME DISTRIBUTION
ATTACHMENT #9	SUBSURFACE DIRECTIONAL SURVEY REPORT
ATTACHMENT #10	FINAL GEOLOGICAL WELL REPORT
ATTACHMENT #11	OPEN HOLE LOGS
ATTACHMENT #12	CASED HOLE LOGS
ATTACHMENT #13	CHECKSHOT CALIBRATION REPORT
ATTACHMENT #14	FORMATION STIMULATION
ATTACHMENT #15	FORMATION & PRODUCTION TEST RESULTS
ATTACHMENT #16	TEST PRESSURE DATA
ATTACHMENT #17	CUTTINGS ANALYSIS
ATTACHMENT #18	WELLBORE SCHEMATIC
ATTACHMENT #19	SURFACE EQUIPMENT
ATTACHMENT #20	FINAL SURVEY PLAN

(A)

(A) INTRODUCTION:

(i) SUMMARY:

The N-61 well was spudded utilizing Akita Rig #58E on March 21, 1999 to test the middle Devonian Nahanni formation for gas. Surface hole was drilled to 185mKB where 508mm casing was set and cemented. A water flow requiring 1800 kg/m^3 mud density was encountered. Intermediate hole was drilled to 736mKB where 339.7mm casing was set and cemented. After drilling to 1550mKB, directional tools were run to control deviation and drilling continued to 3147mKB. After setting and cementing 244.5mm intermediate casing at 3147mKB, 215.9mm main hole was drilled to 3383mKB. The Nahanni formation was encountered at 3141.5mKB. The open hole was plugged back to 3253mKB and tested. Test results were disappointing with water recovered from the open hole interval. Operations were shut down October 6, 1999 to enable demobilizing the drilling rig, completion equipment and camp prior to the end of the barging season.

(ii) LOCALITY MAP:

The Cdn Forest et al North Liard N-61 location is located approximately 17 kilometres north from the Amoco plant site.

See Attachment #1 and Attachment #2.

(B)

(B) GENERAL DATA:

(i) WELL NAME: CDN FOREST ET AL NORTH LIARD

WELL NUMBER: N-61
SURFACE LOCATION: 60° 30' 46.69" NORTH
123° 42' 32.512" WEST

BOTTOM HOLE LOCATION: 60° 30' 49.33" NORTH
123° 42' 24.514" WEST

EXPLORATION AGREEMENT NUMBER: EL-263
WID: 1863

(ii) WELL LOCATION:

The Global Position System (GPS) was used as the survey system to determine the final well position. The well position was based on geological and seismic information.

(iii) UNIQUE WELL IDENTIFIER: 300N61604012300

(iv) OPERATOR AND DRILLING CONTRACTOR:

OPERATOR: Canadian Forest Oil Ltd.
#600, 800 - Sixth Avenue S. W.
Calgary, Alberta
T2P 3G3

DRILLING CONTRACTOR: Akita Drilling Ltd.
1110, 505 - Third Street S. W.
Calgary, Alberta
T2P 3E6

(v) DRILLING UNIT:

NAME: AKITA RIG #58E
TYPE: NATIONAL 8OUE
REGISTRY: Not Applicable
YEAR BUILT: 1978
SHIP YARD: Not Applicable

(vi) POSITION KEEPING:

Land based drilling unit using anchor and guy wire system.

(vii) SUPPORT CRAFT:

Not applicable.

(viii) DRILLING UNIT PERFORMANCE:

Not applicable. Land based drilling unit.

(ix) DIFFICULTIES AND DELAYS:

None

(ix) TOTAL WELL COST:

Drilling:	$17,180,187.00
Completion:	$ 1,205,000.00
Clean-Up:	$ 2,398,514.00
Total:	$19,578,701.00

(C) SUMMARY OF DRILLING OPERATIONS:

(i) ELEVATIONS:

Kelly Bushing:	610.7m
Casing Flange:	610.6m
Ground:	604.0m

(ii) TOTAL DEPTH:

Drilled Depth:	3384.0mKB
Logged Depth:	3379.0mKB
Plugged-Back Depth:	3253.0mKB

(iii) SPUD DATE:

1999.03.21 @ 18:00 hours.

(iv) COMPLETED DRILLING DATE:

1999.09.07 @ 08:45 hours.

(v) RIG RELEASE DATE:

1999.10.07 @ 00:01 hours.

(vi) WELL STATUS:

Suspended.

(vii) HOLES SIZES & DEPTHS:

	Hole Size (mm)	Hole Depth (mKB)
Conductor:	914.4	23.7
Conductor:	660.4	185.0
Surface:	444.5	735.6
Intermediate:	311.2	3147.0
Production:	215.9	3384.0

See Attachment #3, Bit Record.

(viii) CASING & CEMENT RECORD:

See Attachment #4, Casing & Cement Record.

(ix) SIDETRACKED HOLE:

None.

(x) DRILLING FLUID:

See Attachment #5, Drilling Mud Properties Record.

(xi) FISHING OPERATIONS:

Problem:	Spider pin dropped in well
Day:	17
Date:	1999.04.01
Depth:	137mKB
Solution:	Fished out with magnet.
Time:	21.5 hours (including trip time)

(xii) WELL KICKS AND WELL CONTROL OPERATIONS:

	Day	Depth	Progress	Remarks:
#1	7	71	32	1999.03.22 @ 00:00 Hours: Drilled 660mm hole and surveyed as required to 70mKB. Tripped out bit #1A. Ran in bit #2A. Drilled 660mm hole and surveyed as required to 71mKB at 24:00 hours 2000.03.22. Note 1: Formation very hard from 58-71mKB. Note 2: At approximately 06:00 hours 1999.03.23 at a depth of 74mKB, had a 1.0 metre flow of 2-3m^3 water per minute. Mixing barite to 1250 kg/m^3 density to control water flow.
	8	78	7	1999.03.23 @ 00:00 Hours: Drilled 660mm hole and surveyed as required to a depth 76mKB. Had drilling break and well began to flow water at a rate of 2m^3/minute. Diverter line was opened and 300m^3 of water ran off location. Mixed weight material and increased density to 1200 kg/m^3. Kill fluid was pumped and well was static. Drilled 660mm hole to 78mKB. Well was losing fluid and then started to flow and make water. Diverter line was opened and flowed 150m^3 of water off location. Mixed weight material and pumped a 1185 kg/m^3 kill mud. Well was static for 2 hours while mud was being mixed. Well then started to flow. Another 1185 kg/m^3 pill was pumped. Well was flowing. Mixed 1210 kg/m^3 pill and pumped it. When weighted mud reached surface, the pump was stopped. Fluid in annulus dropped 2m and was static for 20 minutes. Well began to flow. Mixed mud to 24:00 hours 1999.03.23.

(xiii) **WELL KICKS - Cont'd**

9	84	6	1999.03.24 @ 00:00 Hours: Mixed barite and gel, increased mud density to 1250 kg/m^3. Flowed 250m^3 of clear water off location. Pumped 1250 kg/m^3 density mud to mud. Monitored well. Mixed loss circulation pill. Pumped 4-3m^3 LCM pills. Pre-mixed mud in Wadeco process tank. Well static. Cleaned to bottom. Drilled 660mm hole to a depth of 84mKB. Ran survey. Well began to flow. Attempted to mix barite on the fly and kill water flow, but flow was too great. Caught drilling mud in surface tanks and diverted clean water flow off location. Mixed barite and gel to increase density to 24:00 hours 1999.03.24. Note 1: Experienced drilling break from 83-84mKB. This is where water flow requiring higher mud density was encountered. Note 2: Earlier water flows at 74 and 78mKB were contained by 1250 kg/m^3 density.
10	87	3	1999.03.25 @ 00:00 Hours: Mixed barite and gel, increased mud density to 1345 kg/m^3. Flowed 720m^3 of clear water off location. Pumped kill mud and stopped water flow. Mixed barite and gel in Zeta pre-mix tank and built volume in surface system, density of 1370 kg/m^3. Drilled 660mm hole to 87mKB. Fluid loss to hole 7.5m^3/hour. Lost a total of 45m^3. Mixed barite, gel and lost circulation material and built volume to 24:00 hours 1999.03.25.
11	100	13	1999.03.26 @ 00:00 Hours: Mixed loss circulation material and barite, built volume. Drilled 660mm hole to 87.75mKB, lost 10m^3 of drilling mud in 35 minutes. Mixed loss circulation material and built volume. Drilled 660mm hole to 100mKB at 24:00 hours 1999.03.26.
12	111	11	1999.03.26 @ 00:00 Hours: Drilled 660mm hole and surveyed to a depth of 103mKB. Density of drilling fluid: 1345 kg/m^3. Well started flowing. Had a 4m^3 influx of fluid. Mixed barite and increased density to 1420 kg/m^3. Flow checked. Well was dead. Mixed barite and increased density to 1440 kg/m^3. Drilled 660mm hole and surveyed to a depth 111mKB. Density of drilling fluid 1420 to 1440 kg/m^3. Well started to flow. Had a 7m^3 influx of fluid. Mixed barite and increased density to 1520 kg/m^3. Flow checked. Well was still flowing. Mixed barite and increased density of drilling mud to 24:00 hours 1999.03.27.

(xiv) **WELL KICKS - Cont'd**

	13	121	10	1999.03.28 @ 00:00 Hours: Mixed barite and increased density to 1610 kg/m^3. Flow checked. Well was dead. Cleaned out sand traps with vacuum truck. Worked on both rig mud pumps. Repaired valves and cleaned out pumps. For 105 minutes the well remained dead. It then began to flow. Mixed barite and increased density to 1710 kg/m^3. Flow checked. Well was dead. Worked on rig pumps, cleaned sand trap and settling tank. Drilled 660mm hole and surveyed as required to 121mKB. Lost 15m^3 fluid to formation. Density while drilling 1780 kg/m^3. Stopped drilling. Mixed loss circulation material to 24:00 hours 1999.03.28.
	14	128	7	1999.03.29 @ 00:00 Hours: Mixed loss circulation material. Drilled 660mm hole and surveyed as required to 128mKB. Worked on top drive. Changed hydraulic mud saver valve. Cleaned out mud pumps. Repaired valves damaged with LCM. Attempted to break circulation. Jets were plugged. Tripped for plugged jets to 24:00 hours 1999.03.29. Note 1: Well started flowing while out of hole. Note 2: Buttons broken on outside rows on all cones (bit #2A).
	15	135	7	1999.03.30 @ 00:00 Hours: Tripped in hole with bit #3A (RR1). Had 5m^3 influx of water on trip. Density of mud dropped on trip from 1700 kg/m^3 to 1480 kg/m^3. Circulated and mixed barite. Increased density to 1750 kg/m^3. Drilled 660mm hole to a depth 135mKB at 24:00 hours 1999.03.30. Note 1: No Kicks, water flows while drilling or lost circulation zones experienced since 121mKB. Note 2: Water influx while tripping bit #2A due to swabbing caused by inability to circulate, created by plugged jets.
#2	28	262	41	1999.04.12 @ 00:00 Hours: Drilled 444.5mm hole from 221-234mKB. Surveyed at 232mKB, misrun. Rig serviced. Drilled 444.5mm hole from 234-243mKB with top drive. Rough drilling from 242-243mKB. Increase in mud volume. Flow checked. Well was static. Shut down centrifuges. Pumped weighted premix to mud system. Drilled 444.5mm hole from 243-252mKB. Rig serviced. Surveyed at 250mKB, .875 degrees. Well flowed with pump shut off. No increase while pumping with 1170 kg/m^3 density. Increased density to 1220 kg/m^3. Well static. Drilled 444.5mm hole from 252-262mKB to 24:00 hours 1999.04.12.

(xv) **WELL KICKS - Cont'd**

	29	267	5	1999.04.13 @ 00:00 Hours: Drilled 444.5mm hole from 262-267mKB. Flow checked. Rig serviced. Pumped weighted lost circulation pill, at 1225 kg/m^3, while drilling. Circulated bottoms up. Weighted up to 1250 kg/m^3. Well still flowing. Circulated and weighted up mud to 1305 kg/m^3. Survey at 262mKB, 0.50 degree. Tripped out of hole. Picked up 2-3 point reamers, 1 string stabilizer and 1 shock sub for total of 2 shock subs. Ran in hole to 213mKB. Reamed from 213-222mKB. Stuck for 0.50 hour. Jarred free. Reamed from 222-264mKB at 24:00 hours 1999.04.13.
	30	298	31	1999.04.14 @ 00:00 Hours: Reamed 444.5mm hole from 264-267mKB. Drilled 444.5mm hole from 267-293mKB. Flow checked well at 269mKB. Transferred 15m^3 1500 kg/m^3 mud to active system and pumped it down hole. Returned 1260 kg/m^3, 32 sec/litre viscosity at surface. Flow checked well. Well flowed at 0.5m^3/minute. Shut well in. Rotated drill string at 3 RPM. Mixed mud in tanks to 55 sec/litre and a density of 1420 kg/m^3. Displaced to hole. Hole remained static for 0.5 hour, then began to flow. Shut well in. Mixed mud in tanks to 56 sec/litre and a density of 1410 kg/m^3. Opened well and circulated mud system. Returned a density of 1370 kg/m^3 at surface. Drilled 444.5mm hole from 293-298mKB at 24:00 hours 1999.04.14. Note 1: Increase of mud density from 1370 kg/m^3 to 1390 kg/m^3 decreased the well flow from 3.25m^3/hour to 2.5m^3/hour. Note 2: Well seems to be controlled, static, with a mud density of 1430 kg/m^3.
	31	317	19	1999.04.15 @ 00:00 Hours: Drilled 444.5mm hole from 298mKB, surveying as required, to 317mKB at 24:00 hours 1999.04.15. Note 1: Raised and controlled mud density at 1530 kg/m^3. Note 2: Transferred 15m^3 1500 kg/m^3 premix mud to active system which raised density from 1450 kg/m^3 to 1490 kg/m^3 then increased system to 1530 kg/m^3. Note 3: Increased mud density to control water flow into system. If water flow is not curtailed, the mud gets water cut, density drops and water flow increases. This further dilutes mud and increases water flow.
#3	41	505	12	1999.04.25 @ 00:00 Hours: Tripped in bit #5B, 4JS. Reamed hole from 467-493mKB. Drilled 444.5mm hole, surveying as required, to 505mKB at 24:00 hours 1999.04.25. Note: Had 5.6m^3 influx of fluid on trip, density came out of hole at 1580 kg/m^3, prior to trip, 1615 kg/m^3. Increased density to 1630 kg/m^3. No further increase while reaming or drilling.

(xvi) WELL KICKS - Cont'd

#4	62	756	11	1999.05.16 @ 00:00 Hours: Drilled 311mm hole to 756mKB. Circulated hole clean. Surveyed at 752mKB, 1.8 degrees, azimuth 47. Tripped bit #1. Flow checked at 5, 10 and 15 stands. Well flowed. Returned to bottom. Shut well in. Annulus stabilized at 1000 kPa. Circulated hole. Increased viscosity and density with barite and barite recovery. Shut well in due to water influx affecting mud properties. Circulated mud tanks, increased viscosity and density to 1210 kg/m^3. (Annulus pressure at 600-650 kPa.) Displaced hole to 1210 kg/m^3 mud. Monitored well, static. Increased density in mud tanks to 1210 kg/m^3. Circulated and conditioned mud. Flow checked well, static. Pumped pill and tripped bit #1. Flow checked at 5, 10, 15 stands, HWDP, drill collars and out of hole. Tripped out to 24:00 hours 1999.05.16. Note: Conducted BOP drill and discussion of kicks with Akita's night shift.
#5	76	1142	28	1999.05.30 @ 00:00 Hours: Drilled 311mm hole, with surveys as required, from 1114-1142mKB. Circulated bottom hole sample. Hoisted to change bit and BHA to 24:00 hours 1999.05.30. Note 1: Drilled with 16000-17000 daN to control deviation, RPM 72 from 1114-1142mKB. Note 2: New BHA: Bit, dog sub, bit sub, short drill collar, 3 pt roller reamer, nonmagnetic drill collar, 3 pt roller reamer, shock sub, 3-228mm drill collars, jars, 5-228mm drill collars, XO, 6-178mm drill collars, XO, 9 HWDP. Note 3: New BHA is a slight pendulum with ± 5m bit to 3 pt slight dropping assembly.
	77	1160	18	1999.05.31 @ 00:00 Hours: Flow checked well 15 stands off bottom. Well was static for 18 minutes and then began to flow. Flowed 0.10m^3. Tripped back to bottom. 0.50m^3 influx (water). Drilled 311mm hole to 1146mKB. Increased density to 1220 kg/m^3. Hoisted to change bit and BHA. Made up new bit and BHA. Tripped in hole. Washed 15m to bottom. No fill. Drilled 311mm hole, surveying as required, to 1160mKB at 24:00 hours 1999.05.31. Note 1: Drilled with 15000-16000 daN, 52 RPM, to control deviation from 1146-1160mKB. Note 2: Very erratic torque from 1151-1160mKB. Formation streaked with limestone, dolomite and chert to 25%. Note 3: Had to keep RPM low to not break outside row of inserts off cones. Note 4: Penetration rate varied widely from 10 metres per hour to 1 metre per hour.

(xvii) WELL KICKS - Cont'd

#6	96	1634	63	1999.06.19 @ 00:00 Hours: Drilled 311mm hole with mud motor and MWD, surveying as required and with rig services, from 1571-1634mKB at 24:00 hours 1999.06.19. Note 1: Peak of 25.94% gas from zone at 1610-1611mKB. Influx continued, raised density to 1270 kg/m^3. Gas down to 12% prior to connection at 1645mKB, up to 21% after connection. Raised density to 1280 kg/m^3. Note 2: Sliding 3 metres per single.
#7	170	3150	3	1999.09.01 @ 00:00 Hours: Made up BHA. Tripped in bit #2D to 285mKB. Function tested MWD tool, no results. Slipped and cut drilling line. Function tested MWD tool, OK. Tripped bit #2D to 3146mKB. Circulated and conditioned mud. Conducted BOP drill and SOS safety meeting prior to drill out. Drilled out float shoe and 215.9mm hole to 3150mKB. Flow checked well, slight flow. Circulated bottoms up. Shut in well and monitored pressures. Pressure too small to measure. Opened up well. Well flowed. Circulated, increasing mud density with calcium carbonate to 24:00 hours 1999.09.01. Note 1: Hole Drag: 10,000 daN up, 6,000 daN down. Note 2: Torque: 9,500-10,500 Nm. Note 3: Mud Density: 1025 kg/m3 - slight flow. 1040 kg/m3 - well static. Current Mud Density: 1040 kg/m3. Note 4: Decided not to run leak off test as potential to break down fractured carbonate and loss circulation existed.
	171	3195	45	1999.09.02 @ 00:00 Hours: Circulated and increased mud density to 1025 kg/m^3, flow checked, slight flow. Circulated and increased mud density to 1040 kg/m^3, flow checked, well static. Drilled 215.9mm hole with surveys and rig services as required, to 3195mKB at 24:00 hours 1999.09.02. Note 1: Hole Drag: 6,000 daN up, 9,000 daN down. Note 2: Torque: 9,000-11,500 Nm. Note 3: Bottom Hole Temperature MWD - 78 degrees C. Note 4: Conducted BOP drill and discussion with day crew.

(xviii) FORMATION LEAK-OFF TESTS (FLOT):

One Formation Leak-off test was conducted on drill out of conductor casing on 1999.05.15.

See Attachment #6 for test results.

(xix) TIME DISTRIBUTION:

See Attachment #7 and #8.

(xx) DEVIATION SURVEY:

See Attachment #9, Subsurface Directional Survey Report.

(xxi) ABANDONMENT PLUGS:

Type of Plug	Interval (mKB)	Felt	Cement (m^3)
Plug Back #1	3333.0-3383.0	3328.6	2.03
Plug Back #2	3290.0-3328.0	3300.7	1.58
Plug Back #3a	3300.7-3255.0	Circulated out	1.88
Plug Back #3b	3300.7-3255.0	3300.3	1.88
Plug Back #4	3300.0-3255.0	3280.0	1.88
Plug Back #5	3280.0-3255.0	3280.0	1.50
Plug Back #6	3280.0-3255.0	3253.0	1.50

(xxii) COMPOSITE WELL RECORD:

See Attachment #10, Lithology Strip Log, and Final Geological Well Report.

(D`

(D) GEOLOGY:

(i) DRILL CUTTINGS:

(a) Sample frequency: 5m samples from 30m to 3380mKB.

(b) Distribution of samples: 4 sets of 7 ml vials, 1 set of bagged unwashed cuttings.

(c) Location of stored suites of samples:

2 sets of 7 ml vials and 1 set of bagged unwashed samples were shipped to the Geological Survey of Canada, Core and Sample Depository, 3303 - 33rd Street N. W., Calgary, Alberta T2L 2A7. Telephone 403-284-0110.

1 set of 7 ml vials was delivered to the Calgary office of Ranger Oil Ltd., #900, 311 - Sixth Avenue S. W., Calgary, Alberta T2P 3H2. Telephone #403-232-5200.

1 set of 7 ml vials was retained by the operator, Canadian Forest Oil Ltd., and stored at Kestrel Data (Canada) Limited, 4221 - 23 B Street N. E., Calgary, Alberta T2E 7V9. Telephone 403-250-1119.

(ii) CORES:

No cores were cut.

(iii) LITHOLOGY:

See Attachment #10, Lithology Strip Log, and Final Geological Well Report (by DAX Consulting Ltd.). Scale of Strip Log: 1:240.

(iv) STRATAGRAPHIC COLUMN:

Formation Name	Formation Age	General Lithology	KB Depth (Measured)	KB Depth (TVD)	Elevation (Subsea)	Thickness (TVD)
KB			0	0	610.7	
Ground			6.7	6.7	604.0	
Mattson	Upper Miss.	Sandstone and Shale	Samples caught from 30m	6.7	604.0	1048.5
Flett	Lower Miss.	Shale and Limestone	1051.5	1048.5	-437.5	314.5
Besa River	Lower Miss.	Shale, Limestone and Marlstone	1366.7	1363.0	-752.3	794.2
Exshaw	Upper Devonian	Black Shale	2164.0	2157.2	-1546.5	306.0
Lower Besa River	Upper Devonian	Shale	2470.0	2463 2	-1852.5	481.3
Horn River	Middle Devonian	Shale and Marlstone	2951.5	2944.5	-2333.8	190.0
Nahanni	Middle Devonian	Dolomite Marlstone and Shale	3141.5	3134.5	-2523.8	242.6
T. D.	Middle Devonian		3384.0	3377.1	-2766.4	

See Attachment #10 for detailed Lithology.

(v) BIOSTRATAGRAPHIC DATA:

See Attachment #10.

(E)

(E) WELL EVALUATION:

(i) OPEN HOLE LOGS:

Date	Run Number	Log Type	Interval (mKB)	Service Company
1999-08-18	One	STI-SP-GR	3144.8-735.5	Computalog
to		SPD-CNS-UGR-DAC	3122.2-735.5	
		MDA-Sonic	3136.2-735.5	
1999-08-23	Two	SED-UGR-Dipmeter	3146.8-1250.0	Computalog
	Three	VSP-Velocity Survey	3141.5-500.0	Computalog
1999-09-10	Four	STI-SP-GR	3376.9-3148.0	Computalog
to		SPD-CNS-UGR-DAC	3154.6-3148.0	
		MDA-Sonic	3368.3-3148.0	
1999-09-12	Five	EMI-UGR	3379.0-3148.0	Computalog
	Six	VSP-Velocity Survey	3379.0-3142.5	Computalog

See Attachment #11 for Open Hole Logs

(ii) OTHER LOGS:

Date	Run Number	Log Type	Interval (mKB)	Service Company
1999-09-19	One	Ultra Sonic Cement Imager Log	3140.0-4.0	Schlumberger
1999-09-19	One	Compensated Cement Bond Log	3140.0-4.0	Schlumberger
1999-09-19	One	Ultrasonic Casing Imager Log	3140.0-4.0	Schlumberger

See Attachment #12 Cased Hole Logs and Attachment #9 Deviation Drift Survey.

(iii) SYNTHETIC SEISMOGRAMS, VELOCITY SURVEYS, VERTICAL SEISMIC PROFILES:

1999.08.18 Run # One, Velocity Survey, Check Shot Calibration Report, from 3140.2mKB to 735.5mKB.

See Attachment #13.

(iv) FORMATION STIMULATION:

See Attachment #14.

(v) FORMATION AND PRODUCTION TEST RESULTS:

See Attachment #15 for clean up and test data.

(vi) DETAILED TEST PRESSURE DATA READINGS:

See Attachment #16 for pressure data.

(F)

(F) ENVIRONMENTAL WELL REPORT:

Not Applicable. As the well is currently suspended, pending evaluation of possible testing of additional zones. It is important to note however, that no sumps for drilling were required as a closed mud system was used to drill the well. The wellsite and campsite have been cleaned up, including mix, cover and bury of campsite sumps.

PLEASE NOTE: THIS WELL HAS BEEN TAKEN OVER BY RANGER OIL LTD.

G

(G) APPENDIXES TO WELL HISTORY REPORT:

(i) OIL, GAS AND WATER ANALYSIS:

See Attachment #17 analysis.

(ii) RESERVOIR ENGINEERING DATA ON CORES AND CUTTINGS, POROSITY, PERMEABILITY, FLUID SATURATION, DENSITY MEASUREMENTS, ETC.:

See Attachment #17 for cuttings analysis.

(iii) PHOTOGRAPHIC RECORD OF CORE UNDER NATURAL AND ULTRA-VIOLET LIGHT:

No cores were cut.

(iv) DETAILS OF FORMATION & PRODUCTION TESTING:

See Section (E) (v), Attachment #15.

(v) PETROLOGICAL REPORTS:

Not Applicable.

(vi) PALEONTOLOGICAL REPORTS:

Not Applicable.

(vii) PALYNOLOGICAL REPORTS:

Not Applicable.

(viii) GEOCHEMICAL REPORTS:

Not Applicable.

(ix) AGE DETERMINATIONS (K/AR, ETC.):

Not Applicable.

(x) PROCESSED COMBINATION OF WELL LOGS:

Not Applicable.

(xi) DEVIATION AND DRIFT RECORDS:

See Section (C) (xv), Attachment #9, Final Deviation Survey.

(xii) GAS DETECTOR LOGS OR MUD LOGGING RECORDS.

See Section (C) (xvii), Attachment #10, Final Mud Logger's Report.

(xiii) COMPLETION DATA SUCH AS PERFORATED INTERVALS, DOWNHOLE EQUIPMENT, TUBING & STIMULATION RECORDS:

See Attachment #18, Wellbore Schematic and Attachment #19 for Surface Equipment.

See Section (E) (iv), Attachment #16, Formation Stimulation Records.

(xiv) COMPOSITE WELL RECORDS:

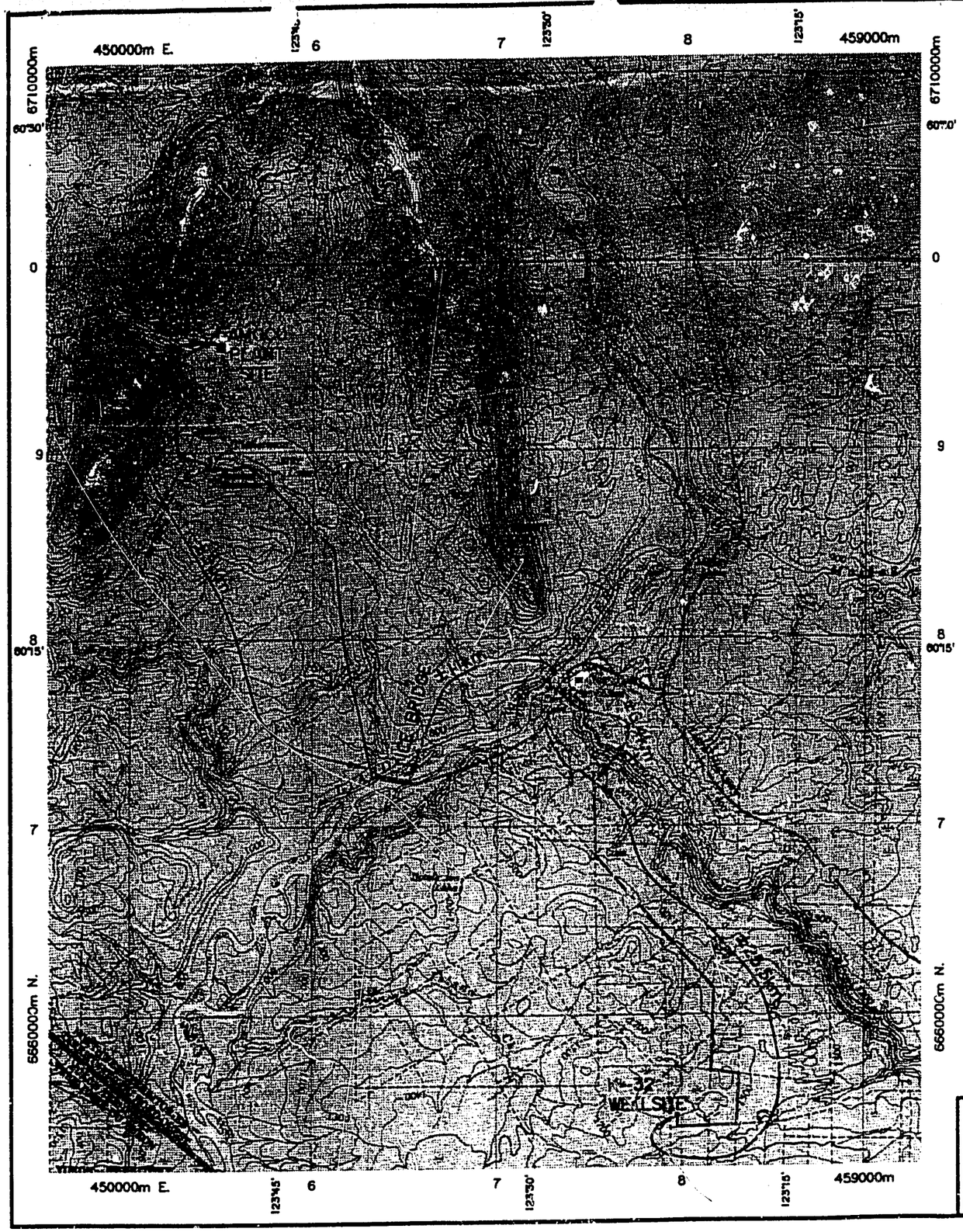
See Section (C) (xvii), Attachment #10, Lithology Strip Log.

(xv) FINAL SURVEY PLAN:

See Attachment #20 for Final Survey plan.

(xvi) MUD DATA LOGGER'S REPORT:

See Section (C) (xvii), Attachment #10, Final Geological Well Report



Access Route

for

CDN FOREST et al FORT LIARD K-32

and

CDN FOREST et al FLETT N-61

Northwest Territories

0 5,000 10,000 15,000 20,000 25,000 m

Scale 1:250,000

January 7th, 1999

SESL GEOMATICS
LAND SURVEYING & SURVEY ENGINEERING

Surveyor: Calculator:
Draftsperson: CW Chk'd: PL

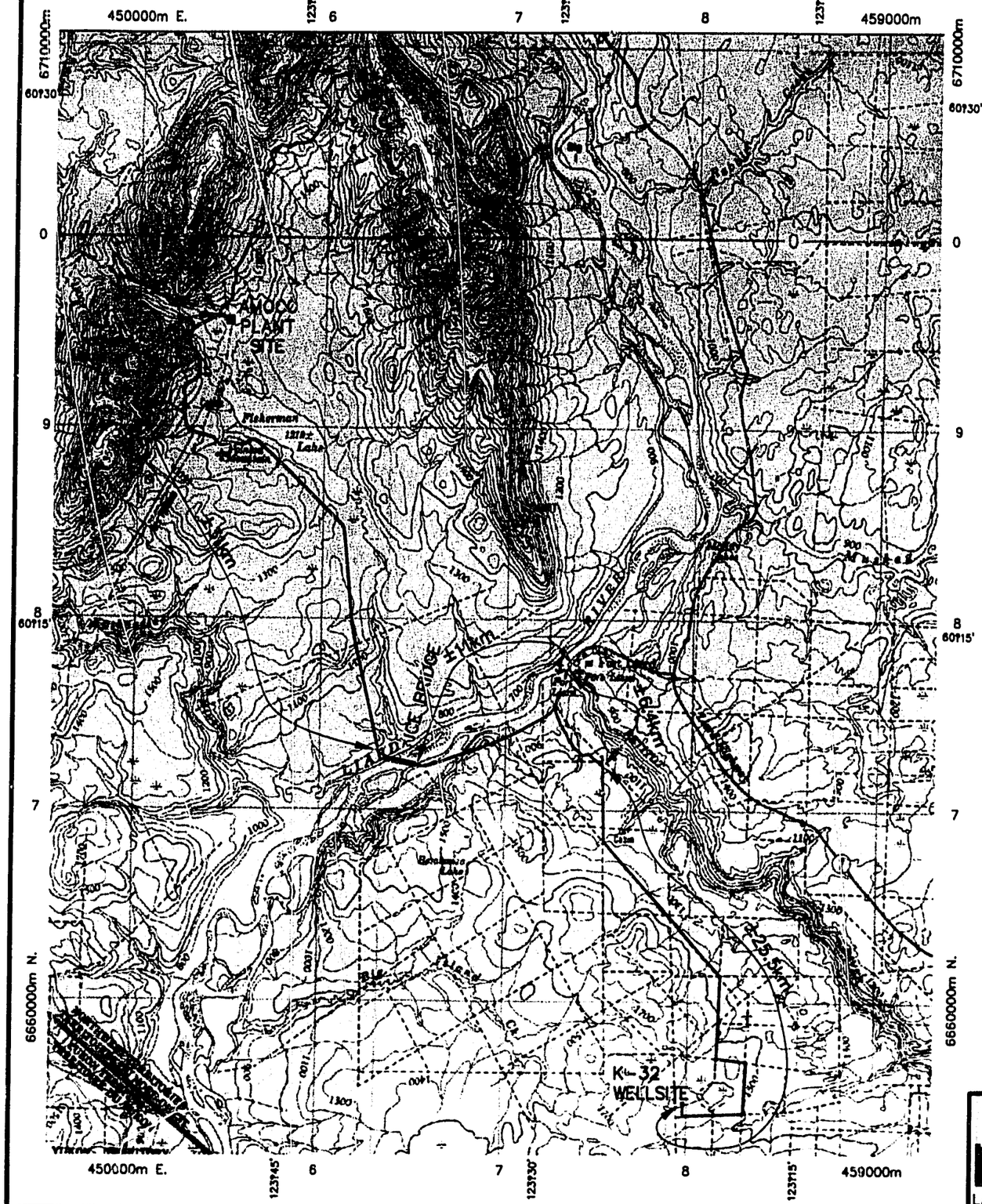
Job No.: 98N018C

No.	Revision	Date

Toll Free 1-800-561-2389 Ph. (403) 234-9018 Fax. (403) 266-2919

Acad File: 98N018C.dwg

ach #2



Access Route

for

CDN FOREST et al FORT LIARD K-32

and

CDN FOREST et al FLETT N-61

Northwest Territories

0 5,000 10,000 15,000 20,000 25,000 m

Scale 1:250,000

January 7th, 1999

SESL GEOMATICS
LAND SURVEYING & SURVEY ENGINEERING

Surveyor: Calculator:
Draftsperson: CW Chk'd: PL

Job No.: 98N018C

No.	Revision	Date

TOLL FREE 1-800-565-2389 PH. (403) 234-9018 FAX. (403) 266-2919

Acad File: 98N018C.dwg

ach #3

B I T R E C O R D

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:33:54 1999

RUN	BIT#	SIZE (mm)	TYPE	MAKE	SERIAL NUMBER	NOZZLE SIZE(mm) #1/4	#2/5	#3/6	DEPTH IN	DEPTH OUT	ON BIT DRILL (m)	ON BIT DRILL+CORE (hr)	ON BIT REAMING (m)	ON BIT REAMING (hr)	I-O-G-L	B-G-O-R	ROP MIN (m/hr)	ROP MAX (m/hr)	ROP AVG (m/hr)	WOB MIN daN	WOB MAX daN	WOB AVG daN	RPM MIN	RPM MAX	RPM AVG	AVG MUD DEN
1	1A	660.0	R-3	Wester	KM110	22.0	22.0	22.0	31	70	39	14.00	0	0.00	3-3-WT-A	E-I -WT-PR	2.8	4.6	3.7	4000	8000	6000	40	65	52	1071
1	1B	444.5	3JS	Smith	NB 3915	22.0	22.0	20.0	185	267	82	40.50	0	0.00	1-2-FC-A	1-I -WT-BHA	2.0	3.2	2.6	10000	17000	13500	25	80	52	1146
1	1D	215.9	J7	HW	CF863	9.5	9.5	9.5	3147	3147	0	2.00	0	0.00	1-1- -A	1-I - -BHA	0.0	0.0	0.0	1000	6000	3500	40	50	45	
1	2A	444.5	3JS	Smith	NB 3915	22.0	22.0	20.0	185		0	0.00	0	0.00	- - -	- - -	0.0	0.0	0.0	0	0	0	0	0	0	
1	2BRR	444.5	3JS	Smith	NB 3915	22.0	22.0	20.0	267	335	68	59.26	54	5.25	6-6-FC-A	E-I -CT-PR	1.1	1.8	1.5	1000	27000	14000	30	80	55	1492
1	2D	215.9	F3R	Smith	LG0661	9.5	9.5	9.5	3147	3380	233	100.50	0	0.00	4-4-WT-A	3-I -CT-PR	1.5	2.8	2.1	4000	14000	9000	40	60	50	1047
2	2A	660.0	C3JC	RBI	BJ201	17.5	17.5	17.5	70	128	58	62.00	0	0.00	2-7-BT-H	E-I -WT-PR	0.7	1.3	1.0	8000	15000	11500	35	135	85	1633
2	3B	444.5	3JS	Smith	XJ 4681	12.7 28.0	28.0	28.0	335	422	87	75.50	0	0.00	6-8-BT-G	E-I -FC-PR	1.1	1.3	1.2	18000	25000	21500	35	50	42	1605
2	3D	215.9	EHP53A	REED	TC1149	9.5	9.5	9.5	3380		3	1.25	0	0.00	- - -	- - -	2.4	2.4	2.4	0	0	0	0	0	0	1042
3	3ARR	660.0	R-3	H.W	KM110	25.0	25.0	25.0	128		7	18.25	0	0.00	7-7-WT-A	F-I -WT-PR	0.4	0.4	0.4	10000	12000	11000	85	100	92	1464
3	4B	444.5	3JS	Smith	NB3936	28.0	28.0	28.0	422		33	47.75	0	0.00	- - -	- - -	0.4	0.7	0.6	13000	32000	22500	35	50	42	1609
4	4A	660.0	R4J	HW	FH243	25.0	25.0	25.0	134		3	11.25	0	0.00	6-6-WT-A	E-I -BT-PR	0.3	0.3	0.3	12000	15000	13500	35	45	40	1802
5	5A	660.0	2JS	Smith	KS7075	25.0	25.0	25.0	137	153	16	43.50	0	0.00	2-2-WT-H	E-I -WT-PR	0.4	0.5	0.5	14000	20000	17000	30	50	40	1784
6	6A	444.5	C5	RBI	PR-243	25.0	25.0	25.0	153	185	33	37.00	0	0.00	5-5-WT-A	E-I -WT-TD	0.8	0.9	0.9	23000	31000	27000	45	55	50	1694
7	7ARR	660.0	2JS	Smith	KS7075	25.0	25.0	25.0	153	185	0	0.00	32	35.25	3-7-FC-A	3-I -BT-TD	0.0	0.0	0.0	8000	22000	15000	35	50	42	1694
11	4B	444.5	3JS	Smith	NB3936	28.0	28.0	28.0	422	493	71	80.50	0	0.00	6-8-BT-A	E-4 -WT-PR	0.9	0.9	0.9	30000	35000	32500	35	45	40	1605
12	5B	444.5	4JS	Smith	SAT502	28.0	28.0	28.0	493	601	108	121.25	0	0.00	5-7-WT-A	F-I -BT-PR	0.9	1.1	1.0	28000	35000	31500	35	40	37	1621
13	6B	444.5	4JS	Smith	NB8223	28.0	28.0	26.0	601	678	77	88.75	0	0.00	6-8-BT-H	E-I -WT-PR	0.9	1.1	1.0	18000	30000	24000	20	38	29	1621
14	7B	444.5	C-5	RBI	PR244	28.0	28.0	28.0	678	722	44	68.75	0	0.00	6-7-FC-A	8-I -BT-PR	0.6	0.7	0.6	28000	30000	29000	30	38	34	1621
15	8BRR	444.5	C-5	RBI	PR243	0.0	0.0	0.0	722	727	5	18.75	0	0.00	5-6-FC-A	4-I -FC-PR	0.3	0.3	0.3	29000	30000	29500	30	38	34	1629
16	9B	444.5	3JS	Smith	XC6176	28.0	28.0	28.0	727	736	9	11.25	0	0.00	2-2-FC-A	1-I -NO-TD	0.8	0.8	0.8	28000	32000	30000	30	40	35	1217

B I T R E C O R D

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:33:55 1999

RUN	BIT#	SIZE (mm)	TYPE	MAKE	SERIAL NUMBER	NOZZLE SIZE(mm) #1/4	#2/5	#3/6	DEPTH IN	DEPTH OUT	ON DRILL (m)	ON DRILL+CORE (hr)	BIT REAMING (m)	BIT REAMING (hr)	I-O-G-L	B-G-O-R	ROP MIN (m/hr)	ROP MAX (m/hr)	ROP AVG (m/hr)	WOB MIN daN	WOB MAX daN	WOB AVG daN	RPM MIN	RPM MAX	RPM AVG	AVG MUD DEN
17	1	311.0	ATJ 33	HW	F99BD	11.9	11.9	11.9	736	756	20	13.75	0	0.00	2-2-NO-A	E-I -NO-BHA	1.5	1.5	1.5	8000	12000	10000	30	40	35	1160
18	2RR	311.0	ATJ 33	HW	F99BD	11.9	11.9	11.9	756	840	84	52.50	0	0.00	7-8-BT-A	F-7 -WT-PR	1.6	1.8	1.7	12000	22000	17000	30	40	35	1208
18	2RR1	311.0	ATJ 33	HW	F99BD	11.9	11.9	11.9	756		0	0.00	0	0.00	- - -	- - -	0.0	0.0	0.0	0	0	0	0	0	0	
19	3	311.0	C4LRGS	RBI	BP6171B	12.7	12.7	12.7	840	892	52	41.75	0	0.00	6-8-BT-H	E-4 -WT-TQ	1.0	1.3	1.1	5000	22000	13500	30	40	35	1227
20	4	311.0	C45ALR	RBI	BP487B	12.7	12.7	12.7	892	933	41	29.00	0	0.00	6-8-BT-H	E-8 -FC-TQ	1.4	1.4	1.4	20000	22000	21000	35	40	37	1220
21	5	311.0	HP63	Reed	DU2568	12.7	12.7	12.7	933	992	59	45.25	0	0.00	6-7-WT-A	E-7 -RG-PR	1.3	2.2	1.8	15000	22000	18500	25	38	31	1215
22	6	311.0	F57	Smith	LR2975	12.7	12.7	12.7	992	1057	65	46.75	0	0.00	8-6-BT-H	E-3 -FC-PR	1.4	1.6	1.5	19000	20000	19500	35	38	36	1217
23	7	311.0	HP63	Reed	MM9038	12.7	12.7	12.7	1057	1146	89	59.25	0	0.00	2-2-FC-A	E-I -FC-BHA	1.3	1.7	1.5	16000	20000	18000	40	72	56	1207
24	8	311.0	GTM28	HW	C44DP	12.7	12.7	12.7	1146	1258	112	80.25	0	0.00	2-6-BT-H	3-1 -CT-PR	1.2	1.4	1.3	15000	24000	19500	50	52	51	1222
25	9	311.0	EHP53A	REED	BW1535	14.3	14.3	14.3	1258	1305	47	27.75	0	0.00	1-2-NO-A	E-I -NO-BHA	1.7	1.8	1.8	20000	21000	20500	50	65	57	1232
26	10RR	311.0	EHP53A	REED	BW1535	12.7	12.7	12.7	1305	1391	86	76.00	0	0.00	4-5-WT-A	E-I -BT-BHA	1.0	1.2	1.1	17000	18000	17500	50	70	60	1211
27	11	311.0	M44NG	SEC	544826	12.7	12.7	12.7	1391	1406	15	18.25	0	0.00	6-6-WT-A	E-I -WT-PR	0.8	0.8	0.8	15000	19000	17000	65	70	67	1215
28	12	311.0	EHP53A	REED	KT2949	12.7	12.7	12.7	1406	1487	81	68.00	0	0.00	2-3-WT-A	E-I -BT-BHA	1.0	1.4	1.2	10000	10000	10000	55	70	62	1219
29	13	311.0	FM2743	SEC	5995957	10.3	10.3	10.3	1487	1550	63	49.00	0	0.00	2-3-ct-	- - -	1.3	1.5	1.4	5000	18000	11500	50	75	62	1215
30	14	311.0	ATJ-33	HW	M52YL	10.3 14.3	10.3 14.3	10.3 14.3	1550	1693	143	74.75	0	0.00	6-8-BT-A	E-I -HC-PR	1.9	2.7	2.3	19000	24000	21500	70	105	87	1295
31	15	311.0	HP63	Reed	MM9024	14.3	14.3	14.3	1693	1852	159	123.25	0	0.00	2-3-WT-A	E-1 -WT-hr	0.7	1.4	1.0	19000	26000	22500	70	105	87	1375
32	16	311.0	EHP53A	Reed	MM9061	15.9	15.9	15.9	1852	1884	32	16.75	0	0.00	1-1-PN-A	1-I - -DTF	1.9	2.0	1.9	25000	26000	25500	70	105	87	1389
33	17RR	311.0	EHP53A	Reed	MM9061	15.9	15.9	15.9	1884	2076	192	115.00	0	0.00	2-2-FC-N	8-I -CD-PR	1.7	1.8	1.8	25000	36000	30500	70	105	87	1405
34	18	311.0	EHP53A	REED	MM9062	15.9	15.9	15.9	2076	2284	208	138.25	37	2.00	2-3-WT-A	F-I -NO-TQ	0.6	1.7	1.1	12000	36000	24000	35	105	70	1408
35	19	311.0	EHP51H	REED	KC5671	15.9	15.9	15.9	2284	2422	138	45.00	0	0.00	6-8-BT-A	E-2 -RG-TQ	2.0	3.1	2.5	24000	35000	29500	70	105	87	1437
36	20	311.0	GTP280	HW	E83YS	15.9	15.9	15.9	2422	2478	56	40.50	0	0.00	5-8-BT-H	E-2 -WT-TQ	1.4	2.3	1.8	22000	28000	25000	70	105	87	1452

B I T R E C O R D

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:33:56 1999

RUN	BIT#	SIZE (mm)	TYPE	MAKE	SERIAL NUMBER	NOZZLE SIZE(mm) #1/4	#2/5	#3/6	DEPTH IN	DEPTH OUT	ON BIT DRILL (m)	ON BIT DRILL+CORE (hr)	BIT REAMING (m)	BIT REAMING (hr)	I-O-G-L	B-G-O-R	ROP MIN (m/hr)	ROP MAX (m/hr)	ROP AVG (m/hr)	WOB MIN daN	WOB MAX daN	WOB AVG daN	RPM MIN	RPM MAX	RPM AVG	AVG MUD DEN
37	21	311.0	GS84F	Sec.	729282	15.9	15.9	15.9	2478	2579	101	57.00	0	0.00	1-2-RG-H	E-I -NO-PR	1.6	1.8	1.7	22000	25000	23500	70	105	87	1461
38	22	311.0	GT28	HWJL	L72CT	15.9	15.9	15.9	2579	2757	178	102.50	0	0.00	2-3-BT-H3	6-I -WT-PR	1.5	1.7	1.6	27000	31000	29000	70	105	87	1456
39	23	311.0	EHP53A	REED	LX8273	15.9	15.9	15.9	2757	2916	159	120.00	0	0.00	4-3-WT-A	8-I -BT-TQ	1.3	1.4	1.4	30000	31000	30500	70	105	87	1453
40	24	311.0	EHP53A	REED	KT2950	15.9	15.9	15.9	2916	2968	52	66.75	0	0.00	8-8-BT-A	8-2 -WT-TQ	0.6	0.8	0.7	15000	32000	23500	70	105	87	1459
41	25	311.0	GS86F	SEC	726647	15.9	15.9	15.9	2968	3050	82	58.50	0	0.00	8-8-BT-A	F-3 -WT-TQ	1.4	1.8	1.6	25000	28000	26500	70	105	87	1477
42	26	311.0	HP61A	Reed	MM9264	15.9	15.9	15.9	3050	3115	65	57.75	0	0.00	8-8-BT-A	F-2 -WT-TQ	0.9	1.5	1.2	25000	30000	27500	70	105	87	1491
43	27	311.0	F4P	Smith	LK8869	15.9	15.9	15.9	3115		32	18.50	0	0.00	2-3-WT-A	E-I -WT-TD	1.7	1.9	1.8	15000	40000	27500	70	105	87	1076
45	2D	215.9	F3R	Smith	LG0661	9.5	9.5	9.5	3147	3380	233	100.50	0	0.00	4-4-WT-A	3-I -CT-PR	2.3	2.3	2.3	8000	10000	9000	0	0	0	1047
46	3D	215.9	EHP53A	REED	TC1149	9.5	9.5	9.5	3380	3383	3	1.25	0	0.00	1-1-WT-A	E-I -No-BHA	2.4	2.4	2.4	0	0	0	0	0	0	1042
47	4RR3	215.9	EHP53A	Reed	TC1149	0.0	0.0	0.0	3383		0	0.00	0	0.00	- - -	- - -	0.0	0.0	0.0	0	0	0	0	0	0	
48	RR1D	215.9	J7	HW	CF863	11.0	11.0	11.0	0		0	0.00	0	0.00	4-1-BT-M3	E-I -NO-BHA	0.0	0.0	0.0	0	0	0	0	0	0	

Attachment #4

End Well Report
Canadian Forest Oil Ltd.
CDN Forest et al Flett Rapids N-61

Casing & Cement Record.

Casing Size (mm)	Weight (kg/m)	Grade	Make	No. Joints	Thread	Date Set	Depth Set (m)		Cement Volume (tonnes)	(m3)	Cement Blend.
762.0	147.2	A252	Cam	3	PE	99-03-14	23.7		20.00	7.40	0:1:0 "G" + 3.0% CaCl2
508.0	139.87	K-55	US Steal	15	BT&C	99-04-08	185.0		40.00	30.44	0:1:0 "G" + 1.0% CaCl2
339.7	101.19	K-55	Tamsco	58	BT&C	99-05-12	735.6		65.00	44.40	0:1:0 "G" + 0.5% CFR + 0.25% LTR
									25.10	19.10	0:1:0 "G" + 0.5% CFR + 0.25% LTR
244.5	79.62	HC L-80	Cantak	26	BT&C	99-08-29	3147 - 2785.1m	Stage #1:	33.00	23.21	Thermal 40 + 0.7% CFR + 0.9% CFL-2 + 0.15% LTR
244.5	69.94	C -95	Tamsa	74	BT&C	99-08-29	2785.1 - 1712.99m				
244.5	64.74	L-80	Cantak	107	BT&C	99-08-29	1712.99 - 286.11				
244.5	79.62	L-80	Cantak	21	BT&C	99-08-29	286.11 - 10.81	Stage #2:	71.00	57.12	0:1:0 "G" + 0.5% CFR + 0.4% CFL -1 prydrated H2O

Attac #5

D R I L L I N G M U D P R O P E R T I E S R E C O R D

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:34:31 1999

DAY	DEPTH (m)	MUD TYPE	DENSITY	VIS	GELS	pH	PF/MF	PV	YP	WATER LOSS	FC	TEMP C in/out	SAND kg/m3	SOLIDS kg/m3	TOTAL SOLIDS kg/m3	OIL %	MBT	POLY	BENT	LCM	CA++	CL-	ALKALYDE MFI	ALKALYDE MFO
1	39	K2 +	1055/1055	43	0.0/ 0.0	10.5	0/ 0	0	0	13.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
2	70	K2 +	1070/1080	45	0.0/ 0.0	10.5	0/ 0	0	0	30.0	2.5	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
3	78	Gel-Chem	1220/1220	63	11.0/20.0	10.5	0/ 0	12	16	15.0	2.0	0/ 0	0.002	0.00	0.00	0.000	0	0	70	0	140	250	0.3	0.6
4	80	Gel-Chem	1270/1270	54	2.0/35.0	10.5	0/ 0	14	16	14.0	2.0	0/ 0	0.065	0.00	0.00	0.000	0	0	70	0	100	200	0.3	0.6
5	85	Gel-Chem-LCM	1300/1300	85	15.0/35.0	10.5	0/ 0	20	20	14.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	180	200	0.1	0.5
6	85	Gel-Chem-LCM	1300/1300	85	15.0/35.0	10.5	0/ 0	20	20	14.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	180	200	0.1	0.5
7	111	Gel-Chem-LCM	1600/1600	100	20.0/40.0	9.6	0/ 0	40	25	13.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	120	250	1.0	3.1
8	111	Gel-Chem-LCM	1750/1750	115	20.0/40.0	9.6	0/ 0	50	25	12.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	90	0	160	250	0.7	2.3
9	128	Gel-Chem-LCM	1790/1790	120	20.0/45.0	9.0	0/ 0	50	28	9.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	90	0	160	250	0.7	2.1
10	134	Gel-Chem-LCM	1400/1420	130	20.0/45.0	9.0	0/ 0	50	25	12.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	100	0	120	250	0.8	2.4
11	136	Gel-Chem-LCM	1800/1800	132	19.0/46.0	9.6	0/ 0	52	26	13.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	95	0	120	250	0.9	2.1
12	136	Gel-Chem-LCM	1790/1790	136	20.0/46.0	9.6	0/ 0	50	25	11.8	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	95	0	140	250	0.5	1.7
13	141	Gel-Chem-LCM	1840/1840	132	23.0/61.0	9.6	0/ 0	60	23	13.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	90	0	120	250	0.5	1.6
14	141	Gel-Chem-LCM	1825/1825	149	21.0/48.0	9.6	0/ 0	51	26	11.4	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	90	0	120	250	0.5	2.1
15	156	Gel-Chem-LCM	1770/1770	121	18.0/36.0	9.7	0/ 0	41	23	11.6	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	90	0	100	250	0.6	2.1
16	174	Gel-Chem-LCM	1780/1780	97	18.0/39.0	9.7	0/ 0	41	22	12.1	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	100	250	0.4	2.0
17	158	Gel-Chem	1775/1775	82	18.0/36.0	9.7	0/ 0	38	22	12.1	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	80	0	100	250	0.5	2.1
18	181	Gel-Chem	1810/1800	97	17.0/36.0	9.8	0/ 0	37	23	11.4	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	100	250	0.5	2.1
19	181	Gel-Chem	1810/1800	97	17.0/36.0	9.8	0/ 0	37	23	11.4	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	100	250	0.5	2.1
20	185	Gel-Chem	1810/1800	100	18.0/37.0	9.8	0/ 0	39	24	11.3	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	85	0	100	250	0.5	2.1
21	185	Gel-Chem	1055/1055	36	3.0/ 5.0	9.8	0/ 0	11	4	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	40	0	20	250	0.0	0.0
22	203	Gel-Chem	1080/1080	43	2.0/ 4.0	11.0	0/ 0	10	3	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	45	0	120	300	0.3	0.6
22	221	Gel-Chem	1030/1030	41	0.0/ 0.0	11.0	0/ 0	0	0	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
23	260	Gel-Chem	1200/1200	39	2.0/ 3.0	9.9	0/ 0	9	3	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	35	0	100	300	0.5	2.3
24	267	Gel-Chem	1310/1310	46	3.0/ 5.0	9.7	0/ 0	15	6	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	40	0	80	350	0.3	1.8
25	296	Gel-Chem	1370/1410	65	8.0/15.0	9.7	0/ 0	27	14	10.0	3.0	0/ 12	0.000	0.00	0.00	0.000	0	0	100	0	200	250	0.2	0.8
26	310	Gel-Chem	1520/1530	53	6.0/15.0	9.4	0/ 0	30	14	9.4	2.0	0/ 38	0.000	0.00	0.00	0.000	0	0	90	0	40	300	1.0	2.0
27	333	Gel-Chem	1570/1610	70	8.0/18.0	10.0	0/ 0	36	18	9.0	2.0	0/ 40	0.000	0.00	0.00	0.000	0	0	110	0	60	300	0.9	2.0
28	349	Gel-Chem	1600/1610	80	8.0/22.0	10.2	0/ 0	40	18	8.8	2.0	0/ 39	0.000	0.00	0.00	0.000	0	0	100	0	60	300	0.9	2.0
29	377	Gel-Chem	1600/1610	109	10.0/25.0	9.7	0/ 0	52	26	9.6	2.0	0/ 41	0.000	0.00	0.00	0.000	0	0	100	0	60	300	0.6	1.7
29	389	Gel Chem	1610/ 0	90	0.0/ 0.0	0.0	0/ 0	0	0	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
30	412	Gel-Chem	1600/1605	88	5.0/30.0	10.1	0/ 0	60	20	7.0	3.0	0/ 40	0.000	0.00	0.00	0.000	0	0	90	0	80	300	1.0	2.7
31	422	Gel-Chem	1600/1605	90	8.0/30.0	9.7	0/ 0	55	25	7.0	2.0	0/ 30	0.000	0.00	0.00	0.000	0	0	100	0	80	300	0.9	2.3
32	432	Gel-Chem	1610/1610	90	6.0/18.0	9.7	0/ 0	60	20	7.0	2.0	0/ 30	0.000	0.00	0.00	0.000	0	0	90	0	60	300	1.0	2.6
33	449	Gel-Chem	1610/1610	100	10.0/25.0	10.0	0/ 0	70	21	7.0	2.0	0/ 35	0.000	0.00	0.00	0.000	0	0	90	0	60	300	0.9	2.3

34	470	Gel-Chem	1605/1605	107	10.0/25.0	10.0	0/ 0	60	23	8.0	2.0	0/ 38	0.000	0.00	0.00	0.000	0	0	90	0	60	300	1.0	2.5
35	493	Gel-Chem	1600/1600	84	8.0/18.0	10.0	0/ 0	55	20	8.5	2.0	0/ 38	0.000	0.00	0.00	0.000	0	0	90	0	60	300	0.9	2.3
36	496	Gel-Chem	1630/1630	85	6.0/24.0	10.0	0/ 0	45	18	8.5	2.0	0/ 34	0.000	0.00	0.00	0.000	0	0	80	0	240	350	1.4	3.5
37	525	Gel-Chem	1615/1620	92	6.0/22.0	10.0	0/ 0	48	20	8.5	2.0	0/ 38	0.000	0.00	0.00	0.000	0	0	90	0	80	350	1.2	3.3
38	541	Gel-Chem	1610/1620	81	6.0/30.0	10.0	0/ 0	40	18	8.6	2.0	0/ 35	0.000	0.00	0.00	0.000	0	0	80	0	100	350	1.1	3.3
39	564	Gel-Chem	1620/1620	86	6.0/31.0	10.0	0/ 0	39	16	8.4	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	80	0	100	350	1.2	3.0
40	589	Gel-Chem	1630/1630	101	6.0/33.0	10.0	0/ 0	40	19	8.0	2.0	0/ 38	0.004	0.00	0.00	0.000	0	0	80	0	100	350	1.1	2.8
41	601	Gel-Chem	1620/1620	104	7.0/30.0	10.0	0/ 0	39	19	8.0	2.0	0/ 38	0.004	0.00	0.17	0.000	0	0	80	0	120	350	1.1	2.9
42	625	Gel-Chem	1620/1620	98	7.0/30.0	10.0	0/ 0	40	18	8.4	2.5	0/ 38	0.003	0.00	0.17	0.000	0	0	75	0	100	350	1.1	2.9
43	644	Gel-Chem	1620/1620	97	6.0/29.0	10.0	0/ 0	37	18	8.8	2.5	0/ 38	0.003	0.00	0.18	0.000	0	0	75	0	100	350	1.0	2.1
44	665	Gel-Chem	1625/1625	97	6.0/28.0	10.0	0/ 0	38	18	8.1	2.5	0/ 46	0.003	0.00	0.17	0.000	0	0	80	0	120	350	0.9	1.7
45	676	Gel-Chem	1620/1620	101	7.0/31.0	10.0	0/ 0	40	19	8.3	2.5	0/ 46	0.003	0.00	0.17	0.000	0	0	80	0	100	350	1.1	2.3
46	690	Gel-Chem	1620/1620	92	7.0/33.0	10.0	0/ 0	38	21	8.3	2.5	0/ 46	0.004	0.00	0.17	0.000	0	0	80	0	120	350	1.1	2.7
47	705	Gel-Chem	1620/1620	91	6.0/32.0	10.0	0/ 0	38	18	8.6	2.5	0/ 46	0.004	0.00	0.18	0.000	0	0	80	0	160	350	1.2	2.3
48	715	Gel-Chem	1620/1620	91	6.0/30.0	10.0	0/ 0	38	18	8.2	2.5	0/ 41	0.004	0.00	0.18	0.000	0	0	80	0	120	350	1.0	2.2
49	723	Gel-Chem	1625/1625	93	7.0/31.0	10.0	0/ 0	41	22	8.1	2.5	0/ 39	0.004	0.00	0.18	0.000	0	0	80	0	100	350	1.2	2.5
50	730	Gel-Chem	1630/1630	87	6.0/32.0	10.0	0/ 0	42	18	8.3	2.5	0/ 39	0.004	0.00	0.18	0.000	0	0	80	0	120	350	1.0	2.2
51	736	Gel-Chem	1620/1620	90	6.0/31.0	10.0	0/ 0	39	17	8.1	2.5	0/ 28	0.004	0.00	0.18	0.000	0	0	80	0	100	350	1.0	2.3
52	736	Gel-Chem	1610/1610	62	4.0/21.0	10.0	0/ 0	32	9	8.8	2.5	0/ 26	0.003	0.00	0.17	0.000	0	0	70	0	120	350	1.0	2.1
53	736	Gel-Chem	1610/1610	62	4.0/21.0	10.0	0/ 0	32	9	8.8	2.5	0/ 26	0.003	0.00	0.17	0.000	0	0	70	0	120	350	1.0	2.1
54	736	Gel-Chem	1610/1610	62	4.0/21.0	10.0	0/ 0	32	9	8.8	2.5	0/ 26	0.003	0.00	0.17	0.000	0	0	70	0	120	350	1.0	2.1
55	736	Gel-Chem	1010/ 0	29	0.0/ 0.0	10.0	0/ 0	0	0	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
56	742	K-Minus	1060/ 0	37	0.0/ 0.0	12.0	0/ 0	0	0	0.0	0.0	0/ 0	0.000	0.00	0.00	15000.000	0	0	0	0	360	400	0.0	0.0
57	756	K-Minus	1200/1205	45	4.0/ 9.0	11.2	0/ 0	9	14	0.0	0.0	0/ 0	0.000	0.00	0.00	13000.000	0	0	23	0	360	400	0.6	2.7

D R I L L I N G M U D P R O P E R T I E S R E C O R D

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:34:33 1999

DAY	DEPTH (m)	MUD TYPE	DENSITY	VIS	GELS	pH	PF/MF	PV	YP	WATER LOSS	FC	TEMP C in/out	SAND kg/m3	SOLIDS kg/m3	TOTAL SOLIDS kg/m3	OIL %	MBT	POLY	BENT	LCM	CA++	CL-	ALKALYDE MFI	ALKALYDE MFO
58	778	K-Minus	1200/1205	45	6.0/ 9.0	11.2	0/ 0	8	14	22.0	1.5	0/ 0	0.000	0.00	0.00	15000.000	0	0	23	0	360	400	0.8	2.6
59	815	K-Minus	1200/1205	46	7.0/10.0	10.8	0/ 0	9	14	12.2	1.5	0/ 0	0.000	0.00	0.00	15000.000	0	0	23	0	440	350	0.7	2.3
60	841	K-Minus	1220/1220	45	6.0/12.0	10.4	0/ 0	10	13	13.1	1.5	0/ 0	0.000	0.00	0.00	14000.000	0	0	24	0	400	380	0.1	0.2
61	864	K-Minus	1230/1230	52	7.0/13.0	10.7	0/ 0	11	16	12.8	1.5	0/ 0	2.500	0.00	135.00	18000.000	0	0	28	0	480	380	0.3	2.1
62	892	K-Minus	1225/1225	49	7.0/12.0	9.9	0/ 0	9	14	11.4	1.5	0/ 0	2.500	0.00	130.00	22000.000	0	0	24	0	400	700	0.1	0.2
63	913	K-Minus	1230/1210	52	6.0/10.0	9.9	0/ 0	11	16	12.4	1.5	0/ 0	2.500	0.00	135.00	22500.000	0	0	25	0	400	700	0.1	0.2
64	934	K-Minus	1230/1210	54	7.0/11.0	10.2	0/ 0	12	16	12.2	1.5	0/ 0	2.500	0.00	135.00	20000.000	0	0	25	0	400	1000	0.2	0.6
65	967	K-Minus	1220/1210	51	6.0/ 8.0	10.3	0/ 0	9	15	11.9	1.5	0/ 0	5.000	0.00	130.00	22500.000	0	0	25	0	400	900	0.2	0.6
66	992	K-Minus	1220/1210	52	7.0/10.0	10.3	0/ 0	10	16	11.1	1.5	0/ 0	5.000	0.00	130.00	22500.000	0	0	25	0	400	1000	0.3	0.8
67	1016	K-Minus	1210/1210	52	7.0/ 9.0	10.3	0/ 0	10	16	10.8	1.5	41/ 0	5.000	0.00	130.00	0.000	0	0	25	0	400	1000	0.2	0.6
68	1048	K-Minus	1220/1220	53	7.0/10.0	10.5	0/ 0	12	16	10.5	1.5	34/ 0	0.008	0.00	135.00	0.000	0	0	25	0	400	1000	0.3	1.0
69	1070	K-Minus	1235/1210	54	7.0/13.0	10.5	0/ 0	13	16	10.9	1.5	33/ 0	0.012	0.00	120.00	0.000	0	0	25	0	380	1000	0.3	0.8
70	1112	K-Minus	1200/1210	51	6.5/10.0	10.2	0/ 0	10	15	10.2	1.5	33/ 0	0.007	0.00	130.00	0.000	0	0	25	0	400	1100	0.2	0.6
71	1138	K-Minus	1200/1200	50	6.0/ 8.0	10.5	0/ 0	9	15	10.3	1.5	34/ 0	0.010	0.00	130.00	0.000	0	0	23	0	320	1000	0.3	0.7
72	1161	K-Minus	1225/1225	54	7.0/ 9.0	10.5	0/ 0	10	16	10.3	1.5	34/ 0	0.008	0.00	135.00	0.000	0	0	25	0	380	1000	0.3	0.7
73	1161	K-Minus	1215/1220	54	7.0/11.0	10.5	0/ 0	11	18	10.0	1.5	34/ 0	0.010	0.00	135.00	0.000	0	0	28	0	240	1200	0.3	0.7
74	1210	K-Minus	1220/1220	56	11.0/21.0	10.5	0/ 0	11	18	9.5	1.5	38/ 0	0.050	0.00	146.00	0.000	0	0	36	0	200	1200	0.3	1.2
75	1258	K-Minus	1225/1225	54	14.0/20.0	10.0	0/ 0	12	17	11.0	1.5	39/ 0	0.055	0.00	140.00	0.000	0	0	25	0	200	1100	0.4	1.4
76	1283	K-Minus	1230/1230	56	12.0/22.0	10.5	0/ 0	12	17	9.5	1.5	37/ 0	0.053	0.00	143.00	0.000	0	0	25	0	160	1100	0.3	1.4
77	1305	K-Minus	1235/1235	56	12.0/21.0	10.5	0/ 0	13	16	10.5	1.5	38/ 0	0.052	0.00	146.00	0.000	0	0	22	0	140	1100	0.3	1.2
78	1324	K-Minus	1210/1205	54	17.0/23.0	10.5	0/ 0	12	16	11.0	1.5	36/ 0	0.027	0.00	128.00	0.000	0	0	25	0	120	1100	0.2	1.1
79	1347	K-Minus	1210/1210	54	14.0/18.0	10.1	0/ 0	12	15	10.1	1.5	36/ 0	0.025	0.00	128.00	0.000	0	0	25	0	100	1000	0.3	1.3
80	1366	K-Minus	1210/1210	63	17.0/24.0	10.0	0/ 0	12	22	10.5	1.5	39/ 0	0.025	0.00	131.00	0.000	0	0	32	0	120	1100	0.2	1.3
81	1391	K-Minus	1210/1220	62	16,0/25.0	10.2	0/ 0	14	22	11.0	1.5	0/ 39	0.025	0.00	135.00	0.000	0	0	32	0	120	1100	0.2	1.1
82	1404	K-Minus	1210/1220	64	14.0/21.0	10.5	0/ 0	14	21	10.1	1.5	0/ 39	0.025	0.00	135.00	0.000	0	0	30	0	200	1100	0.5	2.0
83	1420	K-Minus	1210/1215	60	12.0/16.0	10.0	0/ 0	12	20	10.9	1.5	0/ 39	0.025	0.00	135.00	0.000	0	0	28	0	380	1100	0.4	2.1
84	1460	K-Minus	1215/1220	65	13.0/18.0	10.3	0/ 0	13	23	10.4	1.5	0/ 41	0.025	0.00	135.00	0.000	0	0	28	0	320	1000	0.3	2.0
85	1480	K-Minus	1220/1230	67	13.0/19.0	10.5	0/ 0	14	22	11.8	1.5	0/ 44	0.025	0.00	140.00	0.000	0	0	27	0	320	1100	0.4	2.1
86	1487	K-Minus	1230/1220	65	12.0/17.0	10.3	0/ 0	13	20	10.3	1.5	0/ 0	0.025	0.00	135.00	0.000	0	0	28	0	320	1100	0.4	2.0
87	1500	K-Minus	1210/1215	67	11.0/16.0	10.3	0/ 0	11	20	10.8	1.5	0/ 41	0.025	0.00	135.00	0.000	0	0	30	0	320	1100	0.3	2.0
88	1535	K-Minus	1210/1215	105	13.0/21.0	9.9	0/ 0	15	26	10.8	1.5	0/ 43	0.025	0.00	135.00	0.000	0	0	30	0	280	1100	0.2	1.9
89	1550	K-Minus	1225/1225	94	12.0/18.0	10.3	0/ 0	14	28	10.5	1.5	0/ 43	0.025	0.00	135.00	0.000	0	0	30	0	320	1100	0.3	2.1
90	1561	K-Minus	1225/1225	81	13.0/18.0	10.5	0/ 0	13	28	10.0	1.5	0/ 44	0.025	0.00	135.00	0.000	0	0	30	0	320	1100	0.4	2.2
91	1630	K-Minus	1270/1270	74	13.0/20.0	10.5	0/ 0	16	23	10.2	1.5	0/ 42	0.025	0.00	140.00	0.000	0	0	30	0	260	1100	0.3	1.8
92	1668	K-Minus	1320/1320	77	16.0/20.0	10.3	0/ 0	14	28	11.8	1.5	0/ 42	0.030	0.00	143.00	0.000	0	0	30	0	160	1350	0.4	2.3

93	1689	K-Minus	1350/1350	70	14.0/20.0	10.6	0/ 0	15	27	10.0	1.5	0/ 44	0.025	0.00	180.00	0.000	0	0	30	0	280	1300	0.4	2.2
94	1696	K-Minus	1375/1375	65	13.0/17.0	10.6	0/ 0	15	24	11.4	1.5	0/ 43	0.025	0.00	180.00	0.000	0	0	28	0	240	1400	0.4	2.6
95	1720	K-Minus	1375/1375	65	13.0/19.0	10.6	0/ 0	14	25	9.0	1.5	0/ 43	0.025	0.00	180.00	0.000	0	0	28	0	240	1350	0.4	2.4
95	1727	K-Minus	1360/1360	65	0.0/ 0.0	10.5	0/ 0	0	0	10.3	1.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
96	1752	K-Minus	1370/1370	77	13.0/20.0	10.4	0/ 0	13	28	11.9	1.5	0/ 47	0.025	0.00	180.00	0.000	0	0	30	0	320	1300	0.4	2.2
96	1758	K-Minus	1360/1360	73	0.0/ 0.0	10.5	0/ 0	0	0	10.3	1.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
97	1790	K-Minus	1360/1360	74	0.0/ 0.0	10.5	0/ 0	0	0	10.8	1.0	0/ 0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
97	1783	K-Minus	1365/1365	75	16.0/23.0	10.3	0/ 0	15	30	10.4	1.5	0/ 47	0.030	0.00	180.00	0.000	0	0	30	0	320	1350	0.4	3.9
98	1814	K-Minus	1370/1370	72	13.0/18.0	10.6	0/ 0	14	26	11.4	1.5	0/ 47	0.025	0.00	180.00	0.000	0	0	30	0	320	1350	0.4	2.6
99	1814	K-Minus	1380/1380	77	14.0/19.0	10.2	0/ 0	14	28	12.0	1.5	0/ 47	0.018	0.00	195.00	0.000	0	0	30	0	400	1300	0.4	2.1
100	1852	K-Minus	1390/1390	88	16.0/24.0	10.2	0/ 0	16	31	10.8	1.5	0/ 47	0.011	0.00	200.00	0.000	0	0	30	0	400	1300	0.2	2.1
101	1873	K-Minus	1380/1380	84	16.0/22.0	10.2	0/ 0	15	28	10.2	1.5	0/ 0	0.010	0.00	190.00	0.000	0	0	30	0	200	1450	0.2	2.6
102	1884	K-Minus	1405/1405	82	16.0/24.0	10.2	0/ 0	16	30	12.2	1.5	0/ 46	0.010	0.00	190.00	0.000	0	0	30	0	240	1400	0.2	2.3
103	1920	K-Minus	1410/1410	92	17.0/24.0	10.1	0/ 0	17	31	10.1	1.5	0/ 46	0.010	0.00	190.00	0.000	0	0	33	0	240	1400	0.5	3.0
104	1963	K-Minus	1400/1400	100	18.0/26.0	10.1	0/ 0	19	32	10.6	1.5	0/ 46	0.010	0.00	210.00	0.000	0	0	38	0	320	1400	0.3	2.6
105	2003	K-Minus	1410/1410	98	17.0/24.0	10.5	0/ 0	18	30	10.5	1.5	0/ 54	0.010	0.00	215.00	0.000	0	0	32	0	320	1450	0.3	3.0
106	2043	K-Minus	1405/1405	110	19.0/24.0	10.5	0/ 0	20	30	10.0	1.5	0/ 54	0.010	0.00	200.00	0.000	0	0	35	0	280	1450	0.3	2.9
107	2069	K-Minus	1400/1400	102	19.0/25.0	10.4	0/ 0	19	31	10.5	1.5	0/ 54	0.010	0.00	200.00	0.000	0	0	35	0	280	1450	0.3	3.1
108	2076	K-Minus	1405/1405	91	18.0/24.0	10.3	0/ 0	18	29	11.1	1.5	0/ 48	0.010	0.00	200.00	0.000	0	0	33	0	240	1400	0.3	3.0
109	2105	K-Minus	1405/1400	87	17.0/23.0	10.6	0/ 0	17	28	11.0	1.5	0/ 52	0.015	0.00	200.00	0.000	0	0	33	0	280	1450	0.4	3.0
110	2145	K-Minus	1390/1400	90	18.0/25.0	10.5	0/ 0	18	25	10.8	1.5	0/ 52	0.015	0.00	195.00	0.000	0	0	33	0	240	1400	0.3	3.0
111	2183	K-Minus	1400/1410	85	17.0/24.0	10.4	0/ 0	17	30	12.1	1.5	0/ 54	0.075	0.00	200.00	0.000	0	0	30	0	240	1400	0.3	3.1
112	2215	K-Minus	1410/1420	87	17.0/23.0	10.2	0/ 0	17	28	10.8	1.5	0/ 55	0.015	0.00	200.00	0.000	0	0	30	0	320	1400	0.2	2.1

DRILLING MUD PROPERTIES RECORD

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:34:35 1999

DAY	DEPTH (m)	MUD TYPE	DENSITY	VIS	GELS	pH	PF/MF	PV	YP	WATER LOSS	FC	TEMP C in/out	SAND kg/m3	SOLIDS kg/m3	TOTAL SOLIDS kg/m3	OIL %	MBT	POLY	BENT	LCM	CA++	CL-	ALKALYDE MFI	ALKALYDE MFO
113	2247	K-Minus	1410/1420	77	16.0/23.0	10.4	0/ 0	17	30	10.4	1.5	0/ 53	0.015	0.00	200.00	0.000	0	0	30	0	320	1400	0.3	3.1
114	2276	K-Minus	1415/1420	68	17.0/22.0	10.4	0/ 0	17	24	11.9	1.5	0/ 55	0.015	0.00	200.00	0.000	0	0	25	0	320	1250	0.4	3.6
115	2287	K-Minus	1415/1420	77	16.0/23.0	10.0	0/ 0	17	29	10.2	1.5	0/ 51	0.015	0.00	200.00	0.000	0	0	25	0	280	1200	0.2	3.0
116	2354	K-Minus	1420/1425	72	20.0/25.0	10.5	0/ 0	18	43	11.6	2.0	0/ 53	0.015	0.00	200.00	0.000	0	0	30	0	280	1200	0.2	3.0
117	2421	K-Minus	1452/1452	73	25.0/27.0	10.5	0/ 0	17	28	10.4	1.5	0/ 54	0.015	0.00	200.00	0.000	0	0	28	0	300	1200	0.5	3.5
118	2422	K-Minus	1450/1450	72	15.0/25.0	10.5	0/ 0	18	25	10.8	2.0	0/ 0	0.015	0.00	200.00	0.000	0	0	26	0	300	1200	0.3	3.4
119	2422	K-Minus	1450/1450	70	17.0/24.0	10.0	0/ 0	17	27	11.0	1.5	0/ 0	0.015	0.00	200.00	0.000	0	0	25	0	280	1200	0.3	3.0
120	2452	K-Minus	1452/1457	73	26.0/28.0	10.5	0/ 0	16	27	11.0	1.5	0/ 0	0.015	0.00	180.00	0.000	0	0	25	0	280	1200	0.4	3.8
121	2478	K-Minus	1450/1450	72	26.0/28.0	10.5	0/ 0	17	27	11.0	2.0	0/ 0	0.015	0.00	180.00	0.000	0	0	24	0	280	1200	0.4	3.8
122	2493	K-Minus	1457/1457	73	25.0/27.0	10.5	0/ 0	16	28	11.8	2.0	0/ 0	0.015	0.00	200.00	0.000	0	0	25	0	320	1000	0.3	3.4
123	2535	K-Minus	1450/1450	73	22.0/25.0	10.5	0/ 0	16	27	12.2	1.5	0/ 56	0.015	0.00	200.00	0.000	0	0	28	0	320	1000	0.3	3.2
124	2574	K-Minus	1455/1455	77	23.0/25.0	10.5	0/ 0	17	28	12.2	1.5	0/ 0	0.015	0.00	200.00	0.000	0	0	28	0	240	1000	0.3	3.2
125	2574	K-Minus	1475/1475	78	22.0/26.0	10.5	0/ 0	18	30	10.5	1.5	0/ 55	0.015	0.00	200.00	0.000	0	0	38	0	200	1100	0.3	3.2
126	2614	K-Minus	1455/1455	78	21.0/24.0	10.3	0/ 0	17	27	11.4	1.5	0/ 56	0.010	0.00	200.00	0.000	0	0	30	0	200	1100	0.3	3.2
127	2650	K-Minus	1455/1455	86	21.0/26.0	10.3	0/ 0	17	31	11.2	1.5	0/ 0	0.010	0.00	200.00	0.000	0	0	30	0	240	1100	0.5	4.1
128	2692	K-Minus	1450/1450	80	21.0/25.0	10.3	0/ 0	17	30	11.8	1.5	0/ 0	0.015	0.00	200.00	0.000	0	0	30	0	240	1100	0.4	4.1
129	2735	K-Minus	1460/1460	80	22.0/26.0	10.3	0/ 0	17	31	12.1	1.5	0/ 57	0.015	0.00	200.00	0.000	0	0	33	0	280	1100	0.4	3.9
130	2757	K-Minus	1460/1465	80	21.0/25.0	10.5	0/ 0	17	30	11.2	1.5	0/ 57	0.015	0.00	293.00	0.000	0	0	31	0	240	1100	0.4	4.1
131	2776	K-Minus	1460/1460	80	19.0/24.0	10.1	0/ 0	17	29	12.8	1.5	0/ 58	0.010	0.00	293.00	0.000	0	0	30	0	240	1100	0.4	3.9
132	2805	K-Minus	1450/1450	87	22.0/27.0	10.2	0/ 0	18	32	11.8	1.5	0/ 60	0.008	0.00	293.00	0.000	0	0	32	0	240	1100	0.3	3.1
133	2835	K-Minus	1450/1450	87	23.0/27.0	10.5	0/ 0	17	33	11.5	1.5	0/ 63	0.008	0.00	293.00	0.000	0	0	32	0	360	1100	0.4	4.0
134	2864	K-Minus	1450/1450	82	23.0/26.0	10.5	0/ 0	18	29	11.9	1.5	0/ 63	0.008	0.00	293.00	0.000	0	0	30	0	340	1100	0.4	4.0
135	2890	K-Minus	1450/1450	77	19.0/23.0	10.5	0/ 0	17	27	11.9	1.5	59/ 68	7.250	0.00	290.00	0.000	0	0	30	0	320	1100	0.5	4.5
136	2916	K-Minus	1460/1460	76	19.0/24.0	10.5	0/ 0	16	27	10.9	1.5	67/ 69	10.950	0.00	292.00	0.000	0	0	28	0	320	1100	0.3	4.0
137	2922	K-Minus	1460/1465	74	20.0/26.0	10.5	0/ 0	16	28	10.8	1.5	69/ 68	10.980	0.00	293.00	0.000	0	0	27	0	320	1200	0.4	4.0
138	2934	K-Minus	1458/1460	70	26.0/30.0	10.5	0/ 0	15	28	10.2	1.5	68/ 65	10.950	0.00	292.00	0.000	0	0	28	0	280	1100	0.5	4.2
139	2949	K-Minus	1457/1452	72	28.0/31.0	11.4	0/ 0	16	27	10.0	1.5	68/ 65	10.890	0.00	290.40	0.000	0	0	28	0	300	1200	0.6	4.4
140	2968	K-Minus	1457/1468	67	27.0/31.0	10.5	0/ 0	16	27	10.6	1.5	68/ 63	11.010	0.00	322.96	0.000	0	0	28	0	300	1100	0.6	5.2
141	2988	K-Minus	1468/1474	68	29.0/32.0	10.5	0/ 0	14	28	10.4	1.5	65/ 61	11.050	0.00	324.28	0.000	0	0	30	0	300	1100	0.6	5.6
142	3017	K-Minus	1475/1470	74	27.0/34.0	10.5	0/ 0	14	32	11.4	1.5	64/ 58	7.350	0.00	323.40	0.000	0	0	28	0	360	1100	0.4	4.6
143	3044	K-Minus	1475/1490	70	27.0/34.0	10.0	0/ 0	14	27	10.8	1.5	64/ 58	7.450	0.00	327.80	0.000	0	0	30	0	360	1100	0.6	4.8
144	3051	K-Minus	1485/1490	70	26.0/30.0	10.5	0/ 0	16	28	12.4	1.5	58/ 64	7.450	0.00	327.80	0.000	0	0	30	0	360	1100	0.5	5.2
145	3073	K-Minus	1490/1490	66	26.0/30.0	10.0	0/ 0	16	25	10.4	1.5	0/ 66	7.450	0.00	327.80	0.000	0	0	30	0	380	1100	0.5	4.8
146	3085	K-Minus	1490/1490	67	24.0/27.0	10.0	0/ 0	16	26	10.4	1.5	0/ 66	7.450	0.00	327.80	0.000	0	0	30	0	360	1100	0.5	4.2
147	3110	K-Minus	1490/1490	62	25.0/28.0	10.0	0/ 0	14	28	12.6	1.5	0/ 68	7.450	0.00	327.80	0.000	0	0	35	0	360	1100	0.5	5.2

148	3119	K-Minus	1500/1500	62	25.0/28.0	10.0	0/ 0	16	28	10.6	1.5	0/ 68	7.450	0.00	327.80	0.000	0	0	35	0	380	1100	0.5	4.6
149	3147	K-Minus	1490/1490	63	25.0/27.0	10.5	0/ 0	14	25	10.8	1.5	0/ 70	7.450	0.00	327.80	0.000	0	0	38	0	360	1100	0.5	5.2
150	3147	K-Minus	1500/1500	75	26.0/29.0	10.5	0/ 0	16	32	10.4	1.5	0/ 70	7.450	0.00	327.80	0.000	0	0	38	0	360	1100	0.5	5.4
151	3147	K-Minus	1500/1500	75	26.0/29.0	10.5	0/ 0	16	32	10.4	1.5	0/ 70	7.450	0.00	327.80	0.000	0	0	38	0	360	1100	0.5	5.4
152	3147	K-Minus	1505/1505	80	25.0/29.0	10.5	0/ 0	15	36	9.8	1.5	0/ 65	7.525	0.00	346.00	0.000	0	0	33	0	320	1100	0.4	4.0
153	3147	K-Minus	1570/1570	85	26.0/30.0	10.5	0/ 0	20	34	6.6	1.5	0/ 65	7.850	0.00	395.00	0.000	0	0	32	0	320	1100	0.4	4.0
154	3147	K-Minus	1650/1650	91	24.0/29.0	10.5	0/ 0	24	36	6.0	1.5	0/ 0	8.250	0.00	437.00	0.000	0	0	30	0	320	1100	0.4	4.0
155	3147	K-Minus	1640/1640	91	24.0/29.0	10.5	0/ 0	21	36	6.0	1.5	0/ 0	8.250	0.00	437.00	0.000	0	0	30	0	320	1100	0.4	4.0
156	3147	K-Minus	1640/1640	91	24.0/29.0	10.5	0/ 0	21	36	6.0	1.5	0/ 0	8.250	0.00	437.00	0.000	0	0	30	0	320	1100	0.4	4.0
157	3147	K-Minus	1640/1640	91	24.0/29.0	10.5	0/ 0	21	36	6.0	1.5	0/ 0	8.250	0.00	437.00	0.000	0	0	30	0	320	1100	0.4	4.0
158	3147	K-Minus	1640/1640	92	25.0/29.0	10.5	0/ 0	21	35	6.2	1.5	0/ 70	8.250	0.00	437.00	0.000	0	0	30	0	340	1300	0.4	4.3
159	3147	K-Minus	1640/1640	92	25.0/29.0	10.5	0/ 0	21	35	6.2	1.5	0/ 70	8.250	0.00	437.00	0.000	0	0	30	0	340	1300	0.4	4.3
160	3147	K-Minus	1640/1640	89	23.0/28.0	10.5	0/ 0	23	35	6.0	1.5	0/ 48	8.250	0.00	0.00	0.000	0	0	30	0	340	1300	0.4	4.3
161	3147	K-Minus	1500/1500	77	21.0/27.0	10.5	0/ 0	21	33	5.9	1.5	0/ 48	8.250	0.00	22.00	0.000	0	0	30	0	340	1200	0.4	4.3
162	3147	K-Minus	1500/1500	77	21.0/27.0	10.5	0/ 0	21	33	5.9	1.5	0/ 48	8.250	0.00	22.00	0.000	0	0	30	0	340	1200	0.4	4.3
163	3147	K-Minus	1500/1500	77	21.0/27.0	10.5	0/ 0	21	33	5.9	1.5	0/ 48	8.250	0.00	22.00	0.000	0	0	30	0	340	1200	0.4	4.3
164	3147	Polymer	1015/1015	43	2.0/ 3.0	9.5	0/ 0	10	9	9.3	1.0	0/ 48	0.000	0.00	0.00	0.000	0	0	0	0	160	450	0.2	1.0
165	3150	Polymer	1000/1010	45	2.0/ 3.0	10.0	0/ 0	14	7	10.2	1.0	0/ 48	0.000	0.00	0.00	0.000	0	0	0	0	180	450	0.2	1.0
166	3176	Polymer	1040/1040	44	2.0/ 3.0	10.5	0/ 0	12	8	6.2	1.0	0/ 50	0.728	0.00	0.00	0.000	0	0	0	0	180	900	0.5	1.2
167	3255	Polymer	1040/1048	50	2.0/ 3.0	11.0	0/ 0	18	12	6.2	1.0	51/ 55	0.250	0.00	62.88	0.000	0	0	0	0	160	1000	0.5	1.2
168	3294	Polymer	1048/1050	49	2.0/ 3.0	10.5	0/ 0	18	12	7.0	1.0	53/ 56	2.620	0.00	41.92	0.000	0	0	0	0	100	1100	0.5	1.5
169	3339	Polymer	1048/1050	54	3.0/ 4.0	10.5	0/ 0	19	13	6.4	1.0	54/ 58	2.620	0.00	36.75	0.000	0	0	0	0	80	1200	0.6	1.7
170	3380	Polymer	1058/1053	53	3.0/ 4.0	10.5	0/ 0	20	12	6.8	0.5	54/ 58	5.265	0.00	42.12	0.000	0	0	0	0	60	1200	0.6	1.6

DRILLING MUD PROPERTIES RECORD

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003 SPUD DATE: 99/03/21

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd. RIG: 58E

Wed Dec 15 13:34:38 1999

DAY	DEPTH (m)	MUD TYPE	DENSITY	VIS	GELS	pH	PF/MF	PV	YP	WATER LOSS	FC	TEMP C in/out	SAND kg/m3	SOLIDS kg/m3	TOTAL SOLIDS kg/m3	OIL %	MBT	POLY	BENT	LCM	CA++	CL-	ALKALYDE MFI	ALKALYDE MFO
171	3381	Polymer	1030/1040	68	4.0/ 4.5	9.5	0/ 0	23	14	5.4	0.5	40/ 44	0.000	0.00	20.60	0.000	0	0	0	0	160	1000	0.4	1.3
175	3383	Polymer	1035/1040	50	3.0/ 4.0	10.0	0/ 0	18	12	7.0	0.5	38/ 0	0.000	0.00	30.00	0.000	0	0	0	0	160	900	0.3	1.4
176	3383	Polymer	1040/1040	45	3.0/ 4.0	10.0	0/ 0	18	11	7.4	0.5	0/ 0	0.000	0.00	30.00	0.000	0	0	0	0	160	900	0.3	1.2
177	3383	Polymer	1045/1045	45	2.0/ 2.5	10.0	0/ 0	11	9	7.8	0.5	0/ 0	0.000	0.00	30.00	0.000	0	0	0	0	160	850	0.3	1.3
178	3383	Polymer	1045/1045	41	2.0/ 2.5	10.5	0/ 0	10	10	7.8	0.5	0/ 0	0.000	0.00	30.00	0.000	0	0	0	0	180	900	0.2	1.2
179	3353	Polymer	1045/1045	43	2.0/ 2.5	10.0	0/ 0	10	9	7.1	0.5	0/ 0	0.000	0.00	20.90	0.000	0	0	0	0	200	900	0.2	1.1
180	3353	Polymer	1045/1045	47	2.0/ 3.0	10.8	0/ 0	12	12	7.0	0.5	52/ 0	0.000	0.00	20.90	0.000	0	0	0	0	200	900	0.3	1.5
181	3279	Polymer	1050/1050	48	2.0/ 3.0	10.8	0/ 0	13	13	7.2	0.5	52/ 0	0.000	0.00	21.00	0.000	0	0	0	0	220	900	0.2	1.5
182	3254	Polymer	1045/1045	45	2.0/ 3.0	10.8	0/ 0	11	12	7.2	0.5	54/ 0	0.000	0.00	20.90	0.000	0	0	0	0	220	900	0.2	1.4
183	3254	Polymer	1045/1045	46	2.0/ 3.0	10.8	0/ 0	11	12	7.1	0.5	54/ 0	0.000	0.00	20.90	0.000	0	0	0	0	220	900	0.2	1.4
184	3254	Polymer	1045/1045	46	2.0/ 3.0	10.8	0/ 0	11	12	7.1	0.5	54/ 0	0.000	0.00	20.90	0.000	0	0	0	0	220	900	0.2	1.4

Attach #

Attachment #6

End Well Report
Canadian Forest Oil Ltd.
CDN Forest et al Flett Rapids N-61

Formation Leak-off Test (FLOT):

Test No.	Depth (mKB)	Fluid Density (kg/m3)	Applied Pressure (kPa)	Leak-off Gradient (kPa/m)	Mud Weight Equivalent (kg/m3)	Last Casing Depth (mKB)
1)		Leak off test not conducted due to aquifer flow problems.				
2)	741	1060	8226.5	21.5	2192.3	729
3)	3150	Was not run due to potential to break down fractured carbonate and possible loss circulation.				

Attach #7

Attachment #7

End Well Report
Canadian Forest Oil Ltd.
CDN Forest et al Flott Rapids N-61

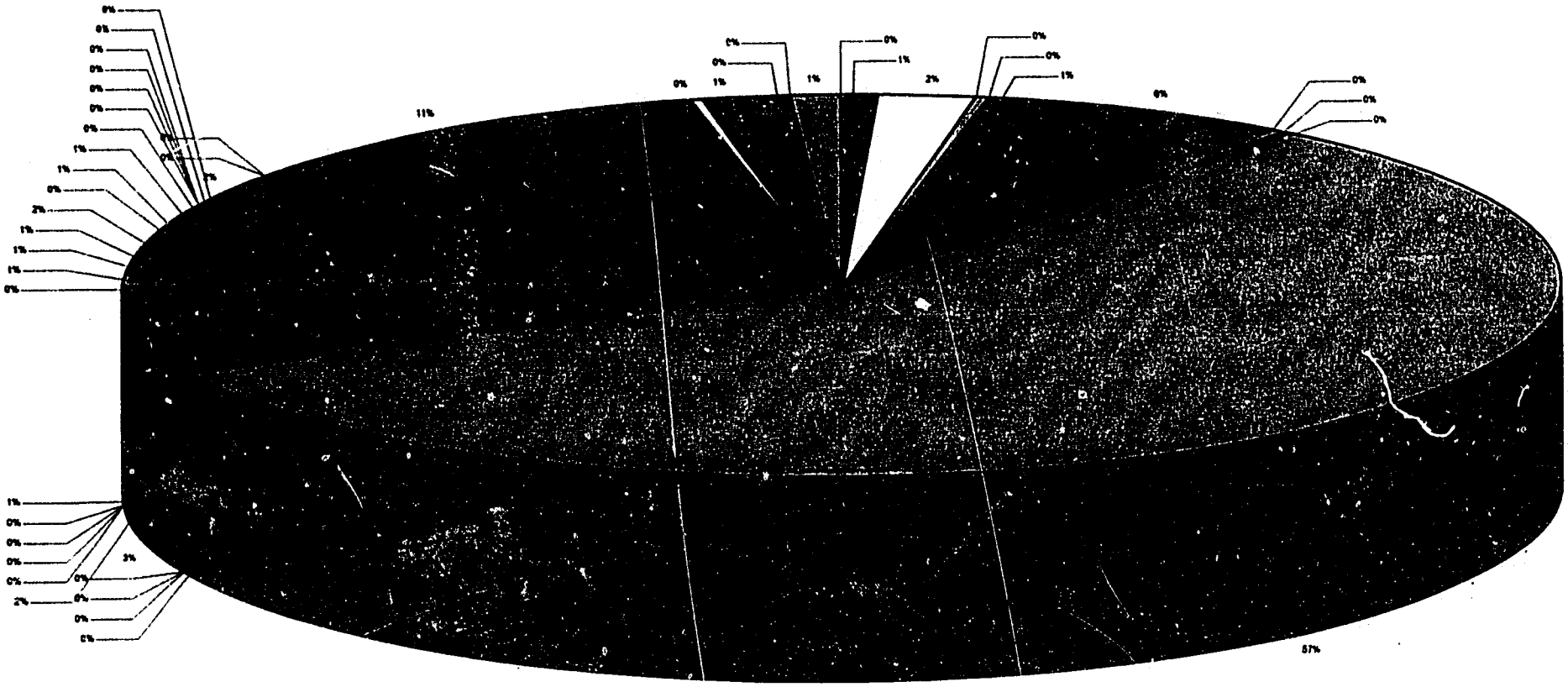
Time Distribution

Operation Type	Hours	Percentage
BOP Drill	5.75	0.13%
Cementing	29.50	0.67%
Circulate	99.50	2.27%
Clean Pumps	8.75	0.20%
Clean Sub	2.00	0.05%
Clean To Bottom	22.00	0.50%
Conduction Mud	284.75	6.49%
Casing Bowl	16.50	0.38%
Cut Casing	1.00	0.02%
DC Inspect	6.75	0.15%
Drilling	2513.00	57.28%
Drilling Out	5.75	0.13%
Fishing	1.50	0.03%
Flare Tank	2.50	0.06%
Flow Check	2.50	0.06%
Handle Tools	144.75	3.30%
Logging	108.25	2.47%
Lost Circulation	2.25	0.05%
Manifold	0.50	0.01%
Orient	0.75	0.02%
POL Plug	0.50	0.01%
Pressure Test	37.00	0.84%
Pu/LD Pipe	14.25	0.32%
Reaming	52.50	1.20%
Repairs	53.25	1.21%
Rig Move	26.00	0.59%
Rig Service	78.25	1.78%
Rig Spud	11.00	0.25%
Rig Up/Down	33.00	0.75%
Run Casing	48.50	1.11%
S-In/well	1.50	0.03%
Safety Meetings	5.25	0.12%
Sand Trap	0.75	0.02%
Set Slips	4.00	0.09%
Shut In	1.50	0.03%
Slip & Cut	12.25	0.28%
Special	8.50	0.19%
Surveying	92.50	2.11%
Swivels	3.50	0.08%
Top Drive	1.00	0.02%
Tripping	497.25	11.33%
W.N.U. BOP	17.00	0.39%
Wait On Cement	58.25	1.33%
Wait On Orders	21.50	0.49%
Wait On Tools	6.75	0.15%
W/N.U. BOP	43.00	0.98%
Total Hours	**4387.00**	**100.00%**

Attach #8

Attachment #8

Time Distribution



BOP Drill	Cementing	Circulate	Clean Pumps	Clean Sub	Clean To Bottom
Conduction Mud	Casing Bowl	Cut Casing	DC Inspect	Drilling	Drilling Out
Fishing	Flare Tank	Flow Check	Handle Tools	Logging	Lost Circulation
Manifold	Orient	POL Plug	Pressure Test	Pu/LD Pipe	Reaming
Repairs	Rig Move	Rig Service	Rig Spud	Rig Up/Down	Run Casing
S-In/well	Safety Meetings	Sand Trap	Set Slips	Shut In	Slip & Cut
Special	Surveying	Swivels	Top Drive	Tripping	W.N.U. BOP
Wait On Cement	Wait On Orders	Wait On Tools	W/N.U. BOP		

Atta : #9

1999 SEPTEMBER 13

WELL NAME: CDN FOREST et al FLETT N-61

==========

SURVEY PARAMETERS:

***** MINIMUM CURVATURE METHOD *****

MAGNETIC VARIATION	E(+)/W(-) (deg) ..... =	27.01
TIE-IN CO-ORDINATE	N(+)/S(-) (m) ..... =	.00
TIE-IN CO-ORDINATE	E(+)/W(-) (m) ..... =	.00
TIE-IN DEPTH	TVD (m) ..... =	185.00
SURFACE CO-ORDINATE	N(+)/S(-) (m) ..... =	.00
SURFACE CO-ORDINATE	E(+)/W(-) (m) ..... =	.00
LAST SURVEY CO-ORDINATE ..	N(+)/S(-) (m) ..... =	79.05
LAST SURVEY CO-ORDINATE ..	E(+)/W(-) (m) ..... =	123.81

==========

TABLE OF SURVEY RESULTS:

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
185.00	.00	.0	185.00	.00	.00	.00	.00
193.00	.60	43.0	193.00	.03 N	.03 E	.04	2.25
300.00	1.10	48.0	299.99	1.13 N	1.17 E	1.60	.14
395.00	2.00	36.0	394.95	3.08 N	2.83 E	4.04	.30
501.00	2.20	37.0	500.88	6.20 N	5.14 E	7.67	.06
597.00	2.00	49.0	596.82	8.77 N	7.51 E	11.05	.15
701.00	2.00	41.0	700.75	11.33 N	10.07 E	14.59	.08
752.00	1.80	47.0	751.73	12.55 N	11.24 E	16.23	.17
767.00	1.70	53.0	766.72	12.84 N	11.59 E	16.68	.42
777.00	1.80	47.0	776.71	13.04 N	11.82 E	16.98	.63
788.00	2.10	53.0	787.71	13.28 N	12.11 E	17.35	.99
797.00	2.30	56.0	796.70	13.48 N	12.39 E	17.70	.77
806.00	2.40	55.0	805.69	13.69 N	12.70 E	18.07	.36
816.00	2.30	53.0	815.68	13.93 N	13.03 E	18.48	.38
823.00	2.60	57.0	822.68	14.10 N	13.27 E	18.78	1.48
833.00	2.80	60.0	832.67	14.35 N	13.68 E	19.25	.74
842.00	2.80	57.0	841.66	14.58 N	14.05 E	19.69	.49
852.00	2.60	62.0	851.65	14.82 N	14.46 E	20.16	.93
861.00	3.00	55.0	860.63	15.05 N	14.83 E	20.60	1.75
871.00	3.30	52.0	870.62	15.37 N	15.27 E	21.14	1.03
881.00	3.30	56.0	880.60	15.71 N	15.74 E	21.72	.69
890.00	3.30	57.0	889.59	16.00 N	16.17 E	22.24	.20
900.00	3.30	56.0	899.57	16.32 N	16.65 E	22.81	.18

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
910.00	3.70	60.0	909.55	16.64 N	17.17 E	23.42	1.41
919.00	3.80	53.0	918.53	16.96 N	17.65 E	24.01	1.56
939.00	3.70	57.0	938.49	17.71 N	18.73 E	25.31	.42
958.00	3.70	57.0	957.45	18.38 N	19.75 E	26.54	.00
978.00	4.30	55.0	977.40	19.16 N	20.91 E	27.94	.92
987.00	4.50	53.0	986.38	19.57 N	21.47 E	28.62	.84
997.00	4.50	51.0	996.35	20.05 N	22.09 E	29.41	.47
1016.00	5.10	53.0	1015.28	21.03 N	23.34 E	30.99	.98
1026.00	5.10	50.0	1025.24	21.58 N	24.03 E	31.87	.80
1044.00	5.40	54.0	1043.16	22.59 N	25.33 E	33.51	.79
1064.00	5.80	50.0	1063.07	23.80 N	26.87 E	35.45	.84
1084.00	6.10	51.0	1082.96	25.11 N	28.47 E	37.51	.48
1103.00	6.20	49.0	1101.85	26.42 N	30.03 E	39.53	.37
1122.00	6.40	51.0	1120.74	27.76 N	31.62 E	41.59	.47
1131.00	6.30	49.0	1129.68	28.40 N	32.39 E	42.58	.81
1151.00	6.30	55.0	1149.56	29.75 N	34.11 E	44.76	.99
1160.00	6.10	51.0	1158.51	30.34 N	34.89 E	45.73	1.59
1169.00	6.00	56.0	1167.46	30.90 N	35.65 E	46.68	1.79
1179.00	5.80	55.0	1177.40	31.48 N	36.50 E	47.70	.67
1198.00	5.90	57.0	1196.31	32.56 N	38.10 E	49.64	.36
1218.00	5.70	53.0	1216.20	33.72 N	39.76 E	51.66	.68
1234.00	5.80	56.0	1232.12	34.65 N	41.06 E	53.26	.59
1247.00	5.40	59.0	1245.06	35.33 N	42.13 E	54.53	1.14
1267.00	5.80	57.0	1264.97	36.37 N	43.79 E	56.48	.67
1277.00	5.80	56.0	1274.91	36.93 N	44.63 E	57.49	.30
1297.00	5.80	61.0	1294.81	37.98 N	46.35 E	59.51	.76
1319.00	6.00	63.0	1316.70	39.04 N	48.35 E	61.76	.39
1329.00	5.60	63.0	1326.64	39.50 N	49.25 E	62.77	1.20
1347.00	5.70	67.0	1344.56	40.25 N	50.85 E	64.52	.68
1357.00	5.40	66.0	1354.51	40.64 N	51.74 E	65.48	.95
1367.00	5.40	66.0	1364.47	41.02 N	52.60 E	66.41	.00
1378.00	6.30	64.0	1375.41	41.49 N	53.62 E	67.52	2.52
1386.00	6.60	61.0	1383.36	41.91 N	54.41 E	68.42	1.69
1396.00	6.20	61.0	1393.29	42.45 N	55.39 E	69.53	1.20
1405.00	6.00	57.0	1402.24	42.94 N	56.21 E	70.48	1.57
1414.00	6.30	65.0	1411.19	43.41 N	57.05 E	71.44	3.02
1424.00	5.40	63.0	1421.14	43.85 N	57.97 E	72.46	2.77
1436.00	5.80	54.0	1433.08	44.46 N	58.96 E	73.62	2.41
1443.00	7.30	59.0	1440.04	44.90 N	59.63 E	74.42	6.87

0.313 m³/min @ 40 stk
0.344 m³/min @ 40 stk

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
1453.00	7.70	56.0	1449.95	45.60 N	60.73 E	75.72	1.68
1462.00	7.60	60.0	1458.87	46.24 N	61.74 E	76.92	1.81
1472.00	8.00	58.0	1468.78	46.94 N	62.91 E	78.28	1.45
1482.00	8.30	57.0	1478.68	47.70 N	64.10 E	79.70	1.00
1492.00	8.30	56.0	1488.57	48.50 N	65.30 E	81.14	.43
1501.00	8.80	57.0	1497.47	49.23 N	66.42 E	82.48	1.74
1511.00	8.70	56.0	1507.36	50.07 N	67.69 E	84.00	.55
1521.00	9.40	59.0	1517.23	50.92 N	69.02 E	85.57	2.53
1530.00	9.10	58.0	1526.12	51.67 N	70.25 E	87.02	1.13
1535.00	9.20	57.4	1531.05	52.10 N	70.92 E	87.81	.83
1544.20	9.10	57.4	1540.13	52.89 N	72.15 E	89.28	.33
1554.20	9.00	58.0	1550.01	53.73 N	73.48 E	90.85	.41
1563.60	9.00	58.2	1559.29	54.50 N	74.73 E	92.32	.09
1572.70	8.60	58.8	1568.29	55.23 N	75.92 E	93.71	1.35
1582.90	8.40	58.0	1578.38	56.02 N	77.20 E	95.22	.68
1592.60	8.40	59.3	1587.97	56.76 N	78.41 E	96.63	.58
1601.60	8.40	59.8	1596.87	57.42 N	79.55 E	97.95	.24
1612.10	8.40	59.5	1607.26	58.20 N	80.87 E	99.48	.11
1621.90	8.10	58.7	1616.96	58.92 N	82.08 E	100.89	.98
1630.50	7.80	59.3	1625.48	59.53 N	83.10 E	102.08	1.08
1640.10	7.60	58.4	1634.99	60.20 N	84.20 E	103.36	.73
1649.40	7.20	58.7	1644.21	60.82 N	85.22 E	104.56	1.30
1658.10	6.80	59.7	1652.85	61.37 N	86.13 E	105.62	1.44
1668.09	6.60	59.2	1662.77	61.96 N	87.13 E	106.78	.63
1678.30	6.30	61.1	1672.92	62.53 N	88.13 E	107.93	1.08
1687.60	5.90	63.2	1682.16	62.99 N	89.00 E	108.91	1.48
1696.90	5.90	62.9	1691.41	63.43 N	89.85 E	109.87	.09
1706.90	6.20	65.0	1701.36	63.89 N	90.80 E	110.91	1.12
1716.60	6.20	66.0	1711.00	64.32 N	91.75 E	111.95	.34
1725.90	6.00	65.8	1720.25	64.73 N	92.66 E	112.93	.65
1736.10	5.60	66.7	1730.40	65.14 N	93.60 E	113.95	1.21
1745.40	5.30	65.6	1739.66	65.50 N	94.41 E	114.82	1.03
1755.00	5.10	64.1	1749.22	65.87 N	95.19 E	115.68	.76
1764.80	5.10	63.7	1758.98	66.25 N	95.98 E	116.55	.10
1774.20	5.10	60.2	1768.34	66.64 N	96.71 E	117.38	.99
1783.70	5.00	61.3	1777.80	67.05 N	97.44 E	118.21	.44
1793.20	4.90	61.6	1787.27	67.44 N	98.16 E	119.03	.32
1802.80	4.50	64.8	1796.84	67.80 N	98.86 E	119.81	1.50
1812.60	4.30	67.0	1806.61	68.11 N	99.55 E	120.56	.80

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
1822.20	4.00	72.3	1816.18	68.35 N	100.20 E	121.24	1.52
1831.70	3.60	75.1	1825.66	68.53 N	100.81 E	121.84	1.39
1841.20	3.40	74.9	1835.14	68.68 N	101.37 E	122.39	.63
1850.30	3.60	72.5	1844.23	68.83 N	101.90 E	122.93	.82
1860.00	4.10	68.3	1853.90	69.05 N	102.51 E	123.56	1.78
1869.80	4.70	65.2	1863.67	69.35 N	103.20 E	124.30	1.98
1879.40	5.20	63.6	1873.24	69.71 N	103.95 E	125.13	1.62
1889.10	5.50	62.5	1882.90	70.12 N	104.75 E	126.03	.98
1898.80	5.60	61.9	1892.55	70.56 N	105.58 E	126.96	.36
1908.50	5.60	59.5	1902.20	71.02 N	106.41 E	127.91	.72
1918.20	5.60	59.9	1911.86	71.50 N	107.23 E	128.85	.12
1927.70	5.40	63.6	1921.31	71.93 N	108.03 E	129.76	1.29
1937.10	5.60	69.3	1930.67	72.29 N	108.85 E	130.65	1.86
1946.60	5.70	72.9	1940.13	72.59 N	109.74 E	131.56	1.16
1956.20	5.40	75.3	1949.68	72.84 N	110.63 E	132.45	1.19
1965.80	4.70	76.9	1959.24	73.05 N	111.45 E	133.25	2.23
1976.00	3.90	77.9	1969.41	73.22 N	112.20 E	133.97	2.36
1985.30	3.40	76.7	1978.70	73.35 N	112.77 E	134.52	1.63
1994.50	3.10	81.8	1987.88	73.44 N	113.29 E	135.01	1.36
2004.00	2.50	85.6	1997.37	73.50 N	113.75 E	135.42	1.98
2013.60	2.00	87.3	2006.96	73.52 N	114.12 E	135.75	1.58
2022.40	2.10	84.8	2015.76	73.54 N	114.44 E	136.03	.46
2032.70	2.40	80.5	2026.05	73.60 N	114.84 E	136.40	1.00
2041.70	2.40	73.7	2035.04	73.68 N	115.20 E	136.75	.95
2052.00	2.60	67.6	2045.33	73.83 N	115.63 E	137.19	.97
2060.70	2.60	65.4	2054.02	73.99 N	115.99 E	137.58	.35
2072.60	2.30	60.7	2065.91	74.22 N	116.44 E	138.08	.91
2082.10	1.80	69.4	2075.40	74.36 N	116.75 E	138.42	1.86
2091.60	1.70	87.5	2084.90	74.42 N	117.03 E	138.69	1.77
2101.00	1.70	105.2	2094.30	74.39 N	117.30 E	138.90	1.67
2110.70	1.90	110.9	2103.99	74.29 N	117.59 E	139.09	.83
2120.00	1.60	129.6	2113.29	74.16 N	117.84 E	139.22	2.07
2129.20	1.70	122.8	2122.48	74.00 N	118.05 E	139.32	.72
2138.60	1.70	136.6	2131.88	73.82 N	118.26 E	139.41	1.30
2148.00	1.50	165.6	2141.28	73.60 N	118.39 E	139.39	2.63
2157.60	1.60	186.9	2150.87	73.35 N	118.40 E	139.27	1.82
2167.30	1.70	193.8	2160.57	73.07 N	118.35 E	139.08	.69
2176.90	1.60	197.9	2170.16	72.81 N	118.28 E	138.87	.48
2186.60	1.20	203.2	2179.86	72.59 N	118.20 E	138.68	1.30

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
2196.30	.80	206.3	2189.56	72.43 N	118.13 E	138.54	1.25
2205.80	.60	206.6	2199.06	72.33 N	118.07 E	138.44	.63
2215.40	.50	208.0	2208.66	72.25 N	118.03 E	138.36	.32
2225.10	.50	192.7	2218.36	72.17 N	118.00 E	138.30	.41
2234.80	.50	191.9	2228.06	72.08 N	117.99 E	138.24	.00
2244.60	.50	201.7	2237.86	72.00 N	117.96 E	138.17	.26
2254.10	.50	194.5	2247.36	71.92 N	117.93 E	138.11	.20
2263.80	.40	195.4	2257.06	71.85 N	117.92 E	138.05	.31
2273.40	.40	169.5	2266.66	71.79 N	117.91 E	138.01	.56
2282.90	.40	168.5	2276.16	71.72 N	117.93 E	137.99	.00
2292.60	.30	126.0	2285.86	71.67 N	117.95 E	137.99	.84
2302.20	.40	117.0	2295.46	71.64 N	118.00 E	138.01	.36
2311.50	.50	112.9	2304.76	71.61 N	118.07 E	138.05	.34
2321.10	.40	83.1	2314.35	71.60 N	118.14 E	138.11	.78
2330.50	.50	68.7	2323.75	71.62 N	118.21 E	138.18	.48
2339.90	.70	62.9	2333.15	71.66 N	118.30 E	138.27	.67
2349.30	1.00	58.6	2342.55	71.73 N	118.42 E	138.41	.98
2358.90	.80	65.4	2352.15	71.80 N	118.55 E	138.56	.70
2368.10	1.00	67.0	2361.35	71.86 N	118.69 E	138.71	.65
2377.70	.80	61.2	2370.95	71.92 N	118.82 E	138.86	.69
2387.30	.70	55.1	2380.55	71.99 N	118.93 E	138.98	.40
2396.70	.80	52.0	2389.95	72.06 N	119.03 E	139.10	.34
2406.30	.90	33.7	2399.55	72.17 N	119.12 E	139.24	.90
2415.30	1.00	27.1	2408.55	72.30 N	119.20 E	139.37	.49
2424.90	1.20	23.1	2418.14	72.46 N	119.28 E	139.53	.67
2434.30	1.10	24.9	2427.54	72.63 N	119.35 E	139.68	.35
2444.00	.40	31.8	2437.24	72.75 N	119.41 E	139.79	2.18
2453.70	.40	156.4	2446.94	72.75 N	119.44 E	139.82	2.19
2463.00	.80	185.1	2456.24	72.65 N	119.45 E	139.77	1.58
2472.60	.90	182.6	2465.84	72.51 N	119.44 E	139.69	.33
2482.30	1.00	198.5	2475.54	72.35 N	119.41 E	139.58	.87
2491.90	.90	202.8	2485.14	72.20 N	119.35 E	139.45	.38
2501.60	.80	188.9	2494.84	72.07 N	119.31 E	139.34	.71
2511.30	.60	180.3	2504.54	71.95 N	119.30 E	139.27	.70
2520.40	.40	171.6	2513.64	71.87 N	119.31 E	139.23	.71
2529.80	.50	162.8	2523.04	71.80 N	119.32 E	139.21	.39
2539.40	.40	146.5	2532.63	71.73 N	119.35 E	139.20	.51
2548.90	.30	186.5	2542.13	71.68 N	119.37 E	139.18	.81
2558.00	.30	143.0	2551.23	71.64 N	119.38 E	139.17	.73
2569.30	.10	157.6	2562.53	71.60 N	119.40 E	139.17	.55

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
2578.70	.30	187.8	2571.93	71.57 N	119.40 E	139.15	.70
2588.10	.20	195.0	2581.33	71.53 N	119.39 E	139.13	.33
2597.80	.20	332.1	2591.03	71.53 N	119.38 E	139.11	1.15
2607.30	.10	120.0	2600.53	71.54 N	119.38 E	139.12	.92
2616.90	.20	310.0	2610.13	71.55 N	119.38 E	139.12	.94
2626.50	.10	313.7	2619.73	71.56 N	119.36 E	139.11	.32
2636.10	.30	9.6	2629.33	71.59 N	119.36 E	139.13	.81
2645.60	.10	346.4	2638.83	71.63 N	119.36 E	139.15	.67
2655.20	.30	52.2	2648.43	71.65 N	119.38 E	139.17	.86
2664.80	.30	58.7	2658.03	71.68 N	119.42 E	139.22	.11
2674.50	.30	79.9	2667.73	71.70 N	119.46 E	139.27	.34
2683.50	.40	42.9	2676.73	71.72 N	119.51 E	139.32	.80
2693.00	.10	73.9	2686.23	71.75 N	119.54 E	139.36	1.01
2702.60	.40	46.6	2695.83	71.77 N	119.57 E	139.41	.98
2711.70	.10	53.8	2704.93	71.80 N	119.60 E	139.44	.99
2721.30	.20	18.7	2714.53	71.82 N	119.61 E	139.47	.41
2730.90	.10	80.8	2724.13	71.84 N	119.63 E	139.49	.55
2740.20	.30	75.2	2733.43	71.85 N	119.66 E	139.52	.65
2749.80	.40	39.8	2743.03	71.88 N	119.70 E	139.57	.73
2759.40	.40	15.9	2752.63	71.94 N	119.73 E	139.63	.52
2767.90	.50	23.4	2761.13	72.00 N	119.76 E	139.68	.41
2778.20	.40	7.8	2771.43	72.08 N	119.78 E	139.74	.46
2787.80	.60	9.7	2781.03	72.16 N	119.79 E	139.80	.63
2797.40	.80	9.2	2790.63	72.27 N	119.81 E	139.88	.62
2807.00	.80	7.9	2800.23	72.41 N	119.83 E	139.97	.00
2816.60	1.00	14.7	2809.83	72.55 N	119.86 E	140.07	.70
2826.30	1.10	7.9	2819.53	72.73 N	119.90 E	140.19	.49
2836.00	1.10	353.8	2829.23	72.91 N	119.90 E	140.30	.84
2845.50	1.10	340.7	2838.72	73.09 N	119.86 E	140.36	.79
2855.00	1.20	324.8	2848.22	73.26 N	119.77 E	140.37	1.05
2864.60	1.20	317.0	2857.82	73.41 N	119.65 E	140.35	.51
2874.10	1.00	315.4	2867.32	73.54 N	119.52 E	140.32	.64
2883.70	.70	316.8	2876.92	73.65 N	119.42 E	140.29	.94
2893.50	.50	321.2	2886.72	73.72 N	119.35 E	140.27	.63
2901.40	.50	335.5	2894.62	73.78 N	119.32 E	140.27	.48
2912.50	.50	346.0	2905.72	73.87 N	119.29 E	140.29	.25
2922.20	.70	344.0	2915.42	73.97 N	119.26 E	140.32	.62
2931.60	.70	2.1	2924.81	74.08 N	119.24 E	140.37	.70
2941.30	.80	1.2	2934.51	74.21 N	119.25 E	140.44	.31
2950.90	.70	.8	2944.11	74.34 N	119.25 E	140.51	.31

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
2960.70	.70	6.4	2953.91	74.46 N	119.26 E	140.59	.21
2970.20	.80	7.2	2963.41	74.58 N	119.27 E	140.66	.31
2979.70	.80	13.8	2972.91	74.71 N	119.30 E	140.75	.29
2989.40	.80	13.7	2982.61	74.84 N	119.33 E	140.85	.00
2999.00	.70	14.1	2992.21	74.96 N	119.36 E	140.94	.31
3008.70	.60	23.3	3001.91	75.07 N	119.39 E	141.03	.45
3018.30	.50	32.6	3011.51	75.15 N	119.44 E	141.11	.42
3027.90	.60	35.5	3021.11	75.22 N	119.49 E	141.19	.33
3037.40	.60	40.4	3030.61	75.30 N	119.55 E	141.29	.17
3047.00	.70	38.1	3040.21	75.39 N	119.62 E	141.39	.32
3056.20	.70	46.1	3049.41	75.47 N	119.69 E	141.50	.32
3065.80	.80	25.8	3059.00	75.57 N	119.76 E	141.61	.88
3075.40	.80	30.1	3068.60	75.69 N	119.83 E	141.73	.17
3085.00	.90	47.5	3078.20	75.80 N	119.92 E	141.86	.86
3094.50	1.10	37.1	3087.70	75.92 N	120.03 E	142.02	.85
3104.00	1.40	40.4	3097.20	76.08 N	120.16 E	142.22	.97
3113.50	1.40	40.9	3106.70	76.26 N	120.31 E	142.44	.00
3123.10	1.10	28.6	3116.29	76.43 N	120.43 E	142.63	1.25
3130.00	1.00	358.5	3123.19	76.55 N	120.46 E	142.72	2.41
3152.00	.90	337.7	3145.19	76.90 N	120.39 E	142.85	.49
3159.50	.80	326.3	3152.69	77.00 N	120.34 E	142.86	.78
3177.50	.70	325.5	3170.69	77.19 N	120.20 E	142.86	.16
3187.10	.80	328.8	3180.29	77.30 N	120.14 E	142.86	.34
3196.70	.80	323.1	3189.89	77.41 N	120.06 E	142.85	.24
3206.28	.70	319.9	3199.47	77.51 N	119.98 E	142.84	.34
3216.00	.50	333.2	3209.18	77.59 N	119.93 E	142.84	.75
3225.70	.40	13.9	3218.88	77.66 N	119.92 E	142.86	1.01
3235.40	.70	43.1	3228.58	77.74 N	119.96 E	142.95	1.24
3244.90	1.40	56.6	3238.08	77.84 N	120.10 E	143.12	2.33
3254.20	2.10	63.2	3247.38	77.98 N	120.35 E	143.40	2.35
3264.30	2.00	65.2	3257.47	78.14 N	120.67 E	143.76	.37
3274.02	1.90	70.2	3267.19	78.27 N	120.98 E	144.09	.61
3283.70	1.80	67.9	3276.86	78.38 N	121.27 E	144.39	.39
3293.40	1.70	65.7	3286.56	78.49 N	121.54 E	144.68	.37
3303.10	1.60	64.6	3296.25	78.61 N	121.80 E	144.96	.32
3312.50	1.50	66.8	3305.65	78.72 N	122.03 E	145.21	.37
3322.54	1.40	72.1	3315.69	78.81 N	122.27 E	145.46	.50
3332.24	1.40	75.4	3325.38	78.87 N	122.49 E	145.69	.24
3342.00	1.50	81.1	3335.14	78.92 N	122.73 E	145.92	.54
3351.20	1.50	83.9	3344.34	78.95 N	122.97 E	146.14	.23

WELL NAME: CDN FOREST et al FLETT N-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
3360.82	1.60	84.6	3353.95	78.98 N	123.23 E	146.37	.31
3370.97	1.50	83.2	3364.10	79.01 N	123.51 E	146.61	.31
3383.00	1.41	81.9	3376.13	79.05 N	123.81 E	146.89	.24

TOTAL CALCULATED HORIZONTAL DISPLACEMENT IS : 146.89 m.
ON A AZIMUTH OF: 57.4430° , FROM THE SURFACE LOCATION.

VERTICAL SECTION WAS CALCULATED USING THE LAST SURVEY COORDINATES:
N(+)/S(-) = 79.05 AND E(+)/W(-) = 123.81

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:27 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
1	37.00	0.25						
6	46.00	0.25						
7	57.00	0.50						
8	72.00	0.25						
9	78.00	0.50						
12	97.00	0.50						
13	106.00	1.50						
14	118.00	1.00						
16	134.00	0.75						
19	139.00	0.75						
20	148.00	0.50						
21	148.00	0.50						
22	164.00	0.75						
23	171.00	0.50						
24	181.00	0.75						
25	164.00	0.75						
26	181.00	1.00						
29	207.00	0.50						
30	232.00	0.00						
31	250.00	0.88						
32	262.00	0.50						
33	300.00	1.13						
34	319.00	1.13						
35	331.00	1.00						
36	351.00	1.88						
37	362.00	1.00						
37	362.00	1.00						
38	371.00	1.50						
39	381.00	3.00						
40	389.00	2.13						
40	389.00	2.13						
41	399.00	2.13						
42	409.00	1.88						
43	419.00	2.13						
44	430.00	2.75						
45	439.00	1.25						
46	430.00	0.75						
47	430.00	0.75						
48	419.00	0.50						
49	439.00	0.25						
50	449.00	0.25						
51	459.00	0.25						

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:28 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
52	468.00	0.50						
53	478.00	0.50						
54	487.00	0.50						
55	495.00	0.75						
56	503.00	0.50						
57	513.00	1.00						
58	523.00	1.40						
59	532.00	1.30						
60	542.00	1.10						
61	552.00	1.70						
62	552.00	1.70						
63	561.00	1.80						
64	571.00	1.40						
65	580.00	1.70						
66	599.00	1.90						
67	610.00	1.80						
68	620.00	1.40						
69	638.00	1.70						
70	648.00	1.80						
71	657.00	1.75						
72	676.00	1.65						
73	685.00	1.65						
74	695.00	2.20						
75	704.00	1.80						
76	713.00	1.80						
78	732.00	1.70						
79	193.00	0.60	43.00	1.01	0.74	0.69	193.00	0.093
80	300.00	1.10	48.00	2.60	1.84	1.83	299.98	0.142
81	395.00	2.00	36.00	5.15	3.79	3.49	394.95	0.301
82	501.00	2.20	37.00	9.02	6.91	5.80	500.88	0.058
83	597.00	2.00	49.00	12.52	9.48	8.17	596.81	0.151
84	701.00	2.00	41.00	16.13	12.04	10.73	700.75	0.080
87	752.00	1.80	47.00	17.82	13.26	11.90	751.72	0.166
88	767.00	1.70	53.00	18.27	13.55	12.25	766.72	0.417
89	777.00	1.80	47.00	18.57	13.75	12.48	776.71	0.626
90	788.00	2.10	53.00	18.94	13.99	12.77	787.70	0.989
91	797.00	2.30	56.00	19.28	14.19	13.05	796.70	0.769
92	806.00	2.40	55.00	19.64	14.40	13.36	805.69	0.360
93	816.00	2.30	53.00	20.04	14.64	13.69	815.68	0.388
93	816.00	2.30	53.00	20.04	14.64	13.69	815.68	0.000
94	823.00	2.60	57.00	20.33	14.81	13.93	822.68	1.479
95	833.00	2.80	60.00	20.79	15.05	14.34	832.66	0.734

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:29 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
96	842.00	2.80	57.00	21.21	15.28	14.71	841.65	0.488
97	852.00	2.60	62.00	21.67	15.52	15.12	851.64	0.926
98	861.00	3.00	55.00	22.09	15.75	15.49	860.63	1.752
99	871.00	3.30	52.00	22.64	16.08	15.93	870.62	1.027
100	881.00	3.30	56.00	23.20	16.42	16.40	880.60	0.691
101	890.00	3.30	57.00	23.71	16.71	16.83	889.58	0.192
102	900.00	3.30	56.00	24.28	17.02	17.31	899.57	0.173
103	910.00	3.70	60.00	24.87	17.35	17.83	909.55	1.405
104	919.00	3.80	53.00	25.45	17.67	18.32	918.53	1.561
105	939.00	3.70	57.00	26.74	18.42	19.39	938.49	0.420
106	958.00	3.70	57.00	27.95	19.09	20.41	957.45	0.000
107	978.00	4.30	40.00	29.33	20.01	21.44	977.40	1.983
108	987.00	4.50	53.00	30.01	20.49	21.94	986.37	3.383
109	997.00	4.50	51.00	30.80	20.97	22.55	996.34	0.471
110	1016.00	5.10	53.00	32.38	21.95	23.81	1015.28	0.983
111	1016.00	5.10	53.00	32.38	21.95	23.81	1015.28	0.000
111	1026.00	5.10	50.00	33.27	22.50	24.50	1025.24	0.800
112	1040.00	5.40	54.00	34.54	23.29	25.51	1039.18	1.014
112	1044.00	5.40	54.00	34.92	23.51	25.82	1043.16	0.000
113	1064.00	5.80	50.00	36.86	24.71	27.35	1063.06	0.838
114	1084.00	6.10	51.00	38.93	26.03	28.95	1082.96	0.476
115	1103.00	6.20	49.00	40.97	27.34	30.51	1101.85	0.373
116	1122.00	6.40	51.00	43.05	28.68	32.11	1120.73	0.469
117	1131.00	6.30	49.00	44.05	29.32	32.87	1129.68	0.809
118	1151.00	6.30	55.00	46.23	30.67	34.60	1149.56	0.987
119	1160.00	6.10	51.00	47.20	31.25	35.38	1158.50	1.586
120	1169.00	6.00	56.00	48.15	31.81	36.14	1167.45	1.787
121	1179.00	5.80	55.00	49.17	32.40	36.98	1177.40	0.675
122	1198.00	5.90	57.00	51.09	33.48	38.59	1196.30	0.358
123	1218.00	5.70	53.00	53.10	34.64	40.24	1216.20	0.676
124	1234.00	5.80	56.00	54.69	35.57	41.55	1232.12	0.594
125	1247.00	5.40	59.00	55.95	36.25	42.62	1245.06	1.144
126	1267.00	5.80	57.00	57.88	37.28	44.27	1264.96	0.668
127	1277.00	5.80	56.00	58.88	37.84	45.12	1274.91	0.303
128	1297.00	5.80	61.00	60.88	38.90	46.84	1294.81	0.758
129	1319.00	6.00	63.00	63.10	39.96	48.83	1316.69	0.391
130	1329.00	5.60	63.00	64.09	40.42	49.73	1326.64	1.200
131	1347.00	5.70	67.00	65.80	41.16	51.34	1344.55	0.677
132	1357.00	5.40	66.00	66.74	41.55	52.23	1354.51	0.946
133	1367.00	5.40	66.00	67.65	41.93	53.09	1364.46	0.000
133	1367.00	5.40	63.00	67.65	41.93	53.09	1364.46	0.000
134	1378.00	6.50	64.00	68.77	42.44	54.11	1375.40	3.013

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E

LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:31 1999

Target not specified.

#	DEPTH (m)	DRIFT(m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
135	1386.00	6.60	61.00	69.66	42.86	54.92	1383.35	1.337
136	1396.00	6.20	61.00	70.76	43.40	55.89	1393.29	1.200
137	1405.00	6.00	57.00	71.71	43.89	56.71	1402.24	1.565
138	1414.00	6.30	65.00	72.66	44.36	57.55	1411.19	3.024
139	1424.00	5.40	63.00	73.66	44.80	58.47	1421.13	2.768
140	1434.00	5.80	54.00	74.63	45.31	59.30	1431.09	2.891
141	1443.00	7.30	59.00	75.65	45.88	60.16	1440.03	5.345
142	1453.00	7.70	56.00	76.95	46.58	61.26	1449.94	1.679
143	1462.00	7.60	60.00	78.15	47.21	62.27	1458.86	1.806
144	1462.00	7.60	60.00	78.15	47.21	62.27	1458.86	0.000
144	1472.00	8.00	58.00	79.49	47.91	63.43	1468.77	1.450
145	1482.00	8.30	57.00	80.91	48.67	64.63	1478.67	0.995
145	1482.00	8.30	57.00	80.91	48.67	64.63	1478.67	0.000
146	1492.00	8.30	56.00	82.35	49.47	65.83	1488.56	0.433
147	1501.00	8.80	57.00	83.68	50.21	66.95	1497.46	1.739
147	1501.00	8.80	57.00	83.68	50.21	66.95	1497.46	0.000
148	1511.00	8.70	56.00	85.20	51.05	68.22	1507.35	0.546
149	1521.00	9.40	59.00	86.77	51.89	69.54	1517.22	2.532
150	1530.00	9.10	58.00	88.21	52.65	70.78	1526.11	1.134
151	1540.00	8.80	59.00	89.76	53.46	72.10	1535.98	1.014
152	1544.20	9.10	57.40	90.41	53.81	72.66	1540.13	2.784
153	1554.20	9.00	58.00	91.98	54.65	73.99	1550.01	0.413
154	1563.60	9.00	58.20	93.45	55.42	75.24	1559.29	0.100
155	1572.70	8.60	58.80	94.83	56.15	76.42	1568.29	1.353
156	1582.90	8.40	58.00	96.34	56.94	77.71	1578.37	0.683
157	1592.60	8.40	59.30	97.75	57.68	78.92	1587.97	0.587
158	1601.60	8.40	59.80	99.06	58.34	80.05	1596.87	0.243
159	1612.10	8.40	59.50	100.58	59.12	81.38	1607.26	0.125
160	1621.90	8.10	58.70	101.98	59.84	82.58	1616.96	0.983
161	1630.50	7.80	59.30	103.17	60.45	83.60	1625.48	1.086
162	1640.10	7.60	58.40	104.45	61.12	84.70	1634.99	0.730
163	1649.40	7.20	58.70	105.65	61.74	85.72	1644.21	1.296
164	1658.10	6.80	59.70	106.70	62.29	86.63	1652.85	1.442
165	1668.00	6.60	59.20	107.85	62.87	87.63	1662.68	0.631
166	1677.40	6.40	61.50	108.91	63.40	88.55	1672.02	1.048
167	1678.30	6.30	61.10	109.01	63.45	88.64	1672.91	3.645
168	1687.60	5.90	63.20	109.99	63.91	89.51	1682.16	1.477
169	1696.90	5.90	62.90	110.93	64.34	90.37	1691.41	0.099
170	1706.90	6.20	65.10	111.97	64.81	91.31	1701.36	1.137
171	1716.60	6.20	66.00	113.00	65.24	92.27	1711.00	0.301
172	1725.90	6.00	65.80	113.97	65.64	93.17	1720.25	0.649
173	1736.10	5.60	66.70	114.98	66.06	94.11	1730.39	1.206

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:33 1999

Target not specified.

	#	DEPTH (m)	DRIFT(m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
	174	1745.40	5.30	65.60	115.85	66.41	94.92	1739.65	1.025
	175	1755.00	5.10	64.10	116.71	66.78	95.71	1749.21	0.756
	176	1764.60	5.10	63.70	117.55	67.16	96.47	1758.77	0.111
	177	1774.20	5.10	60.20	118.40	67.56	97.23	1768.34	0.972
	178	1783.70	5.00	61.30	119.23	67.97	97.96	1777.80	0.440
	179	1793.20	4.90	61.60	120.04	68.36	98.68	1787.26	0.326
	180	1802.80	4.50	64.80	120.82	68.72	99.38	1796.83	1.494
	181	1812.60	4.30	67.00	121.56	69.02	100.06	1806.60	0.801
	182	1822.20	4.00	72.30	122.23	69.27	100.72	1816.18	1.521
Tie	183	1831.70	3.60	75.10	0.00	0.00	0.00	185.00	0.000
	184	1841.20	3.40	74.90	0.58	0.15	0.56	194.48	0.633
	185	1850.30	3.60	72.50	1.14	0.31	1.09	203.57	0.817
	186	1860.00	4.10	68.30	1.79	0.53	1.71	213.24	1.774
	187	1869.80	4.70	65.20	2.53	0.82	2.40	223.01	1.975
	188	1869.80	4.70	65.40	2.53	0.82	2.40	223.01	0.000
	189	1869.00	4.70	65.40	2.47	0.80	2.34	222.22	0.000
	190	1879.40	5.20	63.60	3.36	1.18	3.15	232.58	1.510
	191	1889.10	5.50	62.50	4.26	1.59	3.95	242.24	0.981
	192	1894.40	5.60	62.00	4.77	1.83	4.41	247.51	0.629
	193	1898.80	5.60	61.90	5.20	2.03	4.78	251.89	0.067
	194	1908.50	5.60	59.60	6.14	2.50	5.61	261.54	0.694
	195	1918.20	5.60	59.90	7.08	2.97	6.43	271.20	0.091
	196	1927.60	5.40	63.60	7.98	3.40	7.22	280.55	1.299
	197	1937.10	5.60	69.30	8.89	3.76	8.05	290.01	1.836
	198	1946.60	5.70	72.90	9.82	4.07	8.94	299.46	1.163
	199	1956.20	5.40	75.30	10.74	4.32	9.83	309.02	1.185
	200	1965.80	4.70	76.90	11.57	4.52	10.65	318.58	2.231
	201	1975.90	3.90	77.90	12.32	4.69	11.39	328.65	2.387
	202	1985.20	3.40	79.70	12.90	4.81	11.97	337.93	1.655
	203	1994.50	3.10	81.80	13.41	4.89	12.49	347.22	1.041
	204	2004.00	2.50	85.60	13.86	4.94	12.95	356.71	1.982
	205	2013.60	2.00	87.30	14.22	4.97	13.33	366.30	1.576
	206	2022.40	2.10	84.80	14.53	4.99	13.64	375.10	0.457
	207	2032.70	2.40	80.50	14.92	5.04	14.04	385.39	1.002
	208	2041.70	2.40	73.10	15.29	5.13	14.41	394.38	1.032
	209	2052.00	2.60	67.60	15.74	5.28	14.83	404.67	0.909
	210	2060.70	2.60	65.40	16.14	5.44	15.19	413.36	0.344
	211	2063.00	2.50	61.90	16.24	5.48	15.29	415.66	2.413
	212	2072.60	2.30	60.70	16.64	5.67	15.64	425.25	0.644
	212	2082.00	1.80	69.40	16.97	5.82	15.94	434.64	1.875
	213	2091.60	1.70	87.50	17.26	5.88	16.22	444.24	1.748
	214	2101.00	1.70	105.20	17.50	5.85	16.50	453.64	1.669

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:34 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
214	2101.10	1.70	105.20	17.51	5.85	16.50	453.74	0.000
215	2110.40	1.90	110.90	17.74	5.76	16.78	463.03	0.865
216	2120.00	1.60	129.60	17.93	5.61	17.03	472.63	2.003
217	2129.10	1.70	122.80	18.08	5.46	17.24	481.72	0.724
218	2138.60	1.70	136.60	18.24	5.28	17.46	491.22	1.290
219	2148.00	1.50	165.60	18.30	5.06	17.58	500.62	2.630
220	2157.60	1.60	186.90	18.24	4.81	17.60	510.21	1.816
221	2167.30	1.70	193.80	18.12	4.53	17.55	519.91	0.687
222	2176.90	1.60	197.90	17.99	4.27	17.47	529.50	0.483
223	2186.60	1.20	203.20	17.85	4.04	17.39	539.20	1.299
224	2196.30	0.80	206.30	17.75	3.89	17.32	548.90	1.248
225	2205.80	0.60	206.60	17.68	3.79	17.27	558.40	0.632
226	2215.40	0.50	208.00	17.62	3.70	17.23	568.00	0.315
227	2225.10	0.50	192.70	17.58	3.62	17.20	577.70	0.412
228	2234.60	0.50	191.90	17.54	3.54	17.18	587.20	0.022
228	2234.60	0.50	191.90	17.54	3.54	17.18	587.20	0.000
229	2244.60	0.50	201.70	17.50	3.46	17.15	597.20	0.256
230	2254.10	0.50	194.50	17.46	3.38	17.13	606.70	0.198
231	2263.80	0.40	195.40	17.43	3.31	17.11	616.40	0.310
231	2263.80	0.40	195.40	17.43	3.31	17.11	616.40	0.000
232	2273.40	0.40	169.50	17.41	3.24	17.11	626.00	0.560
233	2282.90	0.40	168.20	17.41	3.18	17.12	635.50	0.029
234	2292.60	0.30	126.00	17.43	3.13	17.15	645.20	0.831
233	2282.90	0.40	168.20	17.41	3.18	17.12	635.50	0.000
234	2292.60	0.30	126.00	17.43	3.13	17.15	645.20	0.831
235	2302.20	0.40	117.00	17.47	3.10	17.20	654.80	0.356
236	2311.50	0.50	112.90	17.53	3.07	17.26	664.10	0.339
237	2321.10	0.40	83.10	17.60	3.06	17.34	673.70	0.784
238	2330.50	0.50	68.70	17.68	3.08	17.41	683.09	0.479
239	2340.00	0.70	62.90	17.77	3.12	17.50	692.59	0.659
240	2349.30	1.00	58.60	17.90	3.19	17.62	701.89	0.989
241	2358.90	0.80	65.40	18.04	3.26	17.75	711.49	0.707
242	2368.10	1.00	67.00	18.19	3.32	17.88	720.69	0.657
243	2377.70	0.80	61.20	18.33	3.38	18.02	730.29	0.686
244	2387.30	0.70	55.10	18.45	3.45	18.12	739.89	0.399
245	2396.70	0.80	52.00	18.56	3.52	18.22	749.29	0.344
246	2406.30	0.90	33.70	18.67	3.62	18.32	758.89	0.899
248	2415.30	1.00	27.10	18.77	3.75	18.39	767.89	0.494
249	2424.90	1.20	23.10	18.88	3.92	18.47	777.48	0.669
250	2434.30	1.10	24.90	18.99	4.09	18.55	786.88	0.339
251	2444.00	0.40	31.80	19.07	4.20	18.60	796.58	2.179
252	2453.70	0.40	156.40	19.10	4.20	18.63	806.28	2.191

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:36 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
253	2463.00	0.80	185.10	19.09	4.11	18.64	815.58	1.576
254	2472.60	0.90	182.60	19.05	3.97	18.63	825.18	0.333
255	2482.30	1.00	198.50	18.99	3.81	18.60	834.88	0.869
256	2491.90	0.90	202.80	18.90	3.66	18.55	844.48	0.384
257	2501.60	0.80	188.90	18.84	3.52	18.51	854.18	0.706
258	2511.30	0.60	180.30	18.81	3.41	18.50	863.87	0.697
259	2520.40	0.40	171.60	18.80	3.33	18.50	872.97	0.703
260	2539.40	0.40	146.50	18.82	3.21	18.55	891.97	0.274
261	2548.90	0.30	186.50	18.83	3.15	18.56	901.47	0.812
262	2558.00	0.30	143.00	18.83	3.11	18.57	910.57	0.733
263	2569.30	0.10	157.60	18.85	3.08	18.59	921.87	0.544
264	2578.70	0.30	187.80	18.84	3.05	18.59	931.27	0.700
265	2588.10	0.20	195.00	18.83	3.01	18.59	940.67	0.334
266	2597.80	0.20	332.00	18.82	3.00	18.57	950.37	1.151
267	2607.30	0.10	120.00	18.82	3.01	18.57	959.87	0.915
268	2617.00	0.20	310.00	18.81	3.02	18.57	969.57	0.925
269	2626.40	0.10	313.70	18.80	3.04	18.55	978.97	0.320
270	2636.20	0.30	9.60	18.80	3.07	18.55	988.77	0.789
271	2645.60	0.10	346.40	18.81	3.10	18.55	998.17	0.676
272	2652.20	0.30	52.20	18.82	3.12	18.56	1004.77	1.248
273	2664.80	0.30	58.70	18.88	3.15	18.62	1017.37	0.081
274	2674.50	0.30	79.90	18.93	3.17	18.66	1027.07	0.341
275	2683.50	0.40	42.90	18.98	3.20	18.71	1036.07	0.805
276	2693.00	0.10	73.90	19.01	3.23	18.74	1045.57	1.006
277	2702.60	0.40	46.60	19.05	3.25	18.77	1055.17	0.983
278	2711.70	0.10	53.80	19.08	3.28	18.80	1064.27	0.992
279	2721.30	0.20	18.70	19.10	3.30	18.81	1073.87	0.411
280	2730.90	0.10	80.80	19.12	3.32	18.83	1083.47	0.553
281	2740.20	0.30	75.20	19.15	3.32	18.86	1092.77	0.647
282	2749.90	0.40	39.80	19.20	3.36	18.90	1102.47	0.721
283	2759.40	0.40	15.90	19.24	3.41	18.93	1111.97	0.523
284	2768.90	0.50	23.40	19.28	3.48	18.96	1121.47	0.366
285	2778.90	0.40	7.80	19.31	3.56	18.98	1131.47	0.472
286	2787.80	0.60	9.70	19.34	3.63	18.99	1140.37	0.676
287	2797.40	0.80	9.20	19.38	3.75	19.01	1149.97	0.625
288	2807.00	0.80	7.40	19.42	3.88	19.03	1159.57	0.079
289	2816.60	1.00	14.70	19.48	4.03	19.06	1169.17	0.719
290	2826.30	1.10	7.90	19.55	4.20	19.10	1178.87	0.494
291	2836.00	1.10	353.80	19.60	4.39	19.10	1188.56	0.835
292	2845.50	1.10	340.70	19.60	4.57	19.06	1198.06	0.792
293	2855.00	1.20	324.80	19.55	4.73	18.97	1207.56	1.052
294	2864.60	1.20	317.80	19.47	4.89	18.85	1217.16	0.458

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:37 1999

Target not specified.

#	DEPTH (m)	DRIFT(m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
295	2874.10	1.00	315.40	19.38	5.02	18.72	1226.66	0.648
296	2883.70	0.70	316.80	19.32	5.13	18.62	1236.26	0.940
297	2893.50	0.50	321.20	19.27	5.20	18.55	1246.06	0.628
298	2901.40	0.50	335.30	19.25	5.26	18.52	1253.96	0.466
299	2912.50	0.50	346.00	19.25	5.35	18.49	1265.05	0.252
300	2922.70	0.70	344.00	19.25	5.45	18.46	1275.25	0.591
300	2922.20	0.70	344.00	19.25	5.45	18.46	1274.75	0.000
301	2931.60	0.70	2.10	19.27	5.56	18.45	1284.15	0.703
302	2941.30	0.80	1.20	19.31	5.69	18.45	1293.85	0.311
303	2950.90	0.70	0.80	19.35	5.81	18.45	1303.45	0.313
304	2960.40	0.70	6.40	19.39	5.93	18.46	1312.95	0.216
305	2970.20	0.80	7.20	19.44	6.06	18.48	1322.75	0.308
306	2989.40	0.80	13.70	19.57	6.32	18.52	1341.95	0.142
307	2999.00	0.70	14.10	19.64	6.44	18.55	1351.55	0.313
308	3008.70	0.60	23.30	19.71	6.55	18.59	1361.25	0.446
309	3018.30	0.50	32.60	19.77	6.63	18.63	1370.85	0.418
310	3027.90	0.60	35.50	19.85	6.70	18.68	1380.45	0.324
311	3037.40	0.60	40.40	19.93	6.78	18.74	1389.95	0.162
312	3047.00	0.70	38.10	20.03	6.87	18.81	1399.55	0.323
313	3056.20	0.70	46.10	20.13	6.95	18.89	1408.74	0.318
314	3065.80	0.80	25.80	20.23	7.05	18.96	1418.34	0.881
315	3075.40	0.80	30.10	20.33	7.17	19.02	1427.94	0.188
316	3085.00	0.90	47.50	20.45	7.28	19.11	1437.54	0.861
317	3094.50	1.10	37.10	20.60	7.40	19.22	1447.04	0.850
318	3104.00	1.40	40.40	20.78	7.56	19.35	1456.54	0.974
319	3113.50	1.40	40.90	20.98	7.74	19.50	1466.04	0.039
320	3123.10	1.10	28.60	21.16	7.91	19.62	1475.63	1.253
321	3130.00	1.00	358.50	21.23	8.03	19.65	1482.53	2.408
322	3152.00	0.90	337.70	21.30	8.38	19.58	1504.53	0.487
323	3159.50	0.80	326.30	21.29	8.48	19.53	1512.03	0.784
324	3177.50	0.70	325.50	21.25	8.67	19.40	1530.03	0.168
325	3187.10	0.80	328.80	21.23	8.78	19.33	1539.63	0.340
326	3196.70	0.80	323.10	21.21	8.89	19.26	1549.22	0.249
327	3206.00	0.70	319.90	21.18	8.98	19.18	1558.52	0.350
328	3215.90	0.50	333.20	21.16	9.07	19.12	1568.42	0.735
329	3225.70	0.40	13.90	21.18	9.14	19.11	1578.22	1.000
330	3235.40	0.70	43.10	21.26	9.22	19.16	1587.92	1.242
331	3244.90	1.40	56.60	21.43	9.32	19.30	1597.42	2.329
332	3254.20	2.10	63.20	21.71	9.46	19.54	1606.72	2.346
333	3264.30	2.00	65.20	22.07	9.62	19.87	1616.81	0.365
334	3274.00	1.90	70.20	22.40	9.74	20.17	1626.50	0.610
335	3283.70	1.80	67.90	22.72	9.86	20.47	1636.20	0.385

PAJAK ENGINEERING LTD.

S U R V E Y R E C O R D (Minimum curvature method)

WELL NAME: CDN FOREST ET AL FLETT N-61 AFE: A983003
RIG: 58E
LOCATION: 300-N61-6040-12330-0 CONTRACTOR: Akita Drilling Ltd.

Wed Dec 15 13:38:39 1999

Target not specified.

#	DEPTH (m)	DRIFT (m)	TRUE BEARING (deg)	V.SECT. (m)	--DEFLECTION (m)- N+ S-	E+ W-	TRUE DEPTH (m)	DLS (d/30m)
336	3293.00	1.70	65.70	23.00	9.97	20.73	1645.50	0.389
337	3302.20	1.60	64.60	23.26	10.08	20.97	1654.69	0.342
338	3312.80	1.50	66.80	23.55	10.20	21.23	1665.29	0.329
339	3322.50	1.40	72.10	23.80	10.28	21.46	1674.98	0.517
340	3332.20	1.40	75.40	24.03	10.35	21.69	1684.68	0.249
341	3342.00	1.50	81.10	24.27	10.40	21.93	1694.48	0.537
342	3351.20	1.50	83.90	24.50	10.43	22.17	1703.68	0.239
343	3360.80	1.60	84.90	24.74	10.46	22.43	1713.27	0.324
344	3370.90	1.50	83.20	25.00	10.48	22.70	1723.37	0.327

Attach #10

DAX CONSULTING LTD.

GEOLOGICAL WELL REPORT

PREPARED FOR

CANADIAN FOREST OIL LTD.

CDN FOREST et al NORTH LIARD N 61

SURFACE LOCATION: Section N Unit 61

GRID AREA: 60-40-123-30

LATITUDE: 60 degrees 30' 46.69" North

LONGITUDE: 123 degrees 42' 32.51" West

Report prepared by: Doug MacKenzie, Robert Kelly
William Godwin, P. Geol.

Report approved by: William Godwin, P. Geol.

4215 - Dalhart Road N.W. Calgary, Alberta, Canada T3A 1B6
Phone: (403) 288-9388 Fax: (403) 288-8499
Cellular: (403) 860-5398 (403) 861-2960
E-mail address dax01@telusplanet.net

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

TABLE OF CONTENTS

WELL DATA SUMMARY	Page 1
GEOLOGICAL MARKERS	Page 8
BIT RECORD	Page 9
SAMPLE RECORD	Page 12
REPORT DISTRIBUTION	Page 162

ADDENDUM

VERTICAL AND DIRECTIONAL SURVEY RECORD	A
GEOLOGICAL STRIP LOG	B

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

WELL DATA SUMMARY

OPERATOR:	CANADIAN FOREST OIL LIMITED
WELL NAME:	CDN FOREST et al NORTH LIARD N-61
SURFACE LOCATION:	Section N Unit 61
GRID AREA:	60-40-123-30
SURFACE LOCATION:	LATITUDE - 60 degrees 30' 46.69" North LONGITUDE - 123 degrees 42' 32.51" West
FINAL LOCATION:	Not available
FINAL COORDINATES:	79.1 metres North; 123.9 metres East as calculated from surface coordinates
EXPLORATION LICENCE:	EL263 WA 11685
DRILLING AUTHORITY:	WID #1863
ELEVATIONS:	Ground: 604.0 metres K.B.: 610.7 metres
ZONES OF INTEREST:	Primary: Middle Devonian - Nahanni
WELLSITE CONSULTANTS / GEOLOGIST(s):	D. MacKenzie W. Godwin, P. Geol. R. Kelly
COMPANY GEOLOGIST:	Jim Taylor / Gary Winter
DRILLING CONTRACTOR:	Akita Drilling Ltd. Rig No. 58

660 mm CONDUCTOR HOLE

SPUD DATE:	March 21, 1999 at 18:00 hours
DRILLING COMPLETED:	April 08, 1999 at 04:30 hours
TOTAL DEPTH:	185.0 metres K.B.
TERMINATING FORMATION:	Permo-Mississippian - Mattson

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

WELL DATA SUMMARY

444 mm SURFACE HOLE

SECTION START DATE: April 12, 1999 at 12:00 hours

DRILLING COMPLETED: May 10, 1999 at 03:30 hours

TOTAL DEPTH: 735.6 metres K.B.

TERMINATING FORMATION: Permo-Mississippian - Mattson

311 mm INTERMEDIATE HOLE

SECTION START DATE: May 15, 1999 at 16:00 hours

DIRECTIONAL DRILLING START DEPTH: 1530.0 metres K.B. // 1526.1 metres T.V.D.

INITIAL COORDINATES: 51.8 metres North; 70.3 metres East
as calculated from surface coordinates

KICK-OFF CLOSURE AND AZIMUTH: 87.3 metres K.B. at 58.00 degrees

VERTICAL SECTION AZIMUTH: 70.2 degrees

DRILLING COMPLETED: August 16, 1999 at 21:30 hours

TOTAL DEPTH: 3147.0 metres K.B. // 3140.0 metres T.V.D.

TERMINATING FORMATION: Middle Devonian - Nahanni

216 mm MAIN / FINAL HOLE

SECTION START DATE: September 01, 1999 at 16:30 hours

DRILLING COMPLETED: September 07, 1999 at 08:45 hours

TOTAL DEPTH: 3384.0 metres K.B. // 3377.1 metres T.V.D.

FINAL CLOSURE AND AZIMUTH: 142.9 metres K.B. at 59.38 degrees

FINAL DIRECTIONAL COORDINATES: 79.1 metres North; 123.9 metres East;
as calculated from surface coordinates

TERMINATING FORMATION: Middle Devonian - Nahanni

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

WELL DATA SUMMARY

CASING RECORD:

Conductor Hole: Hole Size: 660.0 mm
Casing Size: 508.0 mm
Weight and Type: 139.9 kg/m; K55; Buttress
Landing Depth: 185.0 metres

Surface Hole: Hole Size: 444.5 mm
Casing Size: 339.7 mm
Weight and Type: 101.2 kg/m; K55; Buttress
Landing Depth: 735.6 metres

Intermediate Hole: Hole Size: 311.2 mm
Casing Size: 244.5 mm
Weight & Type: 79.6, 69.9, 64.7 kg/m; L80; BT&C
Landing Depth: 3147.0 metres

Main Hole: Hole Size: 215.9 mm
Casing Size: Not available

DRILLING FLUID SERVICES: Dynamic Drilling Fluids International

Mud Parameters:	Interval	Mud System
	0 m to 185 m	Gel Chemical
	185 m to 736 m	Gel Chemical
	736 m to 3147 m	K-Polymer (K2SO4)
	3147 m to 3384 m	Polymer

SAMPLES:

Operator: CANADIAN FOREST OIL LTD.

Interval: 30 m to 3380 m at 5 m intervals
Two (2) sets of labelled samples trays and vials

Government: ENERGY MINES AND RESOURCES
GEOLOGICAL SURVEY OF CANADA

Interval: 30 m to 3380 m at 5 m intervals
Two (2) sets of labelled sample trays and vials
One (1) set of sample bags

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

WELL DATA SUMMARY

CORES: None

DRILL STEM TESTS: None on penetration

LOGGING PROGRAM:

Company: Computalog

District: Grande Prairie

Date: August 18 - 23, 1999

RUN NO. 1

Service No. 1:	Logging Device	Interval	Time
	STI-SP-GR	3144.8 m to 735.5 m 3138.0 m to 735.5 m TVD	21.0 hours
	SPD-CNS-UGR-DAC	3122.2 m to 735.5 m KB 3115.4 m to 735.5 m TVD	
	MDA SONIC	3136.2 m to 735.5 m KB 3129.4 m to 735.5 m TVD	

Comments: First run bridged at 2521 metres, log from 2450 metres (above bridge) to surface casing. SPeD working from 1350 metres to surface casing. Conduct wiper trip, second attempt bridged at 2535 metres, no logging attempted. Pull out of hole, run clean out trips, circulate and raise mud weight and viscosity, lower water loss, three (3) wiper trips conducted. Third attempt bridged at 2600 metres, pull out of hole and remove bowspring from CNS device. Run to bottom log from 3146.9 metres (Total Depth) to 2450 metres and relog SPeD tool to 1350 metres.

Service No. 2:	Logging Device	Interval	Time
	SED-UGR	3146.8 m to 1250.0 m	16.5 hours
	DIPMETER	3140 m to 1250.0 mTVD	

Comments: First attempt Gamma tool failure encountered, replace tool, logged sucessfully on second attempt.

Service No. 3:	Logging Device	Interval	Time
	VSP	3141.5 m to 500.0 m KB	8.5 hours
	Velocity Survey	3134.7 m to 500.0 m TVD	

Comments: Shots fired at 3141.5 metres, 2951.5 metres, 2470.0 metres, 164.0 metres, 1700.0 metres, 1306.7 metres, 1051.5 metres, 750.0 metres, and 500.0 metres.

LOGGING PROGRAM:

Company: Computalog

District: Grande Prairie

Date: September 10 - 12, 1999

RUN NO. 2

Service No. 1:	Logging Device	Interval	Time
	STI-SP-GR	3376.9 m to 3148.0 m KB 3370.0 m to 3141.2 m TVD	16.5 hours
	SPD-CNS-UGR-DAC	3154.6 m to 3148.0 m KB 3147.7 m to 3141.2 m TVD	
	MDA	3368.3 m to 3148.0 m KB	
	SONIC	3161.4 m to 3141.2 m TVD	

Comments: First run bridged at 3358 m, lost signal to tools, pull out, slip and cut wireline, resplice head, second attempt stopped at 3358 m, filter cake, lost voltage regulator on STI, pull out and replace, third attempt run to 3350 m, log from 3350 m to intermediate casing shoe at 3147 m. Clean out trip and log EMI, run in and rerun first service to bottom (3379.0 KB), first run used as repeat.

WELL DATA SUMMARY

Service No. 2:	Logging Device	Interval	Time
	EMI-UGR	3379.0 m to 3148.0 m KB 3372.1 m to 3141.2 m TVD	4.5 hours

Service No. 3:	Logging Device	Interval	Time
	VSP VELOCITY SURVEY	3379.0 m to 3142.5 m KB 3372.1 m to 3135.7 m TVD	4.5 hours

Comments: Shots fired at 3142.5 m and 3379.0 m KB.

MUD LOGGING SERVICES:

Company:	Datalog Canada Ltd.
Mud Loggers:	Darren Pearson Adrian Pristolnicu Mike Pitaru Doug Haugen Pavel Krausnt
Services:	Total Gas and Chromatography
Interval:	425 m to 3384 m KB

DRILLING SUPERVISION:

Company:	Pajak Engineering Ltd.
Supervisors:	Bill Shudra Jack Brazel Doug Solberg Murray Rogerson

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

WELL DATA SUMMARY

DIRECTIONAL DRILLING SERVICES:

Company:	Whipstock Systems Inc.
Directional Drillers:	Barry Jackson Bruce Gere

MWD LOGGING SERVICES:

Company:	Daily Energy Services Inc.
MWD Technicians:	John Daniels Jim Milne

Services	Interval
MWD Gamma Ray	2408.9 m to 3134.9 m (Build) 3125.0 m to 3375.0 m

DAX Consulting Ltd.

CDN FOREST etl al NORTH LIARD N 61 60-40-123-30

GEOLOGICAL MARKERS

K.B. ELEVATION: 610.7 metres

FORMATIONS	PROGNOSIS SUBSEA (metres)	MEASURED LOG DEPTH (metres)	TRUE VERTICAL LOG DEPTH (metres)	TRUE VERTICAL SUBSEA (metres)
PENNSLYVANIAN/ UPPER MISSISSIPPIAN				
Mattson	0.0	0.0	0.0	+ 610.7
Conductor Casing	185.0	185.0	185.0	+ 425.7
Surface Casing		736.5	736.3	- 125.6
LOWER MISSISSIPPIAN				
Flett	+ 375.0	1051.5	1048.5	- 437.8
Besa River	- 190.0	1366.7	1363.0	- 752.3
UPPER DEVONIAN				
Exshaw (First Black Shale)		2164.0	2157.2	- 1546.5
Lower Besa River		2470.0	2463.2	- 1852.5
MIDDLE DEVONAIN				
Horn River (Second Black Shale)	- 2220.0	2951.5	2944.5	- 2333.8
Nahanni		3141.5	3134.5	- 2523.8
Intermediate Casing		3147.0	3140.2	- 2529.5
Total Depth	- 2530.0	3384.0	3377.1	- 2766.4

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

BIT RECORD

BIT No.	TYPE	SIZE (mm)	DEPTH OUT (metres)	METRES DRILLED	TOTAL HOURS
1A	R3	660.0	70.0	70.0	14.00
2A	C3JC	660.0	128.0	58.0	62.00
3ARR1A	R3	660.0	136.0	8.0	18.25
4A	R4J	660.0	137.5	1.5	11.25
5A	2JS	660.0	153.0	16.0	43.50
6A	C5	444.5	186.0	33.0	37.00
7ARR5A	2JS	660.0	185.0	32.0	35.25
1B	3JS	444.5	267.0	82.0	40.50
2B	3JS	444.5	335.0	68.0	59.25
3B	3JS	444.5	422.0	87.0	75.50
4B	3JS	444.5	493.0	71.0	80.50
5B	4JS	444.5	601.0	108.0	121.25
6B	4JS	444.5	678.0	77.0	88.75
7B	C5	444.5	722.0	44.0	68.75
8BRR7B	C5	444.5	727.0	5.0	18.75
9B	3JS	444.5	736.0	9.0	11.25
1C	ATJ33	311.2	756.0	20.0	13.75
2C	ATJ33	311.2	840.0	84.0	52.25
3C	C4	311.2	892.0	52.0	41.75
4C	C45	311.2	933.0	41.0	29.00

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

BIT RECORD

BIT No.	TYPE	SIZE (mm)	DEPTH OUT (metres)	METRES DRILLED	TOTAL HOURS
5C	HP63	311.2	992.0	59.0	45.25
6C	F57P	311.2	1057.0	65.0	46.75
7C	HP63	311.2	1146.0	89.0	59.25
8C	GT28	311.2	1258.0	112.0	80.25
9C	HP53A	311.2	1305.0	47.0	27.75
10CRR9C	HP53A	311.2	1391.0	86.0	71.00
11C	M44NG	311.2	1406.0	15.00	18.25
12C	HP53A	311.2	1486.0	80.00	68.00
13C	PDCFM2743	311.2	1550.0	64.00	48.00
14C	ATJS33	311.2	1693.0	143.0	74.75
15C	HP63A	311.2	1852.0	159.0	123.25
16C	HP53A	311.2	1884.0	32.0	16.75
17CRR16C	HP53A	311.2	2076.0	192.0	115.00
18C	HP53A	311.2	2284.0	208.0	138.25
19C	HP51H	311.2	2422.0	138.0	45.00
20C	GT28D	311.2	2479.0	57.0	40.50
21C	GS884F	311.2	2579.0	100.0	57.00
22C	GT28	311.2	2757.0	178.0	102.50

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

BIT RECORD

BIT No.	TYPE	SIZE (mm)	DEPTH OUT (metres)	METRES DRILLED	TOTAL HOURS
23C	EHP53A	311.2	2916.0	159.0	120.00
24C	EHP53A	311.2	2968.0	52.0	66.75
25C	GS86F	311.2	3050.0	82.0	58.50
26C	HP61A	311.2	3115.0	65.0	57.75
27C	F4P	311.2	3147.0	32.0	18.50
1D	J7	215.9	3147.0	0.0	21.50
2D	F3	215.9	3380.0	233.0	100.50
3D	EHP53A	215.9	3384.0	4.0	2.00

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
CONDUCTOR HOLE		
PENNSYLVANIAN // UPPER MISSISSIPPIAN MATTSON GROUP		
0 - 30		No Sample Record Note: Poor sample quality over this interval due to contamination by drilling mud additives
30 - 45	100	SANDSTONE - light reddish or brownish grey, lower fine to lower medium grained, minor upper very fine or upper medium grained, subangular to subrounded, moderately sorted, commonly disaggregated, silica and occasional siderite cement, friable, subvitreous quartz, frosted in part, occasional vitreous quartz, common reddish orange Fe stain, minor locally dark argillaceous grains, rare white clay inclusions, trace glauconite, fair to poor intergranular porosity, no visual shows.
45 - 60	100	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, occasional upper very fine and upper medium grained, subrounded to subangular, trace rounded, moderately to locally well sorted, commonly disaggregated, silica and minor calcite or dolomite cement, trace siderite cement, rare light orange brown Fe stain, predominantly subvitreous quartz, occasional vitreous quartz, rare light grey chert, trace glauconite, trace argillaceous grain, fair to poor intergranular porosity, occasional good intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
60 - 65	95	SANDSTONE - light grey, light brownish grey, occasional light orange to brown Fe stain, lower fine to lower medium grained, subrounded to subangular, moderately sorted, predominantly disaggregated, silica and calcite cement, overgrowths in part, subvitreous and occasional vitreous quartz, minor light chert, trace dark argillaceous, trace glauconite or chlorite, fair to poor intergranular porosity, trace good intergranular porosity, no visual shows.
	05	CHERT - white, minor brown stain, tripolitic, locally poor to fair vuggy porosity.
65 - 75	65-70	SHALE - medium to occasional dark grey, slightly brownish in part, blocky, occasional silty, locally slightly calcareous, trace pyrite, moderately to well indurated.
	15-20	SANDSTONE - as above, upper fine to upper medium grained, poor to fair intergranular porosity, no visual shows.
	10-15	SILTSTONE - light to medium grey, light brownish grey, quartzose, grading to very fine sandstone , silica and minor calcite cement, argillaceous to very argillaceous, rare disseminated pyrite, moderately to well indurated, minor chert.
		Note: LCM added to MUD SYSTEM
75 - 80	100	SANDSTONE - off white, occasional very light brownish grey, upper very fine to lower fine grained, subrounded to subangular, well sorted, commonly disaggregated, friable in part, calcite and silica cement, subvitreous and vitreous quartz, trace light and dark chert, slightly trace white clay inclusions, fair to inferred good intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
80 - 85	100	SANDSTONE - light grey to very light brownish grey, upper very fine to upper fine grained, minor lower very fine and rare lower medium grained, subangular to subrounded, moderately to well sorted, commonly disaggregated, friable in part, silica and locally calcite cement, quartz overgrowths in part, subvitreous and occasional vitreous quartz, frosted in part, rare light and dark chert, rare argillaceous grains, trace glauconite, trace white clay inclusions, rare off white to cream chert shards, fair intergranular porosity, locally poor or good intergranular porosity, trace black interstitial carbonaceous or organic material, no visual shows.
85 - 95	65	SANDSTONE - light grey to very light brownish grey, upper very fine to upper fine grained, minor lower very fine and rare lower medium grained, subangular to subrounded, moderately to well sorted, commonly disaggregated, friable in part, silica and local calcite cement, quartz overgrowths in part, subvitreous and occasional vitreous quartz, frosted in part, rare light and dark chert, rare argillaceous grains, trace glauconite, trace white clay inclusions, rare off white to cream chert shards, fair intergranular porosity, local poor or good intergranular porosity, trace black interstitial carbonaceous or organic material, no visual shows.
	30	SHALE - dark grey and dark brownish grey, occasional black, blocky to subfissile, very slightly calcareous, occasional carbonaceous, locally silty to arenaceous, moderately to well indurated.
	05	SILTSTONE - light to medium grey, light brownish grey, quartzose, grading to very fine sandstone , silica and minor calcite cement, argillaceous to very argillaceous, rare disseminated pyrite, moderately to well indurated, minor chert.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
95 - 100	80	SANDSTONE - off white to very light grey, minor light brown, slightly salt and pepper, lower very fine to lower fine grained, occasional upper fine grained, grading to siltstone in part, subangular to subrounded, moderately to well sorted, silica and calcite cement, occasional disaggregated, vitreous and subvitreous quartz, rare light grey chert, rare white clay grains in grey and brown sandstone, trace glauconite and carbonaceous inclusions, rare local Fe stain, poor to fair intergranular porosity.
	10	SILTSTONE to light to dark grey and brownish grey, quartzose, commonly grading to very fine sandstone, slightly argillaceous to argillaceous, calcareous to dolomitic, moderately to well indurated.
	10	SHALE - dark grey and dark brownish grey, occasional black, blocky to subfissile, very slightly calcareous, occasional carbonaceous, locally silty to arenaceous, moderately to well indurated.
100 - 105	35	SANDSTONE - white to very light grey, minor slightly salt and pepper, lower fine to lower medium grained, minor upper very fine and upper medium grained, subrounded to subangular, occasional rounded, moderately to poorly sorted, commonly disaggregated, calcite and silica cement, friable, subvitreous and vitreous quartz, frosted in part, trace light and dark chert, trace dark carbonaceous argillaceous grains, trace pyrite and white clay grains, fair to inferred good intergranular porosity, occasional locally poor intergranular porosity, no visual shows, trace chert shards.
	35	SHALE - medium to very dark grey, occasional dark brownish grey, blocky, carbonaceous in part, bentonitic in part, occasional silty or sandy, slightly calcareous to dolomitic, trace pyrite, well indurated.
	30	SILTSTONE - light to dark grey and brownish grey, quartzose, commonly grading to very fine sandstone, slightly argillaceous to argillaceous, calcareous to dolomitic, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
105 - 115	40-45	SANDSTONE - off white to very light grey, locally very slightly salt and pepper, lower fine to upper medium grained, occasional upper very fine grained, minor R to well R coarse grained, subrounded to subangular, moderately to poorly sorted, commonly disaggregated, calcite and silica cement, subvitreous and vitreous quartz, frosted in part, trace light and dark chert, trace dark carbonaceous grains, slightly trace interstitial and very fine crystalline pyrite, fair to inferred good intergranular porosity, occasional locally poor intergranular porosity.
	35	SHALE - medium to very dark grey, occasional dark brownish grey, blocky to minor subfissile, carbonaceous in part, bentonitic in part, locally silty or sandy, slightly calcareous, trace pyrite, well indurated.
	20-25	SILTSTONE - light to dark grey and brownish grey, quartzose, commonly grading to very fine sandstone, slightly argillaceous to argillaceous, calcareous to dolomitic, moderately to well indurated.
115 - 120	75	SANDSTONE - off white to very light grey, locally very slightly salt and pepper, lower fine to upper medium grained, occasional upper very fine grained, minor R to well R coarse grained, subrounded to subangular, moderately to poorly sorted, commonly disaggregated, calcite and silica cement, subvitreous and vitreous quartz, frosted in part, trace light and dark chert, trace dark carbonaceous grains, slightly trace interstitial and very fine crystalline pyrite, fair to inferred good intergranular porosity, occasional locally poor intergranular porosity.
	15	SHALE - medium to very dark grey, occasional dark brownish grey, blocky to minor subfissile, carbonaceous in part, bentonitic in part, locally silty or sandy, slightly calcareous, trace pyrite, well indurated.
	10	SILTSTONE - light to dark grey and brownish grey, quartzose, commonly grading to very fine sandstone, slightly argillaceous to argillaceous, calcareous to dolomitic, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
120 - 135	65-70	SANDSTONE - white to very light grey, very slightly salt and pepper, lower very fine to lower fine grained, occasional upper fine to r lower medium grained, subrounded, occasional subangular, moderately to well sorted, commonly disaggregated, calcite and silica cement, vitreous and subvitreous quartz, frosted in part, rare light chert, trace dark carbonaceous grains, fair intergranular porosity, occasional locally poor intergranular porosity, no visual shows.
	15-20	SHALE - medium to very dark grey, occasional dark brownish grey, blocky to minor subfissile, carbonaceous in part, bentonitic in part, locally silty or sandy, slightly calcareous, trace pyrite, well indurated.
	10-15	SILTSTONE - light to dark grey, brownish grey in part, grading from very fine sandstone - silty shale, quartzose, silica and calcite cement, very slightly argillaceous to argillaceous, moderately to well indurated.
135 - 150	90-95	SANDSTONE - white, occasional light grey, lower very fine to upper fine grained, subrounded to subangular, minor rounded, moderately to well sorted, commonly disaggregated, silica cement, occasional varying calcite cement, vitreous and subvitreous quartz, trace light to medium grey or brown chert, trace dark carbonaceous grains, trace pyrite, slightly trace glauconite, fair intergranular porosity, local poor intergranular porosity, no visual shows.
	05-10	SHALE - dark grey to black, blocky, carbonaceous, occasional silty, slightly calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
150 - 155	100	SANDSTONE - light brownish grey, occasional light grey, lower fine to upper medium grained, minor very fine and coarse grained, subrounded to subangular, moderately to poorly sorted, commonly disaggregated, silica and minor calcite cement, friable in part, subvitreous and vitreous quartz, occasional light to dark grey chert, rare chert pebble fragments, trace glauconite, trace pyrite, slightly argillaceous in part, occasional reddish brown Fe stain, poor to fair intergranular porosity, no visual shows.
155 - 160	100	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, minor upper medium and trace coarse grained, subrounded to subangular, moderately sorted, predominantly disaggregated, silica and minor calcite cement, subvitreous and vitreous quartz, occasional light to dark grey and brown chert, trace coarse grained to pebble size chert fragments, trace dark grey to black argillaceous grains, rare reddish brown stain, poor to inferred fair intergranular porosity, no visual shows.
160 - 170	100	SANDSTONE - white to light grey, rare light brownish grey, lower very fine to upper fine grained, rare medium grained, subrounded to subangular, occasional rounded, moderately to well sorted, predominantly disaggregated, silica and minor calcite cement, vitreous and subvitreous quartz, occasional light to dark grey or brownish grey chert, rare dark grey to black argillaceous grains, trace pyrite and glauconite, trace clear subhedral calcite crystals, inferred fair to poor intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
170 - 185	100	SANDSTONE - white, light grey, upper very fine to upper medium grained, subrounded to subangular, common loose rounded to well rounded coarse grained, moderately to poorly sorted, commonly disaggregated, silica and varying calcite cement, subvitreous and vitreous quartz, occasional light to dark chert, rare dark argillaceous grains, trace pyrite, fair to poor intergranular porosity, no visual shows.
185		END OF 660 mm CONDUCTOR HOLE CONDUCTOR CASING at 185.0 m KB
SURFACE HOLE		
185 - 190	95	SANDSTONE - light to medium greenish grey, very fine to fine grained, grading to siltstone in part, subangular to subrounded, moderately to well sorted, minor disaggregated, silica and minor calcite cement, trace pyrite cement, subvitreous quartz, occasional grey or brown chert, greenish grey argillaceous matrix in part, poor intergranular porosity, no visual shows.
	05	SILTSTONE - light to dark grey, brownish grey in part, grading from very fine sandstone - silty shale, quartzose, silica and calcite cement, very slightly argillaceous to argillaceous, moderately to well indurated.
190 - 195	100	SANDSTONE - light grey, occasional cream or buff, lower fine to lower medium grained, occasional upper fine and medium grained, trace coarse grained to pebble size quartz and chert fragments, subrounded to subangular, occasional rounded, moderately to poorly sorted, commonly disaggregated, silica and calcite cement, subvitreous quartz occasional vitreous quartz, rare light to dark grey or brownish grey chert, trace white chert, trace indistinct fossil fragments, slightly trace pyrite, poor to occasional fair intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
195 – 200	90	SANDSTONE - white to light grey, upper very fine to lower medium grained, calcite cement increasing, becoming more pervasively cemented, dolomitic in part, chert decreasing' to trace, occasional calcite matrix, occasional calcite grains, trace pyrite, poor to minor fair intergranular porosity, no visual shows.
	10	SILTSTONE - light to dark grey, brownish grey in part, grading from very fine sandstone - silty shale, quartzose, silica and calcite cement, very slightly argillaceous to argillaceous, moderately to well indurated.
200 – 205	40	LIMESTONE - medium to light grey or brownish grey, cryptocrystalline, occasional microcrystalline, recrystallized to very fine to fine crystalline in part, bioclastic to fragmental packstone, trace brachiopod, locally siliceous, common dolomite or calcite spar cement, locally white to light grey or brown cherty, detritus or as replaced, rare glauconite, trace disseminated and crystalline pyrite, occasional slightly argillaceous, poor intergranular porosity, rare vuggy and moldic porosity, minor spotty dead oil staining as organic laminae or outlines, no visual shows.
	30	DOLOMITIC SILTSTONE - light grey, light brownish grey, very fine grained sandstone in part, quartzose, dolomitic, microsucrosic in part, dolomite and minor calcite cement.
	30	SANDSTONE - white to light grey, upper very fine to lower medium grained, calcite cement increasing, becoming more pervasively cemented, dolomitic in part, chert decreasing to trace, occasional calcite matrix, occasional calcite grains, trace pyrite, poor to minor fair intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
205 – 210	100	LIMESTONE - medium to light grey or brownish grey, cryptocrystalline, occasional microcrystalline, recrystallized to very fine to fine crystalline in part, bioclastic to fragmental packstone, trace brachiopod, locally siliceous, common dolomite or calcite spar cement, locally white to light grey or brown cherty, detritus or as replaced, rare glauconite, trace disseminated and crystalline pyrite, occasional slightly argillaceous, poor intergranular porosity, rare vuggy and moldic porosity, minor spotty dead oil staining as organic laminae or outlines, no visual shows.
210 – 215	45	LIMESTONE - medium to light grey or brownish grey, cryptocrystalline, occasional microcrystalline, recrystallized to very fine to fine crystalline in part, bioclastic to fragmental packstone, trace brachiopod, locally siliceous, common dolomite or calcite spar cement, locally white to light grey or brown cherty, detritus or as replaced, rare glauconite, trace disseminated and crystalline pyrite, occasional slightly argillaceous, poor intergranular porosity, rare vuggy and moldic porosity, minor spotty dead oil staining as organic laminae or outlines, no visual shows.
	35	DOLOMITIC SILTSTONE - light grey, light brownish grey, grading to very fine grained sandstone in part, quartzose, dolomitic, microsucrosic in part, dolomite and minor calcite cement, rare floating sand grain, argillaceous in part, poor intergranular and intercrystalline porosity, minor pinpoint vuggy porosity, no visual shows.
	20	SHALE - medium green and greenish grey, subfissile, slightly calcareous or dolomitic, occasional silty or very fine arenaceous, rare very fine disseminated pyrite, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
215 – 220	40	SANDSTONE - light grey, light brownish grey, upper very fine to upper fine grained, minor lower medium grained, subrounded, moderately to well sorted, silica and varying calcite cement, subvitreous and occasional vitreous quartz, minor light to dark grey or brown chert grains, trace glauconite, poor intergranular porosity, no visual shows.
	20	LIMESTONE - medium to light grey or brownish grey, cryptocrystalline, occasional microcrystalline, recrystallized to very fine to fine crystalline in part, bioclastic to fragmental packstone, trace brachiopod, locally siliceous, common dolomite or calcite spar cement, locally white to light grey or brown cherty, detritus or as replaced, rare glauconite, trace disseminated and crystalline pyrite, occasional slightly argillaceous, poor intergranular porosity, rare vuggy and moldic porosity, minor spotty dead oil staining as organic laminae or outlines, no visual shows.
	20	DOLOMITIC SILTSTONE - light grey, light brownish grey, grading to very fine grained sandstone in part, quartzose, dolomitic, microsucrosic in part, dolomite and minor calcite cement, rare floating sand grain, argillaceous in part, poor intergranular and intercrystalline porosity, minor pinpoint vuggy porosity, no visual shows.
	20	SHALE - medium green and greenish grey, subfissile, slightly calcareous or dolomitic, occasional silty or very fine sandy, rare very fine disseminated pyrite, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
220 – 225	85	SANDSTONE - light grey, light brownish grey, upper very fine to upper fine grained, minor lower medium grained, subrounded, moderately to well sorted, silica and varying calcite cement, subvitreous and occasional vitreous quartz, minor light to dark grey or brown chert grains, trace glauconite, poor intergranular porosity, no visual shows.
	10	LIMESTONE - medium to light grey or brownish grey, cryptocrystalline, occasional microcrystalline, recrystallized to very fine to fine crystalline in part, bioclastic to fragmental packstone, trace brachiopod, locally siliceous, common dolomite or calcite spar cement, locally white to light grey or brown cherty, detritus or as replaced, rare glauconite, trace disseminated and crystalline pyrite, occasional slightly argillaceous, poor intergranular porosity, rare vuggy and moldic porosity, minor spotty dead oil staining as organic laminae or outlines, no visual shows.
	05	DOLOMITIC SILTSTONE - light grey, light brownish grey, grading to very fine grained sandstone in part, quartzose, dolomitic, microsucrosic in part, dolomite and minor calcite cement, rare floating sand grain, argillaceous in part, poor intergranular and intercrystalline porosity, minor pinpoint vuggy porosity, no visual shows.
225 – 230	100	SANDSTONE - medium grey, lower very fine to lower fine grained, subrounded to subangular, moderately to well sorted, minor disaggregated, silica and dolomite cement, vitreous quartz, subvitreous quartz, trace chert, minor dark argillaceous or carbonaceous matrix throughout, very poor intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
230 – 240	100	SANDSTONE - medium to dark greyish brown or brown, very fine grained, minor fine grained, subrounded to subangular, well sorted, trace medium to very coarse grained chert inclusions, fossil replaced in part, dolomite cement, subvitreous and minor vitreous quartz, occasional grey or brown chert grains, trace clear to light grey silica laminae or possible fracture fill, trace siliceous, dead oil staining, trace brachiopod impressions, trace pyrite, dark brown organic matrix throughout, possible dead oil staining in part, poor intergranular porosity, faint off white residue cut, trace dark brown cryptocrystalline dolomite.
240 – 245	75	SANDSTONE - light grey, off white, lower fine to lower medium grained, rare upper medium grained, subrounded to subangular, rare R, moderately sorted, commonly disaggregated, silica and minor dolomite cement, overgrowths in part, vitreous quartz, common subvitreous quartz, rare light to dark grey or brownish grey chert grains, rare dark argillaceous, trace white chert, trace interstitial pyrite, trace pyrobitumen, fair intergranular porosity, streaky good intergranular porosity, rare bitumen or organic material encrusting grains.
	25	CHERT - light grey, light brownish grey, remnant fossil impression, rare bryzoan, locally dolomitic, occasional floating quartz grain, no porosity or visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
245 – 250	65	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, subrounded to subangular, occasional subrounded and rounded, moderately to well sorted, occasionally disaggregated, silica and minor dolomite cement, silica recrystallized' in part, vitreous quartz, common subvitreous quartz, minor light to dark grey or brown chert grains, trace argillaceous grains, trace glauconite, trace pyrite, poor to occasional fair intergranular porosity, trace bitumen or organic material.
	35	CHERT - light grey, light brownish grey, remnant fossil impression, rare bryzoan, locally dolomitic, occasional floating quartz grain, no porosity or visual shows.
250 – 255	65	CHERT - light to dark brown or brownish grey, dolomitic, occasional remnant fossil outlines, argillaceous, no visual shows or porosity.
	30	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, subrounded to subangular, occasional subrounded to rounded, moderately to well sorted, occasionally disaggregated, silica and minor dolomite cement, silica recrystallized' in part, vitreous quartz, common subvitreous quartz, minor light to dark grey or brown chert grains, trace argillaceous grains, trace glauconite, trace pyrite, poor to occasional fair intergranular porosity, trace bitumen or organic material
	05	SHALE - medium green, blocky to subfissile, dolomitic, occasional silty grading to argillaceous siltstone, minor very fine sandy, minor disseminated pyrite crystals, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
255 – 260	60	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, subrounded to subangular, occasional subrounded to rounded, moderately to well sorted, occasionally disaggregated, silica and minor dolomite cement, silica recrystallized' in part, vitreous quartz, common subvitreous quartz, minor light to dark grey or brown chert grains, trace argillaceous grains, trace glauconite, trace pyrite, poor to occasional fair intergranular porosity, trace bitumen or organic material.
	40	CHERT - light to dark brown or brownish grey, dolomitic, occasional remnant fossil outlines, argillaceous, no visual shows or porosity.
260 – 265	40	SANDSTONE - light grey, light brownish grey, lower fine to lower medium grained, subrounded to subangular, occasional subrounded and rounded, moderately to well sorted, occasionally disaggregated, silica and minor dolomite cement, silica recrystallized' in part, vitreous quartz, common subvitreous quartz, minor light to dark grey or brown chert grains, trace argillaceous grains, trace glauconite, trace pyrite, poor to occasional fair intergranular porosity, trace bitumen or organic material.
	40	CHERT - light to dark brown or brownish grey, dolomitic, occasional remnant fossil outlines, argillaceous, no visual shows or porosity.
	20	DOLOMITE / SILTSTONE - dark brown, medium to dark greyish brown, microcrystalline to cryptocrystalline, m sucrose in part, commonly silty to very fine sandy, grading to dolomitic and argillaceous siltstone, argillaceous to very argillaceous, rare dark argillaceous inclusions, poor intercrystalline porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
265 – 270	70	SANDSTONE - off white to light grey, slightly spotty, lower fine to upper medium grained, rare coarse grained, subrounded, occasional rounded, moderately to well sorted, commonly disaggregated, silica cement, trace local calcite cement, subvitreous quartz, occasional vitreous, frosted in part, minor light to dark grey or brown and white chert grains, good intergranular porosity, locally grading to fair intergranular porosity down section, no visual shows.
	15	DOLOMITE - medium to dark brown, microcrystalline, locally cherty, occasional silty to very fine sandy, poor intercrystalline porosity, no visual shows.
	15	CHERT - light to dark brown or brownish grey, dolomitic, occasional remnant fossil outlines, argillaceous, no visual shows or porosity.
270 – 275	100	SANDSTONE - off white to light grey, slightly spotty, lower fine to upper medium grained, rare coarse grained, subrounded, occasional rounded, moderately to well sorted, commonly disaggregated, silica cement, trace local calcite cement, subvitreous quartz, occasional vitreous, frosted in part, minor light to dark grey or brown and white chert grains, good intergranular porosity, locally grading to fair intergranular porosity down section, no visual shows.
275 – 280	100	SANDSTONE - off white to light grey, slightly spotty, lower fine to lower medium grained, minor upper m and rare coarse grained, subrounded, occasional rounded, moderately to well sorted, commonly disaggregated, silica cement, cement increasingly, trace local calcite cement, subvitreous quartz, occasional vitreous, frosted in part, minor light to dark grey or brown and white chert grains, trace glauconite, fair to good intergranular porosity, trace pyrobitumen or carbonaceous specks, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
280 – 290	100	SANDSTONE - light grey, light brownish grey, occasional medium grey, upper very fine to lower medium grained, subrounded to subangular, moderately sorted, commonly disaggregated, calcite or dolomite and minor silica cement throughout, subvitreous and vitreous quartz, minor light to dark grey or brown chert grains, rare dark argillaceous grains, trace pyrite, locally argillaceous, poor intergranular porosity, no visual shows.
290 – 295	65	SANDSTONE - light grey, light brownish grey, occasional medium grey, upper very fine to lower medium grained, subrounded to subangular, moderately sorted, commonly disaggregated, calcite or dolomite and minor silica cement throughout, subvitreous and vitreous quartz, minor light to dark grey or brown chert grains, rare white chert grains, rare dark argillaceous grains, trace pyrite streaks, locally argillaceous, poor intergranular porosity, trace dark pyrobitumen specks, no visual shows.
	25	MARLSTONE - medium to dark brownish grey, calcareous to dolomitic, argillaceous to very argillaceous to organic or bitumen strands in part, grading to very argillaceous dolomite in part, occasionally silty or sandy, grading to siltstone or sandstone in part, no effective to very poor intercrystalline porosity.
	10	LIMESTONE - light to medium grey, cryptocrystalline to microcrystalline, dolomitic, very silty or sandy, transitional from sandstone, occasional argillaceous, poor ix / intergranular porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
295 – 300	55	SANDSTONE - white to light grey, light brownish grey, wkly spotty, upper very fine to lower medium grained, minor upper medium grained, subrounded, occasional a or R, moderately sorted, occasional well sorted, silica and calcite cement, dolomite recrystallized in part, subvitreous and vitreous quartz, occasional light to dark grey or brown chert grains, trace coarser loose chert fragments, trace pyrite, minor locally argillaceous, very poor to poor intergranular porosity, rare dark organic or bitumen specks, no visual shows.
	45	MARLSTONE - medium to dark brownish grey, calcareous to dolomitic, argillaceous to very argillaceous to organic or bitumen strands in part, grading to very argillaceous dolomite in part, occasionally silty or sandy, grading to siltstone or sandstone in part, no effective to very poor intercrystalline porosity.
300 – 305	40	SANDSTONE - white to light grey, light brownish grey, wkly spotty, upper very fine to lower medium grained, minor upper medium grained, subrounded, occasional a or R, moderately sorted, occasional well sorted, silica and calcite cement, dolomite recrystallized in part, subvitreous and vitreous quartz, occasional light to dark grey or brown chert grains, trace coarser loose chert fragments, trace pyrite, minor locally argillaceous, very poor to poor intergranular porosity, rare dark organic or bitumen specks, no visual shows.
	40	SHALE - dark grey, dark brownish grey, blocky to subfissile, carbonaceous, dolomitic, occasional marly, commonly silty, occasional very fine sandy, well indurated.
	10	MARLSTONE - medium to dark brownish grey, calcareous to dolomitic, argillaceous to very argillaceous to organic or bitumen strands in part, grading to very argillaceous dolomite in part, occasionally silty or sandy, grading to siltstone or sandstone in part, no effective to very poor intercrystalline porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	SILTSTONE / MARLSTONE - medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.
305 – 310	30	SANDSTONE - white to light grey, light brownish grey, weakly spotty, upper very fine to lower medium grained, minor upper medium grained, subrounded, occasional subangular to rounded, moderately sorted, occasional well sorted, silica and calcite cement, dolomite recrystallized in part, subvitreous and vitreous quartz, occasional light to dark grey or brown chert grains, trace coarser loose chert fragments, trace pyrite, minor locally argillaceous, very poor to poor intergranular porosity, rare dark organic or bitumen specks, no visual shows.
	30	SHALE - medium brownish grey, blocky to subfissile, carbonaceous, dolomitic, occasional marly, commonly silty, occasional very fine sandy, well indurated.
	25	MARLSTONE - medium to dark brownish grey, calcareous to dolomitic, argillaceous to very argillaceous to organic or bitumen strands in part, grading to very argillaceous dolomite in part, occasionally silty or sandy, grading to siltstone or sandstone in part, no effective to very poor intercrystalline porosity.
	15	SILTSTONE / MARLSTONE - medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
310 – 315	45	SANDSTONE - light grey, occasional off white or light brownish grey, upper very fine to lower medium grained, subrounded, occasional rounded and minor subangular, moderately to well sorted, predominantly disaggregated, silica cement, subvitreous and vitreous quartz, rare light to dark grey or black chert grain, rare carbonaceous streaks, dark argillaceous specks, trace white chert grains, trace pyrite crystals, trace pyrite replaced foram, poor to fair intergranular porosity, no visual shows.
	25	SANDSTONE - white to light grey, light brownish grey, wkly spotty, upper very fine to lower medium grained, minor upper medium grained, subrounded, occasional subangular and rounded, moderately sorted, occasional well sorted, silica and calcite cement, dolomite recrystallized in part, subvitreous and vitreous quartz, occasional light to dark grey or brown chert grains, trace coarser loose chert fragments, trace pyrite, minor locally argillaceous, very poor to poor intergranular porosity, rare dark organic or bitumen specks, no visual shows.
	10	SHALE - medium brownish grey, blocky to subfissile, carbonaceous, dolomitic, occasional marly, commonly silty, occasional very fine sandy, well indurated.
	10	MARLSTONE - medium to dark brownish grey, calcareous to dolomitic, argillaceous to very argillaceous to organic or bitumen strands in part, grading to very argillaceous dolomite in part, occasionally silty or sandy, grading to siltstone or sandstone in part, no effective to very poor intercrystalline porosity.
	10	SILTSTONE / MARLSTONE - medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
315 - 325	100	SANDSTONE - light grey, occasional off white or light brownish grey, upper very fine to lower medium grained, subrounded, minor rounded and subangular, moderately to well sorted, predominantly disaggregated, silica cement, subvitreous and vitreous quartz, rare light to dark grey or black chert grain, rare carbonaceous streaks, dark argillaceous specks, trace white chert grains, trace pyrite crystals, trace pyrite replaced foram, poor to fair intergranular porosity, no visual shows.
325 – 330	65	SANDSTONE - light grey, occasional off white or light brownish grey, upper very fine to lower medium grained, subrounded, occasional rounded or subangular, moderately to well sorted, predominantly disaggregated, silica cement, subvitreous and vitreous quartz, rare light to dark grey or black chert grain, rare carbonaceous streaks, dark argillaceous specks, trace white chert grains, trace pyrite crystals, trace pyrite replaced foram, poor to fair intergranular porosity, no visual shows.
	25	SHALE - dark brownish grey to dark grey, blocky, carbonaceous, sandy to very sandy, commonly grading to very argillaceous sandstone, calcareous to dolomitic, moderately to well indurated.
	10	SILTSTONE / MARLSTONE – medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
330 – 335	65	SHALE - dark brownish grey to dark grey, blocky, carbonaceous, sandy to very sandy, commonly grading to very argillaceous sandstone, calcareous to dolomitic, moderately to well indurated.
	20	SILTSTONE / MARLSTONE - medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.
	15	SANDSTONE - light grey, occasional off white or light brownish grey, upper very fine to lower medium grained, subrounded, occasional rounded, moderately to well sorted, predominantly disaggregated, silica cement, subvitreous and vitreous quartz, rare light to dark grey or black chert grain, rare carbonaceous streaks, dark argillaceous specks, trace white chert grains, trace pyrite crystals, trace pyrite replaced foram, poor to fair intergranular porosity, no visual shows.
335 – 345	55-60	SANDSTONE - medium to dark brownish grey, medium to dark brown, very fine to fine grained, subrounded to subangular, well to moderately sorted, dolomite cement, well cemented, subvitreous and occasional vitreous quartz, argillaceous to occasional very argillaceous matrix, very poor to poor intergranular porosity, no visual shows.
	25	SHALE - dark brownish grey to dark grey, blocky, carbonaceous, sandy to very sandy, commonly grading to very argillaceous sandstone, calcareous to dolomitic, moderately to well indurated.
	15-20	SILTSTONE / MARLSTONE - medium grey, medium brownish grey, calcite to dolomite cement, microcrystalline to cryptocrystalline in part, argillaceous to very argillaceous, grading to marlstone in part, occasional very fine sandy, well indurated, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
345 – 355	95-100	SANDSTONE - off white to light grey, upper very fine to upper fine grained, minor lower very fine or lower m, subrounded to subangular, moderately to well sorted, commonly disaggregated, calcite and dolomite cement, minor silica cement, subvitreous quartz, rare light to dark grey or brown chert grains, poor to minor fair intergranular porosity, no visual shows.
	trace-05	SHALE - dark brownish grey to dark grey, blocky, carbonaceous, sandy to very sandy, commonly grading to very argillaceous sandstone, calcareous to dolomitic, moderately to well indurated.
355 – 365	100	SANDSTONE - light grey, occasional light to medium brownish grey, upper very fine to upper fine grained, minor lower fine and lower medium grained, subrounded to occasional subangular, moderately to well sorted, commonly disaggregated, silica and varying calcite and dolomite cement, vitreous and subvitreous quartz, minor to rare light to dark grey or black chert, rare brown chert, rare argillaceous streaks, trace pyrite and glauconite, trace carbonaceous specks and lams, thin bedded, poor to minor fair intergranular porosity, no visual shows.
365 – 370	100	SANDSTONE - very light grey, upper very fine to upper fine grained, subrounded to subangular, well to moderately sorted, occasional disaggregated, silica cement, occasional calcite to dolomitic cement, trace to rare light to dark grey or brown chert, rare carbonaceous specks, thin carbonaceous laminae and flasers, trace microcrystalline interstitial pyrite, trace glauconite grains, poor to minor fair intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
370 – 380	85-90	SANDSTONE - off white to light grey, slightly spotty, lower very fine to upper fine grained, occasional medium grained, subrounded to subangular, moderately to minor poorly sorted, occasional disaggregated, silica cement, occasional calcite to dolomitic cement, rare light to dark grey or brown chert grains, rare black chert, trace locally common chert grains, rounded in part, , rare carbonaceous specks, rare thin carbonaceous laminae, slightly pyrite increase, trace glauconite, poor to minor fair intergranular porosity, no visual shows.
	10-15	SHALE - dark grey, dark brownish grey, laminae in sandstone, subfissile, carbonaceous, sandy to very sandy, occasional grading to very argillaceous sandstone, locally common disseminated pyrite, well indurated.
380 – 390	100	SANDSTONE - off white to very light grey, minor clear, upper very fine to upper fine grained, occasional medium grained, subrounded, occasional subangular to rounded, moderately sorted, predominantly disaggregated, silica cement, friable, subvitreous and vitreous quartz, trace grey or black and brown chert, rare carbonaceous specks, fair intergranular porosity, no visual shows.
390 - 395	100	SANDSTONE - medium to dark grey or brownish grey, lower very fine to upper fine grained, subrounded to subangular, moderately sorted, well consolidated, dolomite and calcite cement, minor silica cement, rare chert grains, argillaceous to very argillaceous, rare grading to argillaceous and very sandy limestone or dolomite in part, very poor intergranular porosity, trace dark brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
395 – 405	100	SANDSTONE - off white to light grey, upper very fine grained to upper fine grained, minor lower very fine and occasional lower medium grained, subrounded, moderately sorted, predominantly disaggregated, minor silica and calcite cement, poorly cemented, friable, vitreous and subvitreous quartz, slightly trace grey to black or yellow chert grains, trace interstitial pyrite specks or crystals, trace carbonaceous specks, fair to occasional good intergranular porosity, no visual shows.
405 – 415	100	SANDSTONE - light grey, lower very fine to upper fine grained, occasional lower medium grained, subrounded, occasional subangular and rounded, moderately to well sorted, predominantly disaggregated, occasional moderately consolidated, silica and minor local calcite cement, vitreous and subvitreous quartz, trace dark greyish brown to black chert, trace pyrite and carbonaceous specks, slightly trace glauconite, inferred fair to observed poor intergranular porosity, intergranular porosity, no visual shows, trace dark brownish grey to brown carbonaceous and argillaceous or bitumen? sandstone with poor intergranular porosity, trace black carbonaceous shale..
415 – 420	100	SANDSTONE - light grey, upper very fine to upper fine grained, occasional lower very fine grained, subrounded to subangular, occasional rounded, well to moderately sorted, commonly disaggregated, silica and rare local calcite cement, vitreous and subvitreous quartz, trace chert grains, trace carbonaceous specks and m lams, trace argillaceous streaks, poor to fair intergranular porosity, no visual shows.
420 – 425	100	SANDSTONE - light grey, rare clear to white, upper very fine to minor lower medium grained, occasional lower very fine grained, subangular to subrounded, moderately to well sorted, occasionally disaggregated, silica and minor local calcite cement, common quartz overgrowths, subvitreous and vitreous quartz, rare light and dark chert grains, carbonaceous specks, trace argillaceous streaks, slightly trace pyrite, poor to fair intergranular porosity, no visual shows, trace dark brownish grey to black carbonaceous shale.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
425 – 430	100	SANDSTONE - light grey, occasional light brownish grey, trace clear, lower very fine to upper very fine, occasional lower medium grained, subangular to subrounded, moderately to well sorted, occasionally disaggregated, silica and minor calcite or dolomite cement, trace pyrite cement, quartz overgrowths in part, subvitreous and vitreous quartz, occasional light and dark chert grains, rare carbonaceous specks and lams, trace argillaceous streaks, appear' of occasional silty or very fine sandy pyrite nodules, poor to minor fair intergranular porosity, no visual shows.
430 – 435	65	SILTSTONE - dark brownish grey, quartzose, argillaceous to very argillaceous, occasional grading to silty to very silty shale, occasional pyrite cement or inclusions, moderately to well indurated, occasionally interlaminated with light grey sandstone.
	35	SANDSTONE - light grey, occasional light brownish grey, trace clear, lower very fine to upper very fine, occasional lower medium grained, subangular to subrounded, moderately to well sorted, occasionally disaggregated, silica and minor calcite or dolomite cement, trace pyrite cement, quartz overgrowths in part, subvitreous and vitreous quartz, occasional light and dark chert grains, rare carbonaceous specks and lams, trace argillaceous streaks, appear' of occasional silty or very fine sandy pyrite nodules, poor to minor fair intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
435 – 440	55	SHALE - dark to very dark grey, subfissile to blocky, carbonaceous, slightly calcareous to dolomitic, occasional silty to very silty, minor very fine sandy in part, moderately to well indurated.
	35	SILTSTONE - dark brownish grey, quartzose, microcrystalline calcite to dolomitic cement, marly grading to marlstone in part, carbonaceous to argillaceous, very fine sandy grading to sandstone in part, well indurated.
	10	SANDSTONE - light grey, occasional light brownish grey, trace clear, lower very fine to upper very fine, occasional lower medium grained, subangular to subrounded, moderately to well sorted, occasionally disaggregated, silica and minor calcite or dolomite cement, trace pyrite cement, quartz overgrowths in part, subvitreous and vitreous quartz, occasional light and dark chert grains, rare carbonaceous specks and lams, trace argillaceous streaks, appear' of occasional silty or very fine sandy pyrite nodules, poor to minor fair intergranular porosity, no visual shows.
440 – 445	45	SILTSTONE - dark brownish grey, quartzose, microcrystalline calcite to dolomitic cement, marly grading to marlstone in part, carbonaceous to argillaceous, very fine sandy grading to sandstone in part, well indurated.
	40	SANDSTONE - off white to light grey, upper very fine to upper fine grained, occasional lower very fine or lower medium grained, occasional bimodal with upper medium to upper coarse grained as subrounded to rounded quartz and chert grains, subrounded to subangular, moderately to well sorted, silica and varying calcite cement, commonly disaggregated, subvitreous and vitreous quartz, rare white and light grey to black chert, rare dark brown to black argillaceous or carbonaceous grains, poor to minor fair intergranular porosity, occasional dark pyrobitumen or carbonaceous specks, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	15	SHALE - dark to very dark grey, subfissile to blocky, carbonaceous, slightly calcareous to dolomitic, occasional silty to very silty, minor very fine sandy in part, moderately to well indurated.
445 – 450	100	SANDSTONE - off white to light grey, upper very fine to upper fine grained, occasional lower very fine or lower medium grained, occasional bimodal with upper medium to upper coarse grained as subrounded to rounded quartz and chert grains, subrounded to subangular, moderately to well sorted, silica and varying calcite cement, commonly disaggregated, subvitreous and vitreous quartz, rare white and light grey to black chert, rare dark brown to black argillaceous or carbonaceous grains, poor to minor fair intergranular porosity, occasional dark pyrobitumen or carbonaceous specks, no visual shows.
450 – 460	95-100	SANDSTONE - light to minor medium grey, lower very fine to upper fine grained, trace larger size quartz and chert grains, subrounded to subangular, moderately to well sorted, commonly disaggregated, silica and varying calcite cement, subvitreous and vitreous quartz, rare grey to black chert, trace dark carbonaceous grains, poor to occasional fair intergranular porosity, no visual shows.
	trace-05	SHALE - dark to very dark grey, subfissile to blocky, carbonaceous, slightly calcareous to dolomitic, occasional silty to very silty, minor very fine sandy in part, moderately to well indurated.
460 – 465	100	SANDSTONE - white to clear, well to moderately consolidated, upper very fine to upper fine grained, subangular to subrounded, vitreous to subvitreous quartz, dolomite and silica cement, locally calcareous, common quartz overgrowth, minor clay matrix, rare slightly argillaceous to thin shaley laminae, rare pyrite, poor to fair intercrystalline porosity, trace dead oil.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
465 – 475	35-45	DOLOMITE/SILTSTONE - slightly mottled light to medium and dark greyish brown, dense cryptocrystalline to microcrystalline, local very fine crystalline rhombs, common silty grading to Siltstone, occasional very fine grained arenaceous, argillaceous to dark brown organic debris, slightly pet in part, minor amber chert fragments, slightly pyritic, poor intercrystalline porosity.
	35-40	SANDSTONE - light grey to brownish to occasional white, well consolidated, very fine to fine grained, well sorted, subangular to subrounded, rare R, dolomite cement, minor pyritic, argillaceous in part, occasional silty to Siltstone, poor intercrystalline porosity, no visual shows.
	15-25	SHALE - medium to occasional dark grey, fissile to tabular, micromicaceous, dolomitic, local silty to slightly arenaceous, carbonaceous in part, occasional pyrite nodules, moderately indurated.
475 – 485	100	SANDSTONE - white to clear, moderately consolidated to disaggregated, upper very fine to lower medium grained, moderately sorted, subangular to subrounded, vitreous to frosted quartz, frequent quartz overgrowth, dolomitic in part, minor clay matrix, minor white chert, streaky intercrystalline porosity poor to fair to infer good, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
485 – 490	70	SANDSTONE - white to clear, moderately consolidated to disaggregated, upper very fine to lower medium grained, moderately sorted, subangular to subrounded, vitreous to frosted quartz, frequent quartz overgrowth, dolomitic in part, minor clay matrix, minor white chert, streaky intercrystalline porosity poor to fair to infer good, no visual shows.
	20	DOLOMITE/CHERT - light to medium brown to greyish, dense to fragmental, cryptocrystalline to litho, abundant white to light brown and grey chert, part silicified to minor arenaceous, occasional argillaceous to light grey to greenish Shale interbeds and clasts, minor pyrite, no effective porosity.
	10	SHALE - light to medium grey, occasional greenish and black, fissile to tabular, slightly waxy, dolomitic to siliceous, micromicaceous, slightly chloritic, minor pyrite, common silty, moderately to well indurated.
490 – 495	35	DOLOMITE/CHERT - light to medium brown to greyish, dense to fragmental, cryptocrystalline to litho, abundant white to light brown and grey chert, part silicified to minor arenaceous, occasional argillaceous to light grey to greenish Shale interbeds and clasts, minor pyrite, no effective porosity.
	35	SHALE - light to medium grey, occasional greenish and black, fissile to tabular, slightly waxy, dolomitic to siliceous, micromicaceous, slightly chloritic, minor pyrite, common silty, moderately to well indurated.
	30	SANDSTONE - white to clear, moderately consolidated to disaggregated, upper very fine to lower medium grained, moderately sorted, subangular to subrounded, vitreous to frosted quartz, frequent quartz overgrowth, dolomitic in part, minor clay matrix, minor white chert, streaky intercrystalline porosity poor to fair to infer good, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
495 – 500	75	SANDSTONE - white to light grey to brownish, well consolidated, lower fine to upper medium grained, occasional coarse chert grained, subangular to subrounded, moderately to poorly sorted, frequent light grey to brown to white and opaque chert, quartzose in part, common dolomitic to Dolomite interbeds, local calcareous to occasional fossil Limestone, occasional argillaceous to shaley clasts, minor pyrite, poor intercrystalline porosity.
	15	DOLOMITE to light to medium grey to brown, dense cryptocrystalline to microcrystalline, common argillaceous to shaley inclusions, limy in part, local silty to very fine grained arenaceous, part silicified with occasional chert, trace disseminated pyrite, poor intercrystalline porosity.
	10	SHALE - light to medium grey, occasional greenish and black, fissile to tabular, slightly waxy, dolomitic to siliceous, micromicaceous, slightly chloritic, minor pyrite, common silty, moderately to well indurated.
500 – 505	45	SANDSTONE - white to light grey to brownish, well consolidated, lower fine to upper medium grained, occasional coarse chert grained, subangular to subrounded, moderately to poorly sorted, frequent light grey to brown to white and opaque chert, quartzose in part, common dolomitic to Dolomite interbeds, local calcareous to occasional fossil Limestone, occasional argillaceous to shaley clasts, minor pyrite, poor intercrystalline porosity.
	30	DOLOMITE - light to medium grey to brown, dense cryptocrystalline to microcrystalline, common argillaceous to shaley inclusions, limy in part, local silty to very fine grained arenaceous, part silicified with occasional chert, trace disseminated pyrite, poor intercrystalline porosity.
	25	SHALE - light to medium grey, occasional greenish and black, fissile to tabular, slightly waxy, dolomitic to siliceous, micromicaceous, slightly chloritic, minor pyrite, common silty, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
505 – 510	100	SANDSTONE - white to clear, well consolidated to disaggregated, fine to medium grained, rare coarse grained, moderately sorted, subangular to subrounded, decrease chert, subvitreous to frosted quartz, occasional clay matrix, calcareous in part, frequent dolomitic to light greyish brown Dolomite, cryptocrystalline to microcrystalline, arenaceous in part, minor argillaceous, poor to fair to occasional infer good intergranular porosity, no visual shows.
510 – 515	55	DOLOMITE - buff to medium brown, dense to bioclastic, mudstone to wackestone, occasional packstone, cryptocrystalline to microcrystalline, common calcareous to fossil' Limestone interbeds, occasional silicified with quartz and chert, argillaceous to numerous grain chloritic Shale lenses to clasts, possible anhydritic in part, minor dark organic detritus to dead oil, poor intercrystalline porosity.
	45	SANDSTONE - white to clear, well consolidated to disaggregated, fine to medium grained, rare coarse grained, moderately sorted, subangular to subrounded, decrease chert, subvitreous to frosted quartz, occasional clay matrix, calcareous in part, frequent dolomitic to light greyish brown Dolomite, cryptocrystalline to microcrystalline, arenaceous in part, minor argillaceous, poor to fair to occasional infer good intergranular porosity, no visual shows.
515 - 525	100	SANDSTONE - white to clear, moderately consolidated to friable, upper fine to upper medium grained, minor lower coarse grained, moderately to poorly sorted, subangular to subrounded, frosted to vitreous quartz, occasional brown to orange chert, slightly to very calcareous, dolomitic to quartzose in part, local quartz overgrowth, minor clay matrix to slightly argillaceous, scattered fossil debris, poor to fair to possible good intergranular porosity in part, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
525 – 530	100	SANDSTONE – salt and pepper, light to medium brownish grey to clear, moderately consolidated to disaggregated, very fine to fine grained, minor lower medium grained, local silty grading Siltstone, well to m sorted, subangular to subrounded, subvitreous to frosted quartz, common light and dark chert, slightly to very argillaceous to clay matrix, well cemented with calcite and silica, and dolomite, scattered calcareous fossil and shell fragments, trace disseminated pyrite, poor to occasional fair intercrystalline, porosity, no visual shows.
530 – 545	45-50	SILTSTONE/DOLOMITE - buff to light greyish brown, arenaceous in part, dolomitic, cryptocrystalline to microcrystalline, local calcareous, abundant mottled light to dark brown chert fragments, occasional brownish black shaley dead oil laminae to partings, minor fossil remains.
	25-30	LIMESTONE - cream, medium to light brown, dense micritic mudstone, minor fossils, cryptocrystalline, slightly dolomitic to dolomite stringers, occasional quartz and chert, rare pyrite crystals, trace stylolites, dead oil, no effective porosity.
	15-25	DOLOMITE - off white to mottled light to medium brown to greyish, cryptocrystalline to microcrystalline, local very fine crystalline, frequentuent silica and abundant chert fragments and replaced fossil, fine grained arenaceous to dolomitic and cherty sandstone in part, part argillaceous to greenish and grey Shale partings, occasional limy stringers, trace pyrite, poor intercrystalline porosity.
545 – 555	100	SANDSTONE - white to minor light grey and brown, well consolidated to occasional friable, very fine to fine grained, well sorted, subangular to subrounded, frosted to vitreous to rare pink quartz, dolomite cement, occasional quartzose to calcareous, scattered chert and limy fossil remains, minor slightly argillaceous to shaley clasts, local quartz overgrowth, scattered pyrite, trace glauconite/chlorite, streaky intergranular porosity tight to good, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
555 - 560	100	SANDSTONE - white to clear to slightly greyish, moderately to poorly consolidated, predominantly fine grained, occasional silty to very fine, minor lower medium grained becoming common medium grained down section, well to m sorted, subangular to subrounded, frosted to subvitreous quartz, occasional vitreous quartz overgrowth, common white to opaque to light grey chert grain and fossil remains, generally dolomite cement, local very calcareous to fossil' and arenaceous Limestone stringers, abundant white clay matrix, slightly argillaceous to greenish partings, minor disseminated pyrite, poor to fair to occasional good intergranular porosity, trace bitumen specks.
560 – 565	70	SANDSTONE - white to clear to slightly greyish, moderately to poorly consolidated, predominantly fine grained, occasional silty to very fine, minor lower medium grained becoming common medium grained down section, well to m sorted, subangular to subrounded, frosted to subvitreous quartz, occasional vitreous quartz overgrowth, common white to opaque to light grey chert grain and fossil remains, generally dolomite cement, local very calcareous to fossil' and arenaceous Limestone stringers, abundant white clay matrix, slightly argillaceous to greenish partings, minor disseminated pyrite, poor to fair to occasional good intergranular porosity, trace bitumen specks.
	30	DOLOMITE - white to minor light grey, wackestone to packstone, fine to m crystalline, slightly to very calcareous, common chert fossil debris to fine grained arenaceous, minor slightly argillaceous to green and grey Shale clasts, rare pyrite, poor to minor fair ix to pinpoint vuggy porosity, no visual shows.
565 – 580	100	SANDSTONE - clear to white, friable to moderately consolidated, disaggregated in sample, lower fine to upper medium grained, well to m sorted, subangular to subrounded, vitreous to frosted quartz, occasional light chert, common clay matrix, dolomitic to calcareous, frequent quartz overgrowth, fair to infer good intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
580 – 590	100	SANDSTONE - light to medium grey to brownish, increasingly consolidated to firm, predominantly fine grained, well sorted, subangular to subrounded, frosted to subvitreous quartz, occasional light and dark chert, dolomite cement, occasional calcareous to quartzose, minor pyritic to siderite, slightly to very argillaceous, common grey to black shaley laminae to partings, clay matrix, poor intercrystalline porosity, spotty dead oil staining to bitumen specks.
590 – 595	100	SANDSTONE - very light to medium grey as above, well consolidated, s and poor, fine to very fine grained, minor lower m grain, locally silty, subangular to subrounded, well to m sorted, dolomitic , minor ca, siliceous and pyrite cement, common argillaceous to clay matrix, occasional Shale interbeds, poor intergranular porosity, no visual shows.
595 – 610	100	SANDSTONE - white to minor light grey, m consolidated to friable, upper very fine to upper fine grained, minor lower medium grained, well sorted, subrounded to subangular, local R, frosted to subvitreous quartz, occasional light chert, minor quartz overgrowth, dolomite cement, minor calcareous, abundant white clay matrix, occasional slightly argillaceous, minor pyrite, poor to fair intergranular porosity increase to good down section, no visual shows.
610 – 620	100	SANDSTONE - white to clear, moderately consolidated to friable, upper very fine to upper medium grained, medium to well sorted, subrounded to subangular to occasional rounded, frosted to subvitreous quartz, occasional vitreous quartz overgrowth, occasional white to opaque chert, dolomitic to occasional Dolomite stringers, minor calcite to silica cement, frequentuent clay matrix, rare shale partings, trace pyrite, streaky intergranular porosity poor to good, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
620 – 625	55	SILTSTONE - light to dark grey, firm, quartz cement, minor slightly dolomitic, scattered pyrite disseminated to nodules, slightly to very argillaceous to shaley laminae, local very fine grained arenaceous.
	45	SHALE - black to dark grey, blocky to flaky, well indurated to occasional soft, occasional mica flakes, common silty, carbonaceous to slightly bitumen, minor fossil debris.
625 – 630	40	SANDSTONE - white to light to minor medium grey, very well consolidated, very fine to fine grained, well sorted, subangular to subrounded, dolomite and silica cement, minor calcareous fossil remains, argillaceous in part, minor light chert, occasional clay matrix, trace pyrite, poor intergranular porosity, no visual shows.
	35	SILTSTONE - light to dark grey, firm, quartz cement, minor slightly dolomitic, scattered pyrite disseminated to nodules, slightly to very argillaceous to shaley laminae, local very fine grained arenaceous.
	25	SHALE - black to dark grey, blocky to flaky, well indurated to occasional soft, occasional mica flakes, common silty, carbonaceous to slightly bitumen, minor fossil debris.
630 – 640	85	SANDSTONE - white to clear, moderately consolidated to friable, fine to medium grained, m sorted, subrounded to subangular, subvitreous to frosted quartz, local vitreous quartz overgrowth, occasional light chert, dolomitic to quartzose, occasional clay matrix, minor fossil debris, fair to good intergranular porosity, N v
	15	SILTSTONE - light to dark grey, firm, quartz cement, minor slightly dolomitic, scattered pyrite disseminated to nodules, slightly to very argillaceous to shaley laminae, local very fine grained arenaceous.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
640 – 645	75	SANDSTONE - white to light and medium grey, increasingly well consolidated, very fine to fine to occasional medium grained, local grading to Siltstone, well to moderately sorted, subangular to subrounded, predominantly silica cement, minor dolomitic to locally pyrite, slightly to very argillaceous to shaley laminae, clay matrix in part, common mica flakes, tight to poor intergranular porosity, no visual shows.
	25	SILTSTONE - light to dark grey, firm, quartz cement, minor slightly dolomitic, scattered pyrite disseminated to nodules, slightly to very argillaceous to shaley laminae, local very fine grained arenaceous.
645– 655	85	SANDSTONE - clear to white, minor slightly greyish, friable to moderately consolidated, medium to fine to minor lower coarse grained, m sorted, subangular to subrounded, frosted to subvitreous quartz, local vitreous quartz overgrowth, occasional light chert, predominantly silica cement, minor clay matrix, trace pyrite, fair to good intergranular porosity in part, no visual shows.
	15	SILTSTONE - white to light and occasional medium grey, well consolidated, quartzose, local dolomitic, argillaceous in part, occasional pyrite.
655 – 660	100	SANDSTONE - white to clear, well consolidated to friable, disaggregated in sample, upper very fine to lower coarse grained, moderately to poorly sorted, subangular to subrounded, frosted to vitreous quartz, occasional white to opaque chert, occasional quartz overgrowth, dolomite and silica cement, minor calcareous, argillaceous in part, occasional clay matrix, minor pyrite, poor to fair intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
660 – 665	100	SANDSTONE - white to light and medium grey, well consolidated, very fine to fine grained, minor lower medium grained, well to m sorted, subangular to subrounded, local silty grading to Siltstone in part, silica and dolomite cement, common pyritic to nodules, clay matrix, argillaceous in part minor shale laminae, dark grey to black, carbonaceous, poor intergranular porosity.
665 – 675	65-70	SANDSTONE - white to light and medium grey, well consolidated, very fine to fine grained, minor lower medium grained, well to m sorted, subangular to subrounded, local silty grading to Siltstone in part, silica and dolomite cement, common pyritic to nodules, clay matrix, argillaceous in part / interbedded to laminae Shale, dark grey to black, micromicaceous, carbonaceous, poor intergranular porosity.
	30-35	SILTSTONE - light to medium grey, very well consolidated, silica and dolomite cement, common pyritic, frequent argillaceous to Shale interbeds, local very fine to fine grained arenaceous to Sandstone stringers, occasional carbonaceous flakes.
675 – 680	45	SANDSTONE - white to light and medium grey, well consolidated, very fine to fine grained, minor lower medium grained, well to m sorted, subangular to subrounded, local silty grading to Siltstone in part, silica and dolomite cement, common pyritic to nodules, clay matrix, argillaceous in part / interbedded to laminae Shale, dark grey to black, micromicaceous, carbonaceous, poor intergranular porosity.
	35	SILTSTONE - light brown to greyish, well cemented with dolomite, occasional silica and calcite cement, pyritic in small part, common very fine to fine grained arenaceous, slightly to argillaceous.
	25	SHALE - black to dark grey, fissile, micromicaceous, common carbonaceous to slightly pet, local silty.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
680 – 690	100	SANDSTONE - white to clear to slightly greyish, moderately consolidated to friable, predominantly fine grained, minor amounts lower medium grained increase to common medium grained / depth, well sorted, subangular to subrounded, quartzose to dolomitic, frosted to subvitreous quartz, local vitreous quartz overgrowth, minor light chert, occasional clay matrix, minor dark thin dead oil laminae, trace disseminated pyrite and mica, poor to fair intergranular porosity, no visual shows.
690– 700	100	SANDSTONE - cream to medium to light grey, generally well consolidated, occasional friable, fine to very fine to local medium grained, well to m sorted, subangular to subrounded, dolomite and silica cement, frosted to vitreous quartz, frequent clay matrix, occasional silty, minor argillaceous, poor to occasional fair intergranular porosity, no visual shows.
700 – 705	100	SANDSTONE - white to clear, moderately consolidated to friable, predominantly fine grained, occasional very fine to medium grained, well to m sorted, subangular to subrounded, dolomitic to quartzose, vitreous to frosted quartz, local quartz overgrowth, occasional black shaley dead oil laminae, minor pyrite, poor intergranular porosity, no visual shows.
705 – 715	65-70	SANDSTONE/SILTSTONE - light to medium grey to white, very well consolidated, very fine to fine grained, common silty to Siltstone, well sorted, subangular to subrounded, dolomitic to occasional dense Dolomite stringers, local silica and pyrite cement, slightly to very argillaceous to Shale interbeds, common clay matrix, very poor intergranular porosity.
	30-35	SHALE - black, fissile to occasional blocky, micromicaceous, very carbonaceous to petroliferoous, common silty, pyritic in part, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
715 – 725	80-85	SANDSTONE - white to light grey, moderately consolidated to friable, lower fine to upper medium grained, well to moderately sorted, subangular to subrounded, vitreous to subvitreous quartz, occasional white chert fragments, predominantly silica cement, occasional dolomitic to pyritic, argillaceous in part to shaley laminae and partings, local clay matrix, common quartz overgrowth, poor intergranular porosity, no visual shows.
	15-20	SILTSTONE - light grey to green, very well consolidated, silica cement, occasional dolomitic, slightly to argillaceous, occasional glauconite to chlorite, part very fine grained arenaceous.
725 – 730	90	SANDSTONE - white to clear, well consolidated to friable, fine to medium grained, well sorted, subangular to subrounded, vitreous to subvitreous quartz, minor light chert, quartzose to dolomitic, common quartz overgrowth, occasional clay matrix, minor amounts pyrite, scattered dark shaley dead oil laminae, poor to occasional fair intergranular porosity, no visual shows.
	10	SILTSTONE - light grey to green, very well consolidated, silica cement, occasional dolomitic, slightly to argillaceous, occasional glauconite to chlorite, part very fine grained arenaceous.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
730 – 735.6	80	SANDSTONE - white to clear, well consolidated to friable, fine to medium grained, well sorted, subangular to subrounded, vitreous to subvitreous quartz, minor light chert, quartzose to dolomitic, common quartz overgrowth, occasional clay matrix, minor amounts pyrite, scattered dark shaley dead oil laminae, poor to occasional fair intergranular porosity, no visual shows.
	10	SILTSTONE - light grey to green, very well consolidated, silica cement, occasional dolomitic, slightly to argillaceous, occasional glauconite to chlorite, part very fine grained arenaceous.
	10	SHALE - black to dark grey, fissile to tabular, moderately indurated, very carbonaceous, occasional mica flakes, local silty to argillaceous siltstone, occasional pyrite, nodules to disseminated, minor fossil debris.
735.6		END OF 444.5 mm SURFACE HOLE SURFACE CASING at 735.6 m KB

INTERMEDIATE HOLE

735.6 – 755	70-75	SANDSTONE - white to light grey, fine to medium grained, moderately to occasional well sorted, subangular to subrounded, trace R, silica and rare dolomite or pyrite cement, moderately to well consolidated, vitreous to subvitreous quartz, minor light chert, rare clay matrix, minor pyrite, occasional dark carbonaceous shale laminae, matrix in part, poor to occasional fair intergranular porosity, no visual shows.
	25-30	SHALE - very dark grey to black, subfissile to tabular, moderately indurated, very carbonaceous, occasional silty to very fine sandy, grading to very argillaceous siltstone or sandstone in part, rare pyrite, trace fossil debris, moderately indurated, brittle in part..

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
755 – 770	80-85	SANDSTONE - light grey to white, slightly brownish in part, upper very fine to lower medium grained, minor silt size grading to siltstone, subangular to subrounded, moderately to well sorted, moderately consolidated, silica and rare calcite or dolomite cement, common silica overgrowths, subvitreous and vitreous quartz, trace light grey chert grains, rare dark carbonaceous laminations, occasional carbonaceous specks, trace clay inclusions, trace pyrite as matrix or cement, poor to locally fair intergranular porosity, no visual shows.
	15-20	SHALE - very dark grey to black, subfissile, very carbonaceous, locally silty to very fine or fine sandy, rare pyrite nodules or inclusions, moderately indurated.
770 – 775	100	SANDSTONE - light to medium brownish grey, occasional grey, lower very fine to lower fine grained, commonly silt size grading to siltstone, minor upper fine grained, subangular to subrounded, well to moderately sorted, silica and trace dolomite cement, common overgrowths, subvitreous and vitreous quartz, rare dark carbonaceous laminations, locally common carbonaceous specks, trace white to light grey clay specks, trace pyrite, very poor to rare poor intergranular porosity, no visual shows.
775 – 785	65-70	SANDSTONE/SILTSTONE - light to medium brownish grey, occasional grey, lower very fine to lower fine grained, commonly silt size grading to siltstone, minor upper fine grained, subangular to subrounded, well to moderately sorted, silica and trace dolomite cement, common overgrowths, subvitreous and vitreous quartz, rare dark carbonaceous laminations, locally common carbonaceous specks, trace white to light grey clay specks, trace pyrite, very poor to rare poor intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	20	SILTSTONE - light to dark grey, quartzose, occasional grading to lower very fine sandstone, argillaceous, carbonaceous matrix in part, rare pyrite, silica and minor calcite or dolomite cement, moderately to occasional well indurated.
	10-15	SHALE - very dark grey to black, subfissile, very carbonaceous, locally silty to very fine or fine sandy, rare pyrite nodules or inclusions, moderately indurated.
785 – 790	35	SANDSTONE/SILTSTONE - light to medium brownish grey, occasional grey, lower very fine to lower fine grained, commonly silt size grading to siltstone, minor upper fine grained, subangular to subrounded, well to moderately sorted, silica and trace dolomite cement, common overgrowths, subvitreous and vitreous quartz, rare dark carbonaceous laminations, locally common carbonaceous specks, trace white to light grey clay specks, trace pyrite, very poor to rare poor intergranular porosity, no visual shows.
	35	SILTSTONE - light to dark grey, quartzose, occasional grading to lower very fine sandstone, argillaceous, carbonaceous matrix in part, rare pyrite, silica and minor calcite or dolomite cement, moderately to occasional well indurated.
	30	SHALE - very dark grey to black, subfissile, very carbonaceous, locally silty to very fine or fine sandy, rare pyrite nodules or inclusions, moderately indurated.
790 – 795	75	SANDSTONE/SILTSTONE - light to medium brownish grey, occasional grey, lower very fine to lower fine grained, commonly silt size grading to siltstone, minor upper fine grained, subangular to subrounded, well to moderately sorted, silica and trace dolomite cement, common overgrowths, subvitreous and vitreous quartz, rare dark carbonaceous laminations, locally common carbonaceous specks, trace white to light grey clay specks, trace pyrite, very poor to rare poor intergranular porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	15	SILTSTONE - light to dark grey, quartzose, occasional grading to lower very fine sandstone, argillaceous, carbonaceous matrix in part, rare pyrite, silica and minor calcite or dolomite cement, moderately to occasional well indurated.
	10	SHALE - very dark grey to black, subfissile, very carbonaceous, locally silty to very fine or fine sandy, rare pyrite nodules or inclusions, moderately indurated.
795 – 805	70-75	SHALE - medium grey, subfissile, platy to tabular, slightly carbonaceous to carbonaceous, micromicaceous in part, occasional silty, trace pyrite, trace fossil fragments, moderately indurated.
	15-20	SANDSTONE/SILTSTONE - light to medium brownish grey, occasional grey, lower very fine to lower fine grained, commonly silt size grading to siltstone, minor upper fine grained, subangular to subrounded, well to moderately sorted, silica and trace dolomite cement, common overgrowths, subvitreous and vitreous quartz, rare dark carbonaceous laminations, locally common carbonaceous specks, trace white to light grey clay specks, trace pyrite, very poor to rare poor intergranular porosity, no visual shows.
	05-10	SILTSTONE - light to dark grey, quartzose, occasional grading to lower very fine sandstone, argillaceous, carbonaceous matrix in part, rare pyrite, silica and minor calcite or dolomite cement, moderately to occasional well indurated.
805 – 815	90-95	SANDSTONE - off white to light grey, occasional buff, upper very fine to upper fine grained, occasional lower medium grained, minor lower very fine, subrounded to subangular, moderately sorted, predominantly disaggregated, friable, minor silica cement, overgrowths common, vitreous and subvitreous quartz, minor light to dark chert, occasional dark grey to black carbonaceous laminae or inclusions, rare pyrite as crystals, poor to inferred fair intergranular porosity, trace dark brown pyrobitumen specks or dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05-10	SHALE - medium grey, subfissile, platy to tabular, slightly carbonaceous to carbonaceous, micromicaceous in part, occasional silty, trace pyrite, trace fossil fragments, moderately indurated.
815 – 825	100	SANDSTONE - white to occasional light grey, disaggregated throughout, upper very fine to upper fine grained, occasional lower medium grained, minor lower very fine, subrounded to subangular, moderately sorted, silica cement as overgrowths common, vitreous and subvitreous quartz, rare light to dark grey chert, trace dark grey to black carbonaceous inclusions, trace pyrite, inferred fair intergranular porosity, trace pyrobitumen or dead oil specks.
825 – 830	55	SANDSTONE - light grey, fine grained, minor upper very fine and rare lower medium grained, subrounded to subangular, moderately to occasional well sorted, minor disaggregated, silica cement, dolomitic cement increasingly, trace pyrite cement, vitreous and subvitreous quartz, rare light to dark grey chert, occasional dark grey to black carbonaceous inclusions or laminae, trace pyrite grains, poor intergranular porosity, trace carbonaceous or pyrobitumen specks.
	30	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	15	SHALE - dark grey to black, subfissile to blocky, carbonaceous, occasional silty, rare pyrite, moderately indurated.
830 – 835	35	SANDSTONE - light grey, fine grained, minor upper very fine and rare lower medium grained, subrounded to subangular, moderately to occasional well sorted, minor disaggregated, silica cement, dolomitic cement increasingly, trace pyrite cement, vitreous and subvitreous quartz, rare light to dark grey chert, occasional black carbonaceous inclusions, pyrite grains, poor intergranular porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	35	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	30	SHALE - dark grey to black, subfissile to blocky, carbonaceous, occasional silty, rare pyrite, moderately indurated.
835 – 840	55	SANDSTONE - light grey, occasional medium grey, grains occasional with orange Fe stain, upper very fine to upper fine grained, rare lower medium grained, subrounded to subangular, moderately sorted, commonly disaggregated, silica cement, abundant overgrowths, trace pyrite cement, vitreous quartz, subvitreous quartz, minor local dark grey argillaceous or carbonaceous matrix, appear of occasional pyrite nodules, occasional sand inclusions in pyrite, rare argillaceous, poor to occasional fair intergranular porosity, occasional pyrobitumen or carbonaceous specks.
	30	SHALE - very dark grey to black, subfissile, waxy, very carbonaceous, occasional laminations in sandstone, moderately indurated.
	15	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
840 – 845	60	SANDSTONE - light grey, upper very fine to upper fine grained, minor lower very fine grained, subrounded to subangular, moderately to well sorted, predominantly disaggregated, silica cement, overgrowths common, subvitreous and vitreous quartz, rare carbonaceous laminae or matrix, rare light and dark chert, rare pyrite grains or cement, trace chert grains, slightly trace white clay inclusions, poor to inferred fair intergranular porosity, minor pyrobitumen or dead oil specks, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	25	SHALE - very dark grey to black, subfissile, waxy, very carbonaceous, occasional laminations in sandstone, moderately indurated.
	15	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
845 – 855	70-75	SANDSTONE - light to medium brown, medium greyish brown, upper very fine to upper fine grained, subrounded to subangular, moderately to well sorted, disaggregated in part, occasional friable, silica cement, vitreous quartz, subvitreous quartz, trace chert, trace white clay inclusions, fair to poor intergranular porosity, occasional dark brown to black pyrobitumen or dead oil specks, light brown oil staining common, dull yellowish brown fluorescence, moderately fast blooming yellowish white cut.
	15-20	SHALE - dark grey, occasional black, subfissile, tabular, occasional fissile, carbonaceous to very carbonaceous, locally silty, rare pyrite nodules or inclusions, moderately indurated.
	10	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
855 – 860	55	SHALE - dark grey, occasional black, subfissile, tabular, occasional fissile, carbonaceous to very carbonaceous, locally silty, rare pyrite nodules or inclusions, moderately indurated.
	35	SANDSTONE - off white to light grey, trace light brown, upper very fine to lower fine grained, minor lower very fine or upper fine grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, occasional well consolidated, silica cement, trace pyrite cement, vitreous and subvitreous quartz, rare dark carbonaceous or argillaceous grain, rare white or grey chert, trace pyrite inclusions and matrix, trace white clay matrix, poor to fair intergranular porosity, sparse black organic material or pyrobitumen stain.
	10	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
860 – 865	45	SHALE - very dark grey to black, dark brownish grey, subfissile to fissile, very carbonaceous to coaly in part, occasional silty, common as micro laminae to thin beds in sandstone.
	30	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	25	SANDSTONE - light grey to light brownish grey, upper very fine to upper fine grained, occasional lower medium grained, subrounded to subangular, moderately sorted, commonly disaggregated, silica and minor calcite cement, overgrowths common, trace pyrite cement, vitreous and subvitreous quartz, occasional carbonaceous inclusions or micro lams, trace pyrite inclusions, poor to occasional inferred fair intergranular porosity, minor local medium to dark brown dead oil staining, occasional black pyrobitumen.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
865 – 870	100	SANDSTONE - off white to light grey, occasional light brownish grey, upper very fine to upper fine grained, minor lower very fine grained, subrounded to subangular, moderately to well sorted, disaggregated in part, moderately consolidated, silica cement, overgrowths common, trace calcite cement, vitreous quartz, subvitreous quartz, rare carbonaceous to coaly inclusions and lams, trace pyrite and white to cream clay inclusions, poor intergranular porosity, minor pyrobitumen and dead oil staining.
870 – 875	55	SHALE - dark grey to black, subfissile to fissile, carbonaceous to very carbonaceous, slightly coaly in part, occasional silty, moderately indurated.
	30	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	15	SANDSTONE - off white to light grey, occasional light brownish grey or medium grey, upper very fine to upper fine grained, minor lower very fine grained, trace lower medium grained, subrounded to subangular, moderately to well sorted, disaggregated in part, moderately consolidated, silica cement, overgrowths common, trace calcite cement, vitreous and subvitreous quartz, rare carbonaceous to coaly inclusions and lams, matrix in part, trace pyrite, trace clay inclusions, poor intergranular porosity, rare patchy black pyrobitumen and dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
870 – 875	45	SHALE - very dark grey to black, subfissile to fissile, carbonaceous in part, occasional fine disseminated pyrite, rare pyrite nodules, moderately to well indurated.
	30	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	25	SANDSTONE - off white to light grey, occasional light brownish grey or medium grey, upper very fine to upper fine grained, minor lower very fine grained, trace lower medium grained, subrounded to subangular, moderately to well sorted, disaggregated in part, moderately consolidated, silica cement, overgrowths common, trace calcite cement, vitreous and subvitreous quartz, rare carbonaceous to coaly inclusions and lams, matrix in part, trace pyrite, trace clay inclusions, poor intergranular porosity, rare patchy black pyrobitumen and dead oil staining.
875 – 880	100	SANDSTONE - light grey to light to medium brownish grey, upper very fine to upper fine grained, occasional lower medium grained, subrounded to subangular, moderately sorted, commonly disaggregated, silica and minor calcite to dolomite cement, vitreous and subvitreous quartz, minor black carbonaceous inclusions or matrix in part, occasional argillaceous matrix, occasional pyrite nodules or as patchy cement, trace light grey or brown chert grains, trace white clay inclusions, poor intergranular porosity, minor bitumen specks or patchy dead oil. spotty dark brown dead oil staining and black pyrobitumen.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
880 – 885	100	SANDSTONE - off white to light grey, clear in part, rare medium grey or brownish grey, upper very fine to upper fine grained, occasional lower medium grained, subrounded to occasional subangular, moderately sorted, commonly disaggregated, moderately to poorly consolidated, friable in part, silica cement well/ common overgrowths, trace pyrite cement, vitreous quartz, rare pyrite crystals, rare locally argillaceous, trace detritus clay, fair to poor intergranular porosity, rare light brown oil stain, dull yellowish brown fluorescence, slow moderately bright yellowish white cut, spotty dark brown dead oil staining and black pyrobitumen.
885 – 890	100	SANDSTONE - light grey, occasional clear, slightly brownish grey in part, upper very fine to upper fine grained, occasional lower very fine or lower medium grained, subrounded to occasional subangular, moderately sorted, predominantly disaggregated, trace well consolidated, silica cement, trace local calcite or dolomite cement, common overgrowths, vitreous quartz, subvitreous quartz, rare carbonaceous grains, trace clay or pyrite, trace chert, poor to inferred fair intergranular porosity, rare black pyrobitumen or dead oil specks, trace dark grey to black shale laminae, lenses or matrix.
890 – 895	100	SANDSTONE - light grey, occasional clear, increasingly light brownish grey, upper very fine to upper fine grained, occasional lower medium grained, subrounded to subangular,, moderately to well sorted, commonly disaggregated, moderately to well consolidated, friable in part, silica cement, rare local dolomite cement, trace pyrite cement, common silica overgrowths, vitreous quartz, subvitreous quartz, rare carbonaceous grains, trace clay or pyrite grains, trace chert, poor to inferred fair intergranular porosity, rare black pyrobitumen specks, local appear' of sparse medium brown dead oil staining, trace dark grey to black shale laminae, lenses or matrix.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
895 – 910	45-50	SANDSTONE - light grey, occasional medium grey, light brownish grey in part, lower very fine to lower fine grained, minor upper fine grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, silica cement well/ overgrowths, vitreous and subvitreous quartz, occasional argillaceous, local carbonaceous matrix, poor intergranular porosity, scattered black pyrobitumen specks.
	35-40	SHALE - very dark grey to black, subfissile, carbonaceous, scattered disseminated pyrite, rare pyrite nodules, trace silt inclusions, trace pyritic sandstone laminae or inclusions, moderately indurated.
	15	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
910 – 915	65	SHALE - very dark grey to black, subfissile, carbonaceous, scattered disseminated pyrite, rare pyrite nodules, trace silt inclusions, trace pyritic sandstone laminae or inclusions, moderately indurated.
	25	SANDSTONE - light grey, occasional medium grey, light brownish grey in part, lower very fine to lower fine grained, minor upper fine grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, silica cement well/ overgrowths, vitreous and subvitreous quartz, occasional argillaceous, local carbonaceous matrix, poor intergranular porosity, scattered black pyrobitumen specks.
	10	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
915 - 920	85	SHALE - very dark grey to black, subfissile, carbonaceous, scattered disseminated pyrite, rare pyrite nodules, trace silt inclusions, trace pyritic sandstone laminae or inclusions, moderately indurated.
	15	DOLOMITIC MARLSTONE - dark brown or brownish grey, dolomitic, very argillaceous, bitumen in part, slightly silty, hard, well indurated.
920 - 925	70	SHALE - very dark grey to black, subfissile, carbonaceous, scattered disseminated pyrite, rare pyrite nodules, trace silt inclusions, trace pyritic sandstone laminae or inclusions, moderately indurated.
	15	DOLOMITIC MARLSTONE - dark brown or brownish grey, dolomitic, very argillaceous, bitumen in part, slightly silty, hard, well indurated.
	15	SANDSTONE - dark grey, common argillaceous or carbonaceous matrix, silt size to lower fine grained, subrounded to subangular, moderately to poorly sorted, poor intergranular porosity, no visual shows, minor medium to dark brown dolomitic mudstone, siliceous, floating sand grains.
925 – 935	75-80	SANDSTONE - light grey to medium grey, minor light brownish grey, rare dark grey, upper very fine to upper fine grained, trace lower medium grained, subrounded to subangular, moderately sorted, moderately to occasional well consolidated, disaggregated in part, silica and calcite cement, trace pyrite cement, vitreous quartz, subvitreous quartz, decrease' carbonaceous matrix, rare pyrite crystals, rare clay grains, poor intergranular porosity, no visual shows.
	20-25	SHALE - very dark grey to black, subfissile to occasional fissile, increasingly silty down section, occasional disseminated pyrite and nodules, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
935 – 940	95	SANDSTONE - light grey to medium grey, minor light brownish grey, rare dark grey, upper very fine to upper fine grained, trace lower medium grained, subrounded to subangular, moderately sorted, moderately to occasional well consolidated, disaggregated in part, silica and calcite cement, trace pyrite cement, vitreous quartz, subvitreous quartz, decrease in carbonaceous matrix, rare pyrite crystals, rare clay grains, poor intergranular porosity, no visual shows.
	05	SHALE - very dark grey to black, subfissile to occasional fissile, increasingly silty down section, occasional disseminated pyrite and nodules, moderately indurated.
940 - 945	75	SANDSTONE - light grey, occasional clear, rare medium to dark grey, upper very fine to upper fine grained, occasional lower very fine grained, minor grading to siltstone, subrounded to subangular, moderately to well sorted, occasional disaggregated, moderately consolidated, occasional silica and well consolidated, silica and occasional calcite cement, trace pyrite cement, vitreous and subvitreous quartz, trace glauconite and pyrite, trace clay inclusions, patchy argillaceous or carbonaceous matrix decrease' to occasional, poor to minor fair intergranular porosity, dull brownish mineral fluorescence, trace slow yellowish white halo cut, minor dark pyrobitumen specks.
	15	SHALE - dark grey to black, dark brownish grey, subfissile, carbonaceous to very carbonaceous, occasional disseminated pyrite or as nodules, moderately indurated, occasional as lams or lenses in sandstone.
	10	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
940 – 945	90	SANDSTONE - light grey, occasional clear, rare medium to dark grey, upper very fine to upper fine grained, occasional lower very fine grained, minor grading to siltstone, subrounded to subangular, moderately to well sorted, occasional disaggregated, moderately consolidated, occasional silica and well consolidated, silica and occasional calcite cement, trace pyrite cement, vitreous and subvitreous quartz, trace glauconite and pyrite, trace clay inclusions, patchy argillaceous or carbonaceous matrix decrease' to occasional, poor to minor fair intergranular porosity, dull brownish mineral fluorescence, trace slow yellowish white halo cut, minor dark pyrobitumen specks.
	10	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
	trace	SHALE - dark grey to black, dark brownish grey, subfissile, carbonaceous to very carbonaceous, occasional disseminated pyrite or as nodules, moderately indurated, occasional as lams or lenses in sandstone.
945 - 950	100	SANDSTONE - light grey, minor light brownish grey, occasional medium to dark grey, upper very fine to upper fine grained, trace lower medium grained, subrounded to subangular, moderately sorted, moderately to well consolidated, disaggregated in part, silica and calcite cement, trace pyrite cement, vitreous quartz, subvitreous quartz, occasional carbonaceous matrix, rare pyrite crystals, trace glauconite and clay inclusions, poor intergranular porosity, no visual shows.
	trace	SILTSTONE - light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
950 – 960	95	SANDSTONE - light grey to medium grey, minor light brownish grey, rare dark grey, upper very fine to upper fine grained, trace lower medium grained, subrounded to subangular, moderately sorted, moderately to occasional well consolidated, disaggregated in part, silica and calcite cement, trace pyrite cement, vitreous quartz, subvitreous quartz, decrease' carbonaceous matrix, rare pyrite crystals, rare clay grains, poor intergranular porosity, no visual shows.
	05	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
960 – 965	55	SANDSTONE - light grey, occasional medium grey, lower very fine to lower fine grained, occasional grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	45	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
965 – 975	100	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
975 – 985	40-45	SANDSTONE - dark grey, occasional medium grey, lower very fine to lower fine grained, grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	40	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
	15-20	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
985 – 1000	45-50	SANDSTONE - off white to light grey, occasional light brownish grey, lower very fine to lower fine grained, grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	40	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
	10-15	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
1000 – 1005	90	SANDSTONE - light grey, occasional medium to dark grey, lower very fine to lower fine grained, grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	05	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
	05	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1005 – 1025	60-65	SANDSTONE - light grey, minor light brownish grey, occasional medium to dark grey, lower very fine to lower fine grained, grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	25	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
	10-15	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
1025 – 1030	85	SANDSTONE - light grey, minor medium grey, minor light brownish grey, lower very fine to lower fine grained, grading to siltstone, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	10	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
1030 – 1035	65	SANDSTONE - off white to light grey, lower fine to lower medium grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	30	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
	05	SILTSTONE – dark grey to light grey, slightly spotty, quartzose, abundant white clay matrix, dolomite cement, hard, well cemented, minor light brown dead oil staining.
1035 – 1040	95	SANDSTONE - off white to light grey, occasional amounts of clear, lower fine to lower medium grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone
1040 – 1050	95	SANDSTONE - light grey, occasional medium grey, lower very fine to lower fine grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
	05	SHALE - dark grey to black, dark brownish grey, subfissile to fissile, carbonaceous to very carbonaceous, occasional disseminated pyrite, rare pyrite nodules, locally silty or very fine sandy, moderately indurated, occasional as lams or lenses and matrix in sandstone

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
LOWER MISSISSIPPIAN FLETT FORMATION		
1050 – 1055	65	SHALE - dark grey, subfissile, occasional amounts of blocky, carbonaceous in part, locally silty, common micaceous laminae, rare disseminated pyrite, trace pyrite nodules, moderately indurated.
	35	SANDSTONE - light grey, occasional medium grey, lower very fine to lower fine grained, subrounded to subangular, moderately to well sorted, commonly disaggregated, moderately consolidated, silica and occasional calcite or dolomite cement, occasional silica and well consolidated, vitreous quartz, occasional subvitreous quartz, rare pyrite crystals, trace light clay inclusions, occasional argillaceous or carbonaceous, minor carbonaceous matrix in part, poor to minor locally fair intergranular porosity, occasional black pyrobitumen or dark brown dead oil staining.
1055 – 1065	65-70	SHALE - dark grey, subfissile to occasional blocky, carbonaceous, locally silty, common as mica laminae, rare disseminated pyrite, trace pyrite nodules, moderately indurated.
	30	LIMESTONE - medium to dark brownish grey, mottled, fragment' to bioclastic packstone, microcrystalline to fine crystalline matrix, dolomitic in part, fine to very coarse size fossil remains, occasional dead oil staining, rare siliceous spicules, other indistinct fossil fragments, dolomite, recrystallized in part, argillaceous to very argillaceous, occasional dark argillaceous grain, rare ix pyrite, locally siliceous, poor intercrystalline porosity, common carbonaceous / bitumen stain.
	trace-05	DOLOMITE to light to medium brownish grey or brown, lower very fine to lower fine crystalline, moderately common silt to very fine sand grains, occasional remnant fossil fragments, calcareous in part, poor to occasional fair intercrystalline porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1065 – 1075	55	SHALE - dark grey, subfissile, tabular in part, carbonaceous in part, very slightly calcareous, occasional scattered disseminated pyrite, trace indistinct fossil remains, well indurated.
	45	LIMESTONE - medium to dark brownish grey, occasional light to medium grey or brown, commonly mottled, bioclastic packstone to wackestone, occasional fragment', fine to very coarse size bioclasts, occasional silty to very fine crystalline matrix, cryptocrystalline calcite cement, dolomitic, occasional crinoid, trace ostracod and spicules, occasional locally common glauconite, minor argillaceous grains, locally argillaceous, rare pyrite, no effective porosity to occasional amounts of poor intercrystalline porosity, no visual shows.
1075 – 1085	65-70	LIMESTONE - light to dark grey and brownish grey, mottled in part, bioclastic to occasional fragment' packstone, fine to very coarse bioclasts, occasional crinoid, brachiopod, spicules, bryzoan fragments, very fine to fine crystalline calcite cement, dolomitic in part, occasional recrystallized, minor locally siliceous to cherty, rare to trace locally common glauconite, trace pyrite, trace dark grey argillaceous grain, patchy argillaceous matrix, no effective porosity to occasional amounts of poor intercrystalline porosity, no visual shows.
	30-35	SHALE - medium to dark grey, subfissile, carbonaceous in part, slightly calcareous, occasional locally marly, rare disseminated pyrite, fossil fragments increasingly to rare, trace crinoid, moderately to occasional well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1085 – 1090	65	SHALE - medium to dark grey, becoming increasingly marly.
	35	LIMESTONE - light to dark grey and brownish grey, mottled in part, bioclastic to occasional fragment' packstone, fine to very coarse bioclasts, occasional crinoid, brachiopod, spicules, bryzoan fragments, very fine to fine crystalline calcite cement, dolomitic in part, occasional recrystallized, minor locally siliceous to cherty, rare to trace locally common glauconite, trace pyrite, trace dark grey argillaceous grain, patchy argillaceous matrix, no effective porosity to occasional amounts of poor intercrystalline porosity, no visual shows.
1090 – 1100	100	LIMESTONE - light to medium brownish grey and minor dark brownish grey, mottled in part, bioclastic to minor fragment' packstone, occasional grading to grainstone, fine to very coarse bioclasts, occasional fossil fragments, cryptocrystalline to minor fine crystalline calcite cement, dolomitic in part, occasional recrystallized, occasional slightly siliceous or cherty, rare glauconite, trace pyrite, patchy argillaceous matrix, trace clear calcite fracture or void fill, poor intercrystalline porosity, trace inferred fracture porosity, occasional bitumen organic material.
1100 – 1105	100	LIMESTONE - light to medium brownish grey, mottled, bioclastic packstone, medium to granular size bioclasts, crinoid, ostracod, bryzoan, brachiopod, clear to light brown cryptocrystalline spar cement, recrystallized in part, minor dolomite cement or as replaced, minor pyrite crystals, rare mudstone to shale interclasts, trace chert, trace glauconite, minor locally argillaceous matrix, rare silty, very poor intercrystalline porosity, no visual shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1105 – 1120	100	LIMESTONE - light brownish to occasional medium brownish grey, mottled in part, bioclastic packstone to minor grainstone, medium to granular size bioclasts, cryptocrystalline to minor fine crystalline calcite cement, minor crinoid, ostracod, spicules, bryzoan, brachiopod, pellets, other indistinct fragments, patchy recrystallized', minor silica and dolomite cement or as replaced, trace pyrite crystals, trace chert, trace glauconite, trace shale interclasts, occasional locally argillaceous matrix, rare silty, very poor intercrystalline porosity, no visual shows.
1120 – 1130	100	LIMESTONE - light to medium brownish grey, occasional buff, rare dark brownish grey, mottled, bioclastic packstone to occasional grainstone, very fine to coarse size bioclasts, occasional fossil fragments, crinoid, bryzoan, brachiopod et al, cryptocrystalline to occasional fine crystalline cement or matrix, dolomitic in part, rare silica or chert replaced or as cement, rare glauconite, trace pyrite, very poor to minor poor intercrystalline porosity, occasional pyrobitumen or organic material.
1130 – 1140	100	LIMESTONE - medium to occasional light brownish grey, minor dark brownish grey, bioclastic packstone to grainstone, fine to coarse size bioclasts, predominantly indistinct, occasional recrystallized remnant fossil, occasional crinoid, spicules, bryzoan, ostracod, dolomitic, cryptocrystalline calcite or occasional dolomite cement, minor fine crystalline dolomite matrix, trace glauconite, commonly argillaceous, occasional locally siliceous, very poor to poor intercrystalline porosity, trace fracture porosity, appear of minor mottled light to dark grey or brownish grey chert shards.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1140 – 1145	90	LIMESTONE - medium to occasional light brownish grey, minor dark brownish grey, bioclastic packstone to grainstone, fine to coarse size bioclasts, predominantly indistinct, occasional recrystallized remnant fossil, occasional crinoid, spicules, bryzoan, ostracod, dolomitic, cryptocrystalline calcite or occasional dolomite cement, minor fine crystalline dolomite matrix, trace glauconite, commonly argillaceous, occasional locally siliceous, very poor to poor intercrystalline porosity, trace fracture porosity, appear of minor mottled light to dark grey or brownish grey chert shards.
	10	CHERT to dark brownish grey, faint remnant fossil outlines, trace spicules, minor remnant ca, argillaceous in part, rare argillaceous inclusions, limestone replaced, very dense and hard, rare silica fracture fill.
1145 – 1160	85-90	LIMESTONE - light to medium brownish grey, buff, occasional dark brownish grey, mottled, bioclastic packstone to occasional wackestone, minor grainstone, fine to occasional coarse size bioclasts, cryptocrystalline to minor fine crystalline calcite or occasional dolomite cement, minor medium brown very fine crystalline dolomitic limestone, recrystallized in part, bioclasts and fragments indistinct, darker argillaceous, rare clear and trace milky ca fracture fill, trace subhedral calcite crystals, trace dark argillaceous inclusions, trace glauconite and pyrite, poor intercrystalline porosity, minor poor fracture porosity, no visual shows.
	10-15	CHERT - light to dark brownish grey, occasional remnant fossil outlines, trace crinoid and spicules, minor remnant ca inclusions, argillaceous in part, occasional grading to cherty limestone, limestone replaced, very dense and hard, rare clear or milky silica or ca micro fracture fill.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1160 – 1170	85-90	LIMESTONE - light to medium brownish grey, buff, occasional dark brownish grey, mottled, bioclastic packstone to wackestone, minor very fine to fine crystalline dolomitic limestone, minor grainstone, fine to occasional coarse size bioclasts, cryptocrystalline to minor fine crystalline calcite or occasional dolomite cement, recrystallized in part, bioclasts predominantly indistinct, trace brachiopod, crinoid, spicules, common darker argillaceous or organic material, rare clear and trace milky ca micro fracture and fracture fill, trace dark argillaceous inclusions, trace glauconite and pyrite, poor intercrystalline porosity, minor poor fracture porosity, no visual shows.
	10-15	CHERT - light to dark brownish grey, occasional remnant fossil outlines, trace crinoid and spicules, minor remnant ca inclusions, argillaceous in part, occasional grading to cherty limestone, limestone replaced, very dense and hard, rare clear or milky silica or ca micro fracture fill.
1170 – 1180	80-85	LIMESTONE - medium to dark brownish grey, minor buff to tan, occasional medium to dark brown, bioclastic packstone to occasional grainstone, minor bioclastic to fragmental wackestone, fine to coarse bioclasts, recrystallized in part, rare crinoid and spicules, cryptocrystalline to occasional very fine or fine crystalline calcite cement, darker argillaceous to very argillaceous, organic material in part, locally siliceous, occasional dolomitic limestone, rare milky ca micro to small fracture fill, no effective porosity to minor poor intercrystalline porosity, no visual shows.
	10	CHERT - light to dark brownish grey, occasional remnant fossil outlines, trace crinoid and spicules, minor remnant ca inclusions, argillaceous in part, occasional grading to cherty limestone, limestone replaced, very dense and hard, rare clear or milky silica or ca micro fracture fill.
	05-10	SHALE - medium to dark grey, blocky to subfissile, calcareous, carbonaceous in part, occasional very fine disseminated pyrite, occasional indistinct ca fossil fragment, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1180 – 1190	75-80	LIMESTONE - light to medium brownish grey, bioclastic packstone to occasional wackestone, fine to coarse bioclasts, rare crinoid, cryptocrystalline to minor very fine crystalline calcite or minor dolomite cement, trace pyrite cement, slightly argillaceous to argillaceous, organic material in part, rare silt, rare milky ca fracture fill, no effective to rare poor intergranular porosity, no visual shows.
	20-25	SHALE - medium to dark grey, blocky to subfissile, calcareous, carbonaceous in part, occasional very fine disseminated pyrite, occasional indistinct ca fossil fragment, moderately indurated.
1190 – 1200	75-85	LIMESTONE - light to medium brown, grading to dark brown in large part, bioclastic wackestone, grading to bioclastic packstone, predominantly microcrystalline, occasional amounts of very fine and fine crystalline, common amounts of crinoid, foram and sponge spicules , and rare amounts of bryzoan, locally very argillaceous to grading to calcareous marl in part, cherty in part, anhydritic in small part, rare amounts of very fine size irregular shaped anhydrite clasts / blebs, rare amounts of very small scale microfracturing sealed / medium to coarse crystalline calcite spar, becoming incrngly organic down section, no effective porosity, slow dull yellow halo cut fluorescence.
	15-25	SHALE - dark grey to dark greyish black, subfissile, calcareous, moderately indurated.
1200 – 1210	100	LIMESTONE - very light brown, grading to beige, common dark brown, bioclastic mudstone, predominantly microcrystalline, common amounts of cryptocrystalline, rare amounts of skeletal detritus to crinoid, foram, sponge spicules, locally very argillaceous, grading to calcareous marl in part, locally very cherty, rare amounts of very small scale microfracturing sealed / fine to coarse crystalline calcite spar, occasionally amounts of irregular shaped very fine to medium size anhydrite clasts/blebs, locally very organic in large part, no effective porosity, slow dull yellow halo Cut fluorescence.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1210 – 1220	85-90	LIMESTONE - light to dark brown in large part, bioclastic mudstone, grading to bioclastic wackestone in part, predominantly microcrystalline, common amounts of cryptocrystalline, minor amounts of skeletal detritus to crinoid, foram, sponge spicules, locally very argillaceous, locally very cherty, rare amounts of very small scale microfracturing sealed / fine to coarse crystalline calcite spar, locally very organic in large part, no effective porosity, slow dull yellow halo Cut fluorescence.
	10-15	SHALE - dark greyish black, subfissile, very calcareous, well indurated.
1220 – 1230	100	LIMESTONE - light brown, grading to dark brown in large part, bioclastic mudstone, grading to bioclastic wackestone in small part, grading to bioclastic packstone in part down sect, predominantly microcrystalline, common amounts of cryptocrystalline, rare amounts of skeletal detritus to crinoid, foram, sponge spicules, and bryozoans, and solitary coral, locally very argillaceous, cherty in part, rare amounts of very small scale microfracturing sealed / fine to coarse crystalline calcite spar, occasionally amounts of irregular shaped very fine to coarse size anhydrite clasts/blebs, organic in large part, no effective porosity, slow dull yellow halo Cut fluorescence.
1230 – 1235	100	LIMESTONE - light brown, grading to beige in large part, common dark brown, bioclastic wackestone, microcrystalline, minor cryptocrystalline in large part, occasional amounts of crinoid, sponge spicules, foram and bryzoan, anhydritic in small part - as above, rare amounts of microfracturing sealed - as above, locally cherty, argillaceous, organic in large part, no effective porosity, cut fluorescence as above..

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1235 – 1240	100	LIMESTONE - dark brown, grading to light brown and beige in part, wackestone, frequent grading to mudstone, microcrystalline, cryptocrystalline in large part, bioclastic, occasional to rare amounts of sponge spicules, undifferentiated foram and bryzoan, anhydritic in small part - as above, rare amounts of microfracturing sealed - as above, locally cherty, argillaceous, organic in large part, no effective porosity, fluorescence and cut fluorescence, as above.
1240 – 1250	100	LIMESTONE - dark brown, grading to light brown and beige in part, bioclastic wackestone, frequent grading to bioclastic mudstone down sect, microcrystalline, cryptocrystalline in large part, occasional to rare amounts of sponge spicules, undifferentiated foram and bryzoan, rare crinoid fragments, rare amounts of small scale microfracturing sealed / clear microcrystalline calcite spar, cherty to locally very cherty in part, very argillaceous, grading to calcareous marl, very organic in large part, no effective porosity, slow light yellow halo Cut fluorescence.
1250 – 1265	80-85	LIMESTONE - light brown and beige in part, grading to dark brown in part, bioclastic wackestone, microcrystalline, cryptocrystalline in large part, minor amounts of crinoid, sponge spicules, undifferentiated foram, locally foram detritus rimmed / pyrite in small part, silty, very argillaceous, locally grading to calcareous marl, very organic in large part, no effective porosity, slow light yellow halo Cut fluorescence.
	10	MARLSTONE - dark brown, grading to dark grey, very calcareous, well indurated.
	05-10	SHALE - dark grey, grading to dark greyish black in part, subfissile, minor blocky, calcareous, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1265 – 1270	90	LIMESTONE - light greyish brown, grading to medium greyish brown, bioclastic mudstone, cryptocrystalline, minor amounts of microcrystalline, rare amounts of skeletal detritus to crinoid, undifferentiated foram, sponge spicules, silty in part, very argillaceous throughout, organic in small part, no effective porosity, slow dull yellow halo Cut fluorescence.
	10	SHALE - dark grey, grading to medium grey in small part, subfissile, common blocky, calcareous, moderately indurated.
1270 – 1280	40-50	LIMESTONE - light greyish brown, grading to medium greyish brown, bioclastic mudstone, cryptocrystalline, minor amounts of microcrystalline, rare amounts of skeletal detritus to crinoid, undifferentiated foram, sponge spicules, silty in part, very argillaceous throughout, organic in small part, no effective porosity.
	35	MARLSTONE - dark brown, grading to dark grey, very calcareous, rare foram skeletal detritus, well indurated.
	15-25	SHALE - dark grey, grading to medium grey in part, subfissile, common blocky, calcareous, moderately indurated.
1280 – 1290	40-45	SHALE - dark grey, grading to medium grey, subfissile, common blocky, calcareous, rare amounts of skeletal detritus to crinoid and undifferentiated foram, moderately indurated.
	35	LIMESTONE - light brown, bioclastic mudstone, locally earthy, predominantly microcrystalline, occasional amounts of crinoid, undifferentiated foram, rare sponge spicules, silty, very argillaceous throughout, becoming slightly organic in part, no effective porosity, very slow dull yellow halo Cut fluorescence.
	20-25	MARLSTONE - dark brown, grading to dark greyish brown, very calcareous, rare foram skeletal detritus, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1290 – 1295	65	LIMESTONE - light brown, bioclastic mudstone, locally earthy, predominantly microcrystalline, occasional amounts of crinoid, undifferentiated foram, rare sponge spicules, silty, very argillaceous throughout, becoming slightly organic in part, no effective porosity, very slow dull yellow halo Cut fluorescence.
	35	SHALE - medium grey, grading to dark grey, subfissile, occasional blocky, calcareous, rare amounts of crinoid skeletal detritus, well indurated.
1295 – 1305	40-45	LIMESTONE - light brown, grading to medium brown in part, bioclastic mudstone, grading to bioclastic wackestone in small part, predominantly microcrystalline, occasional amounts of crinoid, brachiopod, rare amounts of undifferentiated foram, rare sponge spicules, silty, very argillaceous throughout, becoming slightly organic in part, no effective porosity, very slow dull yellow halo Cut fluorescence.
	40	SHALE - medium grey, subfissile, calcareous, rare amounts of crinoid skeletal detritus, moderately indurated.
	15-20	MARLSTONE - dark brown, grading to dark greyish brown, very calcareous, rare foram skeletal detritus, well indurated.
1305 – 1310	100	LIMESTONE - light brown, grading to medium brown in large part, bioclastic wackestone, grading to bioclastic packstone in small part, predominantly microcrystalline, occasional amounts of crinoid, brachiopod, rare amounts of sponge spicules, silty, locally argillaceous in part, becoming slightly organic in part, no effective porosity, very slow dull yellow halo Cut fluorescence.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1310 – 1320	85-90	LIMESTONE - light brown, grading to medium brown in large part, bioclastic packstone, grading to bioclastic wackestone in small part, predominantly microcrystalline, occasional amounts of crinoid, brachiopod, rare amounts of sponge spicules, silty, locally argillaceous in part, becoming slightly organic in part, no effective porosity, very slow dull yellow halo Cut fluorescence.
	10	MARLSTONE - dark brown, very calcareous, locally very cherty in small part, well indurated.
	trace-05	SHALE - dark grey, grading down section to medium grey in part, subfissile, common blocky, calcareous, common amounts of very fine size pyrite specks down section, rare amounts of crinoid skeletal detritus, very rare pyrite granules, well indurated.
1320 – 1335	90-95	LIMESTONE - light and medium greyish brown, bioclastic mudstone, predominantly microcrystalline, abundant cryptocrystalline, occasional amounts of crinoid, undifferentiated foram and sponge spicules, rare brachiopod, very argillaceous, locally grading to very calcareous marl, no effective porosity, N sho vs.
	05	MARLSTONE - dark greyish brown and dark brown, very calcareous, locally very cherty throughout, rare amounts of skeletal detritus to sponge spicules foram and brachiopod, well indurated.
	trace-05	SHALE - dark grey, subfissile, minor blocky, calcareous, rare fossil fragments to brachiopod and crinoid, rare very fine size pyrite specks, well indurated.
1335 – 1340	100	LIMESTONE - medium brown, grading to medium greyish brown, bioclastic mudstone, predominantly cryptocrystalline, microcrystalline in part, occasional amounts of brachiopod, crinoid, undifferentiated foram and sponge spicules, very argillaceous, silty, locally cherty, rare amounts of pyrite inclusions, organic in very small part, no effective porosity, N shows.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1340 – 1345	100	LIMESTONE - medium greyish brown, bioclastic mudstone, grading to bioclastic wackestone in very small part, microcrystalline, abundant amounts of cryptocrystalline, occasional amounts of brachiopod, crinoid, undifferentiated foram and sponge spicules, very argillaceous, silty, locally very cherty, rare amounts of pyrite inclusions, organic in very small part, no effective porosity, N shows.
1345 – 1350	100	LIMESTONE - light brown, bioclastic wackestone, grading to bioclastic packstone, predominantly microcrystalline, locally recrystallized very fine and fine crystalline in part, chalky in part, occasional crinoid fragments, rare brachiopod and sponge spicules, argillaceous in small part, silty, rare amounts of pyrite inclusions, organic in very small part, no effective porosity, N shows.
1350 – 1355	100	LIMESTONE - light brown, bioclastic wackestone, grading to bioclastic packstone, predominantly microcrystalline, locally recrystallized very fine and fine crystalline in part, becoming more recycled in this interval, occasional crinoid fragments, rare brachiopod and sponge spicules, argillaceous in small part, organic in very small part, no effective porosity, N shows.
1355 – 1360	100	LIMESTONE - light to medium greyish brown, bioclastic wackestone, grading to bioclastic mudstone, microcrystalline, rare amounts of very fine crystalline, occasional amounts of skeletal detritus to undifferentiated foram, crinoid and sponge spicules, very argillaceous, organic in small part, no effective porosity, very slow dull yellowish white Cut fluorescence.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1360 – 1365	100	LIMESTONE - light to medium greyish brown, bioclastic peloidal wackestone, grading to bioclastic peloidal packstone in small part, microcrystalline, rare amounts of very fine crystalline, occasional to common amounts of skeletal detritus to undifferentiated foram, crinoid and sponge spicules, rare amounts of bryzoan, occasional amounts of medium to very coarse size peloids, argillaceous in small part, locally becoming very cherty to irregular pervasive cherty/siliceous alteration zones, rare pyrite specks, organic in small part, no effective porosity, very slow dull yellowish white Cut fluorescence.
LOWER MISSISSIPPIAN UPPER BESA RIVER		
1365 – 1375	85-100	SHALE - medium grey, subfissile, common splintery, minor blocky, strong cleavage development, fractured to slickensides, fracture planes encrusted / pyrite and rare amounts of cryptocrystalline dolomite spar, encrusted / pyrite, occasional amounts of pyrite grains and granules dispersed throughout, rare Fe concretion, rare dark brown chert inclusions, poorly indurated.
	trace-15	LIMESTONE - light to medium greyish brown, bioclastic peloidal wackestone, grading to bioclastic peloidal wackestone in small part, microcrystalline, rare amounts of very fine crystalline, occasional to common amounts of skeletal detritus to undifferentiated foram, crinoid and sponge spicules, rare amounts of bryzoan, occasional amounts of medium to very coarse size peloids, argillaceous in small part, locally becoming very cherty to irregular pervasive cherty/siliceous alteration zones, rare pyrite specks, organic in small part, no effective porosity, very slow dull yellowish white Cut fluorescence.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1375 – 1390	75-80	SHALE - medium grey, frequent dark grey, fissile and splintery in large part, subfissile in part, becoming slightly hydrophilic in small part, micaceous in small part, occasional skeletal detritus to crinoid / foram, distinct cleavage development, fractured / slickensides in small part, irregular micro fracture planes encrusted with pyrite and rare amounts of cryptocrystalline dolomite spar, rare amounts of clear silica spar dispersed throughout, joint planes locally encrusted / pyrite, occasional amounts of pyrite grains and granules dispersed throughout, occasional Fe concretion, rare dark brown chert inclusions, poorly indurated.
	05-20	SILTSTONE – medium grey, blocky, quartzose, calcite cement, very argillaceous, pyritic in large part, moderately indurated.
	05-15	MARLSTONE - light to medium greyish brown, calcareous, very cherty, pyritic, well indurated.
1390 – 1395	45	SHALE - medium grey, frequent dark grey, fissile and splintery in large part, subfissile in part, becoming slightly hydrophilic in small part, micaceous in small part, occasional skeletal detritus to crinoid / foram, disseminated cleavage development, fractured / slickensides in small part, irregular micro fracture planes encrusted / pyrite and rare amounts of cryptocrystalline dolomite spar, rare amounts of clear silica spar dispersed throughout, jointed to joint planes locally encrusted / pyrite, occasional amounts of pyrite grains and granules dispersed throughout, occasional Fe concretion, rare dark brown chert inclusions, poorly indurated.
	30	SILTSTONE – medium grey, blocky, quartzose, calcite cement, very argillaceous, pyritic in large part, moderately indurated.
	15	MARLSTONE - light to medium greyish brown, calcareous, very cherty, pyritic, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	LIMESTONE - light to medium greyish brown, mottled, bioclastic peloidal grainstone grading to bioclastic peloidal packstone, fine to coarse / minor very coarse size frame work texture, locally recrystallized to predominantly microcrystalline to very fine crystalline, minor amounts of fine crystalline, crinoid, brachiopod, foram, frequent coarse to very coarse size peloids, framework components replaced . very fine to fine crystalline calcite spar and cryptocrystalline silica spar, occasional locally small scale fractures to sealed / micro to very coarse crystalline calcite, silica, and dolomite spar, slightly argillaceous in small part, no effective porosity to rare amounts of inferred fracture and intercrystalline porosity, questionable spotty organic staining throughout.
1395 – 1405	80-85	LIMESTONE - light to medium greyish brown, mottled, bioclastic peloidal grainstone grading to bioclastic peloidal packstone, fine to coarse / minor very coarse size framework texture, locally recrystallized to predominantly microcrystalline to very fine crystalline, minor amounts of fine crystalline, crinoid, brachiopod, foram, frequent coarse to very coarse size peloidal, framework components replaced . very fine to fine crystalline calcite spar and cryptocrystalline silica spar, occasional locally small scull fractures to sealed / micro to very coarse crystalline ca/silica/dolomite spar, slightly argillaceous in small part, no effective porosity to rare amounts of inferred fracture and intercrystalline porosity, questionable spotty organic staining throughout.
	15-20	SHALE - dark grey, subfissile and blocky, calcareous, pyritic in small part, rare crinoid skeletal detritus, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1405 – 1410	45	SHALE - dark grey, subfissile and blocky, calcareous, pyritic in small part, rare crinoid skeletal detritus, moderately indurated.
	45	LIMESTONE - light to medium brown, bioclastic peloidal packstone, grading to bioclastic peloidal wackestone, predominantly microcrystalline, framework components replaced with very fine to fine crystalline calcite spar, rare micro fractures to sealed with cryptocrystalline silica and calcite spar, becoming argillaceous in part, no effective porosity.
	10	MARLSTONE - light to medium greyish brown, calcareous, very cherty, pyritic, well indurated.
1410 – 1415	85	LIMESTONE - light to medium brown, bioclastic peloidal packstone, grading to bioclastic peloidal wackestone, predominantly microcrystalline, framework components replaced with very fine to fine crystalline calcite spar, rare micro fractures to sealed with cryptocrystalline silica and calcite spar, becoming argillaceous in part, no effective porosity.
	15	SHALE - dark grey, subfissile and blocky, calcareous, pyritic in small part, rare crinoid skeletal detritus, moderately indurated.
1415 – 1420	55	LIMESTONE - medium brown, minor amounts of light brown, mottled in part, bioclastic wackestone, grading to bioclastic mudstone in large part, predominantly microcrystalline, minor to occasional crinoid, foram, and brachiopod skeletal detritus, locally very silty, becoming very argillaceous in large part, no effective porosity.
	45	SHALE - dark grey, subfissile and blocky, calcareous, pyritic in small part, rare crinoid skeletal detritus, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1420 – 1425	90	LIMESTONE - medium brown to medium greyish brown, minor amounts of light brown, mottled, bioclastic peloidal packstone, grading to grainstone in large part, fine to very coarse size framework texture in part, predominantly microcrystalline, locally extensively recrystallized very fine to fine crystalline, crinoid, foram and brachiopod, frequent coarse to very coarse size peloidal, framework components replaced with cryptocrystalline clear and white calcite spar, locally partly / off white very fine to very coarse crystalline anhedral dolomite spar, localized small scale fractures to sealed / cryptocrystalline to fine crystalline anhedral calcite and dolomite spar, occasional amounts of medium brown organic staining surrounding skeletal detritus, inferred poor intercrystalline porosity.
	10	SHALE - medium grey, blocky and subfissile, fissile in small part, moderately cleavage development, rare amounts of Fe concretion, rare amounts of disseminated pyrite, moderately indurated.
1425 – 1430	55	SHALE - medium grey, blocky and subfissile, fissile in small part, moderately cleavage development, rare amounts of Fe concretion, rare amounts of disseminated pyrite, moderately indurated
	45	LIMESTONE - medium brown to medium greyish brown, minor amounts of light brown, mottled, bioclastic peloidal packstone, grading to grainstone in large part, fine to very coarse size framework texture in part, predominantly microcrystalline, locally extensively recrystallized very fine to fine crystalline, crinoid, foram and brachiopod, frequent coarse to very coarse size peloidal, framework components replaced / cryptocrystalline clear and white calcite spar, locally partly / off white very fine to very coarse crystalline anhedral dolomite spar, localized small scale fractures to sealed / cryptocrystalline to fine crystalline anhedral calcite and dolomite spar, occasional amounts of medium brown organic staining surrounding skeletal detritus, infer poor intercrystalline porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1430 - 1435	85	SHALE - medium grey, blocky and subfissile, fissile in small part, moderately cleavage development, rare amounts of Fe concretion, rare amounts of disseminated pyrite, moderately indurated
	15	LIMESTONE - medium brown to medium greyish brown, minor amounts of light brown, mottled, bioclastic peloidal packstone, grading to grainstone in large part, fine to very coarse size framework texture in part, predominantly microcrystalline, locally extensively recrystallized very fine to fine crystalline, crinoid, foram and brachiopod, frequent coarse to very coarse size peloidal, framework components replaced / cryptocrystalline clear and white calcite spar, locally partly / off white very fine to very coarse crystalline anhedral dolomite spar, localized small scale fractures to sealed / cryptocrystalline to fine crystalline anhedral calcite and dolomite spar, occasional amounts of medium brown organic staining surround skeletal detritus, infer poor intercrystalline porosity.
1435 – 1440	100	SHALE - medium grey, grading to medium brownish grey in small part, blocky, minor subfissile, indistnct cleavage development, minor Fe concretion, rare pyrite granules, moderately indurated.
1440 – 1445	100	SHALE - medium grey, subfissile, occasional blocky, indistinct cleavage development, rare Fe concretion, rare pyrite granules, moderately indurated.
1445 – 1450	100	SHALE - medium grey, subfissile to fissile, occasional blocky, distinct cleavage development, rare Fe concretion, rare pyrite granules, moderately indurated.
1450 – 1455	100	SHALE - medium grey, subfissile and blocky, occasional fissile, indistinct cleavage development, rare Fe concretion, rare pyrite granules, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1455 – 1460	100	SHALE - medium grey, subfissile and blocky, occasional fissile and splintery, indistinct cleavage development, occasional Fe concretion - increasing in proportion in this interval, rare pyrite granules, rare siliceous crinoid fragments, moderately indurated.
1460 – 1465	100	SHALE - medium grey, splintery and blocky, distinct cleavage development, common jointing to oblique to cleavage, rare amounts fine slickensides, common microfractures to small scale sub parallel to dendrite fractures sealed / ca then silica to microcrystalline / acicular to very coarse crystalline spar, occasional amounts of pyrite veining, moderately indurated.
1465 – 1475	85-90	SHALE - medium grey, minor dark grey, splintery and fissile, minor blocky, distinct cleavage development, occasional amounts of jointing to oblique to cleavage, occasional amounts of slickensides, common microfractures to small scale sub parallel to dendroid fractures sealed / white ca then silica to microcrystalline / acicular to truncated very coarse crystalline spar, minor Fe concretion, occasional amounts of medium brown calcareous marl laminae to decrease in proportion down sect, moderately indurated.
	10-15	MARLSTONE – medium to dark brown, very calcareous, well indurated.
1475 – 1480	75	SHALE - medium grey, occasional dark grey, splintery and fissile, minor blocky, distinct cleavage development, common amounts of jointing to oblique to cleavage, occasional amounts of slickensides, occasional small scale sub parallel to dendroid fractures sealed / white ca then silica to microcrystalline / acicular to truncated very coarse crystalline spar, occasional amounts of Fe concretion, well indurated.
	15	MARLSTONE – medium to dark brown, very calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	LIMESTONE - light to medium brown, bioclastic wackestone, predominantly cryptocrystalline, minor microcrystalline, occasional crinoid skeletal detritus, prevasive siliceous' throughout, no effective porosity, N shows.
1480 - 1490	50-55	SHALE - medium grey, blocky and subfissile, fissile in small part, moderately cleavage development, rare amounts of Fe concretion, rare amounts of disseminated pyrite, moderately indurated
	45-50	LIMESTONE - medium brown to medium greyish brown, minor amounts of light brown, mottled, bioclastic peloidal packstone, grading to grainstone in large part, fine to very coarse size framework texture in part, predominantly microcrystalline, locally extensively recrystallized very fine to fine crystalline, crinoid, foram and brachiopod, frequent coarse to very coarse size peloidal, framework components replaced / cryptocrystalline clear and white calcite spar, locally partly / off white very fine to very coarse crystalline anhedral dolomite spar, localized small scale fractures to sealed / cryptocrystalline to fine crystalline anhedral calcite and dolomite spar, occasional amounts of medium brown organic staining adjacent to skeletal detritus, infer poor intercrystalline porosity.
1490 – 1500	70-75	SHALE - medium grey, subfissile, common blocky, micromicaceous in small part, indistinct cleavage development, fractured in small part - as above, rare crinoid skeletal detritus, rare amounts of pyrite veining throughout, very slightly dolomitic in small part, moderately indurated.
	15	SILTSTONE - medium grey, quartzose, dolomite and calcite cement, minor amounts of silica cement, very argillaceous, locally pyritic in small part, very argillaceous, moderately to well indurated.
	10-15	MARLSTONE - light to medium brown, very calcareous, very cherty in part, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1500 – 1505	85	SHALE - medium grey, subfissile, common blocky, mica in small part, indistinct cleavage development, fractured in small part - as above, rare crinoid skeletal detritus, rare amounts of pyrite veining throughout, very slightly dolomitic in small part, moderately indurated.
	10	SILTSTONE - medium grey, quartzose, dolomite and calcite cement, minor amounts of silica cement, very argillaceous, locally pyritic in small part, very argillaceous, moderately to well indurated.
	05	MARLSTONE - light to medium brown, very calcareous, very cherty in part, well indurated.
1505 – 1515	45	LIMESTONE - light brown, bioclastic mudstone, cryptocrystalline, earthy, rare crinoid skeletal detritus, very argillaceous, silty, no effective porosity, N shows.
	30	MARLSTONE - dark brown, very calcareous, very cherty, well indurated.
	25	SHALE - medium grey, subfissile, common blocky, indistinct cleavage development, fractured in small part to sealed / white cryptocrystalline calcite and rare amounts of silica spar, rare crinoid skeletal detritus, rare amounts of pyrite veining throughout, very slightly dolomitic in small part, moderately indurated.
1515 – 1520	90	SHALE - medium grey, subfissile and blocky, indistinct cleavage development, rare amounts of micro fracturing to sealed - as above, becoming more dolomitic, rare crinoid skeletal detritus, rare pyrite granules, moderately indurated.
	10	MARLSTONE - dark brown, very calcareous, very cherty, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1520 – 1525	100	SHALE - medium grey, minor dark grey, as above, slickensides, distinct cleavage development, minor jointing evident to perpendicular to cleavage, rare amounts of micro fractures to sealed / cryptocrystalline to very fine crystalline calcite spar, dolomitic, moderately indurated.
1525 – 1530	45	MARLSTONE - dark brown, very calcareous, very cherty, well indurated.
	30	LIMESTONE - light brown, bioclastic wackestone, microcrystalline, common very fine crystalline, recrystallized, occasional crinoid skeletal detritus, dolomitic, argillaceous, siliceous' in part, no effective porosity, N shows.
	25	SHALE - medium grey, minor dark grey, as above, slickensides, distinct cleavage development, minor jointing evident to perpendicular to cleavage, rare amounts of micro fractures to sealed / cryptocrystalline to very fine crystalline calcite spar, dolomitic, moderately indurated.
1530 – 1540	55-60	SHALE - medium grey, minor dark grey, as above, slickensides, distinct cleavage development, minor jointing evident to oblique to cleavage, rare amounts of micro fractures to sealed / cryptocrystalline calcite spar, slightly dolomitic, moderately indurated.
	40-45	MARLSTONE - medium brownish grey and dark brown, very calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1540 – 1545	35	SHALE - medium grey, fissile and splintery, distinct cleavage development, common jointing evident to oblique to cleavage, slickensides, rare amounts of micro fractures to sealed / cryptocrystalline calcite spar, dolomitic, becoming very calcareous in part, moderately indurated.
	35	LIMESTONE - light brown, bioclastic wackestone, microcrystalline, occasional crinoid and foram skeletal detritus, dolomitic, argillaceous, no effective porosity, N shows.
	30	MARLSTONE - dark brown, grading to dark brownish grey, calcareous, cherty in part, rare skeletal detritus to foram, well indurated.
1545 – 1550	45	LIMESTONE - light brown, bioclastic wackestone grading to mudstone, microcrystalline, occasional crinoid and foram skeletal detritus, dolomitic, argillaceous, no effective porosity, N shows.
	30	MARLSTONE - dark brown, grading to dark brownish grey, calcareous, cherty in part, rare skeletal detritus to foram, well indurated.
	25	SHALE - medium grey, fissile, occasional splintery, distinct cleavage development, rare amounts of micro fractures to sealed / cryptocrystalline and microcrystalline calcite spar, calcareous, moderately to well indurated.
1550 – 1555	40	LIMESTONE - light brown, bioclastic mudstone, earthy, chalky, rare foram skeletal detritus, silty, very argillaceous, no effective porosity, N shows.
	35	MARLSTONE - medium brownish grey, very calcareous, rare amounts of small scale micro fracturing to sealed / microcrystalline calcite spar, cherty in small part, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	25	SHALE - medium grey, fissile and blocky, distinct cleavage development, common jointing evident to oblique to cleavage, slickensides in part, locally becoming very calcareous, rare amounts of disseminated pyrite, moderately to well indurated.
1555 – 1565	45	SHALE - medium grey, fissile and blocky, distinct cleavage development, common jointing evident to oblique to cleavage, slickensides in part, locally becoming very calcareous, rare amounts of disseminated pyrite, moderately to well indurated.
	30-35	MARLSTONE - dark brown, microcrystalline, microsucrosic texture, locally very calcareous, dolomitic, becoming incrngly micro fractured, cherty in part, well indurated.
	20-25	LIMESTONE - medium greyish brown and medium brownish grey, mudstone, microcrystalline, microsucrosic texture, dolomitic, very argillaceous, no effective porosity, N shows.
1565 – 1570	45	LIMESTONE - light to medium brown, grading to medium brownish grey, mudstone, predominantly earthy, microcrystalline in small part, very argillaceous, no effective porosity, N shows.
	30	MARLSTONE - dark brown, grading to dark brownish grey in large part, microcrystalline in part, microsucrosic texture in part, locally very calcareous, dolomitic in small part, minor amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and silica spar, well indurated.
	25	SHALE - medium grey, subfissile, indistinct cleavage development, rare amounts of microfracturing - as above, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1570 – 1575	45	MARLSTONE - dark brown, grading to dark brownish grey in large part, very calcareous, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, well indurated.
	30	SHALE - dark grey, grading to medium grey, subfissile, minor fissile, indistinct cleavage development, calcareous, moderately to well indurated.
	25	LIMESTONE - light brown, mudstone, predominantly earthy, microcrystalline in small part, very argillaceous, no effective porosity, N shows.
1575 – 1585	65-70	LIMESTONE - medium brownish grey, bioclastic mudstone, predominantly earthy texture, microcrystalline in small part, organic in small part, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence, no effective porosity.
	20-25	MARLSTONE - dark brown, grading to dark brownish grey, very calcareous, occasional amounts of small scale microfracturing to sealed / cryptocrystalline and microcrystalline ca, rare amounts of disseminated pyrite and pyrite veining to very fine to fine crystalline equant pyrite crystals preserved, locally becoming organic, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence.
	05-15	SHALE - medium grey, subfissile to fissile, splintery in small part, distinct cleavage development, locally occasional amounts of jointing to oblique to cleavage, rare amounts of slickensides, calcareous, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1585 – 1595	35-40	LIMESTONE - medium brownish grey, bioclastic mudstone, predominantly earthy texture, microcrystalline in small part, organic in small part, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence, no effective porosity.
	35-40	SHALE - medium grey and medium brownish grey, subfissile to fissile, distinct cleavage development, very calcareous, moderately indurated.
	25	MARLSTONE - dark brown, grading to dark brownish grey, very calcareous, occasional amounts of small scale microfracturing to sealed / cryptocrystalline and microcrystalline ca, rare amounts of disseminated pyrite and pyrite veining to very fine to fine crystalline equant pyrite crystals preserved, locally becoming organic, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence.
1595 – 1605	50-55	MARLSTONE - medium to dark brownish grey, very calcareous, well indurated.
	45-50	SHALE - medium grey and medium brownish grey, subfissile to fissile, distinct cleavage development, very calcareous, moderately indurated.
1605 – 1610	45	MARLSTONE - medium brownish grey, very calcareous, well indurated
	35	SHALE - medium grey and medium brownish grey, subfissile to fissile, distinct cleavage development, very calcareous, moderately indurated.
	20	LIMESTONE - medium brownish grey, bioclastic mudstone, predominantly earthy texture, microcrystalline in small part, organic in small part, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1610 - 1620	75	MARLSTONE - dark brown, grading to dark brownish grey, very calcareous, occasional amounts of small scale microfracturing to sealed / cryptocrystalline and microcrystalline calcite, rare amounts of disseminated pyrite and pyrite veining to very fine to fine crystalline equant pyrite crystals preserved, locally becoming organic, no visible dry fluorescence, very slow dull golden yellow halo cut fluorescence.
	25	SHALE - medium brownish grey, subfissile and blocky, indistinct cleavage development, very calcareous, moderately to well indurated.
1620 – 1630	70-75	MARLSTONE - medium to dark greyish brown, very calcareous, well indurated.
	25-30	SHALE - medium brownish grey, subfissile and blocky, indistinct cleavage development, very calcareous, moderately to well indurated.
1630 – 1640	50-55	MARLSTONE - medium to dark greyish brown, very calcareous, well indurated.
	25	SHALE - medium grey and medium greyish brown, subfissile to blocky, indistinct cleavage development, very calcareous, moderately indurated.
	20-25	LIMESTONE - medium greyish brown, mudstone, earthy, very argillaceous, no effective porosity, N shows.
1640 – 1645	45	MARLSTONE - medium to dark greyish brown, very calcareous, well indurated.
	45	LIMESTONE - medium greyish brown, mudstone, earthy, very argillaceous, no effective porosity, N shows.
	10	SHALE - medium grey and medium greyish brown, subfissile to blocky, indistinct cleavage development, very calcareous, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1645 – 1655	40-45	MARLSTONE - medium to dark brownish grey, very calcareous, well indurated.
	35-40	LIMESTONE - light brown, light greyish brown, bioclastic mudstone, earthy, rare amounts of crinoid skeletal detritus, very argillaceous, no effective porosity, N shows.
	20	SHALE - dark grey, subfissile and blocky, minor fissile, indistinct and minor amounts of distinct cleavage development, locally exhibits jointing to oblique to cleavage, very calcareous, moderately indurated.
1655 – 1660	85	MARLSTONE - dark brown, very calcareous, becoming organic in large part, well indurated.
	15	SHALE - dark grey, grading to dark brownish grey, generally as above, becoming organic in part, less calcareous thin above, well indurated.
1660 – 1665	65	SHALE - dark grey, subfissile and blocky, indistinct cleavage development, very calcareous, well indurated.
	35	MARLSTONE - medium brownish grey, very calcareous, well indurated.
1665 – 1675	80-85	MARLSTONE - dark grey, grading to dark greyish brown, calcareous, very sideritic ?, faint dark brown patches to clay Fe concretion, grading to clay Fe stain in small part, rare micro fracturing to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of pyrite, well indurated.
	15-20	SHALE - dark grey, subfissile and blocky, splintery in large part, distinct cleavage development, becoming incrngly jointed to oblique to cleavage, rare amounts of slickensides, occasional amounts of microfracturing to sealed / white cryptocrystalline calcite and rare dolomite spar, very calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1675 – 1685	55	MARLSTONE - dark grey, grading to dark greyish brown, calcareous, very siderite' ?, faint dark brown patches to increase in clay Fe concretion down sect, grading to clay Fe stain in large part, rare micro fracturing to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of pyrite, well indurated.
	45	SHALE - dark grey, grading to dark greyish brown in part, splintery in large part, distinct cleavage development, becoming incrngly jointed to oblique to cleavage, occasional amounts of microfracturing to sealed / white cryptocrystalline calcite and rare dolomite spar, very calcareous, local very siderite' ? to common amounts of dark brown irregular patches to clay Fe stain concretion, rare amounts of disseminated pyrite, well indurated.
1685 – 1690	65	SHALE - dark grey, grading to dark greyish brown in part, fissile, splintery in large part, distinct cleavage development, becoming incrngly jointed to oblique to cleavage, minor amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, very siderite' to common amounts of dark brown irregular patches to clay Fe stain concretion, calcareous and dolomitic in part, rare amounts of disseminated pyrite, well indurated.
	35	MARLSTONE - dark grey, grading to dark greyish brown, calcareous, very siderite' ?, faint dark brown patches to increase in clay Fe concretion down sect, grading to clay Fe stain in large part, rare micro fracturing to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of pyrite, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1690 – 1695	35	LIMESTONE - medium to dark brown and dark greyish brown, bioclastic mudstone grading to bioclastic wackestone, earthy, cryptocrystalline and microcrystalline in part, minor crinoid, foram, and rare sponge skeletal detritus, occasional amounts of white chalky anhydrite replacement in large part to increasing down section, dolomitic in small part, very argillaceous, locally extensively fractured to sealed with white cryptocrystalline calcite, dolomite, and minor amounts of anhydrite and rare silica spar, no effective porosity, to poor fracture porosity.
	35	MARLSTONE - dark brown, grading to dark greyish brown, generally as above becoming incrngly fractured to extensive microfractures to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.
	30	SHALE - dark grey, fissile to splintery, generally as above, becoming incrngly jointed to oblique to cleavage, common slickensides, minor amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, calcareous and dolomitic in part, moderately indurated.
1695 – 1700	55	SHALE - dark grey, fissile to splintery, generally as above, becoming incrngly jointed to oblique to cleavage, common slickensides, minor amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, calcareous and dolomitic in part, moderately indurated.
	45	MARLSTONE - dark brown, grading to dark grey, generally as above becoming incrngly fractured to extensive microfractures to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1700 – 1715	55-60	LIMESTONE - medium to dark brown and dark greyish brown, bioclastic mudstone grading to bioclastic wackestone, earthy, cryptocrystalline and microcrystalline in part, minor crinoid, foram, and rare sponge skeletal detritus, occasional amounts of white chalky anhydrite replacement in large part to increasing down sect, dolomitic in small part, very argillaceous, locally extensively fractured to sealed with white cryptocrystalline ca, dolomite, and minor amounts of anhydrite and rare silica spar, no effective porosity, to poor fracture porosity.
	20-25	MARLSTONE - dark brown, grading to dark grey, generally as above becoming incrngly fractured to extensive microfractures - sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.
	20	SHALE - medium grey, occasionally grading to dark grey in small part, fissile to splintery, distinct cleavage development, jointed - as above, frequent slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, dolomitic in small part, moderately indurated.
1715 – 1720	35	LIMESTONE - medium to dark brown and dark greyish brown, bioclastic mudstone grading to bioclastic wackestone, earthy, cryptocrystalline and microcrystalline in part, minor crinoid, foram, and rare sponge skeletal detritus, occasional amounts of white chalky anhydrite replacement in large part to increasing down sect, dolomitic in small part, very argillaceous, locally extensively fractured to sealed with white cryptocrystalline ca, dolomite, and minor amounts of anhydrite and rare silica spar, no effective porosity, to poor fracture porosity.
	35	MARLSTONE - dark brown, grading to dark grey, generally as above becoming incrngly fractured to extensive microfractures to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	30	SHALE - medium grey, occasionally grading to dark grey in small part, fissile to splintery, distinct cleavage development, jointed - as above, frequent slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, dolomitic in small part, moderately indurated.
1720 – 1730	35	MARLSTONE - dark brown, grading to dark grey, generally as above becoming increngly fractured to extensive microfractures to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.
	30-35	LIMESTONE - medium to dark brown and dark greyish brown, bioclastic mudstone grading to bioclastic wackestone, earthy, cryptocrystalline and microcrystalline in part, minor crinoid, foram, and rare sponge skeletal detritus, occasional amounts of white chalky anhydrite replacement in large part to increasing down sect, dolomitic in small part, very argillaceous, locally extensively fractured to sealed with white cryptocrystalline ca, dolomite, and minor amounts of anhydrite and rare silica spar, no effective porosity, to poor fracture porosity.
	30-35	SHALE - medium grey, occasionally grading to dark grey in small part, fissile to splintery, distinct cleavage development, jointed - as above, frequent slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, dolomitic in small part, moderately indurated.
1730 - 1735	65	LIMESTONE – medium greyish brown, bioclastic mudstone grading to bioclastic wackestone, earthy, cryptocrystalline and microcrystalline in part, minor crinoid, foram, and rare sponge skeletal detritus, occasional amounts of white chalky anhydrite replacement in large part to increasing down sect, dolomitic in small part, very argillaceous, locally extensively fractured to sealed with white cryptocrystalline ca, dolomite, and minor amounts of anhydrite and rare silica spar, no effective porosity, to poor fracture porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	25	MARLSTONE - dark brown, grading to dark grey, generally as above becoming incrngly fractured to extensive microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of anhydrite spar, well indurated.
	10	SHALE - medium grey, occasionally grading to dark grey in small part, fissile to splintery, distinct cleavage development, jointed - as above, frequent slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, dolomitic in small part, moderately indurated.
1735 – 1740	100	SHALE - medium grey, fissile to splintery, distinct cleavage development, jointed - as above, abundant slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite, and occasional amounts of silica spar, dolomitic in very small part, moderately indurated.
1740 – 1745	100	SHALE - medium grey, fissile to splintery, distinct cleavage development, jointed - as above, abundant slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite, and occasional amounts of silica spar, dolomitic in very small part, moderately indurated.
1745 – 1750	100	SHALE - medium grey, fissile to splintery, distinct cleavage development, jointed - as above, abundant slickensides, common amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite, and occasional amounts of silica spar, dolomitic in very small part, rare amounts of pyrite grains, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1750 – 1760	85-90	SHALE - medium grey, fissile to splintery, distinct cleavage development, minor amounts of slickensides, becoming less fractured over this interval, minor amounts of dark brown clay Fe stain concretion, occasional amounts of microfracturing to sealed / white cryptocrystalline calcite and dolomite, and rare amounts of silica spar, dolomitic throughout, rare amounts of pyrite grains, moderately indurated.
	10-15	MARLSTONE - medium to dark greyish brown, dolomitic, well indurated.
1760 – 1765	100	SHALE - medium grey, fissile to splintery, distinct cleavage development, abundant jointing to oblique to cleavage, abundant slickensides, very slightly dolomitic in part, occasional amounts of dark brown clay Fe stain concretion, rare amounts of microfracturing to sealed / white cryptocrystalline dolomite and anhydrite spar, moderately indurated.
1765 – 1770	100	SHALE - medium grey, minor amounts of light grey, fissile to splintery, distinct cleavage development, abundant jointing to oblique to cleavage, occasional slickensides, less fractured thin above interval, occasional amounts of dark brown clay Fe stain concretion, rare amounts of microfracturing to sealed / white and light grey cryptocrystalline dolomite and anhydrite spar, proportion of anhydrite spar increasing down sect, moderately indurated.
1770 – 1775	100	SHALE - light to medium grey, common dark grey, fissile and splintery, minor amounts of blocky, disseminated cleavage development, jointed throughout, rare slickensides, rare small scale microfracturing to sealed / cryptocrystalline anhydrite, rare crinoid skeletal detritus, rare glauconitic grains, rare pyrite grains, rare Fe concretion, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1775 – 1790	85	SHALE - light to medium grey, common dark grey, fissile and splintery, minor amounts of blocky, indistinct cleavage development, jointed throughout, rare slickensides, rare small scale microfracturing to sealed / cryptocrystalline anhydrite, rare crinoid skeletal detritus, rare glauconitic grains, rare pyrite grains, rare Fe concretion, moderately to well indurated.
	10	SANDSTONE - clear and off white, grading to light and m reddish brown, occasional amounts of medium to dark grey and dark greyish black in small part, upper very fine grained, minor amounts of lower fine grained, a, well sorted, consolidated, minor amounts of anhydritic clay matrix down sect, silica cement / assoc quartz overgrowth, rare pyrite cement, vitreous quartz, poor intergranular porosity, q amounts of dark greyish black and medium brown organic staining throughout, N shows.
	05	SILTSTONE - dark grey, grading to dark greyish black, quartzose, silica cement, frequent calcite cement down sect, very argillaceous, organic in small part to occasional amounts of black organic staining, well indurated.
1790 – 1800	85	SHALE - medium grey, grading to medium brown and m reddish brown, generally - as above, becoming ferruginous in large part, well indurated.
	05	MARLSTONE - dark grey, medium brown, grading to dark brownish black in part, calcareous, silty, well indurated.
	05	LIMESTONE - medium greyish brown, medium grey and medium brown, mudstone, cryptocrystalline, very silty, very argillaceous, no effective porosity, N shows.
	05	SILTSTONE - dark grey, grading to dark greyish black, quartzose, silica cement, frequent calcite cement down sect, very argillaceous, organic in small part to occasional amounts of black organic staining, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1800 – 1810	80	SHALE - medium grey, occasional light grey, fissile and splintery, generally as above, becoming less fractured in this interval, abundant amounts of light brown bentonitic calcareous claystone laminae throughout, rare amounts of pyrite grains, moderately indurated.
	10	LIMESTONE - medium to dark brown, occasional very light buff, mottled, bioclastic wackestone, cryptocrystalline, occasional microcrystalline, occasional crinoid and foram skeletal detritus, rare amounts of pelecypod skeletal detritus, silty, dolomitic in small part, argillaceous in part, arenaceous in part to floating lower fine size quartz grain dispersed throughout, very organic in part to common amounts of dark brown to black organic staining, no effective porosity, N shows.
	05	SANDSTONE - clear and off white, grading to light and m reddish brown, occasional amounts of medium to dark grey and dark greyish black in small part, upper very fine grained, minor amounts of lower fine grained, a, well sorted, consolidated, minor amounts of anhydritic clay matrix down sect, silica cement / assoc quartz overgrowth, rare pyrite cement, vitreous quartz, poor intergranular porosity, q amounts of dark greyish black and medium brown organic staining throughout, N shows.
	05	SILTSTONE - dark grey, grading to dark greyish black, quartzose, silica cement, frequent calcite cement down sect, very argillaceous, organic in small part to occasional amounts of black organic staining, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1810 – 1820	85	SHALE - medium grey, common dark grey, occasional amounts of light grey, fissile and splintery, distinct cleavage development, common jointing, fractured, occasional small scale microfracturing to sealed / anhydrite and calcite spar, minor amounts of pyrite fracture fill and pyrite granules, becoming slightly dolomite in part down sect, moderately indurated.
	05	SANDSTONE - off white to beige, minor very light brown, upper very fine to upper fine grained, subangular to subrounded, well sorted, consolidated, silica cement / assoc quartz overgrowth, rare pyrite cement, vitreous quartz, poor intergranular porosity, minor amounts of light brown patchy organic staining , quick dull yellow massive halo cut fluorescence.
	05	SILTSTONE - dark grey, grading to dark greyish black, quartzose, silica cement, frequent calcite cement down sect, very argillaceous, organic in small part to occasional amounts of black organic staining, well indurated.
	05	MARLSTONE - dark grey, medium brown, grading to dark brownish black in part, calcareous, silty, well indurated.
1820 – 1825	100	SHALE - medium grey, common dark grey, occasional amounts of light grey, fissile and splintery, distinct cleavage development, common jointing, fractured, occasional small scale microfracturing to sealed / anhydrite and calcite spar, minor amounts of pyrite fracture fill and pyrite granules, becoming slightly dolomite in part down sect, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1825 – 1830	100	SHALE - medium grey, common dark grey and minor dark greyish black, fissile and splintery, locally blocky, distinct cleavage development, common jointing oblique and perpendicular to cleavage, fractured, occasional small scale microfracturing to sealed / calcite spar, occasional clay Fe concretion, rare pyrite granules, becoming slightly dolomite in part, moderately indurated.
1830 – 1835	100	SHALE - medium grey, occasional amounts of dark brownish grey, generally as above, becoming very finely laminated / black organic matter in small part, rare amounts of slickensides, moderately indurated.
1835 – 1840	100	SHALE - medium grey, splintery and fissile, blocky in part, distinct cleavage development, common jointing oblique to cleavage, becoming incrngly jointed, fractured to minor amounts of clear to white very fine to m crystalline calcite and dolomite spar, crystal habit equant in small part, very slightly dolomitic, rare amounts of pyrite grains, moderately indurated.
1840 – 1845	100	SHALE - light and medium grey, splintery and fissile, blocky in part, distinct cleavage development, common jointing oblique to cleavage, generally as above, becoming incrngly dolomitic, less fractured thin above to occasional amounts of clear to white microcrystalline to very fine crystalline calcite and dolomite spar, crystal habit equant in small part, occasional amounts of clay Fe concretion, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1845 – 1850	100	SHALE - light and medium grey, splintery and fissile, blocky in part, distinct cleavage development, common jointing oblique to cleavage, generally as above, dolomitic in part, more fractured thin above to occasional amounts of clear to white very fine crystalline to coarse crystalline calcite and dolomite spar, crystal habit equant in small part, rare amounts of clay Fe concretion, moderately indurated.
1850 – 1860	100	SHALE - medium grey, minor medium brownish grey, occasional light grey, splintery and fissile, blocky in part, distinct cleavage development, common jointing oblique to cleavage, dolomitic in part to becoming less dolomitic down sect, fractured in small part to rare amounts of clear to white more recrystallized, calcite spar, rare slickensides, rare amounts of clay Fe concretion, rare pyrite grains, moderately indurated.
1860 – 1865	100	SHALE - light to medium grey, occasional dark brownish grey, subfissile to fissile, , generally as above, dolomitic in small part, occasional amounts of small scale microfracturing in small part to rare amounts of clear to white more recrystallized, calcite spar, occasional slickensides increase in proportion to above interval, rare amounts of clay Fe concretion, rare pyrite grains, moderately indurated.
1865 – 1870	100	SHALE - light to medium grey, occasional dark brownish grey, subfissile to fissile, minor blocky, generally as above, jointing increasing slightly in this interval, dolomitic in small part, occasional clay Fe concretion, rare amounts of small scale microfracturing in small part to rare amounts of clear to white microcrystalline calcite spar, silica spar, and rare amounts of pyrite veining, rare slickensides, rare pyrite grains, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1870 – 1880	100	SHALE - light to medium brownish grey, occasional amounts of dark grey, fissile, minor subfissile and blocky down sect, distinct cleavage development, common jointing oblique to cleavage, fractured in small part to occasional to rare amounts of clear to white microcrystalline calcite spar, occasional amounts of medium to coarse crystalline silica spar, crystal habit truncated, rare amounts of equant, rare slickensides, rare amounts of clay Fe concretion, rare disseminated pyrite, moderately indurated.
1880 – 1885	95	SHALE - medium grey, grading to medium brownish grey in part, fissile to subfissile, abundant blocky and splintery, generally as above, becoming incrngly jointed, increase in slickensides, fractures sealed / cryptocrystalline silica spar, well indurated.
	05	MARLSTONE - medium grey, grading to medium brown, dolomitic, well indurated.
1885 – 1895	100	SHALE - light brownish grey and medium grey, subfissile to blocky, splintery in part, indistinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, occasional amounts of clay Fe stain concretion, rare amounts of light brown claystone laminae, rare pyrite grains, moderately indurated.
1895 – 1900	100	SHALE - light grey, occasional amounts of medium grey, subfissile to blocky, fissile in part, indistinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, rare amounts of silica spar, rare amounts of clay Fe stain concretion, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1900 – 1905	100	SHALE - medium grey, occasional amounts of light grey, subfissile to fissile in part, indistinct cleavage development, jointed in small part to oblique to cleavage, occasional amounts of light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and silica spar, rare amounts of pyrite fractured fill, rare amounts of clay Fe stain concretion, moderately indurated.
1905 – 1920	85-90	SHALE - medium grey, grading to medium brownish grey, subfissile to fissile in part, indistinct cleavage development, jointed in small part to oblique to cleavage, common amounts of clay Fe stain concretion, locally becoming very siderite' to pervasive medium brown patchy siderite staining throughout (decrease in proportion down sect), occasional amounts of light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and silica spar, rare amounts of pyrite veining, moderately to well indurated.
	10-15	MARLSTONE - medium brown and medium brownish grey, dolomitic, common very fine scale microfracturing to sealed / white to light grey cryptocrystalline dolomite and silica spar, well indurated.
1920 – 1925	100	SHALE - light grey, grading to medium grey, subfissile to fissile in part, splintery in part, distinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / light grey cryptocrystalline calcite and dolomite spar, slightly dolomitic, occasional amounts of light brown and light grey bentonitic claystone laminae, rare amounts of medium brown clay Fe concretion, rare amounts of pyritized foram skeletal detritus, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1925 – 1935	100	SHALE - light to medium grey, subfissile to fissile in part, splintery in part, distinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / light grey cryptocrystalline calcite and dolomite spar, slightly dolomitic, occasional amounts of light brown and light grey bentonitic claystone laminae, rare amounts of medium brown clay Fe concretion, rare amounts of pyrite grains, moderately indurated.
1935 – 1945	90-95	SHALE - light to medium grey, subfissile to fissile in part, splintery in part, distinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / light grey cryptocrystalline calcite and dolomite spar, slightly dolomitic, occasional amounts of light brown and light grey bentonitic claystone laminae, rare amounts of medium brown clay Fe concretion, rare amounts of pyrite grains, moderately indurated.
	05-10	MARLSTONE - medium grey and medium brownish grey, dolomitic, well indurated.
1945 – 1955	90	SHALE - medium grey, subfissile to fissile in part, distinct cleavage development, jointed in small part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / light grey cryptocrystalline calcite and dolomite spar, slightly dolomitic, occasional amounts of light brown and light grey bentonitic claystone laminae, rare amounts of medium brown clay Fe concretion, rare amounts of pyrite grains, moderately indurated.
	10	MARLSTONE - medium brown, dolomitic, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1955 – 1970	80	SHALE - medium grey, subfissile, minor amounts of fissile in part, distinct cleavage development, locally jointed in part to oblique to cleavage, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and dolomite spar, slightly dolomitic, occasional amounts of medium brown clay Fe stain concretion, rare amounts of light brown and light grey bentonitic claystone laminae, rare amounts of medium brown clay Fe concretion, rare amounts of pyrite grains, moderately indurated.
	10	MARLSTONE - light brown, very earthy, very calcareous, common foram skeletal detritus, bentonitic, moderately indurated.
	10	SANDSTONE - off white to light brown and light tan in part, upper very fine to upper fine grained in part to grained size decreasing down sect, subangular to subrounded, well sorted, consolidated, silica cement, occasional amounts of pyrite cement, vitreous quartz, poor integrand porosity, occasional amounts of spotty medium to dark brown and black organic staining, N dry fluorescence, slightly pale yellowish white halo Cut fluorescence, pale yellowish white ring on spot plate after evaporation of solvent.
1970 – 1980	100	SHALE - medium grey, minor light grey, subfissile to fissile, distinct cleavage development, jointed in small part, fractured in part to occasional amounts of white cryptocrystalline calcite spar, dolomitic in part, becoming incrngly dolomitic down sect, rare amounts of light grey bentonitic claystone laminae, moderately indurated.
1980 – 1985	100	SHALE - medium grey, grading to medium brownish grey, subfissile to fissile, distinct cleavage development, jointed in small part, fractured in part to occasional amounts of white cryptocrystalline calcite spar, dolomitic, occasional amounts of clay Fe concretion, occasional amounts of light grey and light brown bentonitic claystone laminae, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1985 – 1990	100	SHALE - medium grey, grading to medium brownish grey, subfissile, indistinct cleavage development, generally as above, becoming more fractured in part to sealed / white cryptocrystalline calcite spar, dolomitic, increasing amounts of clay Fe concretion, moderately indurated.
1990 – 1995	100	SHALE - medium grey, grading to dark grey, subfissile, indistinct cleavage development, generally as above, dolomitic, increasing amounts of clay Fe concretion, moderately indurated.
1995 – 2000	100	SHALE - medium grey, subfissile, indistinct cleavage development, jointed in small part, exhibits increased fracturing in part to sealed / white cryptocrystalline calcite and light grey silica spar, dolomitic in part, occasional amounts of clay Fe concretion, moderately indurated.
2000 – 2005	90	SHALE - medium grey, subfissile, indistinct cleavage development, jointed in small part, rare small scale microfracturing to sealed / white cryptocrystalline calcite spar, dolomitic, occasional amounts of clay Fe concretion, moderately indurated.
	10	MARLSTONE - light grey, dolomitic, calcareous in part, well indurated.
2005 – 2010	90	SHALE - medium grey, subfissile and fissile, generally as above, dolomitic, rare amounts of clay Fe concretion, moderately indurated.
	10	MARLSTONE - light grey, dolomitic, calcareous in part, well indurated.
2010 – 2015	100	SHALE - medium grey, subfissile and blocky, indistinct cleavage development, becoming incrngly jointed and fractured to minor amounts of white to off white cryptocrystalline calcite spar, dolomitic, rare amounts of light greyish brown bentonitic claystone laminae, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2015 – 2025	90	SHALE - medium grey, as above, common pyrite grains and granules, fractered in small part to occasional amounts of white to off white cryptocrystalline calcite spar, rare amounts of fossil fragments, moderately indurated.
	10	MARLSTONE - medium grey, calcareous, well indurated.
2025 – 2030	100	SHALE - medium grey, subfissile, indistinct cleavage development, very calcareous throughout, rare amounts of clay Fe concretion, rare amounts of fossil fragments, moderately indurated.
2030 – 2035	90	SHALE - medium grey, subfissile, indistinct cleavage development, slightly calcareous, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, rare amounts of pyrite grains, moderately indurated.
	10	MARLSTONE - medium grey, occasional light grey and light brown, very calcareous, locally very arenaceous to floating upper very fine size a quartz grains dispersed throughout, well indurated.
2035 – 2040	90	SHALE - medium grey, subfissile and blocky, indistinct cleavage development, slightly calcareous, occasional amounts of microfracturing - as above, sealed / pyrite in part, rare amounts of light brown bentonitic claystone laminae, moderately indurated.
	10	MARLSTONE - medium grey, calcareous, well indurated.
2040 – 2050	90	SHALE - medium grey, subfissile, indistinct cleavage development, calcareous, occasional amounts of small scale microfracturing to sealed / white cryptocrystalline calcite and silica spar, moderately indurated.
	10	MARLSTONE - medium grey, occasional medium brown, calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2050 – 2055	90	SHALE - medium grey, subfissile and blocky, indistinct cleavage development, dolomitic, occasional amounts of small scale microfracturing to sealed / white cryptocrystalline spar, moderately indurated.
	10	MARLSTONE - medium grey, occasional medium brown, calcareous, well indurated.
2055 – 2060	100	SHALE - medium grey, subfissile to fissile, indistinct cleavage development, jointed in part, rare amounts of small scale microfracturing to sealed / white to light grey cryptocrystalline dolomite spar, fractured in small part to rare slickensides, occasional light brown bentonitic claystone laminae, moderately indurated.
2060 – 2070	90	SHALE - medium grey, subfissile to blocky, indistinct cleavage development, dolomitic, becoming calcareous down sect, rare amounts of small scale microfracturing to sealed / white to light grey cryptocrystalline dolomite spar, moderately indurated.
	10	MARLSTONE - medium grey, calcareous, becoming dolomitic down sect, arenaceous in small part to floating upper very size a frost quartz grains dispersed throughout, well indurated.
2070 – 2075	85	SHALE - medium grey, subfissile, indistinct cleavage development, dolomitic, rare amounts of small scale microfracturing to sealed / white to light grey cryptocrystalline dolomite spar, rare undifferentiated foram skeletal detritus, moderately indurated.
	15	MARLSTONE - medium grey, calcareous, becoming dolomitic down sect, arenaceous in small part to floating upper very fine size subangular frosted quartz grains dispersed throughout, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2075 – 2080	100	SHALE - medium grey, subfissile, indistinct cleavage development, dolomitic, rare amounts of small scale microfracturing to sealed / white to light grey cryptocrystalline dolomite spar, rare undifferentiated foram skeletal detritus, moderately indurated.
2080 – 2090	85	SHALE - medium grey, subfissile, indistinct cleavage development, dolomitic in part, rare amounts of small scale microfracturing to sealed / white to light grey cryptocrystalline dolomite spar, rare pyrite grains, moderately indurated.
	15	MARLSTONE - medium grey, calcareous, becoming dolomitic down sect, arenaceous in small part to floating upper very fine size subangular frosted quartz grains dispersed throughout, well indurated.
2090 – 2095	90	SHALE - medium grey, subfissile, common blocky, indistinct cleavage development, rare amounts of small scale microfracturing to sealed / white cryptocrystalline dolomite spar, rare disseminated pyrite and pyrite grains, rare clay Fe stain concretion, moderately indurated.
	10	MARLSTONE - medium grey, calcareous, becoming dolomitic down sect, arenaceous in small part to floating upper very fine size subangular frosted quartz grains dispersed throughout, well indurated.
2095 – 2100	90	SHALE - medium grey, subfissile, common blocky, indistinct cleavage development, rare amounts of small scale microfracturing to sealed / white cryptocrystalline dolomite spar, rare disseminated pyrite and pyrite grains, rare clay Fe stain concretion, moderately indurated.
	10	MARLSTONE – medium grey and medium brown, calcareous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2100 – 2105	80	SHALE - medium grey, subfissile to fissile, distinct cleavage development, rare amounts of small scale microfracturing to sealed / white cryptocrystalline dolomite spar, occasional clay Fe stain concretion, rare disseminated pyrite and pyrite grains, rare crinoid skeletal detritus, moderately indurated.
	10	MARLSTONE - medium grey and medium brown, calcareous, well indurated.
	10	SILICALTSTONE to medium grey, quartzose, silica and calcite cement, rare pyrite cement, well indurated.
2105 – 2115	90	SHALE - medium grey, subfissile to fissile, minor amounts of splintery and blocky, distinct cleavage development, jointed in part, minor amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, microfracturing increasing down sect, occasional pyrite grains and pyrite veining, rare clay Fe concretion, moderately indurated.
	10	SILTSTONE - medium grey, quartzose, silica and calcite cement, rare pyrite cement, well indurated.
2115 – 2120	100	SHALE - medium grey, grading to dark brownish grey and medium brown in part, subfissile, blocky in part, indistinct cleavage development, locally common amounts of small scale microfracturing to sealed / white cryptocrystalline to m crystalline calcite spar, common clay Fe stain concretion, becoming siderite' in part, moderately indurated.
2120 – 2125	100	SHALE - medium grey, grading to light grey in part, subfissile to fissile, splintery in part, distinct cleavage development, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, rare Fe stain concretion, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2125 – 2130	90	SHALE - medium grey, rare amounts of dark grey, subfissile and blocky, indistinct cleavage development, becoming slightly carbonaceous in very small part, rare amounts of pyritized foram skeletal detritus, moderately indurated.
	10	MARLSTONE - medium greyish brown, dolomitic, well indurated.
2130 – 2135	100	SHALE - medium grey, rare amounts of dark grey and dark greyish black, subfissile, common blocky, indistinct cleavage development, becoming slightly carbonaceous in small part, occasional amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, occasional amounts of pyrite grains to increasing / in this interval, moderately indurated.
2135 – 2140	90	SHALE - medium grey, grading to medium brownish grey, subfissile, minor fissile, distinct cleavage development, dolomitic in part, siderite' in part, occasional pyrite grains - as above, rare crinoid skeletal detritus, moderately indurated.
	05	MARLSTONE - medium greyish brown, dolomitic, well indurated.
2140 - 2150	95	SHALE - grey, grading to medium brownish grey, subfissile, minor fissile, indistinct cleavage development, fractured to sealed / white cryptocrystalline to fine crystalline anhedral calcite spar, rare amounts of very fine crystalline pyrite spar, dolomitic in part, siderite' in part, occasional pyrite grains and granules to increasing within this interval, moderately indurated.
	05	MARLSTONE - medium greyish brown, dolomitic, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2150 – 2160	100	SHALE - medium grey, occasional amounts of dark grey, subfissile, minor fissile, distinct cleavage development rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, rare amounts of disseminated pyrite, dolomitic in small part, moderately indurated.
UPPER DEVONIAN FIRST BLACK SHALE // EXSHAW		
2160 – 2170	85	SHALE - dark greyish black, minor amounts of medium to dark greyish brown, blocky and splintery, extensively fractured to open in small part, sealed / white cryptocrystalline ca, and clear medium to very coarse crystalline euhedral silica spar, occasional amounts of pyrite veining, very organic / carbonaceous and bituminous throughout, locally very siliceous in small part, slow pale yellow halo Cut fluorescence, moderately indurated.
	15	MARLSTONE - dark greyish brown grading to black, dolomitic, very silty, locally very pyritic, siliceous in part, very organic / bituminous throughout, well indurated.
2170 – 2175	100	SHALE - dark greyish black and medium brown, grading to medium greyish brown, subfissile to fissile, less fractured thin above, locally becoming very siderite' to common clay Fe stain concretion, occasional phosphate grain inclusions, occasional pyrite grains, organic / carbonaceous as above, well indurated.
2175 – 2180	100	SHALE - medium brown, grading to medium greyish brown, minor dark greyish black, subfissile, occasional amounts of fissile, distinct cleavage development, jointed in small part, locally very organic / carbonaceous, very siderite', occasional clay Fe stain concretion, pyritic in small part, minor pyrite grains and granules dispersed throughout, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2180 – 2190	100	SHALE - black, grading to dark greyish black, grading to dark greyish brown, subfissile and blocky, occasional amounts of fissile, distinct cleavage development, jointed in small part, locally very organic / carbonaceous / phosphatic in large part to common fine to m size r phosphate grains scattered throughout, siderite' in part, occasional clay Fe stain concretion, occasional pyrite grains and granules dispersed throughout, moderately to well indurated.
2190 – 2200	80	SHALE - black, grading to dark greyish black and medium greyish brown, subfissile and splintery, distinct cleavage development, jointed in small part, locally very organic / carbonaceous / phosphatic in large part to minor fine to m size r phosphate grains scattered throughout, bituminous in part, sideritic in part, occasional clay Fe stain concretion increasing in property down sect, occasional pyrite grains and granules dispersed throughout, rare light brown bentonitic claystone laminae, rare pyritized foram skeletal detritus, moderately to well indurated.
	20	SILTSTONE - white to light brown, grading to dark greyish black, quartzose, silica cement, rare phosphate grains, arenaceous to very fine size, common dark greyish black organic staining throughout, well indurated.
2200 – 2210	85	SHALE - dark grey, grading to dark brownish grey and dark greyish black, minor medium greyish brown, subfissile and splintery, distinct cleavage development, jointed in small part, locally organic / carbonaceous / phosphatic in part to occasional amounts of fine to m size r phosphate grains scattered throughout, bituminous in part, siderite' in part, occasional clay Fe stain concretion increasing in proportion down section, occasional pyrite grains and granules dispersed throughout, moderately to well indurated.
	15	SILTSTONE - medium brown, grading to dark greyish black, quartzose, silica cement, rare phosphate grains, arenaceous to very fine size, common medium brown and dark greyish black organic staining throughout, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2210 – 2215	80	SHALE - dark grey, grading to medium greyish brown and dark greyish black, subfissile and splintery, distinct cleavage development, jointed in small part, occasional amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, locally organic / carbonaceous / phosphatic in small part, locally very siderite' in part, minor clay Fe stain concretion, minor pyrite grains and granules dispersed throughout, moderately to well indurated.
	20	SILTSTONE - medium brown, grading to dark greyish black, quartzose, silica cement, rare phosphate grains, arenaceous to very fine size, common medium brown and dark greyish black organic staining throughout, well indurated.
2215 - 2225	85	SHALE - medium grey, common dark grey, occasional amounts of dark greyish black, subfissile, minor blocky, indistinct cleavage development, occasional amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar and silica spar, minor amounts of light grey and light brown bentonitic claystone laminae, occasional pyrite grains and granules, carbonaceous in part becoming increasing carbonaceous and phosphate down section, moderately indurated.
	15	SILTSTONE - medium brown, grading to medium greyish brown, quartzose, rare phosphate grains, occasional silica and siderite cement, very argillaceous, locally very bituminous, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2225 – 2235	80	SHALE - medium grey and dark greyish brown, grading down section to dark greyish black and black, subfissile, minor blocky, indistinct cleavage development, very organic in large part, very carbonaceous throughout, phosphate in large part, locally common amounts of medium brown clay Fe stain concretion throughout, occasional pyrite grains and granules to increase in proportion down section, moderately indurated.
	20	SILTSTONE - medium to dark greyish brown, quartzose, pyritic, very argillaceous, abundant medium to dark brown organic staining throughout, moderately indurated.
2235 – 2245	85	SHALE - dark greyish black and black, grading down section to medium and dark grey, subfissile, minor blocky, indistinct cleavage development, very organic in part, very carbonaceous in part, locally dolomitic down sect, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar, rare amounts of light to medium brown clay Fe stain concretion, rare amounts of pyrite grains and granules, moderately indurated.
	15	SILTSTONE - medium to dark greyish brown, quartzose, pyritic, very argillaceous, abundant medium to dark brown organic staining throughout, moderately indurated.
2245 – 2255	90	SHALE - dark greyish black and black, grading to m and dark grey, subfissile, minor fissile, distinct cleavage development, organic in part, very phosphate, carbonaceous in part, dolomite in part, occasional to minor amounts of medium to dark brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / white cryptocrystalline calcite spar and clear silica spar, locally very pyritic, minor amounts of pyrite grains and granules, rare amounts of pyritized crinoid skeletal detritus, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	SILTSTONE - dark greyish brown, grading to dark greyish black, quartzose, silica cement, very argillaceous, abundant dark brown to black organic staining throughout, well indurated.
2255 – 2260	85	SHALE - dark grey, grading to dark greyish black and black, minor amounts of medium grey, subfissile, minor fissile, distinct cleavage development, locally very bentonitic in part, organic in large part, very phosphate, very carbonaceous, dolomite in part, minor amounts of medium to dark brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / clear to white cryptocrystalline to coarse crystalline silica and calcite spar to encrusted / black bitumen in part, very pyritic, minor amounts of pyrite grains and granules, moderately to poorly indurated.
	15	SILTSTONE - dark greyish brown, grading to dark greyish black, quartzose, silica cement, very argillaceous, abundant dark brown to black organic staining throughout, well indurated.
2260 – 2265	100	SHALE - dark grey and dark greyish black, subfissile, indistinct cleavage development, organic in large part, very phosphate, very carbonaceous, bentonitic in part, minor amounts of light grey to m and dark brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / clear to white cryptocrystalline calcite spar to encrusted / black bitumen in part, very pyritic in part, minor amounts of pyrite grains and granules, moderately to poorly indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2265 – 2270	100	SHALE - dark grey, grading to dark greyish black, subfissile, minor amounts of blocky, indistinct cleavage development, organic in part, carbonaceous in part, occasional amounts of light grey to light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / clear to greyish white cryptocrystalline calcite and silica spar, pyritic in part, local common disseminated pyrite, minor amounts of pyrite grains and granules, moderately indurated.
2270 – 2275	100	SHALE - dark grey, subfissile, minor amounts of blocky, indistinct cleavage development, carbonaceous in small part, occasional amounts of light grey to light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / clear to greyish white cryptocrystalline silica spar, locally very pyritic in part, local common disseminated pyrite, minor amounts of pyrite grains and granules, moderately indurated.
2275 – 2285	100	SHALE - dark grey and dark greyish black, subfissile, minor amounts of fissile, distinct cleavage development, carbonaceous, minor to common amounts of light grey to light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / clear to light greyish white cryptocrystalline silica spar, locally pyrite in part, occasional disseminated pyrite, occasional amounts of pyrite grains and granules, moderately indurated.
2285 – 2290	100	SHALE - dark grey and dark greyish black, grading down sect to black, subfissile, rare amounts of fissile, indistinct cleavage development, carbonaceous to becoming incrngly carbonaceous down sect, minor amounts of light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / light greyish white cryptocrystalline calcite spar, pyrite in part, occasional disseminated pyrite, occasional amounts of pyrite grains and granules, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2290 – 2300	100	SHALE - dark grey and dark greyish black, subfissile, rare amounts of fissile, indistinct cleavage development, carbonaceous, locally becoming incrngly pyritic to common disseminated pyrite throughout, rare amounts of light brown bentonitic claystone laminae, rare amounts of small scale microfracturing to sealed / light greyish white cryptocrystalline calcite spar, rare pyrite grains and granules, moderately indurated.
2300 – 2305	100	SHALE - dark grey and dark greyish black, subfissile, rare amounts of fissile, indistinct cleavage development, carbonaceous, locally becoming moderately pyritic to common pyrite throughout, rare amounts of light brown bentonitic claystone laminae, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline calcite spar, rare pyrite grains and granules, moderately indurated.
2305 – 2315	95	SHALE - dark grey, grading to dark greyish black, subfissile, minor blocky and fissile, distinct cleavage development, carbonaceous, locally pyritic to occasional amounts of disseminated pyrite, rare amounts of small scale microfracturing - sealed with white cryptocrystalline calcite spar, rare pyrite grains and granules, moderately indurated.
	05	MARLSTONE - medium brown, dolomitic, siliceous in part, well indurated.
2315 – 2325	100	SHALE - black, blocky, minor subfissile, distinct cleavage development, jointed in part, very carbonaceous, locally phosphatic, locally organic in part, slightly increase in small scale microfracturing - sealed with light greyish white cryptocrystalline dolomite spar, locally very pyritic to common disseminated pyrite throughout, rare pyrite grains and granules, locally siliceous, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2325 – 2335	100	SHALE - black, subfissile and blocky, distinct cleavage development, jointed in part, very carbonaceous, locally phosphatic, locally organic in part, occasional amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline dolomite spar, locally very pyritic to common disseminated pyrite throughout, rare pyrite grains and granules, locally siliceous in small part, moderately to well indurated.
2335 – 2340	100	SHALE - dark greyish black, grading to dark grey in part, subfissile and blocky, distinct cleavage development, jointed in small part, locally pyritic to minor disseminated pyrite throughout, rare pyrite grains and granules, moderately indurated.
2340 – 2345	100	SHALE - dark grey and dark greyish black, subfissile and blocky, distinct cleavage development, jointed in part, locally pyritic in very small part to minor disseminated pyrite throughout, rare pyrite grains and granules, moderately indurated.
2345 – 2355	100	SHALE - black and dark greyish black, subfissile, minor blocky, distinct cleavage development, locally pyritic in part to minor disseminated pyrite throughout, rare pyrite grains and granules, pyrite increasing down section over interval, carbonaceous, organic, moderately indurated.
2355 – 2360	100	SHALE - black and dark greyish black, subfissile and blocky, indistinct cleavage development, rare amounts of small scale microfracturing - sealed with white cryptocrystalline calcite spar, moderately calcareous in part, locally pyritic in part to minor disseminated pyrite throughout, rare pyrite grains and granules, carbonaceous, locally siliceous in part, organic, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2360 - 2365	100	SHALE - dark greyish black, subfissile and blocky, indistinct cleavage development, generally as above, becoming increasingly siliceous in this interval, minor disseminated pyrite throughout, rare pyrite grains and granules, carbonaceous, organic, moderately to well indurated.
2365 – 2370	100	SHALE - black and dark greyish black, subfissile and blocky, indistinct cleavage development, locally pyritic in part to minor disseminated pyrite throughout, rare pyrite grains and granules, carbonaceous, locally siliceous in part, very organic in part, moderately to well indurated.
2370 – 2375	100	SHALE - black and dark greyish black, blocky, minor subfissile, indistinct cleavage development, locally pyritic in part to minor disseminated pyrite throughout, rare pyrite grains and granules, carbonaceous, locally very siliceous in part, organic in part, moderately to well indurated.
2375 – 2380	85	SHALE - black, blocky and subfissile, distinct cleavage development, pyritic in part to minor disseminated pyrite throughout, rare pyrite grains and granules, carbonaceous, locally very siliceous in part, phosphatic in part, organic in part, moderately to well indurated.
	15	MARLSTONE - dark greyish brown and black, calcareous, very siliceous, bituminous, well indurated.
2380 – 2385	95	SHALE - black, blocky, minor subfissile, indistinct cleavage development, extensively siliceous, carbonaceous and phosphatic in part, pyritic in part to as above, locally becoming bituminous, well indurated.
	05	SHALE to black to dark gray, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increase in calcite healed small scale microfractures, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2385 – 2390	100	SHALE - black, blocky and subfissile, fissile in part, distinct cleavage development, locally minor amounts of small scale microfracturing - sealed with calcite and siliceous spar, extensively siliceous, carbonaceous, locally bituminous and phosphatic, occasional disseminated pyrite and pyrite grains, well indurated.
2390 – 2400	100	SHALE - black, grading down section to dark greyish black, subfissile to blocky, generally as above, becoming increasingly carbonaceous, rare to occasional amounts of light brown bentonitic claystone laminae, extensively siliceous, decrease in pyrite, organic in part, well indurated.
2400 – 2405	100	SHALE - black, subfissile to blocky, indistinct cleavage development, carbonaceous, rare amounts of light brown bentonitic claystone laminae, extensively siliceous, rare pyrite grains, organic in part, well indurated.
2405 – 2410	100	SHALE - black, blocky, minor subfissile, indistinct cleavage development, carbonaceous, bituminous in part, rare slickensides, occasional amounts of light brown bentonitic claystone laminae, extensively siliceous, rare pyrite grains, organic in part, well indurated.
2410 – 2420	100	SHALE - black, subfissile and blocky, indistinct cleavage development, locally minor amounts of small scale microfracturing - sealed with white cryptocrystalline calcite spar and rare amounts of pyrite veining, locally very pyrite with disseminated pyrite, pyrite grains and pyrite granules, occasional amounts of pyritized sponge spicules down section, locally very siliceous to becoming increasingly siliceous down section, carbonaceous, phosphate in part, rare amounts of light brown bentonitic claystone laminae, organic, well indurated.
	trace	MARLSTONE - dark greyish brown, dark greyish black, microcrystalline, dolomitic, calcareous in part to becoming moderately calcareous down section, locally pyritic, very silty throughout, very bituminous, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2420 – 2430	100	SHALE - black, grading to dark greyish black and dark grey in part, subfissile and blocky, indistinct cleavage development, locally minor amounts of small scale microfracturing - sealed with white to light grey cryptocrystalline calcite and siliceous spar, rare amounts of pyrite veining, locally very pyrite with disseminated pyrite, locally very siliceous to becoming increasingly siliceous down section, carbonaceous, phosphate in large part, common amounts of light grey and light brown bentonitic claystone laminae, rare pyrite grains and granules, well indurated.
2430 – 2440	95	SHALE - black, blocky and subfissile, indistinct cleavage development, becoming very moderately calcareous, locally minor amounts of small scale microfracturing - sealed with white to light grey cryptocrystalline calcite and siliceous spar, rare slickensides, locally pyrite with disseminated pyrite, very siliceous throughout, carbonaceous, phosphatic in large part, minor amounts of light brown bentonitic claystone laminae, rare pyrite grains and granules, well indurated.
	05	MARLSTONE - dark greyish brown, dark greyish black, dolomitic, silty, pyritic in part, very bituminous, well indurated.
2440 – 2445	100	SHALE - black, blocky, minor subfissile, indistinct cleavage development, generally as above with an increase in proportion of pyrite in this interval, becoming increasingly organic throughout interval, moderately to well indurated.
2445 – 2450	100	SHALE - dark grey and dark greyish black, blocky, minor subfissile, indistinct cleavage development, generally as above, decreasing in proportion of pyrite in this interval, becoming less siliceous in this interval, very organic in this interval, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2450 – 2460	100	SHALE - black, occasional dark grey, blocky, minor subfissile, indistinct cleavage development, carbonaceous, phosphatic, locally very pyritic disseminated grains and granules scattered throughout to increasing in proportion down section, locally fractured in small part - sealed with light greyish white cryptocrystalline calcite spar and pyrite, siliceous in part, becoming increasingly organic, moderately to well indurated
2460 – 2467.5	100	SHALE - dark grey and black, subfissile and blocky, indistinct cleavage development, carbonaceous, phosphatic, becoming less siliceous than above interval, locally very pyritic disseminated grains and granules scattered throughout - increasing in proportion down section, minor amounts of light grey and light brown bentonitic claystone laminae throughout, locally fractured in small part - sealed with light greyish white cryptocrystalline calcite spar, siliceous in part, becoming less organic down section, moderately to well indurated.
2467.5 – 2470	100	SHALE - black, blocky, minor subfissile, indistinct cleavage development, carbonaceous, locally very pyritic to disseminated grains and granules scattered throughout, siliceous in small part, moderately to well indurated.
UPPER DEVONIAN LOWER BESA RIVER		
2470 – 2475	100	SHALE - medium grey, grading to medium brownish grey, subfissile to fissile, distinct cleavage development, very bentonitic, moderately indurated.
2475 – 2480	100	SHALE - medium grey, subfissile to fissile, distinct cleavage development, very bentonitic, rare pyrite grains and granules, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2480 – 2485	100	SHALE - medium grey, subfissile to blocky, indistinct cleavage development, slightly dolomitic, bentonitic in part, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline calcite spar, rare pyrite grains and granules, moderately indurated.
2485 – 2495	100	SHALE - medium grey, grading to medium brownish grey, subfissile, indistinct cleavage development, dolomitic, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline calcite spar, rare crinoid skeletal detritus, rare pyrite grains and granules, occasional amounts of light to moderately tan and medium greyish brown, earthy, cryptocrystalline calcareous dolomite and dolomitic marlstone laminae – fractured in part - sealed with cryptocrystalline anhydrite, then calcite spar, generally increasing in proportion down section, moderately to well indurated.
2495 – 2500	100	SHALE - medium grey, common amounts of light grey and light to moderately greenish grey, subfissile, blocky in part, indistinct cleavage development, dolomitic, siliceous in small part, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline dolomite spar, rare pyrite grains and granules, rare amounts of medium grey, earthy, cryptocrystalline, siliceous, dolomitic marlstone laminae, moderately to well indurated.
2500 – 2505	100	SHALE - medium grey, occasional light greenish grey, subfissile, minor blocky, generally as above, becoming increasingly siliceous, rare pyrite grains and granules, siliceous in large part, no effective porosity, no shows, well indurated.
2505 – 2510	100	SHALE - light and medium grey, subfissile, minor blocky, indistinct cleavage development, dolomitic in part, exhibits slight increase in small scale microfracturing - sealed with white cryptocrystalline calcite and dolomitic spar, rare grains and granules, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2510 – 2515	100	SHALE - medium grey, grading to dark grey in part, subfissile, minor blocky, indistinct cleavage development, dolomitic, becoming slightly more dolomitic than above, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline calcite and siliceous spar, rare grains and granules, siliceous in part, moderately indurated.
2515 – 2520	100	SHALE - black, subfissile, common blocky, carbonaceous, phosphatic in part, locally pyritic, very siliceous throughout, well indurated.
2520 – 2525	100	SHALE - medium grey, grading to medium brownish grey and blue in part, subfissile, minor blocky, indistinct cleavage development, dolomitic in part, rare amounts of small scale microfracturing - sealed with light greyish white cryptocrystalline calcite and siliceous spar, rare grains and granules, siliceous in part becoming increasingly siliceous down section, moderately to well indurated.
2525 – 2530	100	SHALE - black, subfissile, common blocky, carbonaceous, locally pyritic, very siliceous throughout, well indurated.
2530 – 2535	100	SHALE - dark grey and dark greyish black, subfissile, indistinct cleavage development, carbonaceous, phosphatic in part, siliceous in small part, organic, minor amounts of light grey and light brown bentonitic claystone laminae dispersed throughout, fractured in part - sealed with white cryptocrystalline to medium crystalline subhedral dolomitic spar, minor pyrite granules dispersed throughout, moderately indurated.
2535 – 2540	100	SHALE - moderately to dark grey, subfissile, occasional blocky, indistinct cleavage development, rare amounts of small scale microfracturing – as above, locally bentonitic, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2540 – 2545	100	SHALE - medium grey, grading to medium brownish grey, subfissile, splintery in part, indistinct cleavage development, locally very bentonitic, very slightly dolomitic, moderately indurated.
2545 – 2555	90	SHALE - medium grey to medium brownish grey, subfissile, as above, bentonitic in large part, moderately indurated.
	10	LIMESTONE - light to medium greyish tan, mudstone, lithographic, very siliceous, no effective porosity, no shows.
2555 – 2565	85	SHALE - medium grey, minor dark grey, occasional black, subfissile to blocky, dolomitic in part, very bentonitic in part to common medium grey bentonitic claystone laminae, rare pyrite grains, moderately indurated.
	15	LIMESTONE - medium greyish tan, mudstone, lithographic, very siliceous, no effective porosity, no shows.
2565 – 2570	100	SHALE - medium grey, minor dark grey, occasional medium brownish grey, subfissile, minor blocky, bentonitic, minor light grey and light brown bentonitic claystone laminae dispersed throughout, locally minor amounts of small scale microfracturing - sealed with cryptocrystalline to coarse crystalline calcite and siliceous spar, rare pyrite grains, moderately indurated.
2570 – 2580	100	SHALE - black, subfissile and blocky, siliceous throughout, pyritic in part, well indurated.
2580 – 2585	100	SHALE - medium grey, minor dark grey and dark brownish grey, subfissile, minor blocky, locally siliceous, pyritic in part, generally as above, slightly increase in pyrite grains, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2585 - 2590	100	SHALE - black, subfissile, minor blocky, very siliceous throughout, carbonaceous. locally very pyritic, well indurated.
2590 – 2595	100	SHALE - medium grey, common dark grey, grading to medium brownish grey in small part, subfissile, minor blocky, dolomitic in part, occasional amounts of light brown dolomitic claystone laminae and dolomitic marlstone laminae dispersed throughout, pyritic in part, bentonitic in part, rare pyrite grains, moderately indurated.
2595 – 2600	100	SHALE - moderately to dark grey, grading to dark greyish black in small part, distinct cleavage development, bentonitic in part, carbonaceous in part, minor amounts of light grey and light brown bentonitic claystone laminae, rare pyrite grains and granules, moderately indurated.
2600 – 2605	95	SHALE - moderately to dark grey, grading to dark greyish black in small part, generally as above, exhibits increasing microfracturing - sealed with white cryptocrystalline calcite spar, rare amounts of siliceous spar, moderately indurated.
	05	SILTSTONE - medium grey, quartzose, rare siliceous and calcite cement, very argillaceous, moderately indurated.
2605 - 2615	80-85	SHALE - black, subfissile to fissile, occasional small scale microfracturing - sealed with white to light and moderately brown cryptocrystalline to subhedral coarse crystalline siliceous and calcite spar with common organic staining, minor siliceous phosphate grains, occasional light greyish white and bluish grey chert nodules, rare amounts of pyrite inclusion and veining, very carbonaceous, organic, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	SANDSTONE - light brown to light greyish brown and black, consolidated, siliceous and rare pyrite cement, vitreous quartz, rare black phosphate grains, poor intergranular porosity to plugged with pyrobitumen, well indurated.
	05	SILTSTONE - medium grey, quartzose, rare siliceous and calcite cement, very argillaceous, moderately indurated.
2615 – 2620	100	SHALE - medium grey, grading to dark grey and medium greyish brown, subfissile and blocky, very bentonitic, rare pyrite grains, very organic, moderately indurated.
2620 – 2625	100	SHALE - medium greyish brown, blocky and subfissile, bentonitic, rare pyrite grains, very organic, moderately indurated.
2625 – 2630	90	SHALE - dark grey, grading to dark brownish grey and black, subfissile, very bentonitic, organic in large part, locally very siliceous to occasional amounts of light bluish grey chert grains and nodules, locally pyritic, well indurated.
	10	MARLSTONE - light brown, grading to medium greyish brown and off white, calcareous, fractured in part - sealed with white to light greyish white cryptocrystalline siliceous spar, well indurated.
2630 – 2635	85	SHALE - medium greyish brown and moderately brown, minor dark grey, subfissile, bentonitic, dolomitic, abundant pyrite grains and granules scattered throughout, moderately indurated.
	15	LIMESTONE with MARLSTONE - light to medium greyish brown and dark brown, mottled, mudstone, earthy, no effective porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2635 – 2640	80	SHALE - medium grey, common dark grey, blocky, minor subfissile, bentonitic, dolomitic siliceous in part, fractured in part - sealed with off white cryptocrystalline calcite and siliceous spar, rare pyrite grains, moderately to well indurated.
	20	SILTSTONE - medium grey, common dark grey, quartzose, calcite and siliceous cement, very argillaceous, moderately to well indurated.
2640 – 2650	75-80	SHALE - dark grey, minor amounts of medium grey, blocky, locally very silty, slightly calcareous, bentonitic in part, rare amounts of microfracturing - sealed with white cryptocrystalline calcite spar, moderately indurated
	20-25	SILTSTONE - medium grey, common dark grey, quartzose, calcite and siliceous cement, very argillaceous, moderately to well indurated.
2650 – 2660	80-85	SHALE - medium grey, grading to medium greyish brown, subfissile, minor blocky, indistinct cleavage development, calcareous to becoming increasingly calcareous down section, silty, siliceous in part, moderately to well indurated.
	15-20	MARLSTONE - medium greyish brown and light brown, very calcareous, very silty in part, siliceous in part to becoming increasingly siliceous down section, well indurated.
2660 – 2665	95	SHALE - medium grey, grading to medium brownish grey, subfissile, indistinct cleavage development, calcareous, silty, moderately indurated.
	05	MARLSTONE - medium greyish brown, very calcareous, very silty in part, moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2665 – 2670	90	SHALE - moderately to dark grey, occasional amounts of light grey, subfissile, minor blocky, silty in part, slightly calcareous, moderately indurated.
	10	MARLSTONE - medium greyish brown, very calcareous, very silty in part, moderately indurated.
2670 – 2675	85	SHALE - medium grey, grading to light grey, occasional dark grey, subfissile, indistinct cleavage development, bentonitic, silty in part, rare pyrite grains, moderately indurated.
	15	MARLSTONE - medium grey, grading to medium greyish brown, calcareous, silty, arenaceous in small part to floating upper very fine size subangular quartz, moderately indurated.
2675 – 2680	100	SHALE - medium grey, grading to medium greyish brown in part, subfissile, generally as above, becoming slightly dolomitic in small part, bentonitic, moderately indurated.
2680 – 2695	80	SHALE - light grey, occasional medium grey, subfissile, very bentonitic, anhydritic, moderately to poorly indurated.
	10-15	MARLSTONE - medium grey, grading to medium greyish brown, calcareous, becoming dolomitic and anhydritic down section, locally very silty, moderately indurated.
	trace-05	ANHYDRITE - off white to buff, occasional moderately reddish brown, very silty in large part, moderately indurated.
2695 – 2700	100	SHALE - moderately to dark grey, subfissile, bentonitic, abundant moderately to dark brown bentonitic claystone laminae throughout, rare amounts of floating cubic pyrite grains scattered throughout, moderately to poorly indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2700 – 2705	100	SHALE - medium grey, trace light grey, subfissile, bentonitic in small part, anhydritic in part, moderately to well indurated.
2705 – 2710	65	SHALE - medium grey, occasional light grey, rare amounts of dark grey, subfissile to fissile, bentonitic, slightly dolomitic moderately indurated.
	35	SHALE - black, grading to dark greyish black, subfissile, carbonaceous, siliceous, well indurated.
2710 – 2715	100	SHALE - dark grey, subfissile, becoming increasingly dolomitic over this interval, bentonitic in part, moderately indurated.
2715 – 2720	100	SHALE - medium grey, minor dark grey and occasional light grey, subfissile, minor fissile, bentonitic in part, dolomitic in part, rare pyrite grains, moderately indurated.
2720 – 2725	95	SHALE - medium grey, subfissile, dolomitic to becoming increasingly dolomitic over this interval, bentonitic in part, rare pyrite grains, moderately indurated.
	05	CHERT - black, upper moderately to lower very coarse size angular fragments, well indurated.
2725 – 2730	90	SHALE - medium grey, occasional amounts of dark grey, subfissile, slightly dolomitic, bentonitic, rare pyrite grains, moderately indurated.
	10	CHERT - black, lower coarse to upper very coarse and granule size angular fragments, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2730 – 2735	90	SHALE - dark grey, minor medium grey, subfissile, dolomitic in part, bentonitic to occasional light grey and light brown bentonitic claystone laminae, moderately indurated.
	10	MARLSTONE - medium grey and medium greyish brown, calcareous, silty, moderately indurated.
	trace	CHERT - black, lower coarse to upper very coarse and granule size angular fragments, well indurated.
2735 – 2740	90	SHALE - medium grey, minor amounts of dark grey, blocky and subfissile, locally very silty, siliceous in large part, bentonitic in small part, moderately to well indurated.
	10	MARLSTONE - medium grey, very calcareous, silty, well indurated.
2740 – 2745	95	SHALE - medium grey, subfissile, very bentonitic, common amounts of light grey bentonitic claystone laminae dispersed throughout, moderately indurated.
	05	CHERT - dark grey and black, lower moderately to upper very coarse size angular fragments, well indurated.
2745 – 2750	95	SHALE - medium grey, subfissile, bentonitic, occasional amounts of light grey bentonitic claystone laminae dispersed throughout, moderately indurated.
	05	MARLSTONE - medium greyish brown, calcareous, silty, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2750 – 2760	70-75	SHALE - moderately to dark grey, subfissile, bentonitic, occasional amounts of light grey bentonitic claystone laminae dispersed throughout, slightly calcareous, moderately indurated.
	15	MARLSTONE - medium to dark greyish brown, very calcareous, bituminous, well indurated.
	10-15	LIMESTONE - dark brown, grading to dark brownish grey, earthy to microcrystalline, mudstone, very bituminous throughout, very argillaceous, no effective porosity, slow dull yellow halo cut fluorescence.
2760 – 2770	90-95	SHALE - moderately to dark grey to brownish grey, subfissile to blocky, very calcareous grading to marlstone, occasional limestone stringers, rare white sparry fracture lining, locally siliceous, dolomitic in part, minor bentonitic, scattered pyrite crystals, well to moderately indurated, occasionally brittle.
	05-10	LIMESTONE - dark greyish brown, dense mudstone, cryptocrystalline to microcrystalline, slightly to very argillaceous – minor marlstone, minor silty, bituminous in part, no effective porosity, no shows.
2770 – 2780	100	SHALE - dark grey to medium grey to brownish grey, occasional slightly waxy texture, subfissile to minor flaky, common bentonitic to claystone laminae, calcareous to dolomitic, decrease in proportion of marlstone to limestone stringers and fracture fill, minor bituminous, moderately indurated to firm.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2780 – 2790	75-80	SHALE - medium to dark grey, subfissile to tabular, bentonitic to claystone laminae, dolomitic to very calcareous, occasional siliceous to rare chert nodules, slightly silty, well indurated to locally soft.
	10-15	LIMESTONE - dark grey to greyish brown, dense, mudstone, cryptocrystalline to microcrystalline, generally very argillaceous to very argillaceous, frequently grading to marlstone, increase in calcite spar healed fracture and microfractures, trace disseminated pyrite, no effective porosity, no shows.
	05-10	SILTSTONE - light to medium grey, slightly calcareous to dolomitic to part, argillaceous, siliceous cement, well consolidated.
2790 – 2810	85-90	SHALE - dark grey, minor medium grey to brownish, blocky to occasional fissile, very fine texture, calcareous to dolomitic, occasional marlstone to limestone stringers, siliceous in part, very bentonitic, occasional to common pyrite replaced fossil remains, generally well indurated.
	10-15	LIMESTONE with MARLSTONE – medium to dark grey, occasional light grey, microcrystalline, minor cryptocrystalline, argillaceous throughout – frequent marlstone, silty in part, minor bituminous, trace fossil debris, rare disseminated pyrite, scattered sparry white calcite fracture long, no effective porosity.
2810 – 2815	90	SHALE - dark grey, minor medium grey to brownish, blocky to occasional fissile, very fine texture, calcareous to dolomitic, occasional marlstone and limestone stringers, siliceous in part, very bentonitic occasional to common, minor pyrite replaced fossil remains, generally well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	MARLSTONE - medium to dark grey to greyish brown, dolomitic to calcareous, occasional anhydrite – cream to tan and stained reddish brown in part, chalky to earthy, silty in part, moderately soft, occasional limestone stringers, dense, argillaceous, trace pyrite.
2815 – 2840	80-85	SHALE - medium to dark grey to brownish, blocky to subfissile, dolomitic to calcareous, part siliceous, slightly silty to occasional siltstone stringers, very bentonitic to claystone laminae, rare occluded microfractures, well to moderately indurated.
	05-10	LIMESTONE - dark to very dark grey, dense, microcrystalline to cryptocrystalline, dolomitic, argillaceous, grading to marlstone in large part, locally silty, minor disseminated pyrite, minor fossil debris, bituminous throughout out, no effective porosity, no shows.
	05-10	SILTSTONE - light to medium greyish brown becoming dark grey to black with dead oil staining, dolomitic and siliceous cement, locally calcareous, argillaceous, occasional very fine grained arenaceous, minor calcareous flakes, spotty to commonly bituminous throughout.
	trace-05	MARLSTONE - medium to dark grey, minor brownish grey, dolomitic, common silty, moderately indurated to firm.
2840 – 2860	90	SHALE - medium grey to slightly brownish, decrease dark grey, sub blocky, dolomitic to occasional siliceous, locally grading to marlstone, minor silty, common bentonitic to numerous claystone laminae, rare calcite fossil remains and fracture lining, moderately indurated to soft.
	05	SILTSTONE - mottled dark to very light grey, well cemented with dolomite and siliceous, locally calcareous, slightly to very argillaceous, very fine grained arenaceous in small part, occasional to minor spotty to saturated dead oil stain , well consolidated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05	MARLSTONE - medium to dark grey to greyish brown, dolomitic, silty in part, well to moderately consolidated.
2860 – 2870	80-85	SHALE - medium to dark grey, subfissile, dolomitic to minor calcareous, part siliceous, occasional silty, slightly to very bentonitic with common clay laminae, minor carbonaceous, moderately to well indurated.
	15-20	SILTSTONE - dark to light grey, dolomitic and siliceous cement, frequently argillaceous, minor very fine grained arenaceous, minor disseminated pyrite, common bitumen – dark organic matter, well consolidated.
2870 – 2890	80-85	SHALE - dark grey, minor medium brownish grey, tabular to slightly flaky, dolomitic to calcareous, siliceous in part, numerous siltstone stringers, very bentonitic, rare calcite and siliceous healed microfractures, well to moderately consolidated.
	10	SILTSTONE - dark grey to black, minor mottled medium grey, quartzose to dolomitic, calcareous in part, argillaceous, occasional very fine grained arenaceous, common bitumen to carbonaceous, well consolidated.
	05-10	MARLSTONE - medium to dark grey to greyish brown, dolomitic, silty in part, well to moderately consolidated.
2890 – 2900	80-85	SHALE - dark grey to minor medium grey, fissile to blocky, dolomitic to siliceous, locally bentonitic, common silty, slightly carbonaceous, occasionally moderately indurated to brittle.
	15-20	SILTSTONE - mottled dark grey to off white, dolomitic to calcareous, occasional quartzose, argillaceous to clay matrix in part, spotty to saturated dead oil staining, trace disseminated pyrite, well consolidated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2900 – 2910	90	SHALE - dark to medium grey, fissile to minor flaky, very fine texture, siliceous to dolomitic, part bentonitic to claystone laminae, silty in part, occasional carbonaceous, moderately indurated.
	10	SILTSTONE - dark grey black, dolomitic to quartzose, minor calcareous, very argillaceous, abundant bitumen and dark organic debris, well consolidated.
2910 – 2915	100	SHALE - very dark grey to greyish black, fissile to occasional platy, part blocky, siliceous, decrease dolomitic, minor bentonitic, locally silty, carbonaceous, moderately indurated to brittle.
2915 – 2925	100	SHALE - black to very dark grey, slightly earthy, blocky to subfissile, occasional platy cleavage, siliceous to dolomitic, minor scattered white calcareous fossil remains to fracture linings, minor disseminated to nodular pyrite, moderately indurated to soft.
2925 – 2935	100	SHALE - black, grading to dark greyish black, blocky, dolomitic to calcareous, minor marlstone, rare silty, moderately indurated to friable, part black, fissile to subfissile, siliceous to rare cherty, very carbonaceous to bituminous, minor pyrite, rare slickensides, hard, brittle.
2935 – 2945	85-90	SHALE - very dark grey to black, rare amounts dark brownish, slightly earthy to minor waxy, subfissile, dolomitic to calcareous, siliceous in part, common carbonaceous to organic detritus, locally silty, moderately indurated.
	10-15	MARLSTONE - dark greyish black, blocky, very calcareous to dolomitic, frequently silty to siltstone stringers, carbonaceous to bituminous, minor disseminated pyrite, rare healed microfractures, well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2945 – 2955	90-95	SHALE - dark greyish black to black, blocky, siliceous to dolomitic, decrease marlstone laminae, occasionally silty, very carbonaceous, increasingly pyritic – disseminated and nodules, moderately to well indurated.
	05-10	MARLSTONE - black to dark greyish black, blocky, calcareous to dolomitic, carbonaceous to bituminous, rare silty, minor pyrite, moderately indurated to hard.

MIDDLE DEVONIAN
SECOND BLACK SHALE // HORN RIVER

2955 – 2970	100	SHALE - black to very dark greyish black, blocky to slightly fissile, siliceous, locally dolomitic, very carbonaceous to petroliferous, slightly phosphatic, trace white speckled – recrystallized skeletal debris, scattered pyrite, generally hard, brittle.
2970 – 2980	100	SHALE - black to minor dark greyish black, blocky to subfissile, occasional platy cleavage, very siliceous to cherty, occasional dolomitic, carbonaceous to bituminous, slightly pyritic, well to moderately indurated.
2980 – 2985	100	SHALE - black to dark greyish black, blocky to minor fissile, siliceous grading to argillaceous chert, locally dolomitic to rare marlstone stringers, abundant carbonaceous to organic material, rare quartz and calcite crystals – healed microfractures, generally hard.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2985 – 2995	75 – 80	SHALE - black to dark grey, blocky to slightly platy, siliceous to dolomitic, locally calcareous to marlstone stringers, very carbonaceous, occasionally pyritic disseminated and nodules, minor microfractures, well to moderately indurated.
	10-15	MARLSTONE - black to dark grey to speckled white, very calcareous to numerous recrystallized calcareous and dolomitic forams, pyritic in part, carbonaceous, firm.
	10	LIMESTONE - mottled off white to grey to black, dense, cryptocrystalline, minor fossils, slightly to very argillaceous with scattered black shale partings, occasional carbonaceous, slightly pyritic, no effective porosity, no shows.
2995 – 3005	100	SHALE - black to dark grey, blocky to slightly platy, siliceous to dolomitic, locally very calcareous to limestone stringers, very carbonaceous, occasional pyritic disseminated to nodules, minor microfractures, well to moderately indurated.
3005 – 3015	100	SHALE - black to very dark grey, blocky to subfissile, very fine texture to slightly earthy, frequently siliceous, occasional dolomitic to calcareous to common marlstone, moderately, organic rich, minor disseminated pyrite, generally firm, minor friable.
3015 – 3030	75-80	SHALE - black to dark grey as above, blocky to occasional platy, siliceous to dolomitic, occasional calcareous to minor white calcareous fossil remains, occasional calcite and quartz fracture fill, pyritic in part, rare slickensides, well to moderately indurated.
	20-25	MARLSTONE - black to dark grey to speckled white, very calcareous to numerous recrystallized calcite and dolomitic foram and fossil remains, pyritic in part, carbonaceous, firm.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3030 – 3040	70-75	SHALE - black, blocky to minor fissile, part siliceous to slightly cherty, part dolomitic to calcareous to grading to marlstone, very carbonaceous to bituminous, occasional pyrite, minor fossil debris, hard brittle to locally moderately soft, friable.
	25-30	MARLSTONE - black to dark grey to speckled white, very calcareous to numerous recrystallized calcite and dolomitic forams – fossil remains, pyritic in part, carbonaceous, firm.
3040 – 3060	85-90	SHALE - black to dark grey, occasional speckled white, blocky, becoming increasingly calcareous to common marlstone, scattered recrystallized calcite fossil and forams, increase in calcite healed microfractures, carbonaceous to bituminous, well indurated.
	10-15	MARLSTONE - very dark to light grey, occasional speckled white, calcareous to minor dense argillaceous Limestone stringers, dolomitic in part, carbonaceous, occasional fossil debris, well indurated.
3060 – 3075	70-75	SHALE - black to dark grey, generally blocky, very calcareous to dolomitic, locally siliceous, organic rich, minor dis pyrite, moderately to well indurated.
	25-30	MARLSTONE - black to medium grey, occasional white specks, calcareous to minor dense argillaceous Limestone stringers, dolomitic in part, carbonaceous, occasional foram to skellital remains, slightly silty, well indurated.
3075 – 3085	100	SHALE - black to dark grey, blocky to subfissile, calcareous to dolomitic, occasional siliceous, very carbonaceous to bituminous, moderately, slightly phosphatic, occasional dis to nodules' pyrite, minor calcite fill microfractures, moderately to well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3085 – 3095	70-75	SHALE - black to dark grey with a, occasional slightly waxy, blocky to minor platy, very calcareous to dolomitic, minor siliceous, moderately, carbonaceous to bituminous, minor slickenside, well indurated.
	25	MARLSTONE - slightly mottled black to medium grey to speckled white, calcareous gdg argillaceous Limestone in part, occasional dolomitic,, locally fossiliferous, carbonaceous, minor pyritic, increase microfracture sealed with calcite, dolomitic and minor quartz,
	trace-05	LIMESTONE - light to moderately brown to greyish, dense to occasional bioclast, crystalline to mycrostalline, argillaceous in part, slightly dolomitic, spotty d oil to carbonaceous specks, no effective porosity.
3095 – 3105	70-75	SHALE - black to greyish black, blocky to minor fissile, generally very calcareous with interbedded marlstone, occasional dolomitic, minor siliceous, very organ rich, moderatly, minor dissiminated pyrite, well indurated.
	25-30	MARLSTONE - mottled black to grey to white specks with calcareous to argillaceous limestone interbeds, scattered foram and skeletal debris, very carbonaceous, occasional pyrite nodules, occasional healed microfracture.
3105 – 3130	55-65	SHALE - black to dark greyish black, blocky to subfissile, calcareous to limey, occasional dolomitic, very carbonaceous to minor coal partings, increase pyrite nodules, phosphatic in part, increase small scale fracture, well to moderately indurated.
	30	MARLSTONE - black to mottled grey, minor white specks, calcareous to dolomitic, minor Limestone stringers dense to slightly bioclast, carbonaceous to bituminous, very well indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05-15	LIMESTONE with MARLSTONE to mottled black to grey to speckled white, mudstone to biotitic wackestone, crystalline to mycrocrstyalline, argillaceous to marly, frequent dark organic debris, minor microfractures, no effective porosity.
3130 – 3140	55	SHALE - black to dark grey, blocky to minor spltintery, moderately, slightly to very calcareous, locally dolomitic to siliceous, carbonaceous to bituminous, rare disseminated pyrite, well indurated.
	45	MARLSTONE - mottled black to grey to spotty white with a decrease Limestone interbeds, very calcareous to dolomitic, very carbonaceous, rare tentaculites, rare slickenside, well indurated.
MIDDLE DEVONIAN NAHANNI		
3140 – 3145	65	MARLSTONE - mottled black to grey to spotty white with a decrease in Limestone interbeds, very calcareous to dolomitic, very carbonaceous, rare Tenticulites, rare slickenside, well indurated.
	30	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increasing calcite heal small fracture, well to moderately indurated.
	05	DOLOMITE - mottled white to black, generally fine to moderately x, minor very fine to microcrystalline matrix with abundant coarse to very coarse x dolomitic rhombs to occasional vitreous quartz to rare chert clasts to recrystallized fossil (Crinoid) to possible occasional vuggy and fracture fill, spotty to frequent pyrobitumen - interstitial to partings to styolite, poor to occasional fair intercrystalline to pinpoint porosity, generally bitumen plugged, possible fracture to small vuggy porosity, no fluorescence or cut.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3145 – 3147	75	MARLSTONE - mottled black to grey to spotty white with a, decrease limestone interbeds, very calcareous to dolomitic, very carbonaceous, rare tentaculites, rare slickensides, well indurated.
	15	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increasing calcite healed small fractures, well to moderately indurated.
	10	DOLOMITE - mottled white to black, generally fine to medium crystalline, minor very fine to microcrystalline matrix with abundant coarse to very coarse crystalline dolomite rhombs to occasional vitreous quartz to rare chert clasts to recrystallized fossil (Crinoid) to possible occasional vuggy and fracture fill, spotty to freq pyrobitumen interstitial to partings to styolite, poor to occasional fair intercrystalline to pinpoint porosity, generally bitumen plugged, possible fracture to small vuggy porosity, no fluorescence or cut.
3147		END OF 311.2 mm INTERMEDIATE HOLE INTERMEDIATE CASING at 3147.0 m KB

FINAL HOLE

3147 – 3160	100	DOLOMITE - part mottled light to dark grey to black, fine to crystalline, occasional medium crystalline, common pyrobitumen, rare moderately calcareous, part white sparry coarse to very coarse crystalline, hydrothermally altered, minor vitreous quartz prisms, poor to streaky fair intercrystalline porosity, possible vuggy to fracture porosity in part.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3160 – 3170	100	DOLOMITE - white to mottled light and dark grey, dense to fragmental, fine to crystalline to medium crystalline, locally common coarse crystalline rhombs, frequent white to opaque dolomite spar – recrystallized clasts - fossil fragments to void fill, minor drusy vug lining, slightly calcareous, trace pyrite, common spotty pyrobitumen to styolite, minor fair intercrystalline and pinpoint porosity, inferred vuggy to fracture porosity.
3170 – 3180	100	DOLOMITE - light to dark grey to spotty white, dense crystalline to fine to occasional medium crystalline matrix, slightly increase pyrobitumen and black shaley laminae and partings, varying amounts white sparry dolomite clasts to indistinct fossil remains, predominantly poor to minor fair intercrystalline porosity, possible vuggy to fracture porosity in part.
3180 – 3190	100	DOLOMITE - mottled white to light and dark grey, generally fine to medium crystalline, occasional coarse crystalline to very fine crystalline, common well developed coarse dolomite rhombs - recrystallized void fill, abundant pyrobitumen – interstitial and partings, minor vitreous quartz, trace selenite crystals, slightly argillaceous in small part, poor to occasional fair pinpoint and intercrystalline porosity, bitumen plugging in part, rare healed microfractures, possible vuggy porosity.
3190 – 3200	100	DOLOMITE - white to light and dark grey, generally as above, very fine crystalline to medium crystalline, frequent white hydrothermally altered coarse crystalline dolomite spar, minor fossil (ghost) remains - possible crinoid, slightly calcareous in part, trace chlorite and pyrite, spotty dead oil stain and bituminous partings, generally poor to locally fair intercrystalline porosity, inferred fracture to vuggy porosity part.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3200 – 3210	100	DOLOMITE - mottled white to light and dark grey, dense to fragmental, fine to medium crystalline, locally crystalline to very fine crystalline, increase white to clear to opaque coarse sparry dolomite rhombs – recrystallized clasts to void fill, slight increase vitreous quartz grains, common pyrobitumen specks to laminae, poor to occasional fair intercrystalline porosity, probable vuggy to fracture porosity in part.
3210 – 3220	100	DOLOMITE - light to dark grey, fine to medium crystalline matrix, common dead oil stain to styolite with frequent floating coarse crystalline white recrystallized dolomite spar - clasts to indistinct fossil remains, slightly calcareous, trace pyrite, predominantly poor to streaky fair intercrystalline to pinpoint porosity, inferred vuggy to fracture porosity, minor small scale healed fracture visible.
3220 – 3230	100	DOLOMITE - mottled white to light and dark grey as above, slight increase in crystallinity – predominantly medium crystalline matrix, locally - decrease in sparry dolomite rhombs, abundant pyrobitumen – interstitial to partings, minor vitreous quartz prisms, poor to occasional fair intercrystalline to pinpoint porosity, bitumen plug in part, probable vuggy to fracture porosity.
3230 – 3240	100	DOLOMITE - light to dark grey to black to white, dense to fragmental, microcrystalline to fine crystalline, occasional crystalline to locally medium crystalline, common coarse to very dolomite spar to occasional quartz crystals, frequent dead oil staining, occasional slightly black bituminous shaley laminae and stylolites, poor intercrystalline porosity, minor pinpoint to vuggy porosity, occasional healed microfractures to possible fracture porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3240 – 3250	100	DOLOMITE - mottled white to light and dark grey as above, matrix predominantly microcrystalline to very fine crystalline, decrease fine to medium crystalline, common white to clear coarse sparry dolomite - recrystallized fossil fragment to void fill to minor drusy lining, increasing pyrobitumen, minor black bituminous shale inclusions, very poor to poor intercrystalline porosity, occasional pinpoint to small vuggy porosity, inferred fracture porosity.
3250 – 3260	100	DOLOMITE - light to dark to minor black, decrease in white, increasingly dense, coarse crystalline to very fine crystalline, locally fine to medium crystalline, decrease white coarse dolomite spar, scattered indistinct fossil remains, possible crinoid and brachiopods, abundant pyrobitumen to organic debris, occasionally slightly calcareous, minor quartz and chert, rare silty, poor intercrystalline porosity, occasional pinpoint to vuggy porosity, minor visible microfractures and possible fracture porosity.
3260 – 3270	100	DOLOMITE - light to dark grey, occasional white as above, generally dense, coarse crystalline to fine crystalline, occasional medium crystalline, occasional floating recrystallized dolomite clasts, frequent pyrobitumen to bituminous laminae and styolite, minor black waxy shale interbeds, trace disseminated pyrite, poor intercrystalline to pinpoint porosity, minor small vuggy and fracture porosity.
3270 – 3280	100	DOLOMITE - mottled light to dark grey to white, part dense, coarse crystalline to fine crystalline, increase in medium and coarse crystalline, increasing fossil remnants - common white to translucent dolospar, siliceous in part with clear quartz to dark chert, occasional to abundant pyrobitumen specks and partings, poor to occasional fair intercrystalline to pinpoint porosity, part bitumen plugging, inferred vuggy to fracture porosity – commonly occluded.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3280 – 3290	100	DOLOMITE - white to grey to black as above, generally very fine to fine and medium crystalline, locally cryptocrystalline to microcrystalline, common coarse to very coarse recrystallized sparry dolomite - void fill, occasional vitreous quartz to grey chert fragments, slightly calcareous, common pyrobituminous material and styolids, poor intercrystalline porosity, scattered pinpoint to small vugs with drusy calcareous and dolomite lining, and locally bitumen coated, increase in healed microfractures, possibly brecciated.
3290 – 3300	100	DOLOMITE - mottled light to dark grey to black to white, mainly dense, fine to cryptocrystalline to occasional medium crystalline matrix, locally fragmental with white to clear coarse crystalline dolospar, occasional fossil ghost, common pyrobitumen specks and partings, rare vitreous carbonaceous fragments, minor quartz to chert, trace disseminated pyrite, poor intercrystalline porosity, inferred minor vuggy to fracture porosity.
3300 – 3315	100	DOLOMITE - white to grey to black as above, rare light brownish grey, increasingly fragmental, fine to medium crystalline, occasional very fine crystalline, common coarse to very coarse crystalline white sparry dolomite clasts to void fill, frequent pyrobitumen to organic detritus, minor siliceous, trace chlorite, moderately calcareous, poor to minor fair intercrystalline to pinpoint porosity, probable increase in vuggy and fracture porosity.
3315 - 3325	90-95	DOLOMITE - white to grey to black as above, rare light brownish grey, increasingly fragmental, fine to medium crystalline, occasional very fine to coarse crystalline, common very coarse crystalline white sparry dolomite clasts and void fill, frequent pyrobitumen and organic detritus, minor siliceous, trace chlorite and moderately calcareous, poor to minor fair intercrystalline and pinpoint porosity, possible increase in vuggy and fracture porosity.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	05-10	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increasing calcite healed small fractures, well to moderately indurated.
3325 – 3330	100	DOLOMITE - mottled white to grey as above, increase in white, minor black, predominantly fragmental with dense interbeds, increase in very coarse to medium crystalline, locally fine to coarse crystalline, abundant white to clear to opaque dolomite rhombs, calcite and quartz crystals, occasional indistinct fossil remains, possible brachiopod to coral, minor chert, slightly argillaceous to bituminous shaley laminae to thin interbeds, minor calcareous, trace disseminated pyrite, minor intercrystalline to pinpoint porosity, inferred increase in vuggy and fracture porosity occluded to occasionally open.
3330 – 3335	95	DOLOMITE - mottled white to grey as above, increase in white, minor black, predominantly fragmental with dense interbeds, increase in very coarse to medium crystalline, locally fine to medium crystalline, abundant white to clear to opaque dolomite, calcite and quartz crystals to occasional indistinct fossil remains, possible brachiopod and coral, minor chert, slightly argillaceous, bituminous shaley laminae present, minor calcareous, trace disseminated pyrite, minor intercrystalline to pinpoint porosity, inferred increase in vuggy and fracture porosity occluded to occasionally open.
	05	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increasing calcite heal small fracture, well to moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3335 – 3345	100	DOLOMITE - white to light and dark grey to black, bioclastic to minor wackestone, very coarse to medium crystalline, locally fine to medium crystalline, minor coarse crystalline, common dolospar void fill to linings, scattered fossil ghosts, calcareous in part, minor siliceous, slightly silty in part, common pyrobitumen to dark organic debris, generally poor intercrystalline porosity, possible streaky vuggy to fracture porosity.
3345 – 3355	100	DOLOMITE - mottled white to grey to black as above, dense to fragmental, part fine crystalline with very coarse to medium crystalline, hydrothermally altered sparry dolomite - occasional calcite, replaced fossils, minor vitreous quartz prisms, rare chert, slightly calcareous, common dark organic residue to minor stylolites, dead oil staining, poor to rare fair intercrystalline porosity, minor vuggy to fracture porosity.
3355 – 3360	95	DOLOMITE - white to light and dark grey to black, mottled to banded, medium to very coarse crystalline, locally fine to microcrystalline, minor coarse crystalline, abundant white to opaque dolospar - recrystallized clasts to void fill, minor drusy linings, common organic impurities to pyrobitumen specks to partings, slightly argillaceous to black shaley laminae to thin interbeds, poor intercrystalline porosity, occasional visible healed microfractures to breccia, inferred vuggy to fracture porosity in part.
	05	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increasing calcite heal small fracture, well to moderately indurated.

DAX Consulting Ltd.

CDN FOREST et al NORTH LIARD N 61 60-40-123-30

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
3360 – 3375	90-95	DOLOMITE - mottled white to grey to black as above, part bioclastic with abundant sparry dolomite and calcite replaced fossil fragments - void fill, very coarse to fine crystalline, locally increasing light grey, dense microcrystalline mudstone to minor wackestone, silty in part, common organic detritus - minor styolite, occasionally siliceous with scattered vitreous to subvitreous quartz and minor grey chert fragments, slightly calcareous, slightly argillaceous to minor shaley laminae, minor intercrystalline to pinpoint porosity, possible vuggy to fracture porosity, common occluded.
	05-10	SHALE - black to dark grey, blocky to minor fissile, very calcareous to dolomitic, minor siliceous, organic rich, scattered fossil remains, minor pyrite crystals, increase in calcite healed small fractures, well to moderately indurated.
3375 – 3380	100	DOLOMITE - white to light and dark grey to black, fragmental with very coarse to fine crystalline, frequent white to clear dolospar to minor calcite rhombs – recrystallized clasts to occluded veining – healed fractures, part dense, fine to microcrystalline, minor medium crystalline matrix, common organic residue to pyrobitumen, trace pyrite, generally poor intercrystalline porosity, inferred vuggy to fracture porosity in part.
3380 – 3384		NO SAMPLE - MUD LOSSES ENCOUNTERED – PUMP LCM PILL
3384		**TOTAL DEPTH**

ADDENDUM A – VERTICAL AND DIRECTIONAL SURVEY RECORD

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
0.00	0.00	000.00	0.00	610.70	0.00	0.00	0.00	000.00	0.00	0.00	0.00
185.00	0.00	000.00	185.00	425.70	0.00	0.00	0.00	000.00	0.00	0.00	0.00
193.00	0.60	043.00	193.00	417.70	0.03	0.03	0.04	043.00	0.04	0.60	2.25
300.00	1.10	048.00	299.99	310.71	1.13	1.17	1.63	046.15	1.49	0.50	0.14
395.00	2.00	036.00	394.95	215.75	3.08	2.83	4.18	042.55	3.70	0.95	0.30
501.00	2.20	037.00	500.88	109.82	6.20	5.14	8.05	039.65	6.93	0.20	0.06
597.00	2.00	049.00	596.82	13.88	8.77	7.51	11.55	040.57	10.04	0.48	0.15
701.00	2.00	041.00	700.75	-90.05	11.33	10.07	15.16	041.63	13.31	0.28	0.08
752.00	1.80	047.00	751.73	-141.03	12.55	11.24	16.85	041.85	14.83	0.28	0.17
767.00	1.70	053.00	766.72	-156.02	12.84	11.59	17.30	042.06	15.26	0.21	0.42
777.00	1.80	047.00	776.71	-166.01	13.04	11.82	17.60	042.20	15.54	0.21	0.63
788.00	2.10	053.00	787.71	-177.01	13.28	12.11	17.97	042.37	15.89	0.36	0.99
797.00	2.30	056.00	796.70	-186.00	13.48	12.39	18.31	042.60	16.23	0.23	0.77
806.00	2.40	055.00	805.69	-194.99	13.69	12.70	18.67	042.85	16.58	0.11	0.36
816.00	2.30	053.00	815.69	-204.99	13.93	13.03	19.07	043.09	16.98	0.13	0.39
823.00	2.60	057.00	822.68	-211.98	14.10	13.27	19.37	043.27	17.27	0.35	1.48
833.00	2.80	060.00	832.67	-221.97	14.35	13.68	19.82	043.63	17.73	0.24	0.73
842.00	2.80	057.00	841.66	-230.96	14.58	14.05	20.24	043.95	18.16	0.15	0.49
852.00	2.60	062.00	851.65	-240.95	14.82	14.46	20.70	044.30	18.62	0.31	0.93
861.00	3.00	055.00	860.64	-249.94	15.05	14.83	21.13	044.58	19.05	0.53	1.75
871.00	3.30	052.00	870.62	-259.92	15.37	15.27	21.67	044.81	19.57	0.34	1.03
881.00	3.30	056.00	880.60	-269.90	15.71	15.74	22.24	045.04	20.13	0.23	0.69
890.00	3.30	057.00	889.59	-278.89	16.00	16.17	22.74	045.30	20.63	0.06	0.19
900.00	3.30	056.00	899.57	-288.87	16.32	16.65	23.31	045.58	21.19	0.06	0.17
910.00	3.70	060.00	909.55	-298.85	16.64	17.17	23.90	045.89	21.79	0.47	1.41

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
919.00	3.80	053.00	918.53	-307.83	16.96	17.65	24.48	046.15	22.36	0.47	1.56
939.00	3.70	057.00	938.49	-327.79	17.71	18.73	25.78	046.59	23.62	0.28	0.42
958.00	3.70	057.00	957.45	-346.75	18.38	19.75	26.98	047.06	24.81	0.00	0.00
978.00	4.30	055.00	977.40	-366.70	19.16	20.91	28.36	047.50	26.16	0.62	0.92
987.00	4.50	053.00	986.38	-375.68	19.57	21.47	29.05	047.65	26.83	0.25	0.84
997.00	4.50	051.00	996.35	-385.65	20.05	22.09	29.83	047.77	27.57	0.16	0.47
1016.00	5.10	053.00	1015.28	-404.58	21.03	23.34	31.42	047.98	29.08	0.62	0.98
1026.00	5.10	050.00	1025.24	-414.54	21.58	24.03	32.30	048.08	29.92	0.27	0.80
1044.00	5.40	054.00	1043.16	-432.46	22.59	25.33	33.94	048.27	31.49	0.47	0.79
1064.00	5.80	050.00	1063.07	-452.37	23.80	26.87	35.89	048.47	33.34	0.56	0.84
1084.00	6.10	051.00	1082.96	-472.26	25.11	28.47	37.96	048.58	35.29	0.32	0.48
1103.00	6.20	049.00	1101.85	-491.15	26.42	30.03	40.00	048.65	37.20	0.24	0.37
1122.00	6.40	051.00	1120.74	-510.04	27.76	31.62	42.08	048.72	39.16	0.30	0.47
1131.00	6.30	049.00	1129.68	-518.98	28.40	32.39	43.08	048.75	40.09	0.24	0.81
1151.00	6.30	055.00	1149.56	-538.86	29.75	34.11	45.26	048.91	42.18	0.66	0.99
1160.00	6.10	051.00	1158.51	-547.81	30.34	34.89	46.23	048.99	43.10	0.48	1.59
1169.00	6.00	056.00	1167.46	-556.76	30.90	35.65	47.18	049.08	44.01	0.54	1.79
1179.00	5.80	055.00	1177.41	-566.71	31.48	36.50	48.20	049.22	45.01	0.22	0.67
1190.00	5.90	057.00	1188.35	-577.65	32.11	37.43	49.31	049.38	46.09	0.23	0.62
1218.00	5.70	053.00	1216.20	-605.50	33.73	39.75	52.13	049.68	48.82	0.45	0.48
1234.00	5.80	056.00	1232.12	-621.42	34.66	41.05	53.73	049.83	50.36	0.32	0.59
1247.00	5.40	059.00	1245.06	-634.36	35.34	42.12	54.98	050.00	51.60	0.50	1.14
1267.00	5.80	057.00	1264.97	-654.27	36.38	43.77	56.92	050.27	53.51	0.45	0.67
1277.00	5.80	056.00	1274.92	-664.22	36.93	44.62	57.92	050.38	54.49	0.10	0.30
1297.00	5.80	061.00	1294.81	-684.11	37.99	46.34	59.92	050.65	56.47	0.51	0.76

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
1319.00	6.00	063.00	1316.70	-706.00	39.05	48.33	62.14	051.07	58.71	0.29	0.39
1329.00	5.60	063.00	1326.65	-715.95	39.51	49.24	63.13	051.25	59.71	0.40	1.20
1347.00	5.70	067.00	1344.56	-733.86	40.26	50.84	64.85	051.63	61.47	0.41	0.68
1357.00	5.40	066.00	1354.51	-743.81	40.64	51.73	65.78	051.84	62.44	0.32	0.95
1367.00	5.40	063.00	1364.47	-753.77	41.05	52.58	66.70	052.02	63.37	0.28	0.85
1378.00	6.50	064.00	1375.41	-764.71	41.56	53.60	67.82	052.21	64.51	1.10	3.01
1386.00	6.60	061.00	1383.36	-772.66	41.98	54.41	68.72	052.35	65.41	0.36	1.34
1396.00	6.20	061.00	1393.29	-782.59	42.52	55.38	69.82	052.49	66.51	0.40	1.20
1405.00	6.00	057.00	1402.24	-791.54	43.01	56.20	70.77	052.57	67.45	0.47	1.57
1414.00	6.30	065.00	1411.19	-800.49	43.47	57.04	71.72	052.69	68.40	0.91	3.02
1424.00	5.40	063.00	1421.14	-810.44	43.92	57.96	72.72	052.85	69.41	0.92	2.77
1434.00	5.80	054.00	1431.09	-820.39	44.43	58.79	73.69	052.92	70.36	0.96	2.89
1443.00	7.30	059.00	1440.03	-829.33	44.99	59.65	74.71	052.97	71.36	1.60	5.34
1453.00	7.70	056.00	1449.95	-839.25	45.69	60.75	76.01	053.05	72.63	0.56	1.68
1462.00	7.60	060.00	1458.87	-848.17	46.33	61.76	77.21	053.13	73.80	0.54	1.81
1472.00	8.00	058.00	1468.77	-858.07	47.03	62.92	78.56	053.23	75.13	0.48	1.45
1482.00	8.30	057.00	1478.67	-867.97	47.79	64.12	79.97	053.30	76.52	0.33	1.00
1492.00	8.30	056.00	1488.57	-877.87	48.59	65.32	81.41	053.36	77.92	0.14	0.43
1501.00	8.80	057.00	1497.47	-886.77	49.32	66.44	82.75	053.41	79.22	0.52	1.74
1511.00	8.70	056.00	1507.35	-896.65	50.16	67.71	84.27	053.47	80.70	0.18	0.55
1521.00	9.40	059.00	1517.23	-906.53	51.01	69.03	85.83	053.54	82.23	0.84	2.53
1530.00	9.10	058.00	1526.11	-915.41	51.76	70.27	87.28	053.62	83.65	0.34	1.13
1535.00	9.20	057.40	1531.05	-920.35	52.19	70.94	88.07	053.66	84.42	0.14	0.83
1544.20	9.10	057.40	1540.13	-929.43	52.98	72.17	89.53	053.72	85.85	0.10	0.33
1554.20	9.00	058.00	1550.00	-939.30	53.82	73.50	91.10	053.79	87.39	0.14	0.41

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
1563.60	9.00	058.20	1559.29	-948.59	54.59	74.75	92.56	053.86	88.82	0.03	0.10
1572.70	8.60	058.80	1568.28	-957.58	55.32	75.94	93.95	053.93	90.19	0.41	1.35
1582.90	8.40	058.00	1578.37	-967.67	56.11	77.22	95.46	054.00	91.66	0.23	0.68
1592.60	8.40	059.30	1587.97	-977.27	56.85	78.43	96.87	054.06	93.05	0.19	0.59
1601.60	8.40	059.80	1596.87	-986.17	57.51	79.57	98.18	054.14	94.34	0.07	0.24
1612.10	8.40	059.50	1607.26	-996.56	58.29	80.89	99.70	054.22	95.85	0.04	0.13
1621.90	8.10	058.70	1616.96	-1006.26	59.01	82.10	101.10	054.29	97.23	0.32	0.98
1630.50	7.80	059.30	1625.47	-1014.77	59.62	83.12	102.29	054.35	98.40	0.31	1.09
1640.10	7.60	058.40	1634.99	-1024.29	60.29	84.22	103.57	054.40	99.66	0.23	0.73
1649.40	7.20	058.70	1644.21	-1033.51	60.91	85.24	104.77	054.45	100.83	0.40	1.30
1658.10	6.80	059.70	1652.84	-1042.14	61.46	86.15	105.82	054.50	101.87	0.42	1.44
1668.10	6.60	059.20	1662.78	-1052.08	62.05	87.15	106.99	054.55	103.02	0.21	0.62
1678.30	6.30	061.10	1672.91	-1062.21	62.62	88.15	108.13	054.61	104.15	0.37	1.08
1687.60	5.90	063.20	1682.16	-1071.46	63.08	89.02	109.11	054.68	105.13	0.46	1.48
1696.90	5.90	062.90	1691.41	-1080.71	63.52	89.87	110.05	054.75	106.07	0.03	0.10
1706.90	6.20	065.00	1701.35	-1090.65	63.98	90.82	111.09	054.84	107.12	0.37	1.12
1716.60	6.20	066.00	1711.00	-1100.30	64.41	91.77	112.12	054.94	108.17	0.11	0.33
1725.90	6.00	065.80	1720.24	-1109.54	64.82	92.67	113.09	055.03	109.15	0.20	0.65
1736.10	5.60	066.70	1730.39	-1119.69	65.23	93.62	114.10	055.13	110.18	0.41	1.21
1745.40	5.30	065.60	1739.65	-1128.95	65.59	94.43	114.97	055.22	111.06	0.32	1.02
1755.00	5.10	064.10	1749.21	-1138.51	65.96	95.21	115.83	055.29	111.93	0.24	0.76
1764.60	5.10	063.70	1758.77	-1148.07	66.33	95.98	116.67	055.35	112.78	0.04	0.11
1774.20	5.10	060.20	1768.33	-1157.63	66.74	96.73	117.52	055.40	113.62	0.31	0.97
1783.70	5.00	061.30	1777.80	-1167.10	67.14	97.46	118.35	055.44	114.44	0.14	0.44
1793.20	4.90	061.60	1787.26	-1176.56	67.54	98.18	119.17	055.48	115.25	0.10	0.33

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
1802.80	4.50	064.80	1796.83	-1186.13	67.89	98.88	119.95	055.53	116.03	0.48	1.49
1812.60	4.30	067.00	1806.60	-1195.90	68.20	99.57	120.69	055.59	116.78	0.26	0.80
1822.20	4.00	072.30	1816.18	-1205.48	68.44	100.22	121.36	055.67	117.48	0.49	1.52
1831.70	3.60	075.10	1825.65	-1214.95	68.62	100.82	121.96	055.76	118.11	0.44	1.39
1841.20	3.40	074.90	1835.14	-1224.44	68.77	101.38	122.51	055.85	118.68	0.20	0.63
1850.30	3.60	072.50	1844.22	-1233.52	68.92	101.92	123.04	055.93	119.24	0.25	0.82
1860.00	4.10	068.30	1853.90	-1243.20	69.14	102.53	123.67	056.00	119.89	0.57	1.77
1869.80	4.70	065.20	1863.67	-1252.97	69.44	103.22	124.40	056.07	120.64	0.65	1.98
1879.40	5.20	063.60	1873.23	-1262.53	69.80	103.97	125.22	056.12	121.46	0.52	1.62
1889.10	5.50	062.50	1882.89	-1272.19	70.21	104.77	126.12	056.17	122.36	0.32	0.98
1898.80	5.60	061.90	1892.55	-1281.85	70.65	105.60	127.06	056.22	123.29	0.12	0.36
1908.50	5.60	059.50	1902.20	-1291.50	71.11	106.43	128.00	056.25	124.22	0.23	0.72
1918.20	5.60	059.00	1911.85	-1301.15	71.60	107.24	128.94	056.27	125.15	0.05	0.15
1927.60	5.40	063.60	1921.21	-1310.51	72.03	108.03	129.84	056.31	126.04	0.48	1.54
1937.10	5.60	069.30	1930.67	-1319.97	72.39	108.86	130.74	056.38	126.95	0.58	1.84
1946.60	5.70	072.90	1940.12	-1329.42	72.69	109.75	131.64	056.48	127.88	0.37	1.16
1956.20	5.40	075.30	1949.67	-1338.97	72.95	110.64	132.53	056.60	128.81	0.38	1.19
1965.80	4.70	076.90	1959.24	-1348.54	73.15	111.46	133.32	056.72	129.65	0.71	2.23
1976.00	3.90	077.90	1969.41	-1358.71	73.32	112.21	134.04	056.84	130.41	0.80	2.36
1985.20	3.40	079.70	1978.59	-1367.89	73.43	112.78	134.58	056.93	130.99	0.51	1.67
1994.50	3.10	081.80	1987.87	-1377.17	73.52	113.30	135.06	057.02	131.51	0.32	1.04
2004.00	2.50	085.80	1997.36	-1386.66	73.57	113.76	135.48	057.11	131.96	0.63	1.99
2013.60	2.00	087.30	2006.96	-1396.26	73.59	114.14	135.81	057.19	132.32	0.50	1.57
2022.40	2.10	084.80	2015.75	-1405.05	73.62	114.45	136.08	057.25	132.62	0.13	0.46
2032.70	2.40	080.50	2026.04	-1415.34	73.67	114.85	136.45	057.32	133.02	0.34	1.00

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
2041.70	2.40	073.70	2035.03	-1424.33	73.75	115.22	136.80	057.38	133.39	0.28	0.95
2052.00	2.60	067.60	2045.32	-1434.62	73.90	115.64	137.24	057.42	133.84	0.33	0.97
2060.70	2.60	065.40	2054.02	-1443.32	74.06	116.01	137.63	057.45	134.23	0.10	0.34
2072.60	2.30	060.70	2065.91	-1455.21	74.29	116.46	138.14	057.47	134.74	0.36	0.91
2082.10	1.80	069.40	2075.40	-1464.70	74.43	116.76	138.47	057.48	135.08	0.59	1.86
2091.60	1.70	087.50	2084.89	-1474.19	74.49	117.05	138.74	057.53	135.36	0.56	1.77
2101.00	1.70	105.20	2094.29	-1483.59	74.46	117.32	138.95	057.60	135.61	0.52	1.67
2110.40	1.90	110.90	2103.69	-1492.99	74.37	117.60	139.14	057.69	135.84	0.27	0.86
2120.00	1.60	129.60	2113.28	-1502.58	74.23	117.85	139.28	057.80	136.03	0.64	2.00
2129.20	1.70	122.80	2122.48	-1511.78	74.07	118.06	139.38	057.90	136.18	0.22	0.72
2138.60	1.70	136.60	2131.87	-1521.17	73.90	118.28	139.46	058.00	136.32	0.41	1.30
2148.00	1.50	165.60	2141.27	-1530.57	73.68	118.40	139.45	058.11	136.36	0.82	2.63
2157.60	1.60	186.90	2150.87	-1540.17	73.42	118.42	139.33	058.20	136.29	0.58	1.82
2167.30	1.70	193.80	2160.56	-1549.86	73.15	118.40	139.17	058.29	136.18	0.80	1.25
2176.90	1.60	197.90	2170.16	-1559.46	72.89	118.32	138.97	058.37	136.02	0.15	0.48
2186.60	1.20	203.20	2179.86	-1569.16	72.66	118.24	138.79	058.43	135.87	0.42	1.30
2196.30	0.80	206.30	2189.55	-1578.85	72.51	118.17	138.64	058.47	135.75	0.40	1.25
2205.80	0.60	206.60	2199.05	-1588.35	72.41	118.12	138.55	058.49	135.66	0.20	0.63
2215.40	0.50	208.00	2208.65	-1597.95	72.32	118.08	138.47	058.51	135.60	0.10	0.32
2225.10	0.50	192.70	2218.35	-1607.65	72.25	118.05	138.40	058.53	135.54	0.13	0.41
2234.80	0.50	191.90	2228.05	-1617.35	72.16	118.03	138.34	058.56	135.50	0.01	0.02
2244.60	0.50	201.70	2237.85	-1627.15	72.08	118.01	138.28	058.58	135.45	0.09	0.26
2254.10	0.50	194.50	2247.35	-1636.65	72.00	117.98	138.22	058.60	135.40	0.06	0.20
2263.80	0.40	195.40	2257.05	-1646.35	71.93	117.96	138.16	058.63	135.35	0.10	0.31
2273.40	0.40	169.50	2266.65	-1655.95	71.86	117.96	138.13	058.65	135.33	0.18	0.56
2282.90	0.40	168.20	2276.15	-1665.45	71.80	117.97	138.10	058.67	135.32	0.01	0.03

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
2292.60	0.30	126.00	2285.85	-1675.15	71.75	118.00	138.10	058.70	135.33	0.27	0.83
2302.20	0.40	117.00	2295.45	-1684.75	71.72	118.05	138.13	058.72	135.36	0.11	0.36
2311.50	0.50	112.90	2304.75	-1694.05	71.69	118.11	138.17	058.74	135.42	0.10	0.34
2321.10	0.40	083.10	2314.35	-1703.65	71.68	118.19	138.22	058.76	135.48	0.25	0.78
2330.50	0.50	068.70	2323.75	-1713.05	71.70	118.26	138.29	058.77	135.55	0.15	0.48
2339.90	0.70	062.90	2333.15	-1722.45	71.74	118.35	138.39	058.78	135.65	0.21	0.67
2349.30	1.00	058.60	2342.55	-1731.85	71.81	118.47	138.53	058.78	135.79	0.31	0.98
2358.90	0.80	065.40	2352.15	-1741.45	71.88	118.60	138.68	058.78	135.94	0.23	0.71
2368.10	1.00	067.00	2361.35	-1750.65	71.94	118.73	138.82	058.79	136.08	0.20	0.66
2377.70	0.80	061.20	2370.94	-1760.24	72.00	118.87	138.97	058.80	136.23	0.22	0.69
2387.30	0.70	055.10	2380.54	-1769.84	72.07	118.98	139.10	058.80	136.35	0.13	0.40
2396.70	0.80	052.00	2389.94	-1779.24	72.14	119.07	139.22	058.79	136.47	0.11	0.34
2406.30	0.90	033.70	2399.54	-1788.84	72.24	119.17	139.36	058.77	136.60	0.29	0.90
2415.30	1.00	027.10	2408.54	-1797.84	72.37	119.25	139.49	058.75	136.71	0.43	0.70
2424.90	1.20	023.10	2418.14	-1807.44	72.53	119.33	139.64	058.71	136.84	0.21	0.67
2434.30	1.10	024.90	2427.54	-1816.84	72.70	119.40	139.80	058.66	136.97	0.11	0.34
2444.00	0.40	031.80	2437.24	-1826.54	72.82	119.46	139.91	058.64	137.07	0.70	2.18
2453.70	0.40	156.40	2446.94	-1836.24	72.82	119.49	139.93	058.64	137.09	0.71	2.19
2463.00	0.80	185.10	2456.24	-1845.54	72.72	119.50	139.89	058.68	137.07	0.49	1.58
2472.60	0.90	182.60	2465.83	-1855.13	72.58	119.49	139.81	058.73	137.01	0.11	0.33
2482.30	1.00	198.50	2475.53	-1864.83	72.42	119.46	139.70	058.77	136.93	0.28	0.87
2491.90	0.90	202.80	2485.13	-1874.43	72.27	119.40	139.57	058.81	136.83	0.12	0.38
2501.60	0.80	188.90	2494.83	-1884.13	72.14	119.36	139.47	058.85	136.74	0.23	0.71
2511.30	0.60	180.30	2504.53	-1893.83	72.02	119.35	139.40	058.89	136.69	0.23	0.70
2520.40	0.40	171.60	2513.63	-1902.93	71.94	119.36	139.36	058.92	136.67	0.21	0.70
2529.80	0.50	162.80	2523.03	-1912.33	71.87	119.38	139.34	058.95	136.66	0.12	0.39

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
2539.40	0.40	146.50	2532.63	-1921.93	71.80	119.41	139.33	058.98	136.67	0.16	0.50
2548.90	0.30	186.50	2542.13	-1931.43	71.75	119.42	139.32	059.00	136.67	0.26	0.81
2558.00	0.30	143.00	2551.23	-1940.53	71.71	119.43	139.31	059.02	136.66	0.22	0.73
2569.30	0.10	157.60	2562.53	-1951.83	71.67	119.45	139.31	059.04	136.67	0.20	0.54
2578.70	0.30	187.80	2571.93	-1961.23	71.64	119.45	139.29	059.05	136.66	0.22	0.70
2588.10	0.20	195.00	2581.33	-1970.63	71.60	119.45	139.26	059.06	136.64	0.10	0.33
2597.80	0.20	332.10	2591.03	-1980.33	71.60	119.43	139.25	059.06	136.63	0.37	1.15
2607.30	0.10	120.00	2600.53	-1989.83	71.61	119.43	139.26	059.05	136.63	0.29	0.91
2616.90	0.20	310.00	2610.13	-1999.43	71.62	119.43	139.26	059.05	136.63	0.30	0.93
2626.40	0.10	313.70	2619.63	-2008.93	71.63	119.41	139.25	059.04	136.62	0.10	0.32
2636.10	0.30	009.60	2629.33	-2018.63	71.66	119.41	139.26	059.03	136.62	0.26	0.80
2645.60	0.10	346.40	2638.83	-2028.13	71.70	119.41	139.28	059.02	136.64	0.21	0.67
2655.20	0.30	052.20	2648.43	-2037.73	71.72	119.43	139.31	059.01	136.66	0.27	0.86
2664.80	0.30	058.70	2658.03	-2047.33	71.74	119.45	139.34	059.01	136.69	0.29	0.45
2674.50	0.30	079.90	2667.73	-2057.03	71.76	119.50	139.39	059.02	136.74	0.11	0.34
2683.50	0.40	042.90	2676.73	-2066.03	71.78	119.54	139.44	059.02	136.79	0.24	0.81
2693.00	0.10	073.90	2686.23	-2075.53	71.81	119.57	139.48	059.01	136.83	0.32	1.01
2702.60	0.40	046.60	2695.83	-2085.13	71.84	119.60	139.52	059.01	136.87	0.31	0.98
2711.70	0.10	053.80	2704.93	-2094.23	71.86	119.63	139.56	059.01	136.90	0.30	0.99
2721.30	0.20	018.70	2714.53	-2103.83	71.88	119.65	139.58	059.00	136.92	0.13	0.41
2730.90	0.10	080.80	2724.13	-2113.43	71.90	119.66	139.60	059.00	136.94	0.18	0.55
2740.20	0.30	075.20	2733.43	-2122.73	71.91	119.69	139.63	059.00	136.97	0.20	0.65
2749.80	0.40	039.80	2743.03	-2132.33	71.94	119.74	139.69	059.00	137.03	0.23	0.73
2759.40	0.40	015.90	2752.63	-2141.93	72.00	119.77	139.74	058.99	137.07	0.17	0.52
2767.90	0.50	023.40	2761.13	-2150.43	72.06	119.79	139.79	058.97	137.12	0.12	0.41
2778.20	0.40	007.80	2771.43	-2160.73	72.14	119.81	139.85	058.95	137.16	0.16	0.46

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
2787.80	0.60	009.70	2781.03	-2170.33	72.22	119.83	139.91	058.92	137.20	0.20	0.63
2797.40	0.80	009.20	2790.63	-2179.93	72.34	119.84	139.98	058.89	137.26	0.20	0.63
2807.00	0.80	007.90	2800.22	-2189.52	72.47	119.86	140.07	058.84	137.33	0.02	0.06
2816.60	1.00	014.70	2809.82	-2199.12	72.62	119.89	140.17	058.80	137.40	0.23	0.71
2826.30	1.10	007.90	2819.52	-2208.82	72.79	119.93	140.29	058.74	137.50	0.16	0.49
2836.00	1.10	353.80	2829.22	-2218.52	72.97	119.93	140.39	058.68	137.56	0.27	0.84
2845.50	1.10	340.70	2838.72	-2228.02	73.15	119.89	140.45	058.61	137.58	0.25	0.79
2855.00	1.20	324.80	2848.22	-2237.52	73.32	119.80	140.46	058.53	137.56	0.33	1.05
2864.80	1.20	317.00	2858.01	-2247.31	73.48	119.68	140.43	058.45	137.49	0.16	0.50
2874.10	1.00	315.40	2867.31	-2256.61	73.61	119.55	140.39	058.38	137.42	0.20	0.65
2883.70	0.70	316.80	2876.91	-2266.21	73.71	119.45	140.36	058.32	137.36	0.30	0.94
2893.50	0.50	321.20	2886.71	-2276.01	73.79	119.39	140.35	058.28	137.32	0.21	0.63
2901.40	0.50	335.50	2894.61	-2283.91	73.84	119.35	140.35	058.25	137.31	0.12	0.47
2912.50	0.50	346.00	2905.71	-2295.01	73.93	119.31	140.36	058.22	137.30	0.21	0.34
2922.20	0.70	344.00	2915.41	-2304.71	74.03	119.29	140.39	058.18	137.31	0.20	0.62
2931.60	0.70	002.10	2924.81	-2314.11	74.14	119.27	140.44	058.13	137.34	0.22	0.70
2941.30	0.80	001.20	2934.51	-2323.81	74.27	119.28	140.51	058.09	137.38	0.10	0.31
2950.90	0.70	000.80	2944.11	-2333.41	74.39	119.28	140.58	058.05	137.43	0.10	0.31
2960.70	0.70	006.40	2953.91	-2343.21	74.51	119.29	140.65	058.01	137.47	0.07	0.21
2970.20	0.80	007.20	2963.41	-2352.71	74.64	119.30	140.72	057.97	137.53	0.10	0.32
2979.70	0.80	013.80	2972.91	-2362.21	74.77	119.33	140.81	057.93	137.60	0.09	0.29
2989.40	0.80	013.70	2982.60	-2371.90	74.90	119.36	140.91	057.89	137.67	0.00	0.00
2999.00	0.70	014.10	2992.20	-2381.50	75.02	119.39	141.00	057.86	137.74	0.10	0.31
3008.70	0.60	023.30	3001.90	-2391.20	75.12	119.42	141.09	057.83	137.81	0.14	0.45
3018.30	0.50	032.60	3011.50	-2400.80	75.21	119.46	141.17	057.81	137.88	0.13	0.42
3027.90	0.60	035.50	3021.10	-2410.40	75.28	119.52	141.25	057.79	137.95	0.10	0.32

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
3037.40	0.60	040.40	3030.60	-2419.90	75.36	119.58	141.34	057.78	138.04	0.05	0.16
3047.00	0.70	038.10	3040.20	-2429.50	75.44	119.65	141.45	057.77	138.13	0.10	0.32
3056.20	0.70	046.10	3049.40	-2438.70	75.53	119.72	141.55	057.75	138.23	0.10	0.32
3065.80	0.70	025.80	3059.00	-2448.30	75.62	119.79	141.66	057.74	138.32	0.25	0.77
3075.40	0.80	030.10	3068.60	-2457.90	75.73	119.85	141.77	057.71	138.42	0.11	0.36
3085.00	0.90	047.50	3078.20	-2467.50	75.84	119.94	141.90	057.69	138.54	0.28	0.86
3094.50	1.10	037.10	3087.70	-2477.00	75.96	120.05	142.06	057.67	138.68	0.27	0.85
3104.00	1.40	040.40	3097.19	-2486.49	76.13	120.18	142.26	057.65	138.86	0.31	0.97
3113.50	1.40	040.90	3106.69	-2495.99	76.30	120.33	142.48	057.62	139.06	0.01	0.04
3123.10	1.10	028.60	3116.29	-2505.59	76.47	120.45	142.67	057.59	139.23	0.40	1.25
3130.00	1.00	358.50	3123.19	-2512.49	76.59	120.48	142.76	057.56	139.30	0.55	2.41
3152.00	0.90	337.70	3145.18	-2534.48	76.94	120.41	142.89	057.42	139.35	0.36	0.49
3159.50	0.80	326.30	3152.68	-2541.98	77.04	120.36	142.90	057.38	139.34	0.20	0.78
3177.50	0.70	325.50	3170.68	-2559.98	77.25	120.25	142.92	057.28	139.31	0.26	0.31
3187.10	0.80	328.80	3180.28	-2569.58	77.36	120.18	142.92	057.23	139.28	0.11	0.34
3196.70	0.80	323.10	3189.88	-2579.18	77.47	120.10	142.92	057.18	139.24	0.08	0.25
3206.28	0.70	319.90	3199.46	-2588.76	77.57	120.02	142.91	057.13	139.20	0.11	0.34
3216.00	0.50	333.20	3209.18	-2598.48	77.65	119.97	142.91	057.09	139.18	0.24	0.75
3225.70	0.40	013.90	3218.88	-2608.18	77.72	119.96	142.93	057.06	139.19	0.33	1.01
3235.40	0.70	043.10	3228.58	-2617.88	77.80	120.00	143.02	057.04	139.26	0.40	1.24
3244.90	1.40	056.60	3238.08	-2627.38	77.91	120.14	143.19	057.04	139.43	0.74	2.33
3254.20	2.10	063.20	3247.37	-2636.67	78.05	120.39	143.47	057.05	139.71	0.73	2.35
3264.30	2.00	065.20	3257.47	-2646.77	78.20	120.71	143.83	057.06	140.07	0.12	0.37
3274.02	1.90	070.20	3267.18	-2656.48	78.33	121.02	144.16	057.09	140.40	0.20	0.61
3283.70	1.80	067.90	3276.85	-2666.15	78.44	121.31	144.46	057.11	140.71	0.12	0.39
3293.40	1.70	065.70	3286.55	-2675.85	78.56	121.58	144.75	057.13	141.01	0.12	0.37

CDN FOREST et al NORTH LIARD N-61
DIRECTIONAL SURVEY RECORD

Calculations Based On Survey Data Provided By Akita Drilling (1540 m KB) and Whipstock Systems

K.B. Elevation = 610.70
Vertical Section = 70.20°

SURVEY DEPTH (m)	INCLINATION (deg)	AZIMUTH (deg)	TVD (m)	TVD SUBSEA (m)	LATITUDE N(+) / S(-) (m)	DEPARTURE E(+) / W(-) (m)	CLOSURE (m)	CLOSURE AZIMUTH (deg)	VERTICAL SECTION (m)	DOGLEG (deg)	DOGLEG SEVERITY (°/30m)
3303.10	1.60	064.60	3296.25	-2685.55	78.67	121.84	145.03	057.15	141.28	0.10	0.32
3312.50	1.50	066.80	3305.64	-2694.94	78.78	122.07	145.28	057.16	141.54	0.12	0.37
3322.54	1.40	072.10	3315.68	-2704.98	78.87	122.31	145.53	057.18	141.79	0.17	0.50
3332.24	1.40	075.40	3325.38	-2714.68	78.93	122.53	145.76	057.21	142.03	0.08	0.25
3342.00	1.50	081.10	3335.13	-2724.43	78.98	122.77	145.99	057.25	142.27	0.18	0.54
3351.20	1.50	083.90	3344.33	-2733.63	79.02	123.01	146.20	057.29	142.51	0.07	0.24
3360.82	1.60	084.60	3353.95	-2743.25	79.04	123.27	146.44	057.33	142.76	0.10	0.32
3370.97	1.50	083.20	3364.09	-2753.39	79.07	123.55	146.68	057.38	143.03	0.11	0.32
3380.00	1.41	081.95	3373.12	-2762.42	79.10	123.77	146.89	057.42	143.25	0.10	0.32
3384.00	1.41	081.95	3377.12	-2766.42	79.11	123.87	146.98	057.43	143.35	0.00	0.00

TOTAL DEPTH - 3384.0 m K.B. // 3377.1 m T.V.D.

ADDENDUM B – GEOLOGICAL STRIP LOG

DAX CONSULTING LTD.

Scale 1:240 (5"=100') Metric

Well Name:	CDN FOREST et al NORTH LIARD N-61		
Location:	60° 30' 46.69" NORTH / 123° 42' 32.51" WEST		
Licence Number:	EL 363 / WID 1863	Region:	N. LIARD
Spud Date:	99-03-21 @ 18:00 H	Drilling Completed:	99-09-07 @ 08:45
Surface Coordinates:	60 degrees, 30 minutes, 46.69 seconds North 123 degrees, 42 minutes, 32.51 seconds West		
Bottom Hole Coordinates:	123.9 metres East; 79.1 metres North; as calculated from surface coordinated		
Ground Elevation (m):	604.0	K.B. Elevation (m):	610.7
Logged Interval (m):	30.0 To: 3380.0	Total Depth (m):	3384.0
Formation:	PENNSYLVANIAN - MATTSON // MID. DEVONAIN - NAHANNI		
Type of Drilling Fluid:	GEL POLYMER / POTASSIUM SULPHATE		

Printed by WellSight Log Viewer from WellSight Systems Inc. 1-800-447-1534 www.wellsight.com

OPERATOR

Company: CANADIAN FOREST OIL LTD.
Address: Suite 600, 800 - 6th Avenue S.W.
Calgary, Alberta
T2P 3G3

GEOLOGIST

Name: DOUG MACKENZIE / ROBERT KELLY / WILLIAM GODWIN
Company: DAX CONSULTING LTD.
Address: 4215 - DALHART ROAD N.W.
CALGARY, ALBERTA
T3A 1B6

CORES

NONE

DSTs

NONE ON PENETRATION - TESTING CONDUCTED AFTER SETTING LINER / PRODUCTION CASING STRING

COMMENTS

DRILLING CONTRACTOR:
AKITA DRILLING LTD. RIG NO. 58

DIRECTIONAL DRILLING SERVICES:
WHIPSTOCK SYSTEMS INC.

MWD GAMMA RAY SERVICES:
DAILY ENERGY SERVICES INC.

TOTAL GAS AND CHROMATOGRAPHY:
DATALOG TECHNOLOGY CANADA INC.

DRILLING FLUIDS:
GEL POLYMER // POTASSIUM SULPHATE (K MINUS)

OPEN HOLE LOGGING:
COMPUTALOG
SERVICES - RUN No. 1
STI-SP-GR
SPDCND-UGR-DAC
MDA
SONIC
SED-UGR
DIPMETER
VSP

RUN No. 2
STI-SP-GR
SPD-CNS-UGR-DAC
MDA
SONIC
EMI-UGR
VSP

DRILL CUTTINGS:
START DEPTH - 31 m KB // END DEPTH - 3380 m KB
PENNSYLVANIAN - UPPER MISSISSIPPAIN - MATTSON // MIDDLE DEVONIAN - NAHANNI

CUTTINGS COLLECTED AT 5 m INTERVALS
CANADIAN FOREST OIL LTD. - ONE (1) SET OF SAMPLE TRAYS
RANGER OIL LTD. - ONE (1) SET OF SAMPLE TRAYS
N.E.B. // G.S.C. - TWO (2) SETS OF SAMPLE TRAYS
ONE (1) SET OF SAMPLE BAGS

ROCK TYPES

Anhy, Bent, Brec, Cht, Clyst, Coal, Congl, Dol, Gyp, Igne, Lmst, Meta, Mrlst, Salt, Shale, Shcol, Shgy, Sltst, Ss, Till, Blank

ACCESSORIES

MINERAL: Anhy, Arggrn, Arg, Bent, Bit, Brecfrag, Calc, Carb, Chtdk, Chtlt, Dol, Feldspar, Ferrpel, Ferr, Glau, Gyp, Hvymin, Kaol, Marl, Minxl, Nodule, Phos, Pyr, Salt, Sandy, Silt, Sil, Sulphur, Tuff
FOSSIL: Algae, Amph, Belm, Bioclst, Brach, Bryozoa, Cephal, Coral, Crin, Echin, Fish, Foram, Fossil, Gastro, Oolite, Ostra, Pelec, Pellet, Pisolite, Plant, Strom
STRINGER: Anhy, Arg, Bent, Coal, Dol, Gyp, Ls, Mrst, Sltstrg, Ssstrg
TEXTURE: Boundst, Chalky, Cryxln, Earthy, Finexln, Grainst, Lithogr, Microxln, Mudst, Packst, Wackest

OTHER SYMBOLS

POROSITY TYPE: Earthy, Fenest, Fracture, Inter, Moldic, Organic, Pinpoint, Vuggy
SORTING: Well, Moderate, Poor
ROUNDING: Rounded, Subrnd, Subang, Angular
OIL SHOWS: Even, Spotted, Ques, Dead
INTERVALS: None, Core, Dst, Slide, Rotate
EVENTS: Rft, Sidewall

Curve Track 2
DRILL TIME (min/m)
TOTAL GAS (percent)
MWD GAMMA (API)
GAMMA RAY (API)

Depth	Porosity Type	Porosity (24% 18% 12% 6%)	Lithology	Grain Size (1/16 mm, 1/8 mm, 1/4 mm, 1/2 mm, 1 mm)	Sorting	Rounding	Oil Shows	Geological Descriptions
								PENNSYLVANIAN-UPPER MISSISSIPPIAN MATTSON at 0.0 m KB // 0.0 m TVD CONDUCTOR HOLE 660 mm
30	X				M	a		SANDSTONE - lt rdsh or brnsh gy, lwr f to lwr m gr, mnr upr vf or upr m gr, a to r, mod' srtd, com' disag, si + occ sid cmt, fri, svit qtz, fros ip, occ vit qtz, com rdsh orng Fe stg, mnr loc dk argl grns, rr wh cly incls, tr glau, fr to p ig por, N vss.
	X				M	r		
	X				M	a		
BIT NO. 1A: R3	X				M	r		
	X			K	M	a		
35	X				M	r		
DRILL RATES NOT AVAILABLE - GEOLOGRAPH NOT ON LOCATION	X				M	a		POOR SAMPLE QUALTY DUE TO MUD ADDITIVES
	X				M	r		
	X				M	a		
99-03-22	X			K	M	r		
40	X				W	a		

Spud 99-03-21 @ 18:00 Hrs
Sample Point @ 31 m
99-03-21 @ 19:30 Hrs

DRILL TIME (minutes)
TOTAL GAS (units)
BKG GAS (units)
CONN GAS (units)
DEN 1100
DEN 1150
BIT NO. 2A- CLUC
in at 75 in 03
06-03-23
DEN 1200
DEN 1250
06-03-23
DEN 1300
06-03-23
DEN 1350
06-03-23
DEN 1400
06-03-23
DEN 1450
06-03-23
DEN 1500
06-03-23
DEN 1550
06-03-23
DEN 1600
06-03-23
DEN 1650
06-03-23
DEN 1700
06-03-23
DEN 1750
06-03-23
BIT NO. 3A-DC CLU
in at 135 in 03
DEN 1800
BIT NO. 4A- RAJ
in at 135 in 03
DEN 1850
BIT NO. 5A- 3JD
in at 192 in 03
DEN 1900
DEN 1950
06-04-23
PILOT HOLE 444.5 mm
BIT NO. 6A- CC
in at 192 in 03
06-04-24
BIT NO. 7A- 3JD
in at 192 in 03
DEN 2000
DRILL RATES NOT AVAILABLE
DRILL RATES NOT AVAILABLE
06-04-27 @ 09:15 hrs
BIT NO. 8A- 3JD
in at 192 in 03
SURFACE HOLE
444.5 mm
06-04-11
at 12:00 hrs
BIT NO. 1B- 3JD
in at 185 in KB
FOB 10-0000
RPM 60-80
DRILL TIME (minutes)
TOTAL GAS (units)
BKG GAS (units)
CONN GAS (units)
DEN 1300
VIS 43
06-05-12
FOB 15-0000
RPM 60-80
DEN - 1300
06-05-14
BIT NO. 2B- 3JD
in at 287 in KB
Bentonite 3JD
DRILL RATES NOT AVAILABLE
DEN 1400
06-06-13
DEN 1500
06-06-14
DEN 1600
06-06-15
DEN 1700
06-06-16
DEN 1800
06-06-17
DEN 1900
06-06-18
DEN 2000
06-06-19
DRILL RATES NOT AVAILABLE
BIT NO. 3B- 3JD
in at 287 in KB
06-06-21
DEN 2100
06-06-22
DEN 2200
06-06-23
DEN 2300
06-06-24
DEN 2400
06-06-25
DEN 2500
06-06-26
DEN 2600
06-06-27
DEN 2700
06-06-28
DEN 2800
06-06-29
DEN 2900
06-06-30
DEN 3000
06-07-01
DEN 3100
06-07-02
DEN 3200
06-07-03
DEN 3300
06-07-04
DEN 3400
06-07-05
DEN 3500
06-07-06
DEN 3600
06-07-07
DEN 3700
06-07-08
DEN 3800
06-07-09
DEN 3900
06-07-10
DEN 4000
06-07-11
DEN 4100
06-07-12
DEN 4200
06-07-13
DEN 4300
06-07-14
DEN 4400
06-07-15
DEN 4500
06-07-16
DEN 4600
06-07-17
DEN 4700
06-07-18
DEN 4800
06-07-19
DEN 4900
06-07-20
DEN 5000
06-07-21
DEN 5100
06-07-22
DEN 5200
06-07-23
DEN 5300
06-07-24
DEN 5400
06-07-25
DEN 5500
06-07-26
DEN 5600
06-07-27
DEN 5700
06-07-28
DEN 5800
06-07-29
DEN 5900
06-07-30
DEN 6000
06-07-31
DEN 6100
06-08-01
DEN 6200
06-08-02
DEN 6300
06-08-03
DEN 6400
06-08-04
DEN 6500
06-08-05
DEN 6600
06-08-06
DEN 6700
06-08-07
DEN 6800
06-08-08
DEN 6900
06-08-09
DEN 7000
06-08-10
DEN 7100
06-08-11
DEN 7200
06-08-12
DEN 7300
06-08-13
DEN 7400
06-08-14
DEN 7500
06-08-15
DEN 7600
06-08-16
DEN 7700
06-08-17
DEN 7800
06-08-18
DEN 7900
06-08-19
DEN 8000
06-08-20
DEN 8100
06-08-21
DEN 8200
06-08-22
DEN 8300
06-08-23
DEN 8400
06-08-24
DEN 8500
06-08-25
DEN 8600
06-08-26
DEN 8700
06-08-27
DEN 8800
06-08-28
DEN 8900
06-08-29
DEN 9000
06-08-30
DEN 9100
06-08-31
DEN 9200
06-09-01
DEN 9300
06-09-02
DEN 9400
06-09-03
DEN 9500
06-09-04
DEN 9600
06-09-05
DEN 9700
06-09-06
DEN 9800
06-09-07
DEN 9900
06-09-08
DEN 10000
06-09-09
DEN 10100
06-09-10
DEN 10200
06-09-11
DEN 10300
06-09-12
DEN 10400
06-09-13
DEN 10500
06-09-14
DEN 10600
06-09-15
DEN 10700
06-09-16
DEN 10800
06-09-17
DEN 10900
06-09-18
DEN 11000
06-09-19
DEN 11100
06-09-20
DEN 11200
06-09-21
DEN 11300
06-09-22
DEN 11400
06-09-23
DEN 11500
06-09-24
DEN 11600
06-09-25
DEN 11700
06-09-26
DEN 11800
06-09-27
DEN 11900
06-09-28
DEN 12000
06-09-29
DEN 12100
06-09-30
DEN 12200
06-10-01
DEN 12300
06-10-02
DEN 12400
06-10-03
DEN 12500
06-10-04
DEN 12600
06-10-05
DEN 12700
06-10-06
DEN 12800
06-10-07
DEN 12900
06-10-08
DEN 13000
06-10-09
DEN 13100
06-10-10
DEN 13200
06-10-11
DEN 13300
06-10-12
DEN 13400
06-10-13
DEN 13500
06-10-14
DEN 13600
06-10-15
DEN 13700
06-10-16
DEN 13800
06-10-17
DEN 13900
06-10-18
DEN 14000
06-10-19
DEN 14100
06-10-20
DEN 14200
06-10-21
DEN 14300
06-10-22
DEN 14400
06-10-23
DEN 14500
06-10-24
DEN 14600
06-10-25
DEN 14700
06-10-26
DEN 14800
06-10-27
DEN 14900
06-10-28
DEN 15000
06-10-29
DEN 15100
06-10-30
DEN 15200
06-10-31
DEN 15300
06-11-01
DEN 15400
06-11-02
DEN 15500
06-11-03
DEN 15600
06-11-04
DEN 15700
06-11-05
DEN 15800
06-11-06
DEN 15900
06-11-07
DEN 16000
06-11-08
DEN 16100
06-11-09
DEN 16200
06-11-10
DEN 16300
06-11-11
DEN 16400
06-11-12
DEN 16500
06-11-13
DEN 16600
06-11-14
DEN 16700
06-11-15
DEN 16800
06-11-16
DEN 16900
06-11-17
DEN 17000
06-11-18
DEN 17100
06-11-19
DEN 17200
06-11-20
DEN 17300
06-11-21
DEN 17400
06-11-22
DEN 17500
06-11-23
DEN 17600
06-11-24
DEN 17700
06-11-25
DEN 17800
06-11-26
DEN 17900
06-11-27
DEN 18000
06-11-28
DEN 18100
06-11-29
DEN 18200
06-11-30
DEN 18300
06-12-01
DEN 18400
06-12-02
DEN 18500
06-12-03
DEN 18600
06-12-04
DEN 18700
06-12-05
DEN 18800
06-12-06
DEN 18900
06-12-07
DEN 19000
06-12-08
DEN 19100
06-12-09
DEN 19200
06-12-10
DEN 19300
06-12-11
DEN 19400
06-12-12
DEN 19500
06-12-13
DEN 19600
06-12-14
DEN 19700
06-12-15
DEN 19800
06-12-16
DEN 19900
06-12-17
DEN 20000
06-12-18
DEN 20100
06-12-19
DEN 20200
06-12-20
DEN 20300
06-12-21
DEN 20400
06-12-22
DEN 20500
06-12-23
DEN 20600
06-12-24
DEN 20700
06-12-25
DEN 20800
06-12-26
DEN 20900
06-12-27
DEN 21000
06-12-28
DEN 21100
06-12-29
DEN 21200
06-12-30
DEN 21300
06-12-31
DEN 21400
07-01-01
DEN 21500
07-01-02
DEN 21600
07-01-03
DEN 21700
07-01-04
DEN 21800
07-01-05
DEN 21900
07-01-06
DEN 22000
07-01-07
DEN 22100
07-01-08
DEN 22200
07-01-09
DEN 22300
07-01-10
DEN 22400
07-01-11
DEN 22500
07-01-12
DEN 22600
07-01-13
DEN 22700
07-01-14
DEN 22800
07-01-15
DEN 22900
07-01-16
DEN 23000
07-01-17
DEN 23100
07-01-18
DEN 23200
07-01-19
DEN 23300
07-01-20
DEN 23400
07-01-21
DEN 23500
07-01-22
DEN 23600
07-01-23
DEN 23700
07-01-24
DEN 23800
07-01-25
DEN 23900
07-01-26
DEN 24000
07-01-27
DEN 24100
07-01-28
DEN 24200
07-01-29
DEN 24300
07-01-30
DEN 24400
07-01-31
DEN 24500
07-02-01
DEN 24600
07-02-02
DEN 24700
07-02-03
DEN 24800
07-02-04
DEN 24900
07-02-05
DEN 25000
07-02-06
DEN 25100
07-02-07
DEN 25200
07-02-08
DEN 25300
07-02-09
DEN 25400
07-02-10
DEN 25500
07-02-11
DEN 25600
07-02-12
DEN 25700
07-02-13
DEN 25800
07-02-14
DEN 25900
07-02-15
DEN 26000
07-02-16
DEN 26100
07-02-17
DEN 26200
07-02-18
DEN 26300
07-02-19
DEN 26400
07-02-20
DEN 26500
07-02-21
DEN 26600
07-02-22
DEN 26700
07-02-23
DEN 26800
07-02-24
DEN 26900
07-02-25
DEN 27000
07-02-26
DEN 27100
07-02-27
DEN 27200
07-02-28
DEN 27300
07-02-29
DEN 27400
07-02-30
DEN 27500
07-02-31
DEN 27600
07-03-01
DEN 27700
07-03-02
DEN 27800
07-03-03
DEN 27900
07-03-04
DEN 28000
07-03-05
DEN 28100
07-03-06
DEN 28200
07-03-07
DEN 28300
07-03-08
DEN 28400
07-03-09
DEN 28500
07-03-10
DEN 28600
07-03-11
DEN 28700
07-03-12
DEN 28800
07-03-13
DEN 28900
07-03-14
DEN 29000
07-03-15
DEN 29100
07-03-16
DEN 29200
07-03-17
DEN 29300
07-03-18
DEN 29400
07-03-19
DEN 29500
07-03-20
DEN 29600
07-03-21
DEN 29700
07-03-22
DEN 29800
07-03-23
DEN 29900
07-03-24
DEN 30000
07-03-25
DEN 30100
07-03-26
DEN 30200
07-03-27
DEN 30300
07-03-28
DEN 30400
07-03-29
DEN 30500
07-03-30
DEN 30600
07-03-31
DEN 30700
07-04-01
DEN 30800
07-04-02
DEN 30900
07-04-03
DEN 31000
07-04-04
DEN 31100
07-04-05
DEN 31200
07-04-06
DEN 31300
07-04-07
DEN 31400
07-04-08
DEN 31500
07-04-09
DEN 31600
07-04-10
DEN 31700
07-04-11
DEN 31800
07-04-12
DEN 31900
07-04-13
DEN 32000
07-04-14
DEN 32100
07-04-15
DEN 32200
07-04-16
DEN 32300
07-04-17
DEN 32400
07-04-18
DEN 32500
07-04-19
DEN 32600
07-04-20
DEN 32700
07-04-21
DEN 32800
07-04-22
DEN 32900
07-04-23
DEN 33000
07-04-24
DEN 33100
07-04-25
DEN 33200
07-04-26
DEN 33300
07-04-27
DEN 33400
07-04-28
DEN 33500
07-04-29
DEN 33600
07-04-30
DEN 33700
07-05-01
DEN 33800
07-05-02
DEN 33900
07-05-03
DEN 34000
07-05-04
DEN 34100
07-05-05
DEN 34200
07-05-06
DEN 34300
07-05-07
DEN 34400
07-05-08
DEN 34500
07-05-09
DEN 34600
07-05-10
DEN 34700
07-05-11
DEN 34800
07-05-12
DEN 34900
07-05-13
DEN 35000
07-05-14
DEN 35100
07-05-15
DEN 35200
07-05-16
DEN 35300
07-05-17
DEN 35400
07-05-18
DEN 35500
07-05-19
DEN 35600
07-05-20
DEN 35700
07-05-21
DEN 35800
07-05-22
DEN 35900
07-05-23
DEN 36000
07-05-24
DEN 36100
07-05-25
DEN 36200
07-05-26
DEN 36300
07-05-27
DEN 36400
07-05-28
DEN 36500
07-05-29
DEN 36600
07-05-30
DEN 36700
07-05-31
DEN 36800
07-06-01
DEN 36900
07-06-02
DEN 37000
07-06-03
DEN 37100
07-06-04
DEN 37200
07-06-05
DEN 37300
07-06-06
DEN 37400
07-06-07
DEN 37500
07-06-08
DEN 37600
07-06-09
DEN 37700
07-06-10
DEN 37800
07-06-11
DEN 37900
07-06-12
DEN 38000
07-06-13
DEN 38100
07-06-14
DEN 38200
07-06-15
DEN 38300
07-06-16
DEN 38400
07-06-17
DEN 38500
07-06-18
DEN 38600
07-06-19
DEN 38700
07-06-20
DEN 38800
07-06-21
DEN 38900
07-06-22
DEN 39000
07-06-23
DEN 39100
07-06-24
DEN 39200
07-06-25
DEN 39300
07-06-26
DEN 39400
07-06-27
DEN 39500
07-06-28
DEN 39600
07-06-29
DEN 39700
07-06-30
DEN 39800
07-07-01
DEN 39900
07-07-02
DEN 40000
07-07-03
DEN 40100
07-07-04
DEN 40200
07-07-05
DEN 40300
07-07-06
DEN 40400
07-07-07
DEN 40500
07-07-08
DEN 40600
07-07-09
DEN 40700
07-07-10
DEN 40800
07-07-11
DEN 40900
07-07-12
DEN 41000
07-07-13
DEN 41100
07-07-14
DEN 41200
07-07-15
DEN 41300
07-07-16
DEN 41400
07-07-17
DEN 41500
07-07-18
DEN 41600
07-07-19
DEN 41700
07-07-20
DEN 41800
07-07-21
DEN 41900
07-07-22
DEN 42000
07-07-23
DEN 42100
07-07-24
DEN 42200
07-07-25
DEN 42300
07-07-26
DEN 42400
07-07-27
DEN 42500
07-07-28
DEN 42600
07-07-29
DEN 42700
07-07-30
DEN 42800
07-07-31
DEN 42900
07-08-01
DEN 43000
07-08-02
DEN 43100
07-08-03
DEN 43200
07-08-04
DEN 43300
07-08-05
DEN 43400
07-08-06
DEN 43500
07-08-07
DEN 43600
07-08-08
DEN 43700
07-08-09
DEN 43800
07-08-10
DEN 43900
07-08-11
DEN 44000
07-08-12
DEN 44100
07-08-13
DEN 44200
07-08-14
DEN 44300
07-08-15
DEN 44400
07-08-16
DEN 44500
07-08-17
DEN 44600
07-08-18
DEN 44700
07-08-19
DEN 44800
07-08-20
DEN 44900
07-08-21
DEN 45000
07-08-22
DEN 45100
07-08-23
DEN 45200
07-08-24
DEN 45300
07-08-25
DEN 45400
07-08-26
DEN 45500
07-08-27
DEN 45600
07-08-28
DEN 45700
07-08-29
DEN 45800
07-08-30
DEN 45900
07-08-31
DEN 46000
07-09-01
DEN 46100
07-09-02
DEN 46200
07-09-03
DEN 46300
07-09-04
DEN 46400
07-09-05
DEN 46500
07-09-06
DEN 46600
07-09-07
DEN 46700
07-09-08
DEN 46800
07-09-09
DEN 46900
07-09-10
DEN 47000
07-09-11
DEN 47100
07-09-12
DEN 47200
07-09-13
DEN 47300
07-09-14
DEN 47400
07-09-15
DEN 47500
07-09-16
DEN 47600
07-09-17
DEN 47700
07-09-18
DEN 47800
07-09-19
DEN 47900
07-09-20
DEN 48000
07-09-21
DEN 48100
07-09-22
DEN 48200
07-09-23
DEN 48300
07-09-24
DEN 48400
07-09-25
DEN 48500
07-09-26
DEN 48600
07-09-27
DEN 48700
07-09-28
DEN 48800
07-09-29
DEN 48900
07-09-30
DEN 49000
07-10-01
DEN 49100
07-10-02
DEN 49200
07-10-03
DEN 49300
07-10-04
DEN 49400
07-10-05
DEN 49500
07-10-06
DEN 49600
07-10-07
DEN 49700
07-10-08
DEN 49800
07-10-09
DEN 49900
07-10-10
DEN 50000
07-10-11
DEN 50100
07-10-12
DEN 50200
07-10-13
DEN 50300
07-10-14
DEN 50400
07-10-15
DEN 50500
07-10-16
DEN 50600
07-10-17
DEN 50700
07-10-18
DEN 50800
07-10-19
DEN 50900
07-10-20
DEN 51000
07-10-21
DEN 51100
07-10-22
DEN 51200
07-10-23
DEN 51300
07-10-24
DEN 51400
07-10-25
DEN 51500
07-10-26
DEN 51600
07-10-27
DEN 51700
07-10-28
DEN 51800
07-10-29
DEN 51900
07-10-30
DEN 52000
07-10-31
DEN 52100
07-11-01
DEN 52200
07-11-02
DEN 52300
07-11-03
DEN 52400
07-11-04
DEN 52500
07-11-05
DEN 52600
07-11-06
DEN 52700
07-11-07
DEN 52800
07-11-08
DEN 52900
07-11-09
DEN 53000
07-11-10
DEN 53100
07-11-11
DEN 53200
07-11-12
DEN 53300
07-11-13
DEN 53400
07-11-14
DEN 53500
07-11-15
DEN 53600
07-11-16
DEN 53700
07-11-17
DEN 53800
07-11-18
DEN 53900
07-11-19
DEN 54000
07-11-20
DEN 54100
07-11-21
DEN 54200
07-11-22
DEN 54300
07-11-23
DEN 54400
07-11-24
DEN 54500
07-11-25
DEN 54600
07-11-26
DEN 54700
07-11-27
DEN 54800
07-11-28
DEN 54900
07-11-29
DEN 55000
07-11-30
DEN 55100
07-12-01
DEN 55200
07-12-02
DEN 55300
07-12-03
DEN 55400
07-12-04
DEN 55500
07-12-05
DEN 55600
07-12-06
DEN 55700
07-12-07
DEN 55800
07-12-08
DEN 55900
07-12-09
DEN 56000
07-12-10
DEN 56100
07-12-11
DEN 56200
07-12-12
DEN 56300
07-12-13
DEN 56400
07-12-14
DEN 56500
07-12-15
DEN 56600
07-12-16
DEN 56700
07-12-17
DEN 56800
07-12-18
DEN 56900
07-12-19
DEN 57000
07-12-20
DEN 57100
07-12-21
DEN 57200
07-12-22
DEN 57300
07-12-23
DEN 57400
07-12-24
DEN 57500
07-12-25
DEN 57600
07-12-26
DEN 57700
07-12-27
DEN 57800
07-12-28
DEN 57900
07-12-29
DEN 58000
07-12-30
DEN 58100
07-12-31
DEN 58200
08-01-01
DEN 58300
08-01-02
DEN 58400
08-01-03
DEN 58500
08-01-04
DEN 58600
08-01-05
DEN 58700
08-01-06
DEN 58800
08-01-07
DEN 58900
08-01-08
DEN 59000
08-01-09
DEN 59100
08-01-10
DEN 59200
08-01-11
DEN 59300
08-01-12
DEN 59400
08-01-13
DEN 59500
08-01-14
DEN 59600
08-01-15
DEN 59700
08-01-16
DEN 59800
08-01-17
DEN 59900
08-01-18
DEN 60000
08-01-19
DEN 60100
08-01-20
DEN 60200
08-01-21
DEN 60300
08-01-22
DEN 60400
08-01-23
DEN 60500
08-01-24
DEN 60600
08-01-25
DEN 60700
08-01-26
DEN 60800
08-01-27
DEN 60900
08-01-28
DEN 61000
08-01-29
DEN 61100
08-01-30
DEN 61200
08-01-31
DEN 61300
08-02-01
DEN 61400
08-02-02
DEN 61500
08-02-03
DEN 61600
08-02-04
DEN 61700
08-02-05
DEN 61800
08-02-06
DEN 61900
08-02-07
DEN 62000
08-02-08
DEN 62100
08-02-09
DEN 62200
08-02-10
DEN 62300
08-02-11
DEN 62400
08-02-12
DEN 62500
08-02-13
DEN 62600
08-02-14
DEN 62700
08-02-15
DEN 62800
08-02-16
DEN 62900
08-02-17
DEN 63000
08-02-18
DEN 63100
08-02-19
DEN 63200
08-02-20
DEN 63300
08-02-21
DEN 63400
08-02-22
DEN 63500
08-02-23
DEN 63600
08-02-24
DEN 63700
08-02-25
DEN 63800
08-02-26
DEN 63900
08-02-27
DEN 64000
08-02-28
DEN 64100
08-02-29
DEN 64200
08-02-30
DEN 64300
08-02-31
DEN 64400
08-03-01
DEN 64500
08-03-02
DEN 64600
08-03-03
DEN 64700
08-03-04
DEN 64800
08-03-05
DEN 64900
08-03-06
DEN 65000
08-03-07
DEN 65100
08-03-08
DEN 65200
08-03-09
DEN 65300
08-03-10
DEN 65400
08-03-11
DEN 65500
08-03-12
DEN 65600
08-03-13
DEN 65700
08-03-14
DEN 65800
08-03-15
DEN 65900
08-03-16
DEN 66000
08-03-17
DEN 66100
08-03-18
DEN 66200
08-03-19
DEN 66300
08-03-20
DEN 66400
08-03-21
DEN 66500
08-03-22
DEN 66600
08-03-23
DEN 66700
08-03-24
DEN 66800
08-03-25
DEN 66900
08-03-26
DEN 67000
08-03-27
DEN 67100
08-03-28
DEN 67200
08-03-29
DEN 67300
08-03-30
DEN 67400
08-03-31
DEN 67500
08-04-01
DEN 67600
08-04-02
DEN 67700
08-04-03
DEN 67800
08-04-04
DEN 67900
08-04-05
DEN 68000
08-04-06
DEN 68100
08-04-07
DEN 68200
08-04-08
DEN 68300
08-04-09
DEN 68400
08-04-10
DEN 68500
08-04-11
DEN 68600
08-04-12
DEN 68700
08-04-13
DEN 68800
08-04-14
DEN 68900
08-04-15
DEN 69000
08-04-16
DEN 69100
08-04-17
DEN 69200
08-04-18
DEN 69300
08-04-19
DEN 69400
08-04-20
DEN 69500
08-04-21
DEN 69600
08-04-22
DEN 69700
08-04-23
DEN 69800
08-04-24
DEN 69900
08-04-25
DEN 70000
08-04-26
DEN 70100
08-04-27
DEN 70200
08-04-28
DEN 70300
08-04-29
DEN 70400
08-04-30
DEN 70500
08-05-01
DEN 70600
08-05-02
DEN 70700
08-05-03
DEN 70800
08-05-04
DEN 70900
08-05-05
DEN 71000
08-05-06
DEN 71100
08-05-07
DEN 71200
08-05-08
DEN 71300
08-05-09
DEN 71400
08-05-10
DEN 71500
08-05-11
DEN 71600
08-05-12
DEN 71700
08-05-13
DEN 71800
08-05-14
DEN 71900
08-05-15
DEN 72000
08-05-16
DEN 72100
08-05-17
DEN 72200
08-05-18
DEN 72300
08-05-19
DEN 72400
08-05-20
DEN 72500
08-05-21
DEN 72600
08-05-22
DEN 72700
08-05-23
DEN 72800
08-05-24
DEN 72900
08-05-25
DEN 73000
08-05-26
DEN 73100
08-05-27
DEN 73200
08-05-28
DEN 73300
08-05-29
DEN 73400
08-05-30
DEN 73500
08-05-31
DEN 73600
08-06-01
DEN 73700
08-06-02
DEN 73800
08-06-03
DEN 73900
08-06-04
DEN 74000
08-06-05
DEN 74100
08-06-06
DEN 74200
08-06-07
DEN 74300
08-06-08
DEN 74400
08-06-09
DEN 74500
08-06-10
DEN 74600
08-06-11
DEN 74700
08-06-12
DEN 74800
08-06-13
DEN 74900
08-06-14
DEN 75000
08-06-15
DEN 75100
08-06-16
DEN 75200
08-06-17
DEN 75300
08-06-18
DEN 75400
08-06-19
DEN 75500
08-06-20
DEN 75600
08-06-21
DEN 75700
08-06-22
DEN 75800
08-06-23
DEN 75900
08-06-24
DEN 76000
08-06-25
DEN 76100
08-06-26
DEN 76200
08-06-27
DEN 76300
08-06-28
DEN 76400
08-06-29
DEN 76500
08-06-30
DEN 76600
08-07-01
DEN 76700
08-07-02
DEN 76800
08-07-03
DEN 76900
08-07-04
DEN 77000
08-07-05
DEN 77100
08-07-06
DEN 77200
08-07-07
DEN 77300
08-07-08
DEN 77400
08-07-09
DEN 77500
08-07-10
DEN 77600
08-07-11
DEN 77700
08-07-12
DEN 77800
08-07-13
DEN 77900
08-07-14
DEN 78000
08-07-15
DEN 78100
08-07-16
DEN 78200
08-07-17
DEN 78300
08-07-18
DEN 78400
08-07-19
DEN 78500
08-07-20
DEN 78600
08-07-21
DEN 78700
08-07-22
DEN 78800
08-07-23
DEN 78900
08-07-24
DEN 79000
08-07-25
DEN 79100
08-07-26
DEN 79200
08-07-27
DEN 79300
08-07-28
DEN 79400
08-07-29
DEN 79500
08-07-30
DEN 79600
08-07-31
DEN 79700
08-08-01
DEN 79800
08-08-02
DEN 79900
08-08-03
DEN 80000
08-08-04
DEN 80100
08-08-05
DEN 80200
08-08-06
DEN 80300
08-08-07
DEN 80400
08-08-08
DEN 80500
08-08-09
DEN 80600
08-08-10
DEN 80700
08-08-11
DEN 80800
08-08-12
DEN 80900
08-08-13
DEN 81000
08-08-14
DEN 81100
08-08-15
DEN 81200
08-08-16
DEN 81300
08-08-17
DEN 81400
08-08-18
DEN 81500
08-08-19
DEN 81600
08-08-20
DEN 81700
08-08-21
DEN 81800
08-08-22
DEN 81900
08-08-23
DEN 82000
08-08-24
DEN 82100
08-08-25
DEN 82200
08-08-26
DEN 82300
08-08-27
DEN 82400
08-08-28
DEN 82500
08-08-29
DEN 82600
08-08-30
DEN 82700
08-08-31
DEN 82800
08-09-01
DEN 82900
08-09-02
DEN 83000
08-09-03
DEN 83100
08-09-04
DEN 83200
08-09-05
DEN 83300
08-09-06
DEN 83400
08-09-07
DEN 83500
08-09-08
DEN 83600
08-09-09
DEN 83700
08-09-10
DEN 83800
08-09-11
DEN 83900
08-09-12
DEN 84000
08-09-13
DEN 84100
08-09-14
DEN 84200
08-09-15
DEN 84300
08-09-16
DEN 84400
08-09-17
DEN 84500
08-09-18
DEN 84600
08-09-19
DEN 84700
08-09-20
DEN 84800
08-09-21
DEN 84900
08-09-22
DEN 85000
08-09-23
DEN 85100
08-09-24
DEN 85200
08-09-25
DEN 85300
08-09-26
DEN 85400
08-09-27
DEN 85500
08-09-28
DEN 85600
08-09-29
DEN 85700
08-09-30
DEN 85800
08-10-01
DEN 85900
08-10-02
DEN 86000
08-10-03
DEN 86100
08-10-04
DEN 86200
08-10-05
DEN 86300
08-10-06
DEN 86400
08-10-07
DEN 86500
08-10-08
DEN 86600
08-10-09
DEN 86700
08-10-10
DEN 86800
08-10-11
DEN 86900
08-10-12
DEN 87000
08-10-13
DEN 87100
08-10-14
DEN 87200
08-10-15
DEN 87300
08-10-16
DEN 87400
08-10-17
DEN 87500
08-10-18
DEN 87600
08-10-19
DEN 87700
08-10-20
DEN 87800
08-10-21
DEN 87900
08-10-22
DEN 88000
08-10-23
DEN 88100
08-10-24
DEN 88200
08-10-25
DEN 88300
08-10-26
DEN 88400
08-10-27
DEN 88500
08-10-28
DEN 88600
08-10-29
DEN 88700
08-10-30
DEN 88800
08-10-31
DEN 88900
08-11-01
DEN 89000
08-11-02
DEN 89100
08-11-03
DEN 89200
08-11-04
DEN 89300
08-11-05
DEN 89400
08-11-06
DEN 89500
08-11-07
DEN 89600
08-11-08
DEN 89700
08-11-09
DEN 89800
08-11-10
DEN 89900
08-11-11
DEN 90000
08-11-12
DEN 90100
08-11-13
DEN 90200
08-11-14
DEN 90300
08-11-15
DEN 90400
08-11-16
DEN 90500
08-11-17
DEN 90600
08-11-18
DEN 90700
08-11-19
DEN 90800
08-11-20
DEN 90900
08-11-21
DEN 91000
08-11-22
DEN 91100
08-11-23
DEN 91200
08-11-24
DEN 91300
08-11-25
DEN 91400
08-11-26
DEN 91500
08-11-27
DEN 91600
08-11-28
DEN 91700
08-11-29
DEN 91800
08-11-30
DEN 91900
08-12-01
DEN 92000
08-12-02
DEN 92100
08-12-03
DEN 92200
08-12-04
DEN 92300
08-12-05
DEN 92400
08-12-06
DEN 92500
08-12-07
DEN 92600
08-12-08
DEN 92700
08-12-09
DEN 92800
08-12-10
DEN 92900
08-12-11
DEN 93000
08-12-12
DEN 93100
08-12-13
DEN 93200
08-12-14
DEN 93300
08-12-15
DEN 93400
08-12-16
DEN 93500
08-12-17
DEN 93600
08-12-18
DEN 93700
08-12-19
DEN 93800
08-12-20
DEN 93900
08-12-21
DEN 94000
08-12-22
DEN 94100
08-12-23
DEN 94200
08-12-24
DEN 94300
08-12-25
DEN 94400
08-12-26
DEN 94500
08-12-27
DEN 94600
08-12-28
DEN 94700
08-12-29
DEN 94800
08-12-30
DEN 94900
08-12-31
DEN 95000
09-01-01
DEN 95100
09-01-02
DEN 95200
09-01-03
DEN 95300
09-01-04
DEN 95400
09-01-05
DEN 95500
09-01-06
DEN 95600
09-01-07
DEN 95700
09-01-08
DEN 95800
09-01-09
DEN 95900
09-01-10
DEN 96000
09-01-11
DEN 96100
09-01-12
DEN 96200
09-01-13
DEN 96300
09-01-14
DEN 96400
09-01-15
DEN 96500
09-01-16
DEN 96600
09-01-17
DEN 96700
09-01-18
DEN 96800
09-01-19
DEN 96900
09-01-20
DEN 97000
09-01-21
DEN 97100
09-01-22
DEN 97200
09-01-23
DEN 97300
09-01-24
DEN 97400
09-01-25
DEN 97500
09-01-26
DEN 97600
09-01-27
DEN 97700
09-01-28
DEN 97800
09-01-29
DEN 97900
09-01-30
DEN 98000
09-01-31
DEN 98100
09-02-01
DEN 98200
09-02-02
DEN 98300
09-02-03
DEN 98400
09-02-04
DEN 98500
09-02-05
DEN 98600
09-02-06
DEN 98700
09-02-07
DEN 98800
09-02-08
DEN 98900
09-02-09
DEN 99000
09-02-10
DEN 99100
09-02-11
DEN 99200
09-02-12
DEN 99300
09-02-13
DEN 99400
09-02-14
DEN 99500
09-02-15
DEN 99600
09-02-16
DEN 99700
09-02-17
DEN 99800
09-02-18
DEN 99900
09-02-19
DEN 100000
09-02-20
DEN 100100
09-02-21
DEN 100200
09-02-22
DEN 100300
09-02-23
DEN 100400
09-02-24
DEN 100500
09-02-25
DEN 100600
09-02-26
DEN 100700
09-02-27
DEN 100800
09-02-28
DEN 100900
09-02-29
DEN 101000
09-02-30
DEN 101100
09-02-31
DEN 101200
09-03-01
DEN 101300
09-03-02
DEN 101400
09-03-03
DEN 101500
09-03-04
DEN 101600
09-03-05
DEN 101700
09-03-06
DEN 101800
09-03-07
DEN 101900
09-03-08
DEN 102000
09-03-09
DEN 102100
09-03-10
DEN 102200
09-03-11
DEN 102300
09-03-12
DEN 102400
09-03-13
DEN 102500
09-03-14
DEN 102600
09-03-15
DEN 102700
09-03-16
DEN 102800
09-03-17
DEN 102900
09-03-18
DEN 103000
09-03-19
DEN 103100
09-03-20
DEN 103200
09-03-21
DEN 103300
09-03-22
DEN 103400
09-03-23
DEN 103500
09-03-24
DEN 103600
09-03-25
DEN 103700
09-03-26
DEN 103800
09-03-27
DEN 103900
09-03-28
DEN 104000
09-03-29
DEN 104100
09-03-30
DEN 104200
09-03-31
DEN 104300
09-04-01
DEN 104400
09-04-02
DEN 104500
09-04-03
DEN 104600
09-04-04
DEN 104700
09-04-05
DEN 104800
09-04-06
DEN 104900
09-04-07
DEN 105000
09-04-08
DEN 105100
09-04-09
DEN 105200
09-04-10
DEN 105300
09-04-11
DEN 105400
09-04-12
DEN 105500
09-04-13
DEN 105600
09-04-14
DEN 105700
09-04-15
DEN 105800
09-04-16
DEN 105900
09-04-17
DEN 106000
09-04-18
DEN 106100
09-04-19
DEN 106200
09-04-20
DEN 106300
09-04-21
DEN 106400
09-04-22
DEN 106500
09-04-23
DEN 106600
09-04-24
DEN 106700
09-04-25
DEN 106800
09-04-26
DEN 106900
09-04-27
DEN 107000
09-04-28
DEN 107100
09-04-29
DEN 107200
09-04-30
DEN 107300
09-05-01
DEN 107400
09-05-02
DEN 107500
09-05-03
DEN 107600
09-05-04
DEN 107700
09-05-05
DEN 107800
09-05-06
DEN 107900
09-05-07
DEN 108000
09-05-08
DEN 108100
09-05-09
DEN 108200
09-05-10
DEN 108300
09-05-11
DEN 108400
09-05-12
DEN 108500
09-05-13
DEN 108600
09-05-14
DEN 108700
09-05-15
DEN 108800
09-05-16
DEN 108900
09-05-17
DEN 109000
09-05-18
DEN 109100
09-05-19
DEN 109200
09-05-20
DEN 109300
09-05-21
DEN 109400
09-05-22
DEN 109500
09-05-23
DEN 109600
09-05-24
DEN 109700
09-05-25
DEN 109800
09-05-26
DEN 109900
09-05-27
DEN 110000
09-05-28
DEN 110100
09-05-29
DEN 110200
09-05-30
DEN 110300
09-05-31
DEN 110400
09-06-01
DEN 110500
09-06-02
DEN 110600
09-06-03
DEN 110700
09-06-04
DEN 110800
09-06-05
DEN 110900
09-06-06
DEN 111000
09-06-07
DEN 111100
09-06-08
DEN 111200
09-06-09
DEN 111300
09-06-10
DEN 111400
09-06-11
DEN 111500
09-06-12
DEN 111600
09-06-13
DEN 111700
09-06-14
DEN 111800
09-06-15
DEN 111900
09-06-16
DEN 112000
09-06-17
DEN 112100
09-06-18
DEN 112200
09-06-19
DEN 112300
09-06-20
DEN 112400
09-06-21
DEN 112500
09-06-22
DEN 112600
09-06-23
DEN 112700
09-06-24
DEN 112800
09-06-25
DEN 112900
09-06-26
DEN 113000
09-06-27
DEN 113100
09-06-28
DEN 113200
09-06-29
DEN 113300
09-06-30
DEN 113400
09-07-01
DEN 113500
09-07-02
DEN 113600
09-07-03
DEN 113700
09-07-04
DEN 113800
09-07-05
DEN 113900
09-07-06
DEN 114000
09-07-07
DEN 114100
09-07-08
DEN 114200
09-07-09
DEN 114300
09-07-10
DEN 114400
09-07-11
DEN 114500
09-07-12
DEN 114600
09-07-13
DEN 114700
09-07-14
DEN 114800
09-07-15
DEN 114900
09-07-16
DEN 115000
09-07-17
DEN 115100
09-07-18
DEN 115200
09-07-19
DEN 115300
09-07-20
DEN 115400
09-07-21
DEN 115500
09-07-22
DEN 115600
09-07-23
DEN 115700
09-07-24
DEN 115800
09-07-25
DEN 115900
09-07-26
DEN 116000
09-07-27
DEN 116100
09-07-28
DEN 116200
09-07-29
DEN 116300
09-07-30
DEN 116400
09-07-31
DEN 116500
09-08-01
DEN 116600
09-08-02
DEN 116700
09-08-03
DEN 116800
09-08-04
DEN 116900
09-08-05
DEN 117000
09-08-06
DEN 117100
09-08-07
DEN 117200
09-08-08
DEN 117300
09-08-09
DEN 117400
09-08-10
DEN 117500
09-08-11
DEN 117600
09-08-12
DEN 117700
09-08-13
DEN 117800
09-08-14
DEN 117900
09-08-15
DEN 118000

intlam with lt gy ss.

SHALE - dk to v dk gy, sfis to blky, carb, sl calc to dol', occ slty to v slty, mnr vf sdy lp, mod' to w ind.

SILTSTONE - dk brnsh gy, qtzs, mx ca to dol' cmt, marly grdg to mrst lp, carb to argl, vf sdy grdg to ss lp, w ind.

SANDSTONE - off wh to lt gy, upr vf to upr f gr, occ lwr vf or lwr m gr, occ bimodal with upr m to upr c gr as r to R qtz + cht grns, r to a, mod' to w srtd, sl + var' ca cmt, com' disag, svit + vit qtz, rr wh + lt gy to blk cht, rr dk brn to blk argl or carb grns, p to mnr fr lg por, occ dk xblt or carb spcs, N vss othws.

SANDSTONE - lt to mnr m gy, lwr vf to upr f gr, tr lgr sz qtz + cht grns, r to a, mod' to w srtd, com' disag, sl + var' ca cmt, svit + vit qtz, rr gy to blk cht, tr dk carb grns, p to occ fr lg por, N vss.

SANDSTONE - wh to clr, w to mod cons, upr vf to upr f gr, a to r, vit to sbvit qtz, dol + sil cmt, loc' calc, com qtz ogrth, mnr cly mtx, rr sl argl to thin shly lam, rr pyr, p to fr lx por, tr d o.

DOLOMITE/SILTSTONE - sl mot lt to m + dk gysh brn, dns cx to mx, loc vf x rhombs, com slty gdg to Slst, occ vf gr aren, argl to dk brn org deb, sl pet lp, mnr amb cht frags, sl pyr', p lx por.

SANDSTONE - lt gy to brnsh to occ wh, w cons, vf to f gr, w strd, a to r, rr R, dol cmt, mnr pyr', argl lp, occ slty to Slst, p lx por, N vss.

SHALE - m to occ dk gy, fis to tab, mm, dol', loc slty to sl aren, carb lp, occ pyr nod, mod' ind.

SANDSTONE - wh to clr, mod' cons to disag, upr vf to lwr m gr, mod' srtd, a to R, vit to fros qtz, freq qtz ogrth, dol' lp, mnr cly mtx, mnr wh cht, strky lx por p to fr to infer g, N vss.

DOLOMITE/CHERT - lt to m brn to gysh, dns to fragmental, cx to litho, abnt wh to lt brn + gy cht, pt silicified to mnr aren, occ argl to lt gy to gnsh Sh ltbds + clsts, mnr pyr, N eff por.

SHALE - lt to m gy, occ gnsh + blk, fis to tab, sl wxy, dol' to sil, mm, sl chlor', mnr pyr, com slty, mod' to w ind.

SANDSTONE - wh to lt gy to brnsh, w cons, lwr f to upr m gr, occ c cht gr, a to r, mod to p' srtd, freq lt gy to brn to wh + op cht, qtzs lp, com dol' to Dol ltbds, loc calc to occ fos Ls, occ argl to shly clsts, mnr pyr, p lx por.

DOLOMITE - lt to m gy to brn, dns cx to mx, com argl to shly inclus, lmy lp, loc slty to vf gr aren, pt silicified / occ cht, tr dis pyr, p lx por.

SANDSTONE - wh to clr, w cons to disag, f to m gr, rr c gr, mod' srtd, a to R, decr cht, sbvit to fros qtz, occ cly mtx, calc lp, freq dol' to lt gysh brn Dol, cx to mx, aren lp, mnr argl, p to fr to occ infer g lg por, N vss.

DOLOMITE - bf to m brn, dns to biocl, mdst to wkst, occ pkst, cx to mx, com calc to fos' Ls ltbds, occ silicified / qtz + cht, argl to num grn chlor' Sh lens to clsts, pos anhy' lp, mnr dk org detr to d o, p lx por.

SANDSTONE - wh to clr, mod' cons to fri, upr f to upr m gr, mnr lwr c gr, mod to p' srtd, a to R, fros to vit qtz, occ brn to orang cht, sl to v calc, dol' to qtzs lp, loc qtz ogrth, mnr cly mtx to sl argl, scat fos deb, p to fr to pos g lg por lp, N vss.

SANDSTONE - s + p, lt to m brnsh gy to clr, mod' cons to disag, vf to f gr, mnr lwr m gr, loc slty gdg Slst, w to m srtd, a to r, sbvit to fros qtz, com lt + dk cht, sl to v argl to cly mtx, w cmtd / ca, sil + dol, scat calc fos + shell frags, tr dis pyr, p to occ fr lx por, N vss.

SILTSTONE/DOLOMITE - bf to lt gysh brn, aren lp, dol' to Dol, cx to mx, loc calc, abnt mot lt to dk brn cht frags, occ brnsh blk shaly d o lam to ptngs, mnr fos rmn.

LIMESTONE - crm to lt brn, dns mtc mdst, mnr fos', cx, sl dol' to Dol strgrs, occ qtz + cht, rr pyr xls, tr styl' d o, N eff por.

DOLOMITE - off wh to mot lt to m brn to gysh, cx to mx, loc vf x, freq silic / abdt cht frags + rplcd fos, f gr aren to dol' + chty SS lp, pt argl to grnsh + gy Sh ptngs, occ lmy strgrs, tr pyr, p lx por.

SANDSTONE - wh to mnr lt gy + brn, w cons to occ fri, vf to f gr, w srtd, a to R, fros to vit to rr pk qtz, dol cmt, occ qtzs to calc, scat cht + lmy fos rmn, mnr sl argl to shly clsts, loc qtz ogrth, scat pyr, tr glau/chlor, strky lg por tt to g, N vss.

SANDSTONE - wh to clr to sl gysh, mod to p' cons, pred' f gr, occ slty to vf, mnr lwr m gr bcmg com m gr dwn sectn, w to m srtd, a to R, fros to sbvit qtz, occ vit qtz ogrth, com wh to op to lt gy cht grn + fos rmn, gen dol cmt, loc v calc to fos' + aren Ls strgrs, abdt wh cly mtx, sl argl to gnsh ptngs, mnr dis pyr, p to fr to occ g lg por, tr bit spcs.

DOLOMITE - wh to mnr lt gy, wkst to pkst, f to m xln, sl to v calc, com cht fos deb to f gr aren, mnr sl argl to gn + gy Sh clst, rr pyr, p to mnr fr lx to pp vgy por, N vss.

SANDSTONE - clr to wh, fri to mod' cons, disag in sample, lwr f to upr m gr, w to m srtd, a to r, vit to fros qtz, occ lt cht, com cly mtx, dol' to calc, freq qtz ogrth, fr to infer g lg por, N vss.

SANDSTONE - lt to m gy to brnsh, incr' cons to firm, pred' f gr, w srtd, a to r, fros to sbvit qtz, occ lt + dk cht, dol cmt, occ calc to qtzs, mnr pyr' to sid, sl to v argl, com gy to blk shaly lam to ptngs, cly mtx, p lx por, spty d o stng to bit spcs.

SANDSTONE - v lt to m gy a/a, w cons, s + p, f to vf gr, mnr lwr m grn, loc' slty, a to R, w to m srtd, dol' , mnr ca, sil + pyr cmt, com argl to cly mtx, occ Sh ltbds, p lg por, N vss.

SANDSTONE - wh to mnr lt gy, m cons to fri, upr vf to upr f gr, mnr lwr m gr, w srtd, r to a, loc R, fros to sbvit qtz, occ lt cht, mnr qtz ogrth, dol cmt, mnr calc, abnt wh cly mtx, occ sl argl, mnr pyr, p to fr lg por incr to g dwn sctn, N vss.

SANDSTONE - wh to clr, mod' cons to fri, upr vf to upr m gr, m to w srtd, r to a to occ R, fros to sbvit qtz, occ vit qtz ogrth, occ wh to op cht, dol' to occ Dol strgrs, mnr ca to sil cmt,freq cly mtx, rr sh ptngs, tr pyr, strky lg por p to g, N vss.

SILTSTONE - lt to dk gy, firm, qtz cmt, mnr sl dol', scat pyr dis to nod, sl to v argl to shly lam, loc vf gr aren.

SHALE - blk to dk gy, blky to fkly, w ind to occ sft, mm to occ mica flks, com slty, carb to sl bit, mnr fos deb.

SANDSTONE - wh to lt to mnr m gy, v w cons, vf to f gr, w srtd, a to r, dol + sil cmt, mnr calc fos rmn, argl lp, mnr lt cht, occ cly mtx, tr pyr, p lg por, N vss.

SANDSTONE - wh to clr, mod' cons to fri, f to m gr, m srtd, r to a, sbvit to fros qtz, loc vit qtz ogrth, occ lt cht, dol' to qtzs, occ cly mtx, mnr fos deb, fr to g lg por, N vss.

SANDSTONE - wh to lt + m gy, incr' w cons, vf to f to occ m gr, loc gdg to Slst, w to mod' srtd, a to r, pred' sil cmt, mnr dol' to loc' pyr, sl to v argl to shly lam, cly mtx lp, com mica flks, tt to p lg por, N vss.

SANDSTONE - clr to wh, mnr sl gysh, fri to mod' cons, m to f to mnr lwr c gr, m srtd, a to R, fros to sbvit qtz, loc vit qtz ogrth, occ lt cht, pred' sil cmt, mnr cly mtx, tr pyr, fr to g lg por lp, N vss.

SILTSTONE - wh to lt + occ m gy, w cons, qtzs, loc dol', argl lp, occ pyr.

SANDSTONE - wh to clr, w cons to fri, disag in sample, upr vf to lwr c gr, mod' to p' srtd, a to R, fros to sbvit qtz, occ wh to op cht, occ qtz ogrth, dol + sil cmt, mnr calc, argl lp, occ cly mtx, mnr pyr, p to fr lg por, N vss.

SANDSTONE - wh to lt + m gy, w cons, vf to f gr, mnr lwr m gr, w to m srtd, a to r, loc slty gdg to Slst lp, sil + dol cmt, com pyr' to nod, cly mtx, argl lp / ltbd to lam Sh, dk gy to blk, mm, carb, p lg por.

SILTSTONE - lt to m gy, v w cons, sil + dol cmt, com pyr', freq argl to Sh ltdbs, loc vf to f gr aren to Ss strgrs, mm lp, occ carb flks.

SHALE - blk to dk gy, fis, mm, com carb to sl pet, loc slty.

SILTSTONE - lt brn to gysh, w cmtd / dol, occ sil + ca cmt, pyr' lsp, com vf to f gr aren, sl to argl.

SANDSTONE - wh to clr to sl gysh, mod' cons to fri, pred' f gr, mnr amts lwr m gr incr to com m gr / depth, w srtd, a to r, qtzs to dol', fros to sbvit qtz, loc vit qtz ogrth, mnr lt cht, occ cly mtx, mnr dk thin d o lam, tr dis pyr + mica, p to fr lg por, N vss.

SANDSTONE - crm to lt gy, gen w cons, occ fri, f to vf to loc m gr, w to m srtd, a to r, dol + sil cmt, fros to vit qtz, freq cly mtx, occ slty, mnr argl, p to occ fr lg por, N vss.

SANDSTONE - wh to clr, mod' cons to fri, pred' f gr, occ vf to m gr, w to m srtd, a to r, dol' to qtzs, vit to fros qtz, loc qtz ogrth, occ blk shaly d o lam, mnr pyr, p lg por, N vss.

SANDSTONE/SILTSTONE - lt to m gy to wh, v w cons, vf to f gr, com slty to Slst, w srtd, a to r, dol' to occ dns Dol strgrs, loc sil + pyr cmt, sl to v argl to Sh ltbds, com cly mtx, v p lg por.

SHALE - blk, fis to occ blky, mm, v carb to pet, com slty, pyr' lp, mod' ind.

SANDSTONE - wh to lt gy, mod' cons to fri, lwr f to upr m gr, w to mod' srtd, a to r, vit to sbvit qtz, occ wh cht frags, pred' sil cmt, occ dol' to pyr', argl lp to shaly lam + ptngs, loc cly mtx, com qtz ogrth, p lg por, N vss.

SILTSTONE - lt gy to gn, v w cons, sil cmt, occ dol', sl to argl, occ glau to chlor, pt vf gr aren.

SANDSTONE - wh to clr, w cons to fri, f to m gr, w srtd, a to r, vit to sbvit qtz, mnr lt cht, qtzs to dol', com qtz ogrth, occ cly mtx, mnr amts pyr, scat dk shaly d o lam, p to occ fr lg por, N vss.

SHALE - blk to dk gy, fis to tab, mod' ind, v carb, mm to occ mica flks, loc slty to argl Slst, occ pyr, nod to dis, mnr fos deb.

END OF 444.5 mm SURFACE HOLE

SURFACE CASING at 735.6 m KB

INTERMEDIATE HOLE
311.2 mm

SANDSTONE - wh to lt gy, f to m gr, mod' to occ w srtd, a to r, tr R, sl + rr dol or pyr cmt, mod' to w cons, vit to sbvit qtz, mnr lt cht, rr cly mtx, mnr pyr, occ dk carb shale lam or lns, mtx lp, p to occ fr lg por, N vss.

SHALE - v dk gy to blk, sfis to tab, mod' ind, v carb, occ slty to vf sdy, grdg to v argl slst or ss lp, rr pyr, tr fos deb, mod' ind, brit lp..

WATER INFLUX AFTER TRIP at 756.0 m KB

SANDSTONE - lt gy to wh, sl brnsh lp, upr vf to lwr m gr, mnr slt sz grdg to slst, a to r, mod' to w srtd, mod' cons, sl + rr ca or dol cmt, com sl ogrths, svit + vit qtz, tr lt gy cht grns, rr dk carb intlams or lns, occ carb spcs, tr cly incls, tr pyr as mtx or cmt, p to loc' fr lg por, N vss.

SHALE - v dk gy to blk, sfis, v carb, loc' slty to vf or f sdy, rr pyr nods or incls, mod' ind.

SANDSTONE - lt to m brnsh gy, occ gy, lwr vf to lwr f gr, com' slt sz grdg to slst, mnr upr f gr, a to r, w to mod' srtd, sl + tr dol cmt, com ogrths, svit + vit qtz, rr dk carb intlams or lns, loc' com carb spcs, tr wh to lt gy cly spcs, tr pyr, v p to rr p lg por, N vss.

SANDSTONE/SILTSTONE - lt to m brnsh gy, occ gy, lwr vf to lwr f gr, com' slt sz grdg to slst, mnr upr f gr, a to r, w to mod' srtd, sl + tr dol cmt, com ogrths, svit + vit qtz, rr dk carb intlams or lns, loc' com carb spcs, tr wh to lt gy cly spcs, tr pyr, v p to rr p lg por, N vss.

SILTSTONE - lt to dk gy, qtzs, occ grdg to lwr vf ss, argl, carb mtx lp, rr pyr, sl + mnr ca or dol cmt, mod' to occ w ind.

SANDSTONE/SILTSTONE - lt to m brnsh gy, occ gy, lwr vf to lwr f gr, com' slt sz grdg to slst, mnr upr f gr, a to r, w to mod' srtd, sl + tr dol cmt, com ogrths, svit + vit qtz, rr dk carb intlams or lns, loc' com carb spcs, tr wh to lt gy cly spcs, tr pyr, v p to rr p lg por, N vss.

SHALE - m gy, sfis, plty to tab, sl carb to carb, mm lp, occ slty, tr pyr, tr fos frags, mod' ind.

SANDSTONE - off wh to lt gy, occ bf, upr vf to upr f gr, occ lwr m gr, mnr lwr vf, r to a, mod' srtd, pred' disag, fri, mnr sl cmt, ogrths com, vit + svit qtz, mnr lt to dk gy or occ brn cht, occ dk gy to blk carb lam or incls, rr pyr as nods or istl xls, p to inferred fr lg por, tr dk brn xbit spcs or d os.

SANDSTONE - wh to occ lt gy, disag thru, upr vf to upr f gr, occ lwr m gr, mnr lwr vf, r to a, mod' srtd, sl cmt as ogrths com, vit + svit qtz, rr lt to dk gy cht, tr dk gy to blk carb incls, tr pyr, inferred fr lg por, tr xbit or d o spcs.

SILTSTONE - lt gy, sl sp, qtzs, abnt wh cl mtx, dol cmt, hd, w cmtd, mnr lt brn d os.

SHALE - dk gy to blk, sfis to blky, carb, occ slty, rr pyr, mod' ind.

SANDSTONE - lt gy, f gr, mnr upr vf + rr lwr m gr, r to a, mod' to occ w srtd, mnr disag, sl cmt, dol' cmt incr', tr pyr cmt, vit + svit qtz, rr lt to dk gy cht, occ dk gy to blk carb

incls or lam, tr pyr grns, p lg por, tr carb or xbit spcs.

SANDSTONE - lt gy, occ m gy, grns occ w/ orng Fe stg, upr vf to upr f gr, rr lwr m gr, r to a, mod' srtd, com' disag, sl cmt, abnt ogrths, tr pyr cmt, vit qtz, svit qtz, mnr loc dk gy argl or carb mtx, app of occ pyr nods, occ sd incls in pyr, rr argl, p to occ fr lg por, occ xbit or carb spcs.

SHALE - v dk gy to blk, sfis, waxy, v carb, occ intlams or lns in ss, mod' ind.

SANDSTONE - lt gy, upr vf to upr f gr, mnr lwr vf gr, r to a, mod' to w srtd, pred' disag, sl cmt, ogrths com, svit + vit qtz, rr carb lam or mtx, rr lt + dk cht, rr pyr grns or cmt, tr cht grns, sl tr wh cly incls, p to inferred fr lg por, mnr xbit or d o spcs, N vss.

SANDSTONE - lt to m brn, m gysh brn, upr vf to upr f gr, r to a, mod' to w srtd, disag lp, occ fri, sl cmt, vit qtz, svit qtz, tr cht, tr wh cly incl, fr to p lg por, occ dk brn to blk xbit or d o spcs, lt brn os com, dull ylsh brn fluor', mod' fst blmg yelsh wh cut.

SHALE - dk gy, occ blk, sfis, tab, occ fis, carb to v carb, loc'slty, rr pyr nods or incls, mod' ind.

SANDSTONE - off wh to lt gy, tr lt brn, upr vf to lwr f gr, mnr lwr vf or upr f gr, r to a, mod' to w srtd, com' disag, occ w cons, sl cmt, tr pyr cmt, vit + svit qtz, rr dk carb or arg grn, rr wh or gy cht, tr pyr incls + mtx, tr wh cly mtx, p to fr lg por, sparse blk org mat or xbit stg.

SHALE - v dk gy to blk, dk brnsh gy, sfis to fis, v carb to coaly lp, occ slty, com as mic lam to thn bds in ss.

SANDSTONE - lt gy to lt brnsh gy, upr vf to upr f gr, occ lwr m gr, r to a, mod' srtd, com' disag, sl + mnr ca cmt, ogrths com, tr pyr cmt, vit + svit qtz, occ carb incls or mic lams, tr pyr incls, p to occ inferred fr lg por, mnr loc m to dk brn d os, occ blk xbit.

SANDSTONE - off wh to lt gy, occ lt brnsh gy, upr vf to upr f gr, mnr lwr vf gr, r to a, mod' to w srtd, disag lp, mod' cons, sl cmt, ogrths com, tr ca cmt, vit qtz, svit qtz, rr carb to coaly incls + lams, tr pyr + wh to crm cly incls, p lg por, mnr xbit + d os.

SHALE - dk gy to blk, sfis to fis, carb to v carb, sl coaly lp, occ slty, mod' ind.

SANDSTONE - off wh to lt gy, occ lt brnsh gy or m gy, upr vf to upr f gr, mnr lwr vf gr, tr lwr m gr, r to a, mod' to w srtd, disag lp, mod' cons, sl cmt, ogrths com, tr ca cmt, vit + svit qtz, rr carb to coaly incls + lams, mtx lp, tr pyr, tr cly incls, p lg por, rr patchy blk xbit + d os.

SHALE - v dk gy to blk, sfis to fis, carb lp, occ f' dis pyr, rr pyr nods, mod' to w ind.

DOLOMITIC MARLSTONE - dk brn or brnsh gy, dol', v argl, bit lp, sl slty, hd, w ind.

SANDSTONE - lt gy to lt to m brnsh gy, upr vf to upr f gr, occ lwr m gr, r to a, mod' srtd, com' disag, sl + mnr ca to dol cmt, vit + svit qtz, mnr blk carb incls or mtx lp, occ argl mtx, occ pyr nods or as patchy cmt, tr lt gy or brn cht grns, tr wh cly incls, p lg por, mnr bit spcs or ptchy d o.

SANDSTONE - off wh to lt gy, clr lp, rr m gy or brnsh gy, upr vf to upr f gr, occ lwr m gr, r to occ a, mod' srtd, com' disag, mod' to p' cons, fri lp, sl cmt w/ com ogrths, tr pyr cmt, vit qtz, rr pyr xls, rr loc' argl, tr detr cly, fr to p lg por, rr lt brn os, dull yelsh brn fluor', slow mod' bri yelsh wh cut, sptty dk brn d os + blk xbit.

SANDSTONE - lt gy, occ clr, sl brnsh gy lp, upr vf to upr f gr, occ lwr vf or lwr m gr, r to occ a, mod' srtd, pred' disag, tr w cons, sl cmt, tr loc ca or dol cmt, com ogrths, vit qtz, svit qtz, rr carb grns, tr cly or pyr, tr cht, p to inferred fr lg por, rr blk xbit or d o spcs, tr dk gy to blk sh lam, lns or mtx.

SANDSTONE - lt gy, occ clr, incr' lt brnsh gy, upr vf to upr f gr, occ lwr m gr, r to occ a, mod' to w srtd, com' disag, mod' to w cons, fri lp, sl cmt, rr loc dol cmt, tr pyr cmt, com sl ogrths, vit qtz, svit qtz, rr carb grns, tr cly or pyr grns, tr cht, p to inferred fr lg por, rr blk xbit spcs, loc app' of sparse m brn d os, tr dk gy to blk sh lam, lns or mtx.

SANDSTONE - lt gy, occ m gy, lt brnsh gy lp, lwr vf to lwr f gr, mnr upr f gr, r to a, mod' to w srtd, com' disag, sl cmt w/ ogrths, vit + svit qtz, occ argl, loc carb mtx, p lg por, scat blk xbit spcs.

SHALE - v dk gy to blk, sfis, carb, scat dis pyr, rr pyr nods, tr slt incls, tr pyr' ss lam or incls, mod' ind.

SANDSTONE - dk gy, com argl or carb mtx, slt sz to lwr f gr, r to a, mod' to p' srtd, p lg por, N vss, mnr m to dk brn dol' mdst, sil, fltg sd grns.

SHALE - v dk gy to blk, sfis to occ fis, incr' slty ds, occ dis pyr + nods, mod' ind.

SANDSTONE - off wh to lt gy, occ lt brnsh gy lp, lwr f to lwr m gr, occ vf gr, r to a, rr R or A, mod' srtd, occ disag, mod' cons, sl + app of com ca cmt, ogrths decr' to occ, vit qtz, svit qtz, rr dk arg or carb grn, rr pyr grns or loc mtx, p to mnr fr lg por, tr xbit spcs, tr lt to m brn o spcs, dull brn fluor' + slow halo yelsh wh cut.

SHALE - dk gy to blk, dk brnsh gy, sfis, carb to v carb, occ dis pyr or as nods, mod' ind, occ as lams or lns in ss.

SANDSTONE - lt gy, occ m to dk gy, upr vf to upr f gr, occ lwr vf gr, mnr grdg to slst, r to a, mod' to w srtd, occ disag, mod' cons, occ sil + w cons, sl + occ ca cmt, tr pyr cmt, vit + svit qtz, tr glau + pyr, tr cly incls, patchy argl or carb mtx decr' to occ, p to mnr fr lg por, dull brnsh mnrl fluor', tr slow yelsh wh halo cut, mnr dk xbit spcs.

SANDSTONE - lt gy, mnr lt brnsh gy, occ m to dk gy, upr vf to upr f gr, tr lwr m gr, r to a, mod' srtd, mod' to w cons, disag lp, sl + ca cmt, tr pyr cmt, vit qtz, svit qtz, occ carb mtx, rr pyr xls, tr glau + cly incls, p lg por, N vss.

SHALE - dk gy to blk, dk brnsh gy, sfis to fis, carb to v carb, occ dis pyr, rr pyr nods, loc' slty or vf sdy, mod' ind, occ as lams or lns + mtx in ss.

SANDSTONE - lt gy to m gy, mnr lt brnsh gy, rr dk gy, upr vf to upr f gr, tr lwr m gr, r to a, mod' srtd, mod' to occ w cons, disag lp, sl + ca cmt, tr pyr cmt, vit qtz, svit qtz, decr' carb mtx, rr pyr xls, rr cly grns, p lg por, N vss.

SILTSTONE - lt to m gy, brnsh gy lp, grad' with ss, qtzs, sil, w cons, occ argl or carb, N eff por.

SANDSTONE - off wh to lt gy, occ clr, f gr, occ lwr m gr, r, mod' srtd, com' disag, sl + occ ca cmt, vit qtz, mnr svit qtz, p to inferred fr lg por, rr xbit spcs, tr d os.

SANDSTONE - lt gy, occ m gy, lwr vf to lwr f gr, occ grdg to slst, r to a, mod' to w srtd, com' disag, mod' cons, sl + occ ca or dol cmt, occ sil + w cons, vit qtz, occ svit qtz, rr pyr xls, tr lt cly incls, occ argl or carb, mnr carb mtx lp, p to mnr loc' fr lg por, occ blk xbit or dk brn d os.

UPPER MISSISSIPPIAN
FLETT LIMESTONE
at 1051.5 m K.B. // 1048.5 m T.V.D.

SHALE - dk gy, sfis to occ blky, carb, loc' slty, com as micA lams, rr dis pyr, tr pyr nods, mod' ind.

LIMESTONE - m to dk brnsh gy, mot, frag' to biocl pkst, micro xl to f xl mtx,dol' lp, f to vc sz fos rmns, occ crin oss, rr sil spic, oth ndsc fos frags, dol, rx lp, argl to v argl, occ dk argl grn, rr lx pyr, loc' sil, p lx por, com carb / bit stg.

DOLOMITE - lt to m brnsh gy or brn, lwr vf to lwr f x, mod' com slt to vf sd grns, occ rmnt fos frags, calc lp, p to occ fr lx por, N vss.

SHALE - dk gy, sfis, tab lp, carb lp, v sl calc, occ scat dis pyr, tr ndsc fos rmns, w ind.

LIMESTONE - m to dk brnsh gy, occ lt to m gy or brn, com' mot, biocl pkst to wkst, occ frag', f to vc sz biocls, occ slty to vf xl mtx, cryptoxl ca cmt, dol', occ crin, tr ost + spics, occ loc' com glau, mnr arg grns, loc' argl, rr pyr, N eff por to occ amts of p lx por, N vss.

SHALE - m to dk gy, sfis, carb lp, sl calc, occ loc' marly, rr dis pyr, fos frags incr' to rr, tr crin, mod' to occ w ind.

LIMESTONE - lt to dk gy + brnsh gy, mot lp, biocl to occ frag' pkst, f to vc biocls, occ crin, brac, spic, bry frags, vf to f x ca cmt, dol' lp, occ rx, mnr loc' sil to chty, rr to tr loc' com glau, tr pyr, tr dk gy arg grn, ptchy argl mtx, N eff por to occ amts of p lx por, N vss.

SHALE - m to dk gy, bcg incr' marly.

LIMESTONE - lt to m brnsh gy + mnr dk brnsh gy, mot lp, biocl to mnr frag' pkst, occ grdg to grst, f to vc biocls, occ fos frags, cx to mnr f x ca cmt, dol' lp, occ rx, occ sl sil or chty, rr glau, tr pyr, ptchy argl mtx, tr clr ca frac or void fl, p lx por, tr inferred frac por, occ bit org mat.

LIMESTONE - lt to m brnsh gy, mot, biocl pkst, m to grnl sz biocls, crin, ost, bry, brac et al, clr to lt brn cx spar cmt, rx lp, mnr dol cmt or as repl, mnr pyr xls,rr mdst to sh intcls, tr cht, tr glau, mnr loc' argl mtx, rr slty, v p lx por, N vss.

LIMESTONE - lt brnsh to occ m brnsh gy, mot lp, biocl pkst to mnr grst, m to grnl sz biocls, cx to mnr f x ca cmt, mnr crin, ost, spic, bry, brac, pels, oth ndsc frags, patchy rx', mnr sl and dol cmt or as repl, tr pyr xls, tr cht, tr glau, tr sh intcls, occ loc' argl mtx, rr slty, v p lx por, N vss.

LIMESTONE - lt to m brnsh gy, occ bf, rr dk brnsh gy, mot, biocl pkst to occ grst, vf to c sz biocls, occ fos frags, crin, bry, brac et al, cx to occ f x cmt or mtx, dol' lp, rr sl or cht repl or as cmt, rr glau, tr pyr, v p to mnr p lx por, occ xlt or org mat.

LIMESTONE - m to occ lt brnsh gy, mnr dk brnsh gy, biocl pkst to grst, f to c sz biocls, pred' ndsc, occ rx rmnt fos, occ crin, spic, bry, ost, dol', cx ca or occ dol cmt, mnr f x dol mtx, tr glau, com' argl, occ loc' sil, v p to p lx por, tr frac por, app of mnr mot lt to dk gy or brnsh gy cht shards.

LIMESTONE - lt to m brnsh gy, bf, occ dk brnsh gy, mot, biocl pkst to occ wkst, mnr grst, f to occ c sz biocls, cx to mnr f x ca or occ dol cmt, mnr m brn vf x dol' ls, rx lp, biocls + frags ndsc, dkr argl, rr clr + tr milky ca frac fl, tr subhed ca xls, tr dk arg incls, tr glau + pyr, p lx por, mnr p frac por, N vss.

CHERT - dk brnsh gy, fnt rmnt fos outlines, tr spic, mnr rmnt ca, argl lp, rr arg incl, ls repl, v dns + hd, rr sl frac fl.

CHERT - lt to dk brnsh gy, occ rmnt fos outlines, tr crin + spic, mnr rmnt ca incls, argl lp, occ grdg to chty ls, ls repl, v dns + hd, rr clr or milky sl or ca mic frac fl.

LIMESTONE - lt to m brnsh gy, bf, occ dk brnsh gy, mot, biocl pkst to wkst, mnr vf to f xln dol' ls, mnr grst, f to occ c sz biocls, cx to mnr f x ca or occ dol cmt, rx lp, biocls pred' ndsc, tr brac, crin, spic, com dkr argl or org mat, rr clr + tr milky ca mic frac + frac fl, tr dk arg incls, tr glau + pyr, p lx por, mnr p frac por, N vss.

LIMESTONE - m to dk brnsh gy, mnr bf to tn, occ m to dk brn, biocl pkst to occ grst, mnr biocl to frag wkst, f to c biocls, rx lp, rr crin + spic, cx to occ vf or f x ca cmt, dkr argl to v argl, org mat lp, loc' sil, occ dol' ls, rr milky ca mic to sml frac fl, N eff por to mnr p lx por, N vss.

SHALE - m to dk gy, blky to sfis, calc, carb lp, occ v f' dis pyr, occ ndsc ca fos frag, mod' ind.

LIMESTONE - lt to m brnsh gy, biocl pkst to occ wkst, f to c biocls, rr crin, cx to mnr vf x ca or mnr dol cmt, tr pyr cmt, sl argl to argl, org mat lp, rr slt, rr milky ca frac fl, N eff to rr p lg por, N vss.

LIMESTONE - lt to m brn, grdg to dk brn in lrg pt, biocl wckstn, grdg to biocl pckstn, pred' microxl, occ amts of vf + f xl, com amts of crin, foram + spnge spcls , + rr amts of bryzoan, loc' v argl - grdg to calc marl in pt, chrty in pt, anhy' in sml pt, rr amts of vf sz lrreg shpd anhy clasts / blebs, rr amts of v sml scl microfrctrng sealed / m to c xl ca spar, bcmg incrngly orgnc dwn sect, N eff por, slw dull yel halo C fluor'.

SHALE - dk gy to dk gysh blk, sfis, calc, mod' ind.

LIMESTONE - v lt brn, grdg to bel, com dk brn, biocl mdstn, pred' microxl, com amts of cryptoxl, rr amts of skel detr - crin, foram, sponge spcls, loc' v argl, grdg to calc marl in pt, loc' v chrty, rr amts of v sml scl microfrctrng sealed / f to c xl ca spar, occ' smts of lrreg shpd vf to m sz anhy clasts/blebs, loc' v orgnc in lrg pt, N eff por, slw dull yel halo C fluor'.

LIMESTONE - lt to dk brn in lrg pt, biocl mdstn, grdg to biocl wckstn in pt, pred' microxl, com amts of cryptoxl, mnr amts of skel detr - crin, foram, sponge spcls, loc' v argl, loc' v chrty, rr amts of v sml scl microfrctrng sealed / f to c xl ca spar, loc' v orgnc in lrg pt, N eff por, slw dull yel halo C fluor'.

SHALE - dk gysh blk, sfis, v calc, w ind.

LIMESTONE - lt brn, grdg to dk brn in lrg pt, biocl mdstn,

LIMESTONE - lt brn, grdg to dk brn in lrg pt, biocl mdstn, grdg to biocl wckstn in sml pt, grdg to biocl pckstn in pt dwn sect, pred' microxl, com amts of cryptoxl, rr amts of skel detr - crin, foram, sponge spcls, + bryzoan, + solitry coral, loc' v argl, chrty in pt, rr amts of v sml scl microfrctrng sealed / f to c xl ca spar, occ' smts of irreg shpd vf to c sz anhy clasts/blebs, orgnc in lrg pt, N eff por, slw dull yel halo C fluor'.

LIMESTONE - lt brn, grdg to bel in lrg pt, com dk brn, biocl wckstn, microxl, mnr cryptoxl in lrg pt, occ amts of crin, spng spcls, undiff foram + bryzoan, anhy' in sml pt - a/a, rr amts of microfrctrng sealed - a/a, loc' chty, argl, orgnc in lrg pt, N eff por, C fluor' a/a.

LIMESTONE - dk brn,grdg to lt brn + bel in pt, wckstn, freq grdg to mdstn, microxl, cryptoxl in lrg pt, biocl, occ to rr amts of spng spcls, undiff foram + bryzoan, anhy' in sml pt - a/a, rr amts of microfrctrng sealed - a/a, loc' chty, argl, orgnc in lrg pt, N eff por, fluor + C fluour' a/a.

LIMESTONE - dk brn, grdg to lt brn + bel in pt, biocl wckstn, freq grdg to biocl mdstn dwn sect, microxl, cryptoxl in lrg pt, occ to rr amts of spng spcls, undiff foram + bryzoan, rr crin frags, rr amts of sml scl microfrctrng sealed / clr microxl ca spar, chty to loc' v chty in pt, v argl, grdg to calc marl, v orgnc in lrg pt, N eff por, slw lt yel halo C fluor'.

LIMESTONE - lt brn + bel in pt, grdg to dk brn in pt, biocl wckstn, microxl, cryptoxl in lrg pt, mnr amts of crin, spng spcls, undiff foram, loc' foram detr rimmed / pyr in sml pt, slty, v argl, loc' grdg to calc marl, v orgnc in lrg pt, N eff por, slw lt yel halo C fluor'.

MARLSTONE - dk brn, grdg to dk gy, v calc, w ind.

SHALE - dk gy, grdg to dk gysh blk in pt, sfls, mnr blky, calc, mod' ind.

LIMESTONE - lt gysh brn, grdg to m gysh brn, biocl mdstn, cryptoxl, mnr amts of microxl, rr amts of skel detr - crin, undiff foram, spng spcls, slty in pt, v argl thru, orgnc in sml pt, N eff por, slw dull yel halo C fluor'.

SHALE - dk gy, grdg to m gy in sml pt, sfls, com blky, calc, mod' ind.

LIMESTONE - lt gysh brn, grdg to m gysh brn, biocl mdstn, cryptoxl, mnr amts of microxl, rr amts of skel detr - crin, undiff foram, spng spcls, slty in pt, v argl thru, orgnc in sml pt, N eff por.

SHALE - dk gy, grdg to m gy in pt, sfls, com blky, calc, mod' ind.

MARLSTONE - dk brn, grdg to dk gy, v calc, rr foram skel detr, w ind.

SHALE - dk gy, grdg to m gy, sfls, com blky, calc, rr amts of skel detr - crin + undiff foram, mod' ind.

LIMESTONE - lt brn, biocl mdstn, loc' erthy, pred' microxl, occ amts of crin, undiff foram, rr spng spcls, slty, v argl thru, bcmg sl' orgnc in pt, N eff por, v slw dull yel halo C fluor'.

MARLSTONE - dk brn, grdg to dk gysh brn, v calc, rr foram skel detr, w ind.

LIMESTONE - lt brn, biocl mdstn, loc' erthy, pred' microxl, occ amts of crin, undiff foram, rr spng spcls, slty, v argl thru, bcmg sl' orgnc in pt, N eff por, v slw dull yel halo C fluor'.

SHALE - m gy, grdg to dk gy, sfls, occ blky, calc, rr amts of crin skel detr, w ind.

LIMESTONE - lt brn, grdg to m brn in pt, biocl mdstn, grdg to biocl wckstn in sml pt, pred' microxl, occ amts of crin, brach, rr amts of undiff foram, rr spng spcls, slty, v argl thru, bcmg sl' orgnc in pt, N eff por, v slw dull yel halo C fluor'.

SHALE - m gy, sfls, calc, rr amts of crin skel detr, mod' ind.

LIMESTONE - lt brn, grdg to m brn in lrg pt, biocl wckstn, grdg to biocl pckstn in sml pt, pred' microxl, occ amts of crin, brach, rr amts of spng spcls, slty, loc' argl in pt, bcmg sl' orgnc in pt, N eff por, v slw dull yel halo C fluor'.

LIMESTONE - lt brn, grdg to m brn in lrg pt, biocl pckstn, grdg to biocl wckstn in sml pt, pred' microxl, occ amts of crin, brach, rr amts of spng spcls, slty, loc' argl in pt, bcmg sl' orgnc in pt, N eff por, v slw dull yel halo C fluor'.

MARLSTONE - dk brn, v calc, loc' v chrty in sml pt, w ind.

SHALE - dk gy, grdg dwn sectn to m gy in pt, sfls, com blky, calc, com amts of vf sz pyr spcs dwn sectn, rr amts of crin skel detr, v rr pyr grnls, w ind.

LIMESTONE - lt + m gysh brn, biocl mdstn, pred' microxl, abnt cryptoxl, occ amts of crin, undiff foram + spng spcls, rr brach, v argl, loc' grdg to v calc marl, N eff por, N shows.

MARLSTONE - dk gysh brn + dk brn, v calc, loc' v chrty thru, rr amts of skel detr - spng spclsm foram + brach, w ind.

SHALE - dk gy, sfls, mnr blky, calc, rr fos frags - brach + crin, rr vf sz pyr spcs, w ind.

LIMESTONE - m brn, grdg to m gysh brn, biocl mdstn, pred' cryptoxl, microxl in pt, occ amts of brach, crin, undiff foram + spng spcls, v argl, slty, loc' chrty, rr amts of pyr inclns, orgnc in v sml pt, N eff por, N shows.

LIMESTONE - m gysh brn, biocl mdstn, grdg to biocl wckstn in v sml pt, microxl, abnt amts of cryptoxl, occ amts of brach, crin, undiff foram + spng spcls, v argl, slty, loc' v chrty, rr amts of pyr inclns, orgnc in v sml pt, N eff por, N shows.

LIMESTONE - lt brn, biocl wckstn, grdg to biocl pckstn, pred' microxl, loc' recrystlzd vf + f xl in pt, chlky in pt, occ crin frags, rr brach + spng spcls, argl in sml pt, slty, rr amts of pyr inclns, orgnc in v sml pt, N eff por, N shows.

LIMESTONE - lt brn, biocl wckstn, grdg to biocl pckstn, pred' microxl, loc' recrystlzd vf + f xl in pt, bcmg more recrystlzd in ths intrvl, occ crin frags, rr brach + spng spcls, argl in sml pt, orgnc in v sml pt, N eff por, N shows.

LIMESTONE - lt to m gysh brn, biocl wckstn, grdg to biocl mdstn, microxl, rr amts of vf xl, occ amts of skel detr - undiff foram, crin + spng spcls, v argl, orgnc in sml pt, N eff por, v slw dul yelsh wh C fluor'.

LIMESTONE - lt to m gysh brn, biocl peld wckstn, grdg to biocl peld pckstn in sml pt, microxl, rr amts of vf xl, occ to com amts of skel detr - undiff foram, crin + spng spcls, rr amts of bryzoan, occ amts of m to vc sz pelds, argl in sml pt, loc' bcmg v chrty - irreg pervasive chrtyfs‍l alteratns, rr pyr spcks, orgnc in sml pt, N eff por, v slw dul yelsh wh C fluor'.

LOWER MISSISSIPPIAN
UPPER BESA RIVER
at 1366.7 m KB // 1363.0 m TVD

SHALE - m gy, sfls, com splntry, mnr blky, strng clvge devlpmnt, frctrd - sicknsded, frctur plnes encr / pyr + rr amts of cryptoxl dol spar, jointed - jnt plnes loc' encr / pyr, occ amts of pyr grns + grnls dsprsd thru, rr Fe conc, rr dk brn cht inclsns, p' ind.

SHALE - m gy, freq dk gy, fis + splntry in lrg pt, sfls in pt, bcmg sl' hydrophyllic in sml pt, micaceous in sml pt, occ skel detr - crin / foram, distnct clvge devlpmnt, frctrd / slcknsded in sml pt, irreg micro frctur plnes encr / pyr + rr amts of cryptoxl dol spar, rr amts of clr sl spar dsprsd thru, jointed - jnt plnes loc' encr / pyr, occ amts of pyr grns + grnls dsprsd thru, occ Fe conc, rr dk brn cht inclsns, p' ind.

MARLSTONE - lt to m gysh brn, calcareous, very cherty, pyr', w ind.

SILTSTONE - m gy, blky, qtzs, ca cmt, v argl, pyr' in lrg pt, mod' ind.

LIMESTONE - lt to m gysh brn, mottld, biocl peld grnstn grdg to biocl peld pckstn, f to c / mnr vc sz frmwrk text, loc' recrystlizd - pred' microxl to vf xl, mnr amts of f xl, crin, brach, foram, freq c to vc sz pelds, frmwk compnts replcd . vf to f xl ca spar + cryptoxl sl spar, occ loc' sml scl frctrs - sealed / micro to vc xl ca/sl/dol spar, sl' argl in sml pt, N eff por to rr amts of inferr fractr + intarxl por, q spty orgnc stng thru.

SHALE - dk gy, sfls + blky, calc, pyr' in sml pt, rr crin skel detr, mod' ind.

LIMESTONE - lt to m br, biocl peld pckstn, grdg to biocl peld wckstn, pred' microxl, frmwrk compnts replcd / vf to f xl ca spar, rr micro fractrs - sealed / crytpxl sl + ca spar, bcmg argl in pt, N eff por.

LIMESTONE - m brn, mnr amts of lt brn, mottld in pt, biocl wckstn, grdg to biocl mdstn in lrg pt, pred' microxl, mnr to occ crin, foram, + brch skel detr, loc' v slty, bcmg v argl in lrg pt, N eff por.

LIMESTONE - m brn to m gysh brn, mnr amts of lt brn, mottld, biocl peldl pckstn, grdg to grnstn in lrg pt, f to vc sz frmwrk text in pt, pred' microxl, loc' extnsvly recrstlizd vf to f xln, crin, foram + brach, freq c to vc sz pelds, frmwk compnts replcd / cryptoxl clr + wh ca spar, loc' partly / off wh vf to vc xl anhed dol spar, loclzd sml scl frctrs - sealed / cryptoxl to f xl anhedral ca + dol spar, occ amts of m brn orgnc stng surrnd skel detr, infer p intrxl por.

SHALE - m gy, blky + sfls, fis in sml pt, mod' clvage devlpmnt, rr amts of Fe conc, rr amts of dism pyr, mod' ind.

SHALE - m gy, grdg to m brnsh gy in sml pt, blky, mnr sfls, indistnct clvge devlpmnt, mnr Fe conc, rr pyr grnls, mod' ind.

SHALE - m gy, sfls, occ blky, indistnct clvge devlpmnt, rr Fe conc, rr pyr grnls, mod' ind.

SHALE - m gy, sfls to fis, occ blky, distnct clvge devlpmnt, rr Fe conc, rr pyr grnls, mod' ind.

SHALE - m gy, sfls + blky, occ fis, indistnct clvge devlpmnt, rr Fe conc, rr pyr grnls, mod' ind.

SHALE - m gy, sfls + blky, occ fis + splntry, indistnct clvge devlpmnt, occ Fe conc - incrng in proportn in this intrvl, rr pyr grnls, rr sil crin frags, mod' ind.

SHALE - m gy, splntry + blky, dstnct clvge devlpmnt, com jntng - oblique to clvge, rr amts f slcknsds, com microfractrs - sml scl subparall to dendroid frctrs sealed / ca then sl - microxl / accicular to vc xl spar, occ amts of pyr vng, mod' ind.

SHALE - m gy, mnr dk gy, splntry + fis, mnr blky, dstnct clvge devlpmnt, occ amts of jntng - oblique to clvge, occ amts of slcknsds, com microfractrs- sml scl subparall to dendroid frctrs sealed / wh ca then sl - microxl / accicular to truncated vc xl spar, mnr Fe conc, occ amts of m brn calc marl lam - decr in proportion dwn sect, mod' ind.

MARLSTONE - m to dk brn, v calc, w ind.

SHALE - m gy, occ dk gy, splntry + fis, mnr blky, dstnct clvge devlpmnt, com amts of jntng - oblique to clvge, occ amts of slcknsds, occ sml scl subparall to dendroid frctrs sealed / wh ca then sl - microxl / accicular to truncated vc xl spar, occ amts of Fe conc, w ind.

LIMESTONE - lt to m brn, biocl wckstn, pred' cryptoxl, mnr microxl, occ crin skel detr, prevasive sil' thru, N eff por, N shows.

SHALE - m gy, sfls, com blky, micr in sml pt, indistinct clvge devlpmnt, fractrd in sml pt - as abv, rr crin skel detr, rr amts of pyr vng thru, v sl' dol' in sml pt, mod' ind.

SILTSTONE - m gy, qtzs, dol + ca cmt, mnr amts of sl cmt, v argl, loc' pyr' in sml pt, v argl, mod' to w ind.

MARLSTONE - lt to m brn, v calc, v cherty in pt, w ind.

SHALE - m gy, sfls, com blky, mica in sml pt, indistinct clvge devlpmnt, fractrd in sml pt - as abv, rr crin skel detr, rr amts of pyr vng thru, v sl' dol' in sml pt, mod' ind.

LIMESTONE - lt brn, biocl mdstn, cryptoxl, earthy, rr crin skel detr, v argl, slty, N eff por, N shows.

MARLSTONE - dk brn, v calc, v chrty, w ind.

SHALE - m gy, sfls, com blky, indistinct clvge devlpmnt, fractrd in sml pt - sealed / wh cryptoxl ca + rr amts of sl spar, rr crin skel detr, rr amts of pyr vng thru, v sl' dol' in sml pt, mod' ind.

MARLSTONE - m to dk brn, v calc, slty, mod' ind.

SHALE - m gy, sfls + blky, indistinct clvge devlpmnt, rr amts of micro fractrng - sealed - as abv, bcmg more dol', rr crin skel detr, rr pyr grnls, mod' ind.

SHALE - m gy, mnr dk gy, as abv, slcknsded, distinct clvge devlpmnt, mnr jointing evident - perpendcular to clvge, rr amts of micro fracturs - sealed / cryptoxl to vf xl ca spar, dol', mod' ind.

MARLSTONE - dk brn, mnr m brn, calc, w ind.

LIMESTONE - lt brn, biocl wcstn, microxl, com vf xl, recrstllzd, occ crin skel detr, dol', argl, sil' in pt, N eff por, N shows.

SHALE - m gy, mnr dk gy, as abv, slcknsded, distinct clvge devlpmnt, mnr jointing evident - oblique to clvge, rr amts of micro fracturs - sealed / cryptoxl ca spar, sl' dol', mod' ind.

MARLSTONE - m brnsh gy + dk brn, v calc, w ind.

SHALE - m gy, fis + splntry, distinct clvge devlpmnt, com jointing evident - oblique to clvge, slcknsded, rr amts of micro fracturs - sealed / cryptoxl ca spar, dol', bcmg v calc in pt, mod' ind.

LIMESTONE - lt brn, biocl wcstn, microxl, occ crin + foram skel detr, dol', argl, N eff por, N shows.

MARLSTONE - dk brn, grdg to dk brnsh gy, calc, chrty in part, rr skel detr - foram, w ind.

LIMESTONE - lt brn, biocl wcstn grdg to mdstn, microxl, occ crin + foram skel detr, dol', argl, N eff por, N shows.

MARLSTONE - dk brn, microxl, micro sucrsc text, loc' v calc, dol', bcmg incrngly micro fractrd, chrty in pt, w ind.

SHALE - m gy, fis, occ splntry, distinct clvge devlpmnt, rr amts of micro fracturs - sealed / cryptoxl + microxl ca spar, calc, mod' to w ind.

LIMESTONE - lt brn, biocl mdstn, earthy, chlky, rr foram skel detr, slty, v argl, N eff por, N shows.

SHALE - m gy, fis + blky, distnct clvge devlpmnt, com jointing evident - oblique to clvge, slcknsded in pt, loc' bcmg v calc, rr amts of dism pyr, mod' to w ind.

LIMESTONE - m gysh brn + m brnsh gy, mdstn, microxl, micro sucrsc text, dol', v argl, N eff por, N shows.

LIMESTONE - m gysh brn + m brnsh gy, mdstn, microxl, micro sucrsc text, dol', v argl, N eff por, N shows.

MARLSTONE - dk brn, grdg to dk brnsh gy in lrg pt, microxl in pt, micro sucrsc text in pt, loc' v calc, dol' in sml pt, mnr amts of sml scl microfractrng - sealed / wh cryptoxl ca + sl spar, w ind.

LIMESTONE - lt to m brn, grdg to m brnsh gy, mdstn, pred' earthy, microxl in sml pt, v argl, N eff por, N shows.

MARLSTONE - dk brn, grdg to dk brnsh gy in lrg pt, v calc, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, w ind.

SHALE - m gy, subfis, indistnct clvge devlpmnt, rr amts of microfractrng - as abv, mod' to w ind.

LIMESTONE - lt brn, mdstn, pred' earthy, microxl in sml pt, v argl, N eff por, N shows.

SHALE - dk gy, grdg to m gy, subfis, mnr fis, indistnct clvge devlpmnt, calc, mod' to w ind.

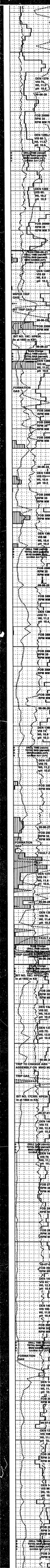
SHALE - m gy, subfis to fis, splntry in sml pt, distnct clvge devlpmnt, loc' occ amts of jointing - oblique to clvge, rr amts of slcknsds, calc, mod' to w ind.

MARLSTONE - dk brnsh gy, v calc, w ind.

SHALE - dk gy, sfls + blky, indistnct clvge devlpmnt, calc, mod' to w ind.

LIMESTONE - m brnsh gy, biocl mdstn, pred' earthy text, microxl in sml pt, orgnc in sml pt, no vis dry fluor', v slw dull gldn yel halo C fluor, N eff por.

MARLSTONE - dk brn, grdg to dk brnsh gy, v calc, occ amts of sml scl microfractrng - sealed / cryptoxl + microxl


DEN 1370
VIS 70
PH 10.5
OIL 86-29
FOB 20000
SPM 50
SPM MM 70
DEN 1380
VIS 65
PH 10.5
FOB 20000
SPM 50
SPM MM 70
DEN 1340
VIS 60

SHALE - m gy, subfis + fis, gen a/a, dol', rr amts of cly Fe conc, mod' ind.

MARLSTONE - lt gy, dol', calc in pt, w ind.

SHALE - m gy, subfis + blky, indistinct clvge develpmnt, bcmg incrngly jointed + frctrd - mnr amts of wh to off wh cryptoxl ca spar, dol', rr amts of lt gysh brn bentc clystn lam, mod' ind.

SHALE - m gy, as abv, com pyr grns + grnsl, frctrd in sml pt - occ amts of wh to off wh cryptoxl ca spar, rr amts of fos frags, mod' ind.

MARLSTONE - m gy, calc, w ind.

SHALE - m gy, sfis, indistinct clvge develpmnt, v calc thru, rr amts of cly Fe conc, rr amts of fos frags, mod' ind.

MARLSTONE - m gy, occ lt gy + lt brn, v calc, loc' v aren - fltg upr vf sz a qtz grns dsprsd thru, w ind.

SHALE - m gy, sfis, indistinct clvge develpmnt, sl' calc, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, rr amts of pyr grns, mod' ind.

SHALE - m gy, sfis + blky, indistinct clvge develpmnt, sl' calc, occ amts of microfractrng - as abv, sealed / pyr in pt, rr amts of lt brn bentc clystn lam, mod' ind.

MARLSTONE - m gy, calc, w ind.

SHALE - m gy, sfis, indistinct clvge develpmnt, calc, occ amts of sml scl microfractrng - sealed / wh cryptoxl ca + sl spar, mod' ind.

MARLSTONE - m gy, occ m brn, calc, w ind.

SHALE - m gy, sfis + blky, indistinct clvge develpmnt, dol', occ amts of sml scl microfractrng - sealed / wh cryptoxldol spar, mod' ind.

SHALE - m gy, sfis to fis, indistinct clvge develpmnt, jointed in pt, rr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl dol spar, fractrd in sml pt - rr slcknsds, occ lt brn bentc clystn lam, mod' ind.

SHALE - m gy, sfis to blky, indistinct clvge develpmnt, dol', bcmg calc dwn sect, rr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl dol spar, mod' ind.

MARLSTONE - m gy, calc, bcmg dol' dwn sect, aren in sml pt - fltg upr vr sz a frost qtz grns dsprsd thru, w ind.

SHALE - m gy, sfis, indistinct clvge develpmnt, dol', rr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl dol spar, rr undiff foram skel detr, mod' ind.

SHALE - m gy, sfis, indistinct clvge develpmnt, dol' in pt, rr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl dol spar, rr pyr grns, mod' ind.

SHALE - m gy, mnr lt gy, fis to sfis, mnr blky, distinct clvge develpmnt, jntd in pt, dol' in pt, rr amts of sml scl microfractrng - sealed / wh to lt tan cryptoxl ca + dol spar, rr dism pyr + pyr grns, rr crin skel detr, mod' ind.

MARLSTONE - m gy, m gysh brn + dk brn, calc, w ind.

SHALE - m gy, sfis, com blky, indistinct clvge develpmnt, rr amts of sml scl microfractrng - sealed / wh cryptoxl dol spar, rr dism pyr + pyr grns, rr cly Fe stn conc, mod' ind.

SHALE - m gy, sfis to fis, distinct clvge develpmnt, rr amts of sml scl microfractrng - sealed / wh cryptoxl dol spar, occ cly Fe stn conc, rr dism pyr + pyr grns, rr crin skel detr, mod' ind.

MARLSTONE - m gy + m brn, calc, w ind.

SHALE - m gy, grdg to dk brnsh gy, m brn + m rdsh brn in pt, sfis, indistinct clvge develpmnt, rr amts of sml scl microfractrng - sealed / wh cryptoxl dol spar, com cly Fe stn conc, occ pyr grns, bcmg sid' in pt, mod' ind.

SHALE - m gy, sfis to fis, minr amts of spintry + blky, distinct clvge develpmnt, jointed in pt, mnr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, micrfrctrng incrng dwn sect, occ pyr grns + pyr vng, rr cly Fe conc, mod' ind.

SILTSTONE - m gy, qtzs, sl + ca cmt, rr pyr cmt, w ind.

SHALE - m gy, grdg to dk brnsh gy + m brn in pt, sfis, blky in pt, indistinct clvge develpmnt, loc' comr amts of sml scl microfractrng - sealed / wh cryptoxl to m xl ca spar, com cly Fe stn conc, bcmg sid' in pt, mod' ind.

SHALE - m gy, grdg to lt gy in pt, sfis to fis, spintry in pt, distinct clvge develpmnt, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, rr Fe stn conc, mod' ind.

SHALE - m gy, rr amts of dk gy, sfis + blky, indistnct clvge develpmnt, bcmg sl' carb in v sml pt, rr amts of pyrtzd foram skel detr, mod' ind.

MARLSTONE - m gysh brn, dol', w ind.

SHALE - m gy, rr amts of dk gy + dk gysh blk, sfis, com blky, indistnct clvge develpmnt, bcmg sl' carb in sml pt, occ amts of sml scl microfractrng - seale / wh cyrptoxl ca spar, occ amts of pyr grns - incrng / in ths intrvl, mod' ind.

SHALE - m gy, grdg to m brnsh gy, sfis, mnr fis, distinct clvge develpmnt, dol' in pt, sid' in pt, occ pyr grns - as abv, rr crin skel detr, mod' ind.

SHALE - m gy, grdg to m brnsh gy, sfis, mnr fis, indistinct clvge develpmnt, fractrd - sealed / wh cryptoxl to f xl anhedral ca spar, rr amts of vf xl pyr spar, dol' in pt, sid' in pt, occ pyr grns + grnsl - incrng within ths intrvl, mod' ind.

MARLSTONE - m gysh brn, dol', w ind.

SHALE - m gy, occ amts of dk gy, sfis, mnr fis, distnct clvge develpmnt rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, rr amts of dism pyr, dol' in sml pt, mod' ind.

MARLSTONE - m gysh brn, dol', w ind.

UPPER DEVONIAN

FIRST BLACK SHALE // EXSHAW
at 2164.0 m K.B. // 2157.2 m T.V.D.

SHALE - dk gysh blk, mnr amts of m to dk gysh brn, blky + spintry, extensvly frctrd - open in sml pt, sealed / wh cryptoxl ca, + clr m to vc xl euhdrl sl spar, occ amts of pyr vng, v orgnc / carb + bitmns thru, loc' v sil' in sml pt, slw pale yel hal C fluor', mod' ind.

MARLSTONE - dk gysh brn grdg to blk, dol', v slty, loc' v pyr', sil in pt, v orgnc / bitmns thru, w ind.

SHALE - dk gysh blk + m brn, grdg to m gysh brn, sfis to fis, less frctrd thn abv, loc' bcmg v sid' - com cly Fe stn conc, occ pho grn incl, occ pyr grns, orgnc / carb as abv, w ind.

SHALE - m brn, grdg to m gysh brn, mnr dk gysh blk, sfis, occ amts of fis, distinct clvge develpmnt, jointed in sml pt, loc' v orgnc / carb, v sid', occ cly Fe stn conc, pyr' in sml pt, mnr pyr grns + grnls dsprsd thru, mod' to w ind.

SHALE - blk, grdg to dk gysh blk, grdg to dk gysh brn, sfis + blky, occ amts of fis, distinct clvge develpmnt, jointed in sml pt, loc' v orgnc / carb / phos' in lrg pt - com f to m sz r phos grns scat thru, sid' in pt, occ cly Fe stn conc, occ pyr grns + grnls dsprsd thru, mod' to w ind.

SHALE - blk, grdg to dk gysh blk + m gysh brn, sfis + spintry, distinct clvge develpmnt, jointed in sml pt, loc' v orgnc / carb / phos' in lrg pt - mnr f to m sz r phos grns scat thru, bitumns in pt, sid' in pt, occ cly Fe stn conc incrng in proportn dwn sect, occ pyr grns + grnls dsprsd thru, rr lt brn bentc clystn lam, rr pyrtzd foram skel detr, mod' to w ind.

SILTSTONE - wh to lt brn, grdg to dk gysh blk, qtzs, sl cmt, rr phos grns, aren - vf sz, com dk gysh blk orgnc stng thru, w ind.

SHALE - dk gy, grdg to dk brnsh gy + dk gysh blk, mnr m gysh brn, sfis + spintry, distinct clvge develpmnt, jointed in sml pt, loc' orgnc / carb / phos' in lrg pt - occ amts of f to m sz r phos grns scat thru, bitumns in pt, sid' in pt, occ cly Fe stn conc incrng in proportn dwn sect, occ pyr grns + grnls dsprsd thru, mod' to w ind.

SILTSTONE - m brn, grdg to dk gysh blk, qtzs, sl cmt, rr phos grns, aren - vf sz, com m brn + dk gysh blk orgnc stng thru, w ind.

SHALE - dk gy, grdg to m gysh brn + dk gysh blk, sfis + spintry, distinct clvge develpmnt, jointed in sml pt, occ amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, loc' orgnc / carb / phos' in sml pt, loc' v sid' in pt, mnr cly Fe stn conc, mnr pyr grns + grnls dsprsd thru, mod' to w ind.

SHALE - m gy, com dk gy, occ amts of dk gysh blk, sfis, mnr blky, indistinct clvge develpmnt, occ amts of sml scl microfractrng - sealed / wh cryptoxl ca spar + sl spar, mnr amts of lt gy + lt brn bentc clystn lam, occ pyr grns + grnls, carb in pt cmg incngly carb + phos dwn sect, , mod' ind.

SILTSTONE - m brn, grdg to m gysh brn, qtzs, rr phos grns, occ sl + sid cmt, v argl, loc' v bitmns, mod' ind.

SHALE - m gy + dk gysh brn, grdg dwn sect ot dk gysh blk + blk, subfis, mnr blky, indistinct clvge develpmnt, v orgnc in lrg pt, v carb thru, phos in lrg pt, loc' com amts of m brn cly Fe stn conc thru, occ pyr grns + grnls - incr in proportn dwn sect, mod' ind.

SILTSTONE - m to dk gysh brn, qtzs, pyr', v argl, abnt m to dk brn orgnc stng thru, mod' ind.

SHALE - dk gysh blk + blk, grdg dwn sect to m + dk gy, sfis, mnr blky, indistinct clvge develpmnt, v orgnc in pt, v carb in pt, loc' dol' dwn sect, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, rr amts of lt to m brn cly Fe stn conc, rr amts of pyr grns + grnls, mod' ind.

SHALE - dk gysh blk + blk, grdg to m + dk gy, sfis, mnr fis, distinct clvge develpmnt, orgnc in pt, v phos, carb in pt, dol in pt, occ to mnr amts of m to dk brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar+ clr sl spar, loc' v pyr', mnr amts of pyr grns + grnls, rr amts of pyrtzd crin skel detr, mod' to w ind.

SILTSTONE - dk gysh brn, grdg to dk gysh blk, qtzs, sl cmt, v argl, abnt dk brn to blk orgnc stng thru, w ind.

SHALE - dk gy, grdg to dk gysh blk + blk, mnr amts of m gy, sfis, mnr fis, distinct clvge develpmnt, loc' v bentc in pt, orgnc in lrg pt, v phos, v carb, dol in pt, mnr amts of m to dk brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / clr to wh cryptoxl to c xl sl + ca spar - encrstd / blk bitmn in pt, v pyr', mnr amts of pyr grns + grnls, mod' to p' ind.

SHALE - dk gy + dk gysh blk, sfis, indistinct clvge develpmnt, orgnc in lrg pt, v phos, v carb, bentc in pt, mnr amts of lt gy to m + dk brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / clr to wh cryptoxl ca spar - encrstd / blk bitmn in pt, v pyr' in pt, mnr amts of pyr grns + grnls, mod' to p' ind.

SHALE - dk gy, grdg to dk gysh blk, sfis, mnr amts of blky, indistinct clvge develpmnt, orgnc in pt, carb in pt, occ amts of lt gy to lt brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / clr to tl gysh wh cryptoxl ca + sl spar, pyr' in pt, loc com dism pyr, mnr amts of pyr grns + grnls, mod' ind.

SHALE - dk gy, sfis, mnr amts of blky, indistinct clvge develpmnt, carb in sml pt, occ amts of lt gy to lt brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / clr to tl gysh wh cryptoxl sl spar, loc' v pyr' in pt, loc com dism pyr, mnr amts of pyr grns + grnls, mod' ind.

SHALE - dk gy + dk gysh blk, sfis, mnr amts of fis, distinct clvge develpmnt, carb, mnr to com amts of lt gy to lt brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / clr to lt gysh wh cryptoxl sl spar, loc' pyr in pt, occ dism pyr, occ amts of pyr grns + grnls, mod' ind.

SHALE - dk gy + dk gysh blk, grdg dwn sect to blk, sfis, rr amts of fis, indistinct clvge develpmnt, carb - bcmg incrngly carb dwn sect, mnr amts of lt brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / lt gysh wh cryptoxl ca spar, pyr in pt, occ dism pyr, occ amts of pyr grns + grnls, mod' ind.

SHALE - dk gy + dk gysh blk, sfis, rr amts of fis, indistinct clvge develpmnt, carb, loc' bcmg incrngly pyr' - com dism pyr thru, rr amts of lt brn bentc clystn lam, rr amts of sml scl microfractrng - sealed / lt gysh wh cryptoxl ca spar, rr pyr grns + grnls, mod' ind.

SHALE - dk gy, grdg to dk gysh blk, sfis, mnr blky + fis, distinct clvge develpmnt, carb, loc' pyr' - occ amts of dism pyr, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, mod', rr pyr grns + grnls, mod' ind.

MARLSTONE - m brn, dol', sil in pt, w ind.

SHALE - blk, blky, mnr sfis, distinct clvge develpmnt, jointed in pt, v carb, loc' phos', loc' orgnc in pt, sl incr in sml scl microfrctrng - sealed / lt gysh wh cryptoxl dol spar, loc' v pyr' - com dism pyr thru, rr pyr grns + grnls, loc' sil', mod' to w ind.

SHALE - blk, sfis + blky, distinct clvge develpmnt, jointed in pt, v carb, loc' phos', loc' orgnc in pt, occ amts of sml scl microfrctrng - sealed / lt gysh wh cryptoxl dol spar, loc' v pyr' - com dism pyr thru, rr pyr grns + grnls, loc' sil' in sml pt, mod' to w ind.

SHALE - dk gysh blk, grdg to dk gy in pt, sfis + blky, distinct clvge develpmnt, jointed in sml pt, loc' pyr' - mnr dism pyr thru, rr pyr grns + grnls, mod' ind.

SHALE - dk gy + dk gysh blk, sfis + blky, distinct clvge develpmnt, jointed in pt, loc' pyr' in v sml pt - mnr dism pyr thru, rr pyr grns + grnls, mod' ind.

SHALE - blk + dk gysh blk, sfis, mnr blky, distinct clvge develpmnt, loc' pyr' in pt - mnr dism pyr thru, rr pyr grns + grnls, pyr incng dwn sect ovr intrvl, carb, orgnc, mod' ind.

SHALE - blk + dk gysh blk, sfis + blky, indistinct clvge develpmnt, rr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar, mica in pt, loc' pyr' in pt - mnr dism pyr thru, rr pyr grns + grnls, carb, loc' sil in pt, orgnc, mod to w ind.

SHALE - dk gysh blk, sfis + blky, indistinct clvge develpmnt, gen a/a, bcmg incrngly sil in ths intrval, mnr dism pyr thru, rr pyr grns + grnls, carb, orgnc, mod to w ind.

SHALE - blk + dk gysh blk, sfis + blky, indistinct clvge develpmnt, loc' pyr' in pt - mnr dism pyr thru, rr pyr grns + grnls, carb, loc' sil in pt, v orgnc in pt, mod to w ind.

SHALE - blk + dk gysh blk, blky, mnr sfis, indistinct clvge develpmnt, loc' pyr' in pt - mnr dism pyr thru, rr pyr grns + grnls, carb, loc' v sil in pt, orgnc in pt, mod to w ind.

MARLSTONE - dk gysh brn + blk, calc, v sil' bitmns, w ind.

SHALE - blk, blky + sfis, distinct clvge develpmnt, pyr' in pt - mnr dism pyr thru, rr pyr grns + grnls, carb, loc' v sil in pt, phos' in pt, orgnc in pt, mod to w ind.

SHALE - blk, blky, mnr sfis, indistinct clvge develpmnt, extnsvly sil', carb = phos' in pt, pyr' in pt - as abv, loc bcmg bitmns, w ind.

SHALE - blk, blky + sfis, fis in pt, distnct clvge develpmnt, loc mnr amts of sml scl microfrctrng - sealed / ca + sl spar, extnsvly sil', carb, loc' bitmns + phos', occ dism pyr + pyr grns, w ind.

SHALE - blk, grdg dwn sect to dk gysh blk, sfis to blky, gen a/a, bcmg incrngly carb, rr to occ amts of lt brn bentc clystn lam, extensvly sil', decr in pyr, orgnc in pt, w ind.

SHALE - blk, sfls to blky, indistnct clvge develpment, carb, rr amts of lt brn bentc clystn lam, extensvly sil', rr pyr grns, orgnc in pt, w ind.

SHALE - blk, blky, mnr sfls, indistnct clvge develpment, carb, bitmns in pt, rr sicknsds, occ amts of lt brn bentc clystn lam, extensvly sil', rr pyr grns, orgnc in pt, w ind.

SHALE - blk, sfls + blky, indistnct clvge developmnt, loc mnr amts of sml scl microfractrng - sealed / wh cryptoxl ca spar + rr amts of pyr vng, loc' v pyr / dism pyr, pyr grns + pyr grnls, occ amts of pyrtzd spng spcls dwn sect, loc' v sil' - bcmg incrngly sil dwn sect, carb, phos in pt, rr amts of lt brn bentc clystn lam, orgnc, w ind.

MARLSTONE - dk gysh brn, dk gysh blk, microxl, dol', calc in pt - bcmg more calc dwn sect, loc' pyr', v sity thru, v btmns, w ind.

SHALE - blk, grdg to dk gysh blk + dk gy in pt, sfls + blky, indistnct clvge developmnt, loc mnr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl ca + si spar, rr amts of pyr vng, loc' v pyr / dism pyr, loc' v sil' - bcmg incrngly sil dwn sect, carb, phos in lrg pt, com amts of lt gy + lt brn bentc clystn lam, rr pyr grns + grnls, w ind.

SHALE - blk, blky + sfls, indistnct clvge developmnt, bcmg v mica, loc mnr amts of sml scl microfractrng - sealed / wh to lt gy cryptoxl ca + si spar, rr sicknsds, loc' pyr / dism pyr, v sil' thru, carb, phos' in lrg pt, mnr amts of lt brn bentc clystn lam, rr pyr grns + grnls, w ind.

MARLSTONE - dk gysh brn, dk gysh blk, dol', sity, pyr' in pt, v btmns, w ind.

SHALE - blk, blky, mnr sfls, indistnct clvge developmnt, gen a/a, incr in proportn of pyr in ths intrvl, bcmg incrngly orgnc thru intrvl, mod' to w ind.

SHALE - dk gy + dk gysh blk, blky, mnr sfls, indistnct clvge developmnt, gen a/a, dec in proportn of pyr in ths intrvl, bcmg less sil' in ths intrval, v orgnc in ths intrvl, mod' to w ind.

SHALE - blk, occ dk gy, blky, mnr sfls, indistnct clvge develpmnt, carb, phos', loc' v pyr' dism grns + grnls scat thru - incng in proportion dwn sect, loc' frctrd in sml pt - sealed / lt gysh wh cryptoxl ca spar + pyr, sil' in pt, bcmg incrngly orgnc, mod' to w ind.

SHALE - dk gy + blk, sfls + blky, indistnct clvge develpmnt, carb, phos', bcmg less sil thn abv intrvl, loc' v pyr' dism grns + grnls scat thru - incng in proportion dwn sect, mnr amts of lt gy + lt brn bentc clystn lam thru, loc' frctrd in sml pt - sealed / lt gysh wh cryptoxl ca spar, sil' in pt, bcmg less orgnc dwn sect, mod' to w ind.

SHALE - blk, blky, mnr sfls, indistnct clvge develpmnt, carb, loc' v pyr' - dism grns + grnls scat thru, sil' in sml pt, mod' to w ind.

UPPER - MIDDLE DEVONAIN

LOWER BESA RIVER

at 2470.0 m K.B // 2463.2 m T.V.D.

SHALE - m gy, sfls to fls, distinct clvge develpmnt, v bentc, rr pyr grns + grnls, mod' ind.

SHALE - m gy, sfls to blky, indistinct clvge develpmnt, sl' dol', bentc in pt, rr amts of sml scl microfrcrtng - sealed / lt gysh wh cryptoxl ca spar, rr pyr grns + grnls, mod' ind.

SHALE - m gy, grdg to m brnsh gy, sfls, indistinct clvge develpmnt, dol', rr amts of sml scl microfrcrtng - sealed / lt gysh wh cryptoxl ca spar, rr crin skel detr, rr pyr grns + grnls, occ amts of lt to m tan + m gysh brn, earthy, cryptoxl calc dol + dol marl lam - frctrd in pt - sealed / cryptoxl anhy, then ca spar, gen incrng in proppotn dwn sect, mod' to w ind.

SHALE - m gy, com amts of lt gy + lt to m grnsh gy, sfls, blky in pt, indistinct clvge develpmnt, dol', sil' in sml pt, rr amts of sml scl microfrcrtng - sealed / lt gysh wh cryptoxl dol spar, rr pyr grns + grnls, rr amts of m gy, earthy, cryptoxl, sil, dol marl lam, mod' to w ind.

SHALE - m gy, occ lt grnsh gy, sfls, mnr blky, gen a/a, bcmg incrngly sil', rr pyr grns + grnls, occ amts of m tan, cryptoxl pelbiocl mdstn, sil' in lrg pt, N eff por, N shows, w ind.

SHALE - lt + m gy, sfls, mnr blky, indistinct clvg develpmnt, dol' in pt, exhbts sl incr in sml scl microfrctrng - sealed / wh cryptoxl ca + dol spar, rr grns + grnls, mod' ind.

SHALE - m gy, grdg to dk gy in pt, sfls, mnr blky, indistinct clvg develpmnt, dol', bcmg sl' more dol' thn abv, rr amts of sml scl microfrctrng - sealed / lt gysh wh cryptoxl ca + si spar, rr grns + grnls, sil' in pt, mod' ind.

SHALE - blk, sfls, com blky, carb, phos' in pt, loc pyr', v sil thru, w ind.

SHALE - m gy, grdg to m brnsh gy + bl in pt, sfls, mnr blky, indistinct clvg develpmnt, dol' l pt, rr amts of sml scl microfrctrng - sealed / lt gysh wh cryptoxl ca + si spar, rr grns + grnls, sil' in pt bcmg incrgnly sil dwn sect, mod' to w ind.

SHALE - blk, sfls, com blky, carb, loc pyr', v sil thru, w ind.

SHALE - dk gy + dk gysh blk, sfls, indistinct clvg develpmnt, carb, phos' in pt, sil' in sml pt, orgnc, mnr amts of lt gy + lt brn bentc clystn lam dsprsd thru, frctrd in pt - sealed / wh cryptoxl to m xl subhedral dol spar, mnr pyr grnls dsprsd thru, mod' ind.

SHALE - m to dk gy, sfls, occ blky, indistinct clvg develpmnt, rr amts of sml scl microfractrng - a/a, loc' bentc, mod' ind.

SHALE - m gy, grdg to m brnsh gy, sfls, splntry in pt, indistinct clvg develpmnt, loc' v bentc, v sl' dol', mod' ind.

LIMESTONE - lt to m gysh tan, mdstn, lithographic, v sil', N eff por, N shows.

SHALE - m gy to m brnsh gy, sfls, a/a, bentc in lrg pt, mod' ind.

LIMESTONE - m gysh tan, mdstn, lithographic, v sil', N eff por, N shows.

SHALE - m gy, mnr dk gy, occ blk, sfls to blky, dol' in pt, v bentc in pt - com m gy bentc clystn lam, rr pyr grns, mod' ind.

SHALE - m gy, mnr dk gy, occ m brnsh gy, sfls, mnr blky, bentc, mnr lt gy + lt brn bentc clystn lam dsprsd thru, loc' mnr amts of sml scl microfrctrng - sealed / cryptoxl to c xl ca + si spar, rr pyr grns, mod' ind.

SHALE - blk, sfls + blky, sil' thru, pyr' in pt, w ind.

SHALE - m gy, mnr dk gy + dk brnsh gy, sfls, mnr blky, loc' sil', pyr' in pt, gen a/a, sl incr in pyr grns, mod' ind.

SHALE - blk, sfls, mnr blky, v sil' thru, carb. loc' v pyr', w ind.

SHALE - m gy, com dk gy, grdg to m brnsh gy in sml pt, sfls, mnr blky, dol' in pt, occ amts of lt brn dol' clystn lam + dol marl lam dsprsd thru, pyr' in pt, bentc in pt, rr pyr grns, mod' ind.

SHALE - m to dk gy, grdg to dk gysh blk in sml pt, distinct clvg develpmnt, bentc in pt, carb in pt, mnr amts of lt gy + lt brn bentc clystn lam, rr pyr grns + grnls, mod' ind.

SHALE - m to dk gy, grdg to dk gysh blk in sml pt, gen a/a, exhbts incrng microfractrng - sealed / wh cryptoxl ca spar, rr amts of si spar, mod' ind.

SHALE - dk gy, mnr dk gysh blk + m gy, sfls, distinct clvg develpmnt, occ amts of sml scl microfractrng - sealed / lt gysh wh cryptoxl ca + si spar, bentc, carb in pt, loc' bcmg v sil' in pt, rr pyr grns + grnls, mod' to w ind.

SHALE - dk gy + dk gysh blk, sfls to fls, occ sml scl microfractrng - sealed / wh to lt + m brn cryptoxl to subhed m xl ca spar / com orgnc stng, rr amts of pyr vng, v carb, orgnc in pt, mod' ind.

SHALE - lt to m gy, grdg to lt brnsh gy, sfls, v bentc, com bent lam in pt, mod' ind.

SHALE - blk, sfls to fls, occ sml scl microfractrng - sealed / wh to lt + m brn cryptoxl to subhed c xl si + ca spar / com orgnc stng, mnr sil phos grns, occ lt gysh wh + bluish gy cht nodules, rr amts of pyr incl + vng, v carb, orgnc, mod' ind.

SANDSTONE - lt brn to lt gysh brn + blk, cons, si + rr pyr cmt, vit qtz, rr blk phos grns, p intergan por- plugged / xbit, w ind.

SILTSTONE - m gy, qtzs, rr si + ca cmt, v argl, mod' ind.

SHALE - m gy, grdg to dk gy + m gysh brn, sfls + blky, v bentc, rr pyr grns, v orgnc, mod' ind.

SHALE - m gysh brn, blky + sfls, bentc, rr pyr grns, v orgnc, mod' ind.

SHALE - dk gy, grdg to dk brnsh gy + blk, sfls, v bentc, orgnc in lrg pt, loc' v sil' - occ amts of lt bluish gy cht grns + nodls, loc' pyr', w ind.

MARLSTONE - lt brn, grdg to m gysh brn + off wh, calc, frctrd in pt - sealed / wh to lt gysh wh cryptoxl si spar, w ind.

SHALE - m gysh brn + m brn, mnr dk gy, sfls, bentc, dol, abnt pyr grns + grnls scat thru, mod' ind.

LIMESTONE / MARLSTONE - lt to m gysh brn + dk brn, mottld, mdstn, erthy, N eff por.

SHALE - m gy, com dk gy, blky, mnr sfls, bentc, dol' sil' in pt, frctrd in pt - sealed / off wh cryptoxl ca + si spar, rr pyr grns, mod' to w ind.

SHALE - dk gy, mnr amts of m gy, blky, loc' v sity, sl' calc, bentc in pt, rr amts of microfrctrng - sealed / wh cryptoxl ca spar, mod' ind.

SILTSTONE - m gy, com dk gy, qtzs, ca + si cmt, v argl, mod' to w ind.

SHALE - m gy, grdg to m gysh brn, sfls, mnr blky, indistinct clvge developmnt, calc - bcmg incrngly calc dwn sect, sity, sil' in pt, mod' to w ind.

MARLSTONE - m gysh brn + lt brn, v calc, v sity in pt, sil' in pt - bcmg incrngly sil dwn sect, w ind.

MARLSTONE - m gysh brn, v calc, v sity in pt, mod' ind.

SHALE - m gy, grdg to m brnsh gy, sfls, indistinct clvge developmnt, calc, sity, mod' ind.

SHALE - m to dk gy, occ amts of lt gy, sfls, mnr blky, sity in pt, sl' calc, mod' ind.

SHALE - m gy, grdg to lt gy, occ dk gy, sfls, indistnct clvg developmnt, bentc, sity in pt, rr pyr grns, mod' ind.

MARLSTONE - m gy, grdg to m gysh brn, calc, sity, aren in sml pt - fltg upr vf sz a qtz, mod' ind.

SHALE - m gy, grdg to m gysh brn in pt, sfls, gen a/a, bcmg sl dol' in sml pt, bentc, mod' ind.

MARLSTONE - m gy, grdg to m gysh brn, calc, bcmg dol' + anhy' dwn sect, loc' v sity, mod' ind.

SHALE - lt gy, occ m gy, sfls, v bentc, anhy', mod' to p' ind.

ANHYDRITE - off wh to buff, occ m rdsh brn, v sity in lrg pt, mod' ind.

SHALE - m to dk gy, sfls, bentc, abnt m to dk brn bentc clystn lam thru, rr amts of fltg cubic pyr grns scat thru, mod' to p' ind.

SHALE - m gy, tr lt gy, sfls, bentc in sml pt, anhy' in pt, mod' to w ind.

SHALE - blk, grdg to dk gysh blk, sfls, carb, sil', w ind.

SHALE - m gy, occ lt gy, rr amts of dk gy, sfls to fls, bentc, sl' dol' mod' ind.

SHALE - dk gy, sfls, bcmg incrngly dol' ovr this intrvl, bentc in pt, mod' ind.

SHALE - m gy, mnr dk gy + occ lt gy, sfls, mnr fls, bentc in pt, dol' in pt, rr pyr grns, mod' ind.

SHALE - m gy, sfls, dol' - bcmg incrngly dol' ovr ths intrvl, bentc in pt, rr pyr grns, mod' ind.

CHERT - blk, upr m to lwr vc sz A frags, w ind.

SHALE - m gy, occ amts of dk gy, sfls, sl' dol', bentc, rr pyr grns, mod' ind.

CHERT - blk, lwr c to upr vc + grnl sz A frags, w ind.

SHALE - dk gy, mnr m gy, sfls, dol' in pt, bentc - occ lt gy + lt brn bentc clystn lam, mod' ind.

MARLSTONE - m gy + m gysh brn, calc, sity, mod' ind.

SHALE - m gy, mnr amts of dk gy, blky + sfls, loc' v sity, sil' in lrg pt, bentc in sml pt, mod' to w ind.

MARLSTONE - m gy, v calc, sity, w ind.

SHALE - m gy, sfls, v bentc, com amts of lt gy bentc clystn lam dispersed thru, mod' ind.

CHERT - dk gy + blk, lwr m to upr vc sz A frags, w ind.

MARLSTONE - m gysh brn, calc, sity, w ind.

SHALE - m gy, sfls, bentc, occ amts of lt gy bentc clystn lam dispersed thru, mod' ind.

SHALE - m to dk gy, sfls, bentc, occ amts of lt gy bentc clystn lam dispersed thru, sl' calc, mod' ind.

LIMESTONE - dk brn, grdg to dk brnsh gy, earthy to microxl, mdstn, v bitmns thru, v argl, N eff por, slw dull yel halo C fluor'.

MARLSTONE - m to dk gysh brn, v calc, bitmns, w ind.

SHALE - m to dk gy to brnsh gy, sfls to blky, var calc gdg to marl, occ Ls strgrs, rr wh spry frac lng, loc' com sil', dol' lp, mnr bentc, scat pyr xls, w to mod' ind, occ brittle.

LIMESTONE - dk gysh brn, dns mdstn, cx to mx, sl to v argl to marl, mnr slty, bitmns lp, N eff por.

SHALE - dk gy to m gy to brnsh gy, occ sl wxy tex, sbfls to mnr fiky, com bentc to clyst lam, calc to dol', decr marl to rr Ls + frac fill, sl mm lp, mnr bitmns, mod' ind to firm.

LIMESTONE/MARL - dk gy to gysh brn, dns, cx to mx, gen v argl freq' gdg to marl, incr ca spar healed frac + microfrac, tr dis pyr, N eff por.

SILTSTONE - lt to m gy, sl calc to dol' to pt lmy, argl, loc sil cmt, w cons.

SHALE - m to dk gy, sbfls to tab, bentc to clyst lam, dol' to v calc, occ silic to rr cht nod, sl slty, w ind to loc' sft.

LIMESTONE / MARL - m to dk gy, occ tan tl gy, mic mdst, cc to ms, argl to frag mst, slty to, inter bitmns, tr fos dsk, nr dis pyr, mod spry wh ca frac frag, lt off pur.

SHALE - pred dk gy, mor mc gy to brnish, blky to occ fis, v f ms, calc to calc, occ mast to tnsy argrs, slty to, var bentc ton to comn, mor pur rplcd fos rmn, gen w md.

MARLSTONE - m to dk gy to gysh brn, dol v calc, occ Ashy cmn to ten to sfnd rdsh brn, chky to wn, slty to, mod sft, occ La stngrs, dns, argl, tr pyr.

LIMESTONE - dk to v dk gy, dns, ms to cs, conc dol to Dol, argl to mast, loc slty to Slst, mor dns pyr, mor fos dsk, bitmns thru out, tr off pur or ver sdk.

SILTSTONE - lt to m gysh brn bnng dk gy to blk / d o stng, dol v sd cmt, loc calc, argl, occ vf gr aren, cmn to mica flts, spty to conc bitmns.

SHALE - m to dk gy to brnsh, blky to sfts, dol to calc, pt silic, sl ssm, loc slty to Slst stngrs, ver bentc to clyst tam, tr nodulated microfos, w to mod bnt.

MARLSTONE - m to dk gy, mor brnsh gy, dol*, com slty, mod* ind to firm.

SHALE - m gy to sl brnsh, decr dk gy, shbkty, dol* to occ silts, loc* grbg mast, mor slty, cmn bentc to num clyst tam, tr co fos rmn + thin lag, mod* to sft.

SILTSTONE - mot dk to v lt gy, w cmtd / dol + silt, loc* calc, sl to v argl, vf gr aren lag, occ vrn, spty to sd d o stn , w cons.

MARLSTONE - m to dk gy to gysh brn, dol*, slty tr, w to mod* cons.

SILTSTONE - dk to lt gy, dol + sil cmt, freq* argl, mor vf gr aren, sl ssm, mor dis pyr, occ bitmn to dk organ mat, w cons.

SHALE - dk gy, mor m brnsh gy, fsb to sl fltsy, dol* to calc, silts tp, num sft stngrs, var bentc, cr co + sil fossbed microfos, w to mod* cons.

SILTSTONE - dk gy to off wh, dol* to calc, occ qtzs, argl to sty mts tp, mm, spty to sat d o stng, tr dis pyr, w cons.

SHALE - m to dk gy, fls to mor fltsy, sf tes, silac to dol*, pt bentc to clyst tam, sl ssm, slty tp, occ carb, mod* ind.

SILTSTONE - dk gy blk, dol* to qtzs, mor calc, v argl, mm, abnt bitmn + dk organ dsk, w cons.

SHALE - v dk gy to gysh blk, fls to occ fsbly, pt blky, silts, decr dol*, mor bentc, loc* slty, carb, mod* ind to brittle.

SHALE - blk to v dk gy, sl earthy, blky to sdfts, occ platy clsvs, silac to dol*, mor mod wh calc fos rmn to thin lags, mor dis to mod pyr, mod ind to sft.

SHALE - blk, grdg to dk gysh bn, blky, dol* to calc, mor mast, sl slty, mod* ind to lft, pt bin, fls to sdfts, silac to sr ctly, v carb to bitmns, mor pyr, rr shckdsh, hard, brittle.

SHALE - v dk gy to blk, sr amts dk brnsh, sl earthy to mor wxy, sdfts, dol* to calc, silts tp, com carb to organ dsk*, loc* slty, mod* ind.

MARLSTONE - dk gysh bn, blky, v calc to dol*, freq* slty to silac bnds, carb to bitmns, mor dis pyr, rr fossil microfos, w ind.

SHALE - dk gysh bn to bn, blky, silac to dol*, mor mwhsh, occ slty, v carb, loc* dis to mod*, mod* to w ind.

MIDDLE DEVONIAN
SECOND BLACK SHALE / HORN RIVER
at 2091.2 m K.B. / 2364.0 m T.V.D.

MARLSTONE - blk to dk gysh bn, blky, calc to dol*, carb to bitmns, sr slty, mor pyr, mod* ind to hard.

SHALE - blk to v dk gysh bn, blky to sl fls, silts, loc* dol*, v carb to petroliferous, sl phos*, mm tp, tr wh spcs rc forsm to stnd dsk, scat pyr, gen hard, brittle.

SHALE - blk to mor dk gysh bn, blky to sdfts, occ platy clsvs, v silts to ctly, occ dol*, carb to bitmns, sl mm, pyr*, w to mod* ind.

SHALE - blk to dk gysh bn, blky to mor fls, silts grdg to argl ctly, loc* dol to v mast, abnt carb to organ mat, r qtz + sc ch fossil microfos to lags, gen hard.

MARLSTONE - blk to dk gysh bn, blky, calc to dol*, carb to bitmns, sr slty, mor pyr, mod* ind to hard.

LIMESTONE - mot off wh to gy to blk, dns, cs, mor fos*, sl to argl / sscl bit sh phgs, occ carb, sl pyr*, lt.

SHALE - blk to dk gy, blky to sl platy, silac to dol*, loc* calc to tnsy argrs, v carb, sl mm, mor pyr* dis to mod*, mor microfos, w to mod* ind.

SHALE - blk to v dk gy, blky to sdfts, v fos to v arc, freq silts, occ dol* to calc to mast, mm, organic rich, mor dis pyr, gen firm, mor fst.

SHALE - blk to dk gy as above, blky to occ platy, silac to dol*, mor calc wh ar mat fos rmn, occ ca + qtz frac fill, pyr* tp, rr shckdsh, w to mod ind.

SHALE - blk, blky to mor fls, pt silac to sl chky, pt dol* to calc to ply to mast, v carb to bitmns, mm, occ pyr, mor fos dsk, hd brittle to loc mod sft, ftl.

SHALE - blk to dk gy, occ sgsd wh, blky, bcmg tnsr* calc to mm mastmns, scat rc co fos + forams, l cur co fossil microfos, carb to bitmns, w ind.

MARLSTONE - v dk to lt gy, occ sgsd wh, calc to mor dns argl La stngrs, dol* tp, carb, occ fos dsk, w ind.

SHALE - blk to dk gy, gen blky, v calc to dol*, loc* silts, organic rich, mor dis pyr, mod* to w ind.

MARLSTONE - blk to m gy, occ wh sgsd, calc to mor dns argl La stngrs, dol* tp, carb, occ foram to stnd mm, sl slty, w ind.

SHALE - blk to dk gy as above, blky to sdfts, calc to dol*, v carb to mor coal plngs, tnsr pyr mod, pkwr tp, tnsr mod scale fms, w to cr ind* ind.

MARLSTONE - blk to mod gy, mor wh sgsd, calc to dol*, mor La stngrs dns to sl blocd, carb to bitmns, v w ind.

LIMESTONE/MARL - mot blk to gy to sgsd wh, mdst to bioclst wkst, ca to mx, argl to mast, freq ch organ dsk, mor microfos, v f pyr.

SHALE - blk to dk gy, blky to mor sgtty, mm, sl to v calc, loc* dol to silac, carb to bitmns, rr dis pyr, w ind.

MARLSTONE - mot blk to gy to sgty wh ala, dol* La tbds, v calc to dol*, var carb, rr f fmt, rr silcbsd, w ind.

SHALE - blk to dk gy, blky to mor fls, v calc to dol*, mor silac, organic rich, mm, mor dis pyr, w ind.

DOLOMITE - mot wh to mot lt and dk gy, shrb, dns to frag*, cc to ms, argl tp, sl dol*, spty d o bn carb spcs, tr off pur.

DOLOMITE - mot lt to gy to sgty wh ala, dns cc to f to coarse m xln wkt, v dol*, v carb to blk shly mm + pkgs, var amts wh spry dol and lt brdd fos rmn, pred p to mor f to pcr, pyr freq to frac pur tp.

DOLOMITE - lt to dk gy to sgty wh, dns cc to f to coarse m xln wkt, v dol*, v carb to blk shly mm + pkgs, var amts wh spry dol and lt brdd fos rmn, pred p to mor f to pcr, pyr freq to frac pur tp.

DOLOMITE - mot wh to lt + dk gy, gen f to m xln, occ cc to vf dn, com to dm + dol rhombs rr mdd fll, abnt pyrolst tst to sty*, mor vf qtz, tr asbestos, sl argl tsp, p to occ tr pp to tr ip pcr, bit plug ls, rr heal microfrac, pos vgy pcr.

END OF 311.2 m INTERMEDIATE HOLE
INTERMEDIATE CASING AT 3147.0 m KB
TOTAL DEPTH
186.8 m

DOLOMITE - pt mot lt to dk gy to blk, f to cc, occ m xln, com pyrolst, rr mica in chlorite, pt wh spry c to xn xln, hydrocarbon stained, mor vit qtz prism, p to sty tr ti pcr, prob vgy to frac pur tp.

DOLOMITE - wh to mot lt and dk gy, shrb, dns to frag*, cc to ms, argl tp, sl dol*, spty d o bn carb spcs, tr off pur.

DOLOMITE - lt to dk gy to sgty wh, dns cc to f to coarse m xln wkt, v dol*, v carb to blk shly mm + pkgs, var amts wh spry dol and lt brdd fos rmn, pred p to mor f to pcr, pyr freq to frac pur tp.

DOLOMITE - mot wh to lt + dk gy, gen f to m xln, occ cc to vf dn, com to dm + dol rhombs rr mdd fll, abnt pyrolst tst to sty*, mor vit qtz, tr asbestos, sl argl tsp, p to occ tr pp to tr ip pcr, bit plug ls, rr heal microfrac, pos vgy pcr.

DOLOMITE - wh to lt + dk gy a/a, cx to m xln, freq wh hydrotherm alt c xln dol spar, mnr fos ghost pos Crin, sl calc ip, tr chlor + pyr, spty d o stn to ptngs, gen p to loc fr ix to pp por, infer ?frac to vgy por pt occid.

DOLOMITE - mot wh to lt + dk gy, dns to frag', f to m xln, loc' cx to vf xln, incr wh to clr to op c spry dol rhombs rx clst to void fill, sl incr vit qtz grns, com pyrobit spcs to lam, p to occ fr ix por, prob vgy to frac por ip.

DOLOMITE - lt to dk gy, f to m to mx mtx, com d o stn to styl / freq fltg c xln wh rx dol spar clst to indst fos rmn, sl calc, tr pyr, pred' p to strky fr ix to pp por, infer vgy to frac por, mnr sml scale heal frac vis.

DOLOMITE - mot wh to lt + dk gy a/a, sl incr cx to m xln mtx, loc' decr spry dol rhombs clst to void fill, abnt pyrobit istl to lam + ptngs, mnr vit qtz prisms, p to occ fr ix to pp por, bit plug ip, prob vgy to frac por.

DOLOMITE - lt to dk gy to blk to wh, dns to frag', mx to f xln, occ cx to loc' m xln, com c to vc dol spar to occ qtz xls, freq d o stng, occ sl argl to blk bit shly lam to styl, p ix por, mnr pp to vgy por, occ heal microfrac to pos frac por.

DOLOMITE - mot wh to lt + dk gy a/a, mtx pred' mx to vf xln, decr f to m xln, com wh to clr c spry dol rx fos frag to void fill to mnr drusy lngs, incr pyrobit, mnr blk bit sh incl to thin ltbds, vp to p ix por, occ pp to sml vgy por, infer frac por.

DOLOMITE - lt to dk to mnr blk, decr wh, incr' dns, cx to vf xln, loc' f to m xln, decr wh c dolospar, scat indst fos rmn, pos Crin + Brach, abnt pyrobit to organc deb, occ sl to calc, mnr qtz + cht, rr slty, p ix por, occ pp to vgy por, mnr vis micro to frac por.

DOLOMITE - lt to dk gy, occ wh a/a, gen dns, cx to f xln, occ m to c xln, occ fltg rx dol clst, freq pyrobit istl to lam to styl, mnr blk wxy Sh ltbd, tr dis pyr, p ix to pp por, mnr sml vg + frac por.

DOLOMITE - mot lt to dk gy to wh, pt dns, cx to f xln, incr m + c xln, incr' fos' / com wh to trnsl dolospar, silic ip / clr qtz to dk cht, occ to abnt pyrobit spcs to ptngs, p to occ fr ix to pp por, pt bit plug, infer vgy to frac por com occid.

DOLOMITE - wh to gy to blk a/a, gen vf to f + m xln, loc' cx to mx, com c to v c rx spry dol clst to void fill, occ vit qtz to gy cht frags, sl calc, com pyrobit to organ mat to styl, p ix por, scat pp to sml vgs / drusy calc + dol lng, bit coated, incr heal microfrac to breccia.

DOLOMITE - mot lt to dk gy to blk to wh, mainly dns f to cx to occ m xln mtx, loc' frag' / wh to clr c xln dolospar, occ fos ghost, com pyrobit spcs to ptngs, rr vit carb frags, mnr qtz to cht, tr dis pyr, p ix por, infer mnr vgy to frac por gen occid.

DOLOMITE - wh to gy to blk a/a, rr lt brnsh, incr' frag', f to m xln, occ vf to cx, com c to vc xln wh spry dol clst to void fill, freq pyrobit to organ detr, mnr silic, tr chlor + mica, p to mnr fr ix to pp por, prob incr vgy to frac por.

DOLOMITE - mot wh to gy to blk, blocl to loc' dns, f to mx, freq m to v c dolospar, gen hydrtherm alt, incr' silic / vit qtz gns to prism + lt to dk cht, com pyrobit istl to ptng to styl, mnr slty, occ sl argl to blk shaly ltbd, gen p ix por, occ pp to vgy por / mnr drusy ca + dol rhomb lng, occ heal microfrac to breccia, infer frac por ip.

DOLOMITE - mot wh to gy a/a, incr wh, mnr blk, pred' frag' / dns ltbds, incr v c to m xln, loc' f to cx, abnt wh to clr to op dol, ca + qtz rx clsts to occ indst fos rmn, pos Brac to Coral, mnr cht, sl argl to bit shly lam to thin ltbds, mnr calc, tr dis pyr, mnr ix to pp por, infer incr vgy + frac por occid to occ open.

DOLOMITE - wh to lt + dk gy to blk, blocl to mtc mdst to wkst, vc to m xln, loc' f to mx, mnr cx, com dolospar void fill to lng, scat fos ghost, calc ip, mnr silic, sl slty ip, com pyrobit to dk organ deb, gen p ix por, pos strky vgy to frac por.

DOLOMITE - mot wh to gy to blk a/a, dns to frag', pt f to cx ltbd / vc to m xln, hydrothrm alt spry dol to occ ca, rplcd fos, mnr vit qtz prism, rr cht, sl calc, com dk organ res to mnr styl' d o, p to rr fr ix por, mnr vgy to frac por.

DOLOMITE - wh to lt + dk gy to blk, mot to band, m to v c xln, loc' f to mx, mnr cx, abnt wh to op dolospar rx clsts to void fill, mnr drusy lngs, com organ impurities to pyrobit spcs to ptngs, sl argl to blk shly lam to thin ltbds, p ix por, occ vis heal microfrac to breccia, infer vgy to frac por ip.

DOLOMITE - mot wh to gy to blk a/a, pt blocl / abnt spry dol + ca rplcd fos frags to void fill, vc to f xln, loc incr lt gy, dns mx mdst to mnr wkst, slty ip, com organ detr to mnr styl, occ silic / scat vit to sbvit qtz + mnr gy cht frags, sl calc, sl argl to mnr shly lam, mnr ix to pp por, pos vgy to frac por com occid.

DOLOMITE - wh to lt + dk gy to blk, frag' / vc to f xln, freq wh to clr dolospar to mnr ca rx clst to occid vg to heal frac; pt dns, f to mx, mnr cx, mtx to ltbd, com organ res to pyrobit, tr pyr, gen p ix por, infer vgy to frac por ip.

NO SAMPLE COLLECTED, MUD LOSSES ENCOUNTERED - PUMPED LCM PILL

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

Attach #11

OPEN HOLE LOG ATTACHMENT

FILMED IN LOG SECTION

Attach #12

Cased hole log attachment

Filmed in log section

Attach 13

5 year data removed
Attachment #13, Checkshot Calibration Report microfilmed separately . Release date September 19, 2004

Attach #1.

Schlumberger
Dowell

COILED TUBING SERVICE REPORT

CUSTOMER	Canadian Forest Oil	WELL NAME	Can Forest otal Flett	TREATMENT #	811-
CUSTOMER REP.	Woody Periard	LOCATION	N61	SERVICE CODE	
WELL TYPE	Gas	FIELD	Pointed Mountain	DOWELL LOCATION	GAB
NEW OR OLD	New	FORMATION	Hshanni	DATE (m/d/y)	

COMPLETION SUMMARY

PIPE DATA	OH	LINER	TBG1	TBG2	PERFORATIONS (mKB to mKB)				TREATMENT MODE	(X)
NOMINAL OD (mm)	215.9		114.3		3147.0	-	3255.0	OH -	COILED TUBING	x
MEAS DEPTH (mKB)	3255		3133			-		-	TUBING	
WEIGHT (Kg/m)			18.75			-		-	CASING	
GRADE					PERFORATION DENSITY (spm)				ANNULUS	
MEASURED DEPTH TO PACKER (mKB)					TVD TO PERFORATION TOP (mKB)			2200	DISPLACEMENT(m3)	

PUMPING SUMMARY

PIPE INFORMATION		CLEAN OUTS		MATRIX			
SIZE (mm)	38.1	SAND TOP (m)	3241.0	FLUIDS	VOLUME (m3)	RETURNS	
LENGTH (m)	4500	VOLUME N2 USED (scm)	34000.0	PICKLE ACID	0.5	FLUID (m3)	
WALL THICKNESS(mm)	2.70	FOAM USED (M3)	4.0	WASH ACID	10.0	SAND (kg)	
RUNNING METERS	9,650	NUMBER OF BITES	4	SQUEEZE ACID	20.0	OIL (m3)	
PRESSURE CYCLES		RETURNS		DIVERSION	4.0	MAX INJ PRES (kPa)	
ABRASIVE METERS		SAND		CEMENT/PERMABLOK		SHUT IN PRES (kPa)	
DEPTH SUMMARY		FLUID (m3)		TOTAL INJECTED			
TMD REACHED (m)	3252.0	OIL (m3)				GAS TYPE	
TVD REACHED (m)		HANGOFFS		Fluid Tested in Lab (Y/N)		GAS TYPE	
TREATED INTERVAL	3147-3255	DEPTH OF HO (m)		Lab Report Number		GAS RATIO (scm/m3)	
DOWNTIME		PUMPED OFF PLUG?				VOL N2 USED (m3)	34000
LENGTH OF TIME		PUMP-OFF PRES (kPa)					
HRS OFF TICKET							

ADDITIVE	FUNCTION	CONC/m3 L, Kg, m3	TOTAL L,Kg,m3	ADDITIVE	FUNCTION	CONC/m3 L, Kg, m3	TOTAL L,Kg,m3
A201	Inhibitor Aid		1950	U42	Chelating Agent		450
A255	H2S Scavenger		1170				
A270	Inhibitor		972				
F75	Surfactant		126				
F78	Surfactant		45				
J321	Friction Reducer		126				

TREATMENT SUMMARY

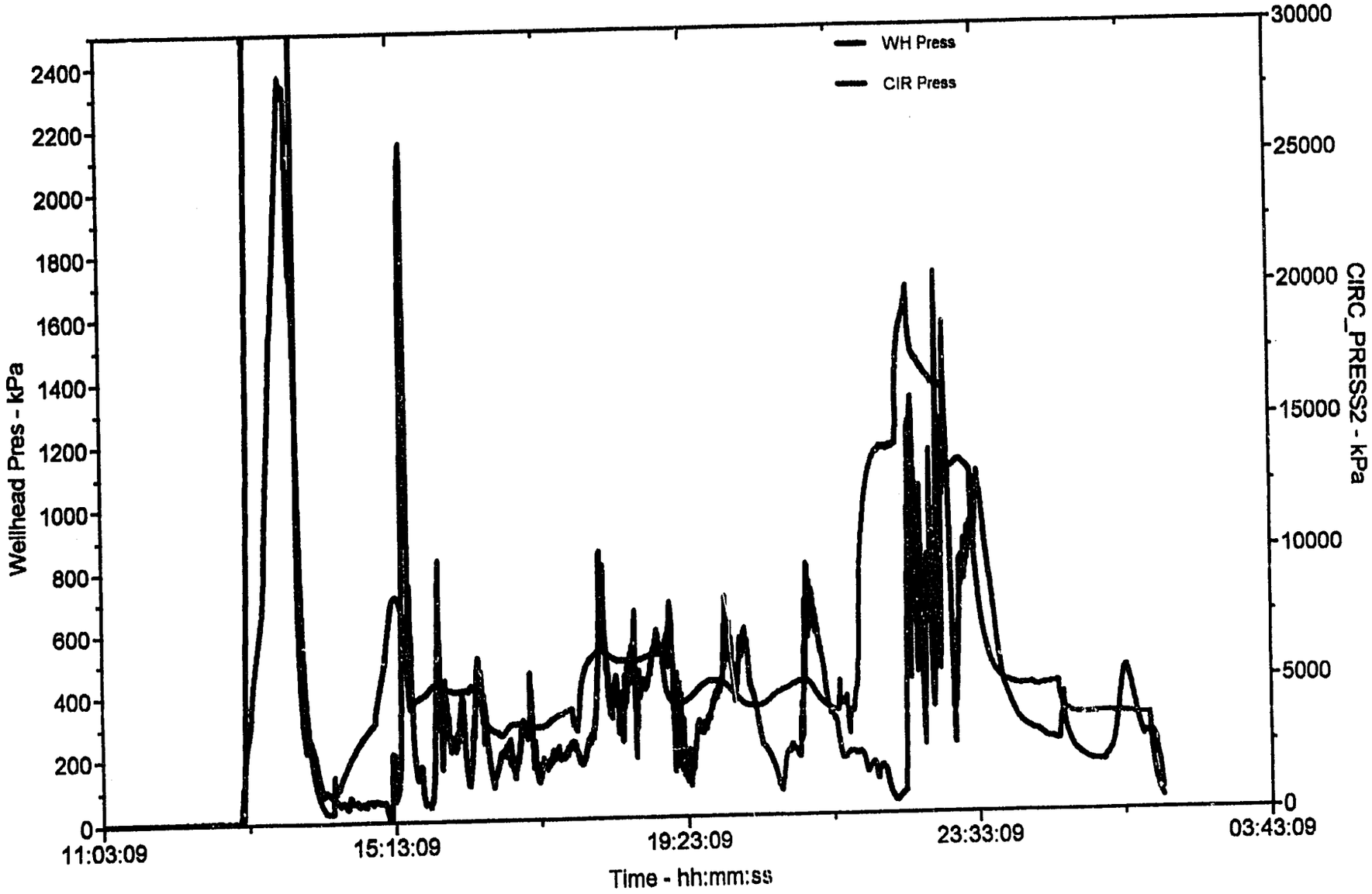
Sept 17- Travel to Fort St. John and spend night
Sept 18- Travel to Fort Liard base camp for night to wait for barge.
Sept 19- Travel to location and park equipment and wait on orders
Sept 20-25 Wait on orders in Fort Nelson
Sept 26-27 Travel to location and wait on orders
Sept 28- Rig up equipment on location and RIH to blow well down and retrieve fluid and evaluate formation.POH and wait on orders.
Sept 29- Load N2 and wait on orders
Sept 30- Rig up on well and perform a 10 m3 acid wash on open hole, Pump N2 to Kick off well and evaluate formation. POH to wait on orders.
Oct 1-2 Wait on orders
Oct 3- Rig up on well to perform a 20 m3 acid squeeze and clean to bottom with Foam slugs. While cleaning out bottom a piece of shale damaged to pipe at 1400m and we POH to wait on orders.
Oct 4- Finished POH and rigged out equipment to leave location.
Oct 5- Crossed river on barge and spent rest of night in base camp. Traveled to Fort St. John
Oct 6- Travel to Grande Prairie.

SLURRY RATE (m3/min), SLURRY STAGE (m3) and CUMM SLURRY(m3) - includes proppant volume.

DOWELL REPRESENTATIVE	Vic Lemke	DESIGN FILE NUMBER	811-

CCAT*

Canadian Forest Oil Ltd.
N61
811-1979
09-28-1999



Schlumberger

(c) Schlumberger Dowell 1994-99

Dowell

anadian Forest Oil Ltd.

CCAT
Treatment Report

Well: N61

CCAT

Field
Fort Liard
Formation
Nahanni
Location
N61

Country
Canada
Province
Northwest Territories

Prepared for	*Woody Periard*	*Service Point*	COIL TUBING GAB
Treatment No.	811-1979	*Business Phone*	(780) 539-4220
Date Prepared	09-28-1999	*FAX No.*	(780) 539-7532

Prepared by VIC LEMKE
Phone (780) 539-4220
E-Mail Address lemke@grande-prairie.dowell.slb.com

Comments Supply men,materials,and equipment to perform a 38.1mm coiled tubing conveyed nitrogen cleanout on above location as per above customers request.

Disclaimer Notice:

This information is presented in good faith, but no warranty is given by and Dowell assumes no liability for advice or recommendations made concerning results to be obtained from the use of any product or service. The results given are estimates based on calculations produced by a computer model including various assumptions on the well, reservoir and treatment. The results depend on input data provided by the Operator and estimates as to unknown data and can be no more accurate than the model, the assumptions and such input data. The information presented is Dowell's best estimate of the actual results that may be achieved and should be used for comparison purposes rather than absolute values. The quality of input data, and hence results, may be improved through the use of certain tests and procedures which Dowell can assist in selecting.

The Operator has superior knowledge of the well, the reservoir, the field and conditions affecting them. If the Operator is aware of any conditions whereby a neighboring well or wells might be affected by the treatment proposed herein it is the Operator's responsibility to notify the owner or owners of the well or wells accordingly.

Prices quoted are estimates only and are good for 30 days from the date of issue. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services.

Freedom from infringement of patents of Dowell or others is not to be inferred.

Dowell

Client : anadian, ,rest Oil Ltd.
Well : N61
Formation : Nahanni
District : COIL TUBING GAB
Country : Canada
Loadcase : Acq Load Case

Section 1: Job Messages

#	Time	Message	Corr Depth (m)	Wellhead Pres (kPa)	CIRC_PRESS2 (kPa)	Total Pump Rate (m3/min)	N2 Rate 1 (scm/min)
1	7:30:00	Arrive on location	0.0	0	0	0.00	0
2	7:45:00	Spot and rig up	0.0	0	0	0.00	0
3	10:46:46	Started Acquisition	0.0	0	0	0.00	0
4	11:03:08	Started Recording	0.0	0	0	0.00	0
5	11:04:39	Safety meeting	0.0	-4	-2	0.00	0
6	12:57:42	Repair N2 fitting on high press side	0.0	2	-2	0.00	0
7	12:59:52	Press test equipment to 35 MPA	0.0	0	0	0.00	0
8	13:47:39	Open testers to bleed off press	0.0	20641	20779	0.00	0
9	13:52:03	Open master valve	0.0	642	12865	0.00	0
10	13:52:09	Begin RIH CT	0.0	635	12721	0.00	0
11	14:22:09	Start pumping N2 at 10 scm/min	145.8	67	1357	0.00	11
12	14:55:34	Fluid returns to surface	653.1	58	3634	0.00	9
13	14:58:04	Increase N2 to 17 scm/min	711.7	59	4363	0.00	17
14	15:05:32	Pull test at meters	872.5	45	6405	0.00	23
15	15:05:56	Increase N2 rate to 24 scm/min	868.2	40	6602	0.00	23
16	15:21:10	N2 and fluid to surface	924.5	2044	7443	0.00	23
17	15:22:06	Reduce n2 to 10 scm/min	933.5	2125	6900	0.00	10
18	15:26:49	Increase n2 to 17 scm/min	935.7	574	4316	0.00	17
19	15:28:29	Increase N2 to 22 scm/min	940.5	343	4255	0.00	20
20	15:46:18	Fluid and N2 to surface	1058.3	328	5137	0.00	21
21	16:24:31	Average returns are 150 L/min	1235.3	507	4610	0.00	18
22	16:26:25	Reduce N2 to 15 scm/min	1240.1	447	4503	0.00	18
23	17:01:28	Pull test at meters	1323.3	279	3566	0.00	15
24	17:13:56	Total fluid recovered @1358m was 13.6m3	1360.7	195	3444	0.00	15
25	17:47:49	Recovered 15.2m3 @1508m	1508.4	211	3436	0.00	15
26	17:51:11	Increase N2 rate to 20 scm/min	1524.9	185	4172	0.00	22
27	18:28:55	Pull test at meters	1700.4	357	5914	0.00	22
28	18:37:20	Total fluid recovered 21.2m3 @ 1730m	1736.3	585	5914	0.00	22
29	19:22:56	Gas to surface	2105.5	120	4361	0.00	22
30	19:26:07	Total fluid recovered 25.2m3 @ 2100m	2136.6	122	4494	0.00	22
31	20:08:45	Pull test at meters	2598.6	522	4361	0.00	23
32	20:40:08	Pull Test at Feet	2999.8	122	4588	0.00	22
33	20:51:33	Total fluid recovered 30.1m3 @ 2800m	3000.1	194	4837	0.00	20
34	21:12:57	Continue RIH	3000.1	646	4661	0.00	23
35	21:33:02	Start pumping nitrified water	3050.7	225	3880	0.00	23
36	21:34:59	Pull Test at Feet	3053.3	186	4142	0.10	10
37	21:49:25	Increase N2 to 20 scm/min	3067.3	186	5490	0.10	19
38	21:50:41	Increase N2 to 25 scm/min	3070.7	190	7910	0.10	25
39	21:58:23	Total fluid 30.9m3@3090 m	3091.8	132	12702	0.10	25
40	22:02:42	Pull test at meters	3098.2	154	13473	0.10	25
41	22:14:02	Start in open hole	3147.5	124	13929	0.10	26
42	22:21:13	Pull test at meters	3189.8	40	14015	0.10	26
43	22:22:49	Gas rate at zero	3185.4	39	14110	0.10	25
44	22:23:40	Increase N2 to 40 scm/min	3191.2	44	15493	0.10	41
45	22:32:29	Fluid at surface	3247.6	942	19410	0.10	40
46	22:32:39	Tag bottom	3247.6	987	19476	0.10	40
47	22:33:35	POH to 3146m	3243.3	1204	19823	0.10	42
48	22:34:11	Reduce N2 to 30 scm/min	3237.0	799	19521	0.10	30
49	22:42:01	RIH to tag point 3248m	3146.7	706	17191	0.10	31
50	22:47:26	Total fluid 36.3m3@ 3190m	3193.3	348	16824	0.10	29

Dowell

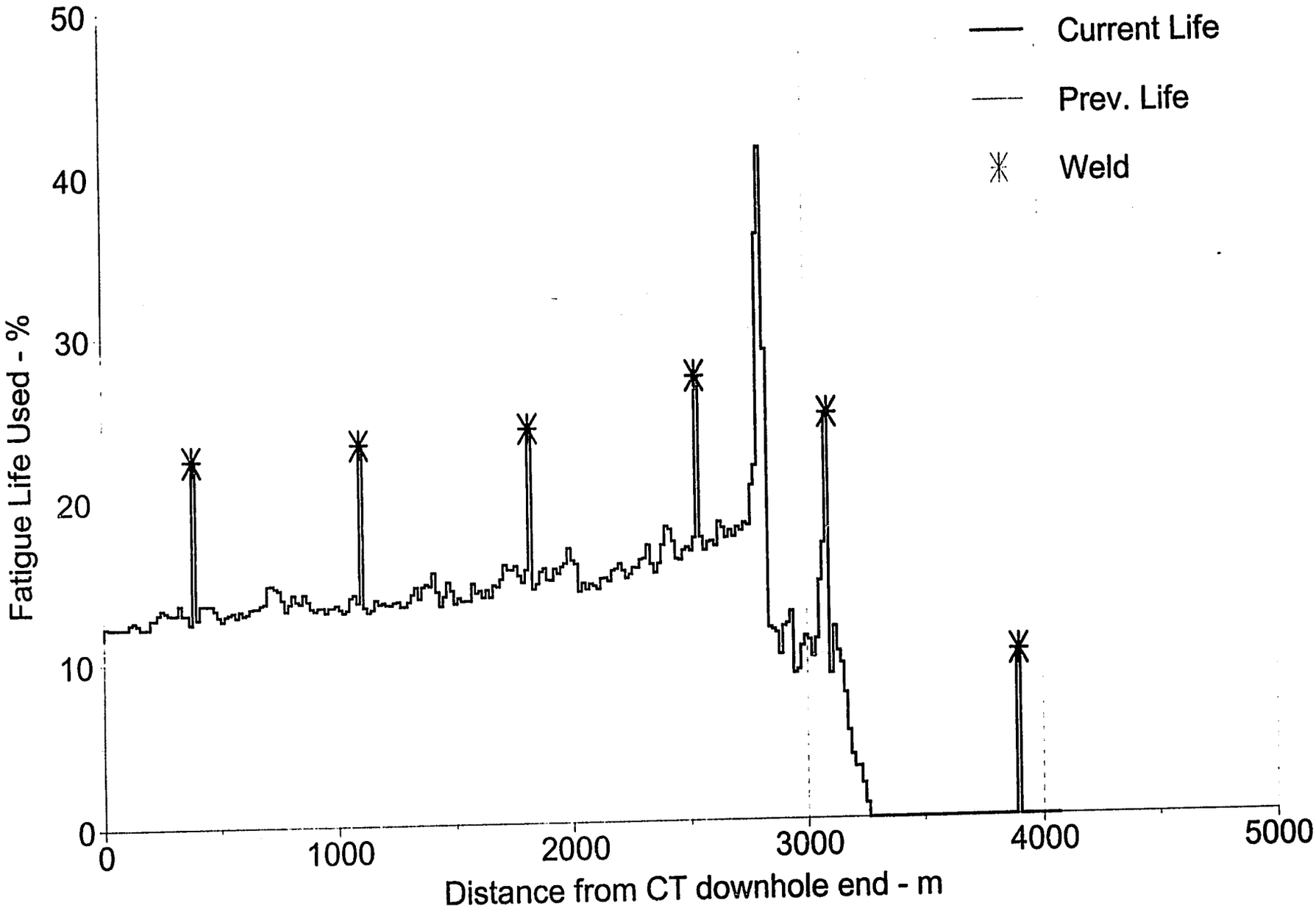
Client : anadian. ,rest Oil Ltd.
Well : N61
Formation : Nahanni
District : COIL TUBING GAB
Country : Canada
Loadcase : Acq Load Case

#	Time	Message	Corr Depth (m)	Wellhead Pres (kPa)	CIRC_PRESS2 (kPa)	Total Pump Rate (m3/min)	N2 Rate 1 (scm/min)
51	22:48:06	No gas rate only N2	3199.1	726	16738	0.10	31
52	22:50:17	Fluid return rate 300 L/min	3218.2	716	16615	0.10	31
53	22:54:01	Tag bottom	3247.7	447	16390	0.10	31
54	22:54:33	Pull up and pump fluid and N2	3246.1	401	16381	0.10	32
55	23:05:06	Stop pumping water	3246.2	1446	14747	0.01	31
56	23:05:59	Gas rate 2 million	3246.2	1417	14163	0.00	40
57	23:07:52	Increase N2 to 40 scm/min	3244.6	1089	13303	0.00	41
58	23:13:46	N2 only to surface	3244.6	320	13331	0.00	40
59	23:15:44	Begin POH CT	3244.7	461	13406	0.04	40
60	23:19:03	Fluid returns at 300 L/min	3211.7	747	13416	0.00	41
61	23:27:45	Decrease N2 to 20 scm/min	3102.6	842	11749	0.00	21
62	23:32:31	Fluid returns at 150 L/min	3030.8	1070	8449	0.00	21
63	0:41:04	Decrease N2 to 15 scm/min	1807.3	221	4574	0.00	16
64	2:00:07	Stop pumping N2	86.8	236	3251	0.00	3
65	2:06:50	Tubing at surface	10.4	176	909	0.00	0
66	2:11:14	Stopped Recording	10.4	62	418	0.00	0

CCAT*

CoilLIFE

Range2_aft
anadian Forest Oil Ltd.
N61
811-1979
09-28-1999



Schlumberger

(c) Schlumberger Dowell 1994-99

Dowell

Canadian Forest Oil

CCAT
Treatment Report

Well: N61

CCAT

Field
Pointed Mountain
Formation
Nahanni
Location
N61

Country
Canada
Province
Northwest Territories

Prepared for	*Woody Periard*	*Service Point*	COIL TUBING GAB
Treatment No.	811-2021	*Business Phone*	(780) 539-4220
Date Prepared	10-03-1999	*FAX No.*	(780) 539-7532

Prepared by VIC LEMKE
Phone (780) 539-4220
E-Mail Address lemke@grande-prairie.dowell.slb.com

Comments Perform a 38.1mm coiled tubing conveyed 15% HCL acid sqeeze on above location as per above customers request.

Disclaimer Notice:

This information is presented in good faith, but no warranty is given by and Dowell assumes no liability for advice or recommendations made concerning results to be obtained from the use of any product or service. The results given are estimates based on calculations produced by a computer model including various assumptions on the well, reservoir and treatment. The results depend on input data provided by the Operator and estimates as to unknown data and can be no more accurate than the model, the assumptions and such input data. The information presented is Dowell's best estimate of the actual results that may be achieved and should be used for comparison purposes rather than absolute values. The quality of input data, and hence results, may be improved through the use of certain tests and procedures which Dowell can assist in selecting.

The Operator has superior knowledge of the well, the reservoir, the field and conditions affecting them. If the Operator is aware of any conditions whereby a neighboring well or wells might be affected by the treatment proposed herein it is the Operator's responsibility to notify the owner or owners of the well or wells accordingly.

Prices quoted are estimates only and are good for 30 days from the date of issue. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services.

Freedom from infringement of patents of Dowell or others is not to be inferred.

Dowell

Client : Canadian Forest Oil
Well : N61
Formation : Nahanni
District : COIL TUBING GAB
Country : Canada
Loadcase : Acq Load Case

Section 1: Job Messages

#	Time	Message	Corr Depth (m)	Wellhead Pres (kPa)	CIRC_PRESS2 (kPa)	Total Pump Rate (m3/min)	N2 Rate 1 (scm/min)
1	5:30:00	Arrive on location	0.0	0	0	0.00	0
2	5:35:00	Wait on wireline	0.0	0	0	0.00	0
3	6:30:00	Rig up equipment	0.0	0	0	0.00	0
4	8:40:13	Press test to 28 MPA	0.0	0	266	0.81	0
5	9:08:09	Repair leak	0.0	0	118	0.00	0
6	9:08:35	Start Press test again	0.0	0	1318	0.00	33
7	9:09:13	Reset Volume	0.0	0	4036	0.00	40
8	9:31:02	Bleed off press through testers	0.0	24183	24490	0.00	0
9	9:40:29	Begin RIH CT	0.0	2323	6878	0.00	0
10	9:40:59	Start Pumping Water	0.6	2112	6314	0.04	0
11	9:45:17	Reset Volume	23.5	694	5405	0.15	0
12	9:47:01	Pumping water at 200 L/min	40.3	430	7793	0.20	0
13	10:53:26	Rolled acid tanks for 1 hr.	2511.8	0	6103	0.20	0
14	11:09:23	Pull test at meters	3015.7	0	7310	0.20	0
15	11:26:33	Continue to fill hole	2994.7	0	10384	0.20	0
16	11:42:14	Stop pumping water	2994.7	0	0	0.00	0
17	11:43:00	Wait for well to equalize	2994.7	0	0	0.00	0
18	11:54:57	Remark	2994.7	50	0	0.00	0
19	12:03:10	Start Pumping Water	2994.7	0	0	0.06	0
20	12:24:08	Fluid returns to surface	2994.7	86	16941	0.20	0
21	12:24:50	Stop pumping water	2994.7	47	0	0.00	0
22	12:25:57	Start Pumping Acid	2994.7	10	6068	0.13	0
23	12:32:12	Continue to RIH to 3186m	2996.9	44	14838	0.20	0
24	12:42:31	Acid at nozzle	3187.5	51	9388	0.20	0
25	12:46:03	Shut in at test vessel	3189.3	68	9208	0.21	0
26	12:58:26	Pumping acid at 150 L/min	3186.1	9653	14808	0.15	0
27	13:12:58	Stop pumping acid	3186.1	15095	17909	0.09	0
28	13:13:41	Wait for 15 min	3186.1	13764	11106	0.00	0
29	13:28:36	Start Pumping Acid	3186.1	4093	3081	0.05	0
30	14:02:12	Stop pumping acid	3186.1	12692	17337	0.15	0
31	14:02:28	Wait 15 min	3186.1	12706	9374	0.00	0
32	14:07:22	5 min shut in	3186.1	10762	7226	0.00	0
33	14:12:19	10 min shut in	3186.1	9869	5429	0.00	0
34	14:17:30	15 min shut in	3186.1	9615	3953	0.00	0
35	14:22:15	Bleed off press to testers to ensure line not frozen	3186.1	9579	1698	0.00	0
36	14:23:24	Start Pumping Acid	3186.1	9452	9110	0.15	0
37	14:56:37	Stop pumping acid	3186.1	10993	6877	0.02	0
38	14:59:22	Wait 15 min	3186.1	9608	6626	0.00	0
39	15:01:11	5 min shut in	3186.1	8938	5961	0.00	0
40	15:08:00	10min shut in	3186.1	7080	4166	0.00	0
41	15:12:16	Start Pumping Acid	3186.1	6279	6208	0.10	0
42	15:23:42	Displace acid with water	3186.1	8214	13063	0.15	0
43	15:45:58	Stop pumping water	3186.1	8956	18848	0.15	0
44	15:53:56	Total fluid pumped 50.7 m3	3186.1	6437	6224	0.00	0
45	15:58:36	10 min shut in	3186.1	5367	5152	0.00	0
46	16:04:35	15 min shut in	3186.1	4318	4119	0.00	0
47	16:08:46	20 min shut in	3186.1	3756	3576	0.00	0
48	16:13:58	25 min shut in	3186.1	3146	2994	0.00	0
49	16:18:13	Remark	3186.1	2741	2610	0.00	0
50	16:18:30	Open well to testers	3186.1	2714	2588	0.00	0
51	16:28:56	Start pumping N2	3186.1	191	574	0.00	9
52	16:29:23	Begin to POH to kick off well	3185.7	186	430	0.00	9
53	16:54:03	Increase N2 rate to 15 scm/min	2851.4	216	9216	0.80	14
54	17:04:40	Increase N2 rate to 20 scm/min	2655.2	223	14138	0.00	20

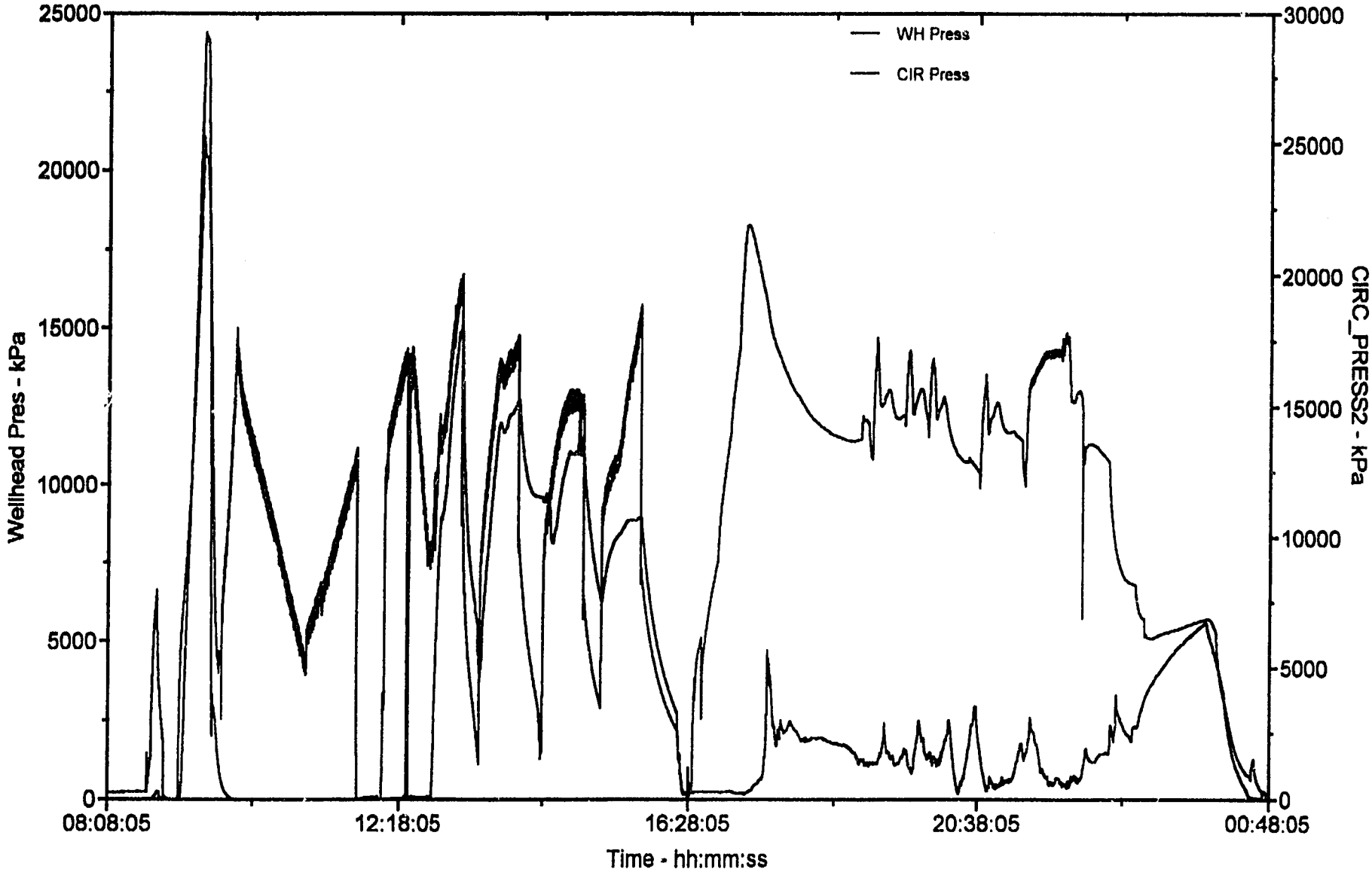
Dowell

Client : Canadian Forest Oil
Well : N61
Formation : Nahanni
District : COIL TUBING GAB
Country : Canada
Loadcase : Acq Load Case

#	Time	Message	Corr Depth (m)	Wellhead Pres (kPa)	CIRC_PRESS2 (kPa)	Total Pump Rate (m3/min)	N2 Rate 1 (scm/min)
55	17:11:53	Fluid returns to surface	2498.0	166	17140	0.00	22
56	17:12:34	Increase N2 to 35 scm/min	2481.3	172	17661	0.00	33
57	17:18:37	Return rate at 300 L/min	2402.1	160	21839	0.00	37
58	17:23:06	Stop POH CT	2379.8	259	21537	0.00	37
59	17:26:02	Remark	2379.8	400	21000	0.00	37
60	17:29:52	Begin to RIH	2379.8	538	20144	0.00	37
61	17:57:18	Total fluid recovered 29 M3	2627.5	2343	15696	0.25	37
62	18:28:34	Total fluid recovered 37.1 M3	2972.7	1811	13992	0.06	38
63	19:01:10	Tag Bottom PUH	3241.5	1044	14430	0.00	40
64	19:05:31	Reset Volume	3246.4	1087	13045	0.00	29
65	19:05:52	Start Foam	3246.8	1086	12988	0.00	29
66	19:10:01	Fluid Down Raise N2	3249.4	1087	17456	0.01	41
67	19:14:29	Fluid Returns 37.7	3251.7	1376	15053	0.00	40
68	19:15:18	Tag Bottom PUH	3251.7	1488	15140	0.00	40
69	19:19:02	N2 To Nozzle	3250.6	1605	15566	0.00	40
70	19:21:57	Tag PUH	3252.0	1409	15446	0.00	40
71	19:23:09	N2 To Nozzle	3252.1	1237	15108	0.00	40
72	19:24:17	PUH Circulate N2	3252.2	1284	14860	0.00	40
73	19:34:25	Reset Volume	3239.9	1391	14412	0.00	30
74	19:34:30	Start #2 Foam Stage	3240.0	1430	14278	0.00	29
75	19:38:32	Fluid Down	3248.4	1107	16978	0.00	45
76	19:41:18	Fluid Returns @ 43m3	3251.3	797	14726	0.00	39
77	19:46:17	Solids To Surface	3249.6	1915	15505	0.00	40
78	19:47:24	Foam To Nozzle	3250.7	2443	15597	0.00	39
79	19:49:39	Tag Out Circulate	3252.4	1938	15586	0.00	40
80	19:51:25	N2 To Nozzle	3252.4	1897	15096	0.00	40
81	19:52:40	PUH	3251.9	1485	14729	0.00	40
82	19:54:16	Start #3 Foam Stage	3241.8	1334	14126	0.00	29
83	19:54:52	Reset Volume	3236.2	1245	14445	0.10	29
84	19:58:53	Fluid Down	3192.6	1197	16414	0.00	35
85	20:08:01	Foam To Nozzle	3248.5	1424	15363	0.00	40
86	20:08:59	Tagged bottom	3252.1	1569	15158	0.00	39
87	20:13:20	N2 To Nozzle	3252.2	2349	14006	0.00	39
88	20:15:47	Pull Test at Feet	3251.0	1814	13581	0.00	39
89	20:27:19	RIH	3099.7	711	12873	0.00	39
90	20:38:55	Reset Volume	3208.7	1891	12412	0.00	30
91	20:39:06	Start #4 Foam Stage	3211.1	1843	12078	0.00	29
92	20:43:55	Fluid Down	3244.2	680	16199	0.02	42
93	20:51:30	Tag Bottom	3252.0	454	14915	0.00	40
94	20:51:56	Foam To Nozzle	3252.0	427	14984	0.00	40
95	20:55:49	N2 To Nozzle	3252.0	393	14824	0.00	40
96	21:07:04	Bottom With Weight Back	3250.1	558	14041	0.00	40
97	21:09:32	PUH Total Fluid Recoverd 101m3	3245.0	765	13921	0.00	40
98	21:15:22	RIH	3228.8	1700	12881	0.00	28
99	21:15:36	Reset Volume	3229.4	1687	12710	0.00	28
100	21:16:30	Last Foam Stage	3231.0	1410	12270	0.00	28
101	21:29:00	Foam To Nozzle	3245.4	1575	16556	0.10	28
102	21:29:56	On Bottom To Circulate	3250.4	1362	16584	0.10	28
103	21:53:51	Fluid Down	3250.4	377	17679	0.10	40
104	22:13:18	POOH	3250.4	1280	13554	0.00	40
105	22:30:52	Lower N2	3055.9	1381	12865	0.00	40
106	22:54:37	Lower N2	2499.4	2294	7742	0.00	19
107	0:34:56	At Surface Shut Well Rig Out	14.8	43	1472	0.00	10
108	0:46:21	Stopped Recording	14.8	47	0	0.00	0

CCAT*

Canadian Forest Oil
N61
811-2021
10-03-1999

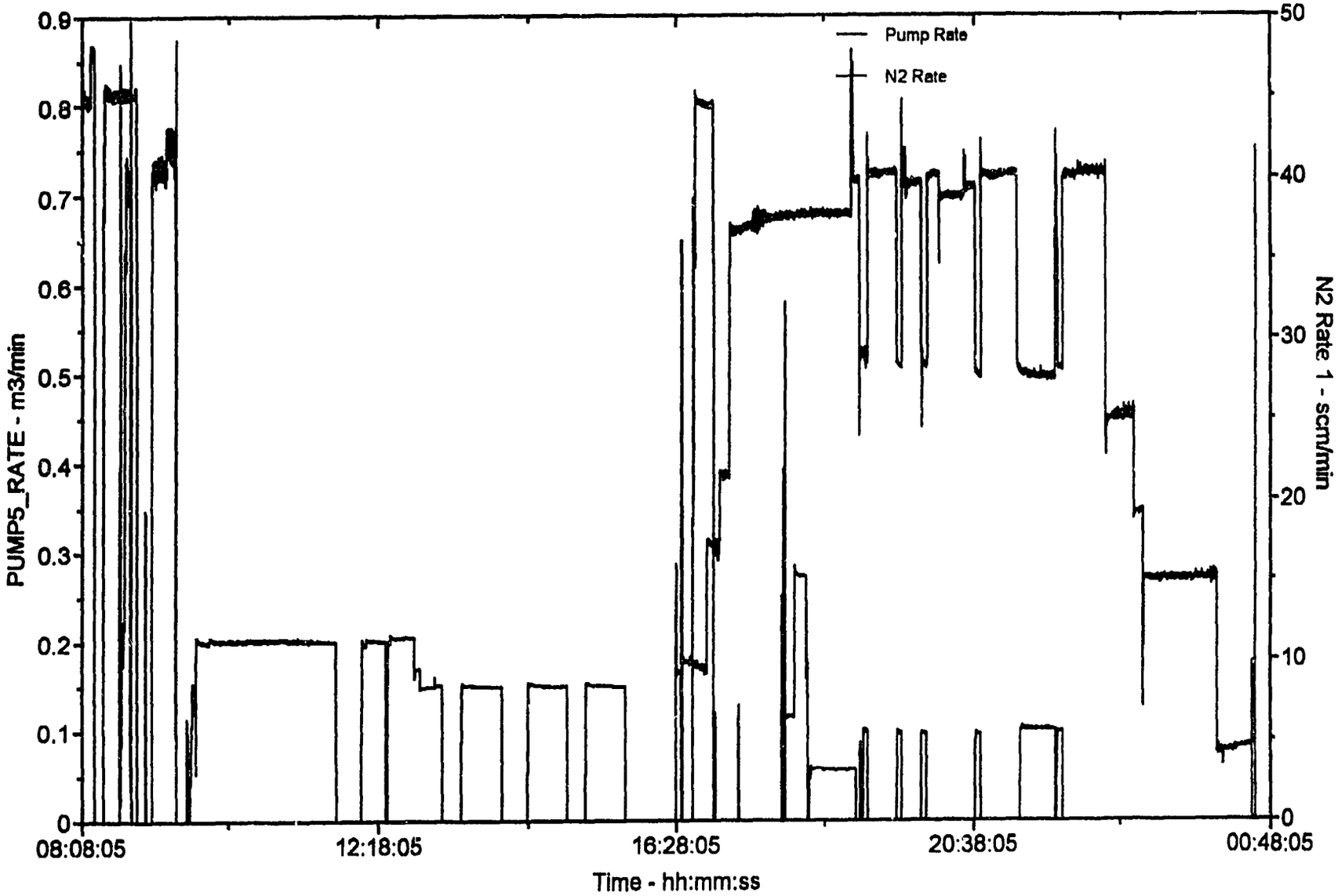


Schlumberger

(c) Schlumberger Dowell 1994-99

CCAT*

Canadian Forest Oil
N61
811-2021
10-03-1999



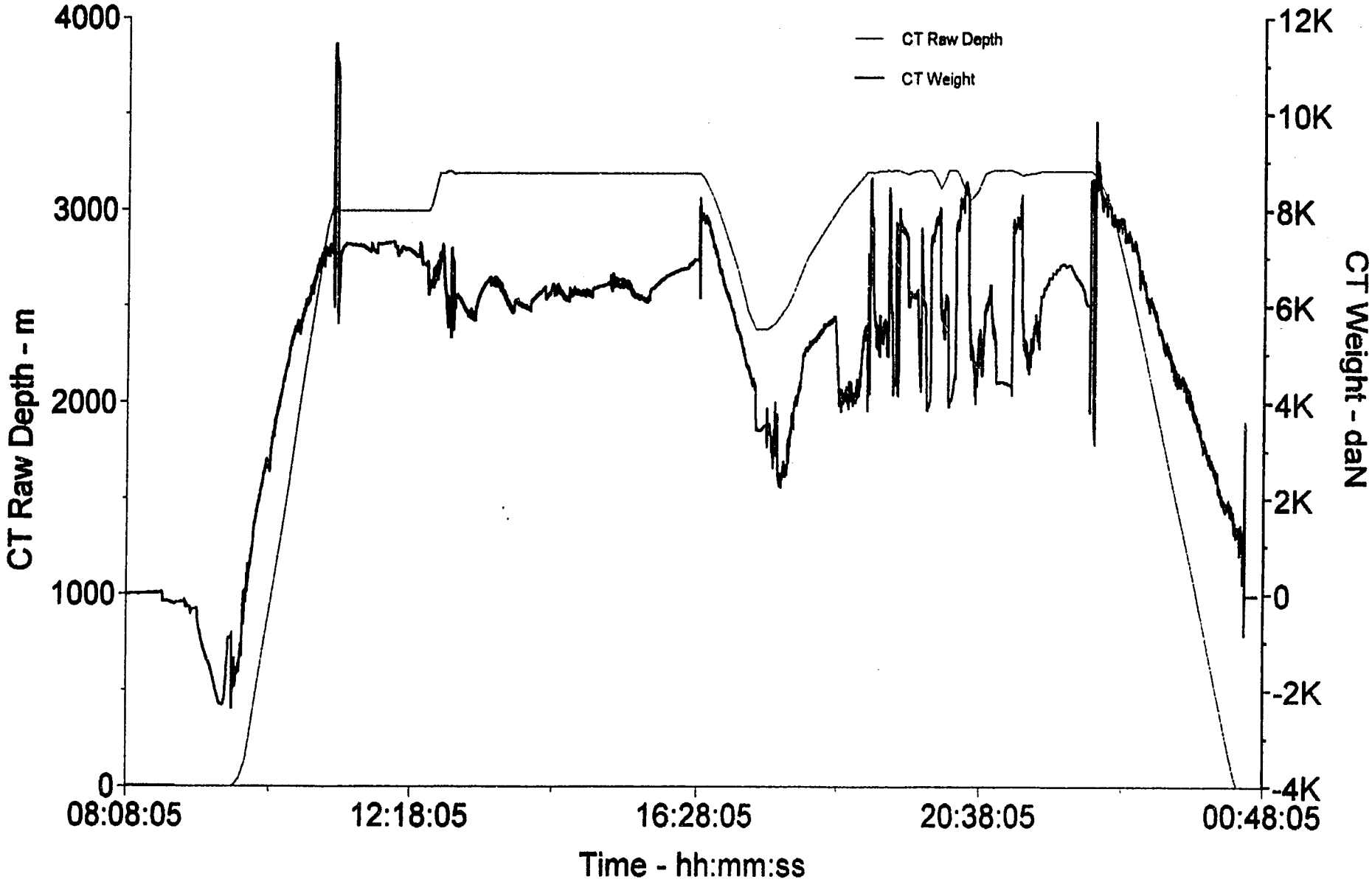
Schlumberger

(c) Schlumberger Dowell 1994-99

CCAT*

RIH/ROH

Canadian Forest Oil
N61
811-2021
10-03-1999

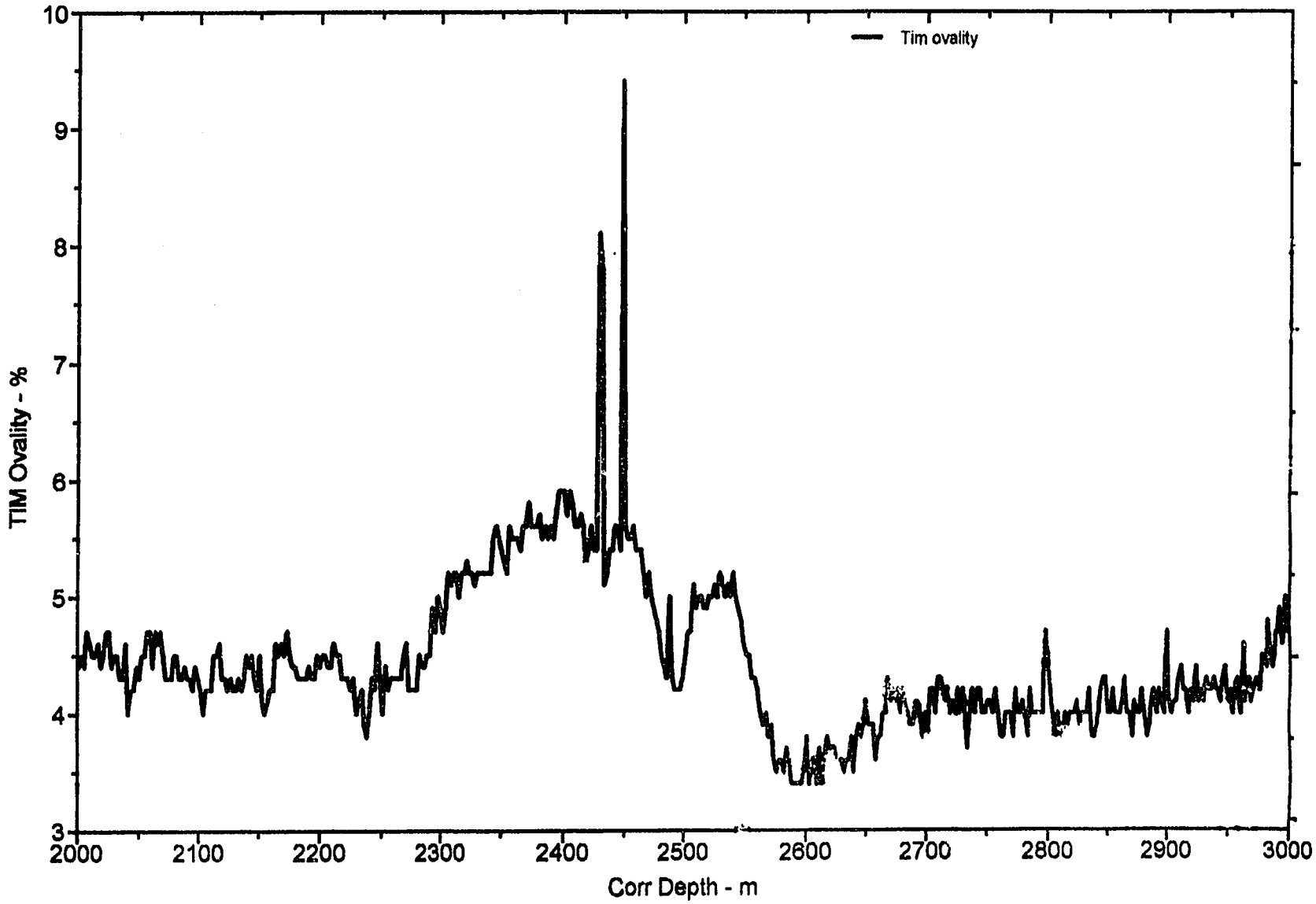


Schlumberger

(c) Schlumberger Dowell 1994-99

CCAT*

Canadian Forest Oil
N61
811-2021
10-03-1999



Schlumberger

(c) Schlumberger Dowell 1994-99

Dowell

Canadian Forest Oil

CCAT
Treatment Report

Well: N 61

CCAT

Field
Pointed Mountain
Formation
Nahanni
Location
N 61

Country
Canada
Province
Northwest Territories

Prepared for	*Woody Periard*	*Service Point*	COIL TUBING GAB
Treatment No.	811-2021	*Business Phone*	(780) 539-4220
Date Prepared	09-30-1999	*FAX No.*	(780) 539-7532

Prepared by VIC LEMKE
Phone (780) 539-4220
E-Mail Address lemke@grande-prairie.dowell.slb.com

Comments Perform a 38.1mm coiled tubing conveyed 15% HCL acid wash on above location as per above customers request.

Disclaimer Notice:

This information is presented in good faith, but no warranty is given by and Dowell assumes no liability for advice or recommendations made concerning results to be obtained from the use of any product or service. The results given are estimates based on calculations produced by a computer model including various assumptions on the well, reservoir and treatment. The results depend on input data provided by the Operator and estimates as to unknown data and can be no more accurate than the model, the assumptions and such input data. The information presented is Dowell's best estimate of the actual results that may be achieved and should be used for comparison purposes rather than absolute values. The quality of input data, and hence results, may be improved through the use of certain tests and procedures which Dowell can assist in selecting.

The Operator has superior knowledge of the well, the reservoir, the field and conditions affecting them. If the Operator is aware of any conditions whereby a neighboring well or wells might be affected by the treatment proposed herein it is the Operator's responsibility to notify the owner or owners of the well or wells accordingly.

Prices quoted are estimates only and are good for 30 days from the date of issue. Actual charges may vary depending upon time, equipment, and material ultimately required to perform these services.

Freedom from infringement of patents of Dowell or others is not to be inferred.

Dowell

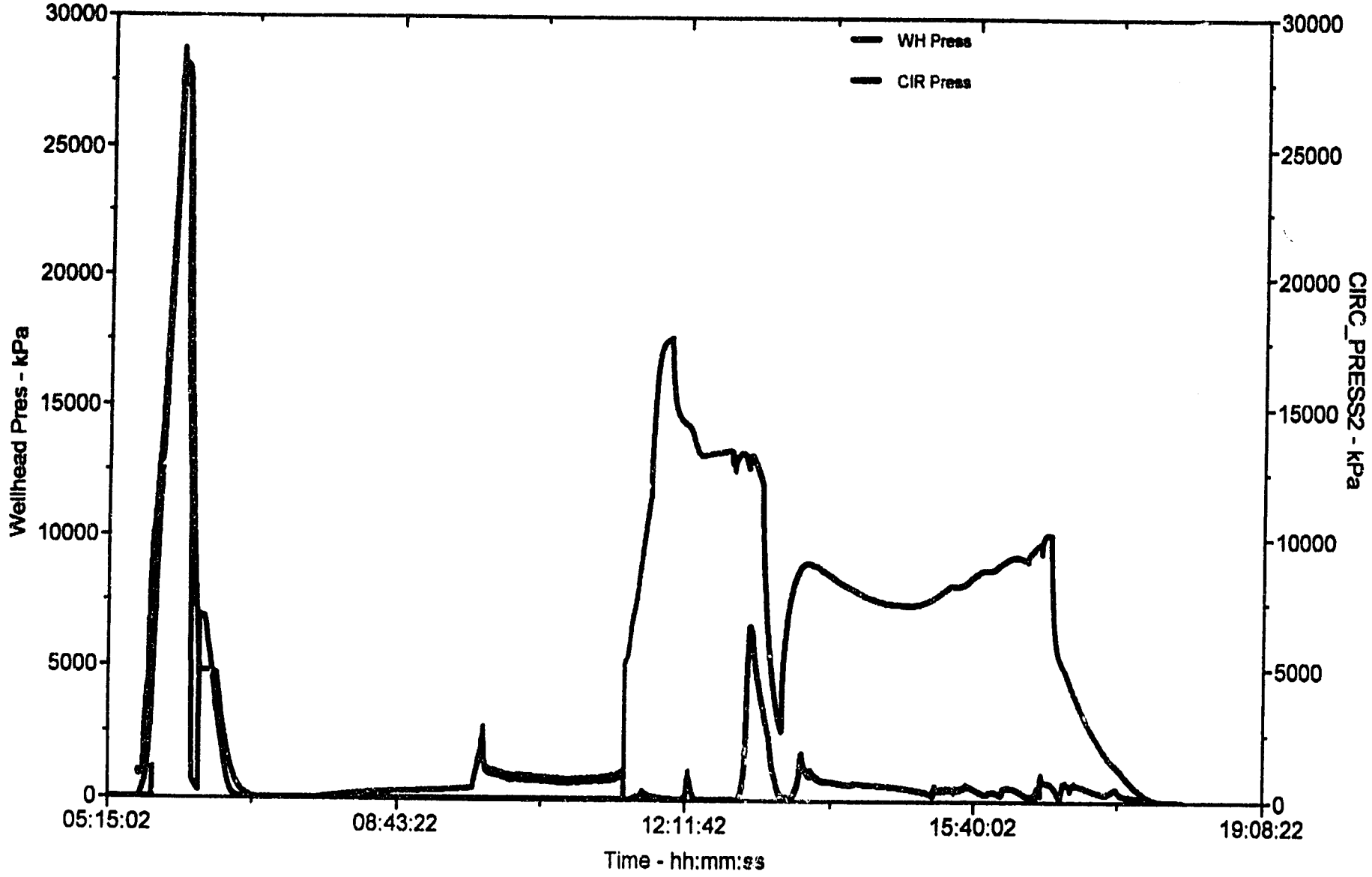
Client : Canadi orest Oil
Well : N 61
Formation : Nahanni
District : COIL TUBING GAB
Country : Canada
Loadcase : Acq Load Case

Section 1: Job Messages

#	Time	Message	Corr Depth (m)	Wellhead Pres (kPa)	CIRC_PRESS 2 (kPa)	Total Pump Rate (m3/min)	N2 Rate 1 (scm/min)
1	2:30:00	Arrive on location	0.0	0	0	0.00	0
2	2:45:00	Wait on wireline	0.0	0	0	0.00	0
3	3:20:00	Roll acid in 400 bbl tanks for 1 hr.	0.0	0	0	0.00	0
4	4:00:00	Rig up equipment	0.0	0	0	0.00	0
5	5:20:19	Safety meeting	0.0	7	0	0.00	0
6	5:45:55	Press test to 28 MPA	0.0	4020	9547	0.00	47
7	6:09:18	Bleed off press to testers	0.0	25191	26809	0.00	0
8	6:19:41	Open master valve	0.0	275	5594	0.00	0
9	6:20:36	Well head press was 6850 kPa	0.0	6880	4859	0.00	0
10	6:21:06	Begin RIH CT	0.0	6853	4801	0.00	0
11	7:50:04	Pull test at meters	2455.5	33	63	0.00	0
12	9:08:08	Electronic counter down	2447.8	27	322	0.02	0
13	9:10:31	Pull test at meters	2447.8	28	329	0.00	0
14	9:39:06	Start Pumping Water	2800.0	24	436	0.08	0
15	9:41:09	Start Pumping Acid	2600.0	23	980	0.10	0
16	10:08:38	Pull test at meters	3140.0	27	870	0.10	0
17	10:12:14	Acid at nozzle	3142.0	26	777	0.10	0
18	10:16:37	Remark	3155.0	25	783	0.10	0
19	10:42:31	Remark	3232.0	26	724	0.10	0
20	10:46:01	Tag obstruction	3242.0	25	738	0.10	0
21	10:46:17	POH to 3148m	3242.0	25	665	0.10	0
22	11:17:09	Start Pumping Water	3163.0	28	791	0.10	0
23	11:18:25	RIH to tag point	3146.0	27	838	0.10	0
24	11:24:00	Tag obstruction	3242.0	26	821	0.10	0
25	11:27:09	Stop pumping water	3242.0	27	51	0.00	0
26	11:27:30	Start pumping N2	3242.0	27	4206	0.00	19
27	11:27:57	Remark	3220.0	26	5198	0.00	18
28	11:33:32	Fluid slugs to surface	3220.0	103	8803	0.00	18
29	11:45:12	Water at nozzle	3055.0	154	11319	0.00	19
30	11:45:48	Increase N2 to 40 scm/min	3055.0	145	11875	0.00	36
31	11:50:45	N2 at nozzle	2987.0	99	16751	0.00	40
32	11:52:10	Start to lift well	2950.0	80	17138	0.00	38
33	12:00:23	Decrease N2 to 20 scm/min	2742.0	39	16884	0.00	21
34	12:28:25	Remark	1920.0	23	13209	0.00	20
35	12:49:58	Continue POH	1860.0	33	13165	0.00	21
36	12:55:17	Stop POH CT	1245.0	1718	12984	0.00	21
37	12:56:55	Start RIH to kick off well	1245.0	5072	12909	0.00	31
38	12:57:27	Increase N2 to 30 scm/min	1245.0	5640	13120	0.00	30
39	13:00:27	RIH at 15 M/min	1280.0	6121	12927	0.00	32
40	13:06:26	Reduce N2 to 5 scm/min	1280.0	3728	11796	0.00	20
41	13:10:00	Acid returns to surface	1355.0	2733	6946	0.00	5
42	13:10:19	Remark	1355.0	2673	6750	0.00	6
43	13:21:04	Increase N2 to 30 scm/min	1422.0	117	4069	0.00	29
44	13:25:01	RIH at 10 m/min	1451.0	108	6950	0.00	29
45	14:11:53	RIH At 15 m min	1838.0	621	7991	0.00	28
46	15:11:44	Fluid To Surface	2762.0	375	7713	0.00	28
47	15:20:09	Pull test at meters	2762.0	457	8044	0.00	29
48	15:43:03	Pull test at meters	3137.0	344	8660	0.00	29
49	15:47:54	RIH	3137.0	249	8729	0.00	29
50	16:04:49	Pull test at meters	3200.0	481	9222	0.00	29
51	16:11:39	RIH	3140.0	348	9230	0.00	28
52	16:22:09	Tagged Bottom	3249.0	140	9555	0.00	29
53	16:27:17	POOH	3249.0	813	9615	0.00	21
54	16:34:42	N2 Down Broken Fuel Line	3249.0	618	9618	0.00	3
55	18:09:07	At Surface Rig Out	0.0	0	0	0.00	0

CCAT*

Canadian Forest Oil
N 61
811-2021
09-30-1999

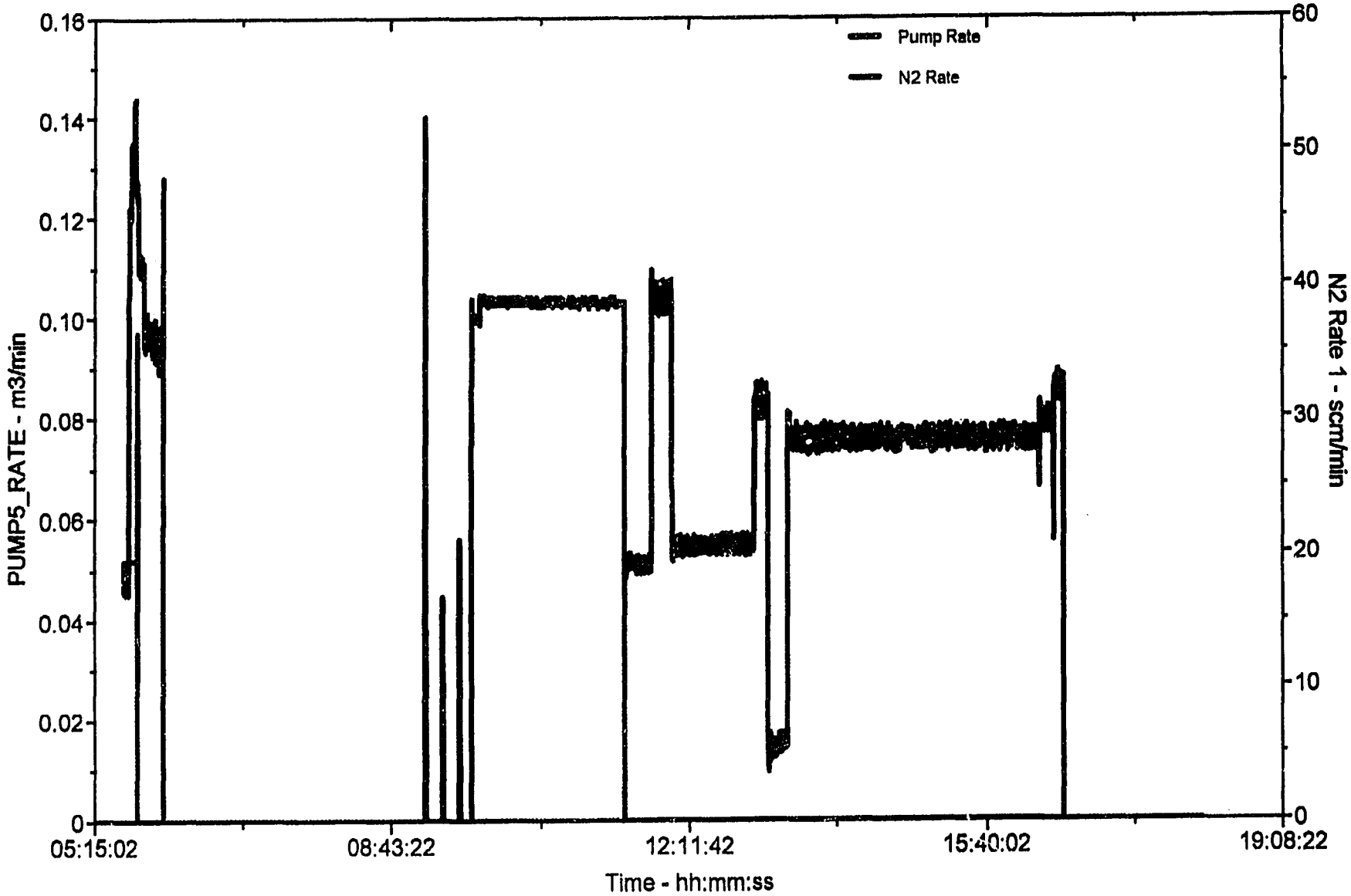


Schlumberger

(c) Schlumberger Dowell 1994-99

CCAT*

Canadian Forest Oil
N 61
811-2021
09-30-1999



Schlumberger

(c) Schlumberger Dowell 1994-99

Attach #15

BAKER HUGHES

Baker Atlas

NORWARD

ENERGY SERVICES

Customer: Canadian Forest Oil
Wellname: N-61 et al Flett
Well Location:
Test Dates: Sept 28 - Oct 06, 1999
Formation: Nahanni

File Name: GP99-120
Supervisors: R. Rutherford, M. Russell
Customer Reps: Woody Periard
Test Unit/Tank: TU#29, TK#25
Test Type: Tight Hole

GENERAL INFORMATION

Client Information:

Company: Canadian Forsest Oil

Contact: Keith Heinz

Phone: 1-600-700-3395 Fax: e-mail:

Site Information:

Contact: Woody Periard

Phone: 780-814-0115 Fax: e-mail:

Well Information:

Name: N-61 et ál Flett

Operator: Canadian Forest Oil

Location-Downhole:

Location-Surface: c-78-C/94-G-8

Test Information:

Company: Norward Energy Services

Representative: Paul Ringrose

Supervisor: R. Rutherford, M. Russell

Test Type: Tight Hole

Test Unit: TK#25, TU#29

Start Date: 1999/09/28

End Date: 1999/10/06

Report Date: 1999/10/06

Job Number: GP-99-120

Start Time: 08:00:00

End Time: 04:00:00

Prepared By: C. Brunt

Qualified By:

Remarks:

Canadian Forsest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/06

FieldNotes

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

Gas Meter 1

Meter Type:	Orifice Meter	
Meter Size:	146.32	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Upstream	
Gas Gravity (G):	0.650	
CO_2:	11.00	%
H_2S:	1.00	%
N_2:	0.00	%
Critical Temperature (T_C):	202.65	K
Critical Pressure (P_C):	4993.47	kPa

Gas Meter 2

Meter Type:	Orifice Meter	
Meter Size:	97.18	mm
Previous Gas Production:	0.000	10^3m^3
Tap Type:	Flange	
Tap Location:	Upstream	
Gas Gravity (G):	0.650	
CO_2:	11.00	%
H_2S:	1.00	%
N_2:	0.00	%
Critical Temperature (T_C):	202.65	K
Critical Pressure (P_C):	4993.47	kPa

Oil Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Columns for Produced Volume:		
Previous Oil Production:	0.000	m^3
Previous Water Production:	0.000	m^3

Water Meter 1

Meter Type:	Produced Volume	
Measurement type:	Incremental	
Columns for Produced Volume:		
Previous Water Production:	0.000	m^3

Fact

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/05

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
1	1999/09/28	12:00:00	Held pre-job safety meeting.																									
2		13:50:00	Pressure test coil and surface lines to 35 MPa.																									
3		14:14:59				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
4		14:15:00	Coil tubing start in hole.																									
5		14:15:00	Begin pumping N2 at 10 scm/min. Open choke to 50.80mm setting.																									
6		14:40:00	Fluid to surface.																									
7		14:50:00	Increase N2 to15 scm/min.																									
8		15:00:00	Increase N2 to 22scm/min.																									
9		15:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	2.20	100.00	0.00	0.00	0.00	2.20	70.37	2.20	5	0
10		15:15:00	Decrease N2 to 15 scm/min.																									
11		15:30:00																	5.50	100.00	0.00	0.00	0.00	5.50	264.00	7.70	5	0
12		15:35:00	Straight N2 for returns.																									
13		15:45:00	Fluid to surface.																									
14		16:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	2.00	100.00	0.00	0.00	0.00	2.00	96.00	9.70	5	0
15		16:30:00																	2.00	100.00	0.00	0.00	0.00	2.00	96.00	11.70	5	0
16		16:45:00	N2 rate at 15 scm/min. Coil depth 1300m. 1.0% sediment in samples.																									
17		16:45:00																	0.40	100.00	0.00	0.00	0.00	0.40	38.40	12.10	5	0
18		17:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	1.00	100.00	0.00	0.00	0.00	1.00	96.00	13.10	5	0
19		17:30:00	N2 rate at 15 scm/min. Coil depth 1420m. 1.0% sediment in samples.																									
20		17:30:00																										
21		18:00:00	N2 rate at 20 scm/min. Coil depth 1580m. Inhibited H2O in returns.																									
22	1999/09/28	18:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	2.20	100.00	0.00	0.00	0.00	2.20	105.60	16.20	5	0
23		18:30:00																	5.10	100.00	0.00	0.00	0.00	5.10	244.80	21.30	5	0
24		18:45:00	N2 rate at 20 scm/min. Coil depth 1630m. 1.0% sediment in samples.																									
25		18:45:00																	2.30	100.00	0.00	0.00	0.00	2.30	220.80	23.60	5	0
26		19:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	1.30	100.00	0.00	0.00	0.00	1.30	124.80	24.90	5	0
27		19:30:00																	0.90	100.00	0.00	0.00	0.00	0.90	43.20	25.80	5	0
28		19:45:00	Trace burnable gas to surface.																									
29		20:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	0.000	0.000	3.30	100.00	0.00	0.00	0.00	3.30	158.40	29.10	8	45000
30		20:14:58				0.00	0.00	0.00	0.00	0.000	0.000	50.80	0.00	0.00	0.00	0.000	0.000	0.000										
31		20:15:00	Meter2 in service with a 50.80mm plate.																									
32		20:20:00	Gastec = 0.75%.																									
33		20:29:59										0.00	0.00	0.00	0.00	0.000	0.000	0.000										
34		20:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	175.00	3.00	0.00	15.983	0.000	0.000	0.20	100.00	0.00	0.00	0.00	0.20	9.60	29.30	6	50000
35		20:50:00	Coil depth = 3000m.																									
36		21:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	300.00	19.50	0.00	48.659	0.673	0.673	1.30	100.00	0.00	0.00	0.00	1.30	62.40	30.60	6	110000
37		21:30:00	Start pumping H2O at 100L/min, decrease N2 rate to 15 scm/min.																									
38		21:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	100.00	9.00	0.00	33.146	1.421	1.421	0.30	100.00	0.00	0.00	0.00	0.30	14.40	30.90	6	1120000
39		21:45:00	Increase N2 to 25 scm/min.																									
40		22:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	150.00	2.00	-1.00	12.449	1.792	1.792	0.10	100.00	0.00	0.00	0.00	0.10	4.80	31.00	6	124000
41		22:15:00	Increase N2 to 40 scm/min.																									
42		22:20:00	Cut N2 to 30 scm/min.																									
43		22:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	340.00	26.00	2.00	58.569	2.532	2.532	7.90	100.00	0.00	0.00	0.00	7.90	379.20	38.90	6	130000
44		22:56:00	Finished pumping H2O.																									
45		23:00:00	Increased N2 to 40 scm/min.																									
46		23:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	360.00	27.00	6.00	60.617	3.773	3.773	4.50	100.00	0.00	0.00	0.00	4.50	216.00	43.40	6	42000
47		23:20:00	Decrease N2 to 20 scm/min.																									

Fact

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/06

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
48	1999/09/28	23:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	620.00	38.00	9.00	90.174	5.344	5.344	2.90	100.00	0.00	0.00	0.00	2.90	139.20	46.30	6	40000
49	1999/09/29	00:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	200.00	14.00	1.00	35.518	6.653	6.653	0.60	100.00	0.00	0.00	0.00	0.60	28.80	46.90	6	44000
50		00:30:00	Decrease N2 to 15 scm/min.																									
51		00:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	100.00	11.50	0.00	26.044	7.295	7.295	0.00		0.00	0.00	0.00	0.00	0.00	46.90		
52		01:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	165.00	7.00	-1.00	23.822	7.614	7.614	0.20	100.00	0.00	0.00	0.00	0.20	9.60	47.10		
53		01:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	210.00	9.50	0.00	29.985	8.375	8.375	0.20	100.00	0.00	0.00	0.00	0.20	9.60	47.30		
54		01:50:00	Shut down N2.																									
55		02:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	200.00	8.00	0.00	27.095	8.969	8.969	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.30		
56		02:00:00	Coil at surface, last hour not enough fluid to catch samples.																									
57		02:15:00	Change plate to 19.05mm.																									
58		02:30:00	0			0.00	0.00	0.00	0.00	0.000	0.000	19.05	20.00	26.00	-4.00	3.602	9.291	9.291										
59		03:00:00	0			0.00	0.00	0.00	0.00	0.000	0.000	19.05	5.00	39.50	-4.00	4.106	9.373	9.373	0.00	0.00	0.00	0.00	0.00	0.00	0.00	47.30		
60		03:00:00	Shut in monitor buildups.																									
61		03:00:00	0		0.0	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	0.00	0.00								
62		03:05:00	10																									
63		03:10:00	15																									
64		03:15:00	20																									
65		03:30:00	205																									
66		04:00:00	605																									
67		04:30:00	1060																									
68		05:00:00	1455																									
69		05:30:00	1780																									
70	1999/09/29	06:00:00	2105																									
71		06:30:00	2455																									
72		07:00:00	2705																									
73		07:30:00	2955																									
74		08:00:00	3250																									
75		08:30:00	3300																									
76		09:00:00	3500																									
77		09:30:00	3700																									
78		10:00:00	3900																									
79		10:30:00	4050																									
80		11:00:00	4350																									
81		11:30:00	4400																									
82	1999/09/28	12:00:00	5020																									
83		12:30:00	5050																									
84		13:00:00	5200																									
85		13:30:00	5350																									
86		14:00:00	5450																									
87		14:30:00	5650																									
88		15:00:00	5570																									
89		15:30:00	5660																									
90		16:00:00	5700																									
91		16:30:00	5720																									
92		17:00:00	5770																									
93		17:30:00	5780																									
94	1999/09/29	18:00:00	5790																									

C:\Cindy\NOTES\FAST32\CanForest\Codlin7 FLD 22-Oct-99 Ver 1.613

Fast

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/08

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: CP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Cag Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
95	1999/09/29	18:30:00	5800																									
96		19:00:00	5800																									
97		19:30:00	5800																									
98		19:45:00	Wireline running in with gauge ring.																									
99		20:00:00	5800																									
100		20:30:00	5800																									
101		21:00:00	5800																									
102		21:30:00	5800																									
103		21:30:00	Bleed off wireline. Shut in at the wing valve.																									
104		22:00:00	Wireline running in hole with pressure gradient.																									
105	1999/09/30	01:30:00	Wireline at surface, bleed off and rig out.																									
106		02:00:00	Rig up coil tubing for acid wash.																									
107		05:00:00	Held pre-job safety meeting for job procedures.																									
108		06:00:00	Pressure test coil and surface lines to 24MPa.																									
109		06:15:00	Bleed off pressure test.																									
110		06:19:58	6480	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	0.00		0.00	0.00	0.00	0.00	0.00	47.30		0
111		06:20:00	Slowly open to 50.80mm to flow.																									
112		06:25:00	5470																									
113		06:30:00	3900																									
114		06:35:00	1800																									
115		06:35:00	Coil start in hole.																									
116		06:45:00	0																									
117		09:40:00	Start pumping acid.																									
118		11:25:00	Start pumping N2 20scm/min.																									
119		11:35:00	N2 to surface.																									
120		11:42:00	Increase N2 rate to 40 scn/min.																									
121		11:57:00	Drop N2 rate to 20scm/min.																									
122	1999/09/30	12:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	0.30	100.00	0.00	0.00	0.00	0.30	1.27	47.60	1	128000
123		12:15:00	Acid to surface.																									
124		12:30:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	4.00	100.00	0.00	0.00	0.00	4.00	192.00	51.60	1	128000
125		13:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	4.05	100.00	0.00	0.00	0.00	4.05	194.40	55.65	1	168000
126		13:05:00	Cut choke to decrease N2 flow.																									
127		13:15:00	Open choke to 50.80mm. Increase N2 rate to 30 scm/min.																									
128		13:30:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	9.373	9.373	3.10	100.00	0.00	0.00	0.00	3.10	148.80	58.75	1	172000
129		13:44:59				0.00	0.00	0.00	0.00	0.000	0.000	50.80	0.00	0.00	0.00	0.000	9.373	9.373										
130		13:45:00	Meter in service with a 50.80mm orifice plate.																									
131		14:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	250.00	22.40	0.00	48.429	9.878	9.878	0.65	100.00	0.00	0.00	0.00	0.65	31.20	59.40	1	176000
132		14:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	225.00	21.00	1.00	45.042	10.852	10.852	0.30	100.00	0.00	0.00	0.00	0.30	14.40	59.70	1	180000
133		15:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	200.00	15.00	-2.00	36.928	11.706	11.706	0.00		0.00	0.00	0.00	0.00	0.00	59.70		
134		15:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	200.00	14.90	-2.00	36.809	12.474	12.474	0.50	100.00	0.00	0.00	0.00	0.50	24.00	60.20	1	186000
135		16:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	150.00	14.90	1.00	33.196	13.203	13.203	0.90	100.00	0.00	0.00	0.00	0.90	43.20	61.10	1	196000
136		16:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	270.00	23.00	2.00	50.340	14.073	14.073	1.70	100.00	0.00	0.00	0.00	1.70	81.60	62.80	1	196000
137		16:30:00	Shut down N2 pumper.																									
138		17:00:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	75.00	15.50	0.00	27.883	14.888	14.888	1.70	100.00	0.00	0.00	0.00	1.70	81.60	64.50	1	192000
139		17:15:00	Trace of burnable gas to surface.																									
140		17:30:00				0.00	0.00	0.00	0.00	0.000	0.000	50.80	100.00	8.00	-4.00	22.027	15.408	15.408	0.20	100.00	0.00	0.00	0.00	0.20	9.60	64.70	1	192000
141	1999/09/30	18:00:00	Meter out of surface, gas rate too small to measure. Coil on surface.																									

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/06

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
142	1999/09/30	18:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	0.05	100.00	0.00	0.00	0.00	0.05	2.40	64.75	1	194000
143		18:15:00	Shut in monitor buildups.																									
144		18:15:01			0.0	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	64.75		
145		18:30:00	150																									
146		19:00:00	275																									
147		19:30:00	450																									
148		20:00:00	Ship down pressure tank to 400 and blow out lines.																									
149		20:00:00	520																1.20	100.00	0.00	0.00	0.00	1.20	16.46	65.95		
150		20:30:00	620																									
151		21:00:00	700																									
152		21:30:00	770																									
153		22:00:00	870																									
154		22:30:00	950																									
155		23:00:00	1000																									
156		23:30:00	1090																									
157	1999/10/01	00:00:00	1140																									
158		00:30:00	1185																									
159		01:00:00	1225																									
160		01:30:00	1300																									
161		02:00:00	1330																									
162		02:30:00	1370																									
163		03:00:00	1415																									
164		03:30:00	1450																									
165		04:00:00	1500																									
166		04:30:00	1535																									
167		05:00:00	1590																									
168		05:30:00	1610																									
169	1999/10/01	06:00:00	1645																									
170		06:30:00	1690																									
171		07:00:00	1720																									
172		07:30:00	1760																									
173		08:00:00	1805																									
174		08:30:00	1840																									
175		09:00:00	1870																									
176		09:30:00	1915																									
177		10:00:00	1925																									
178		10:30:00	1970																									
179		10:50:00	Shut in, rig on wireline.																									
180		11:30:00	Wireline running in hole with gauge ring.																									
181		14:30:00	Wireline running in hole to Jo static gradient.																									
182		18:00:00	Wireline on surface, switching to braided line to run baler.																									
183		19:30:00	Wireline running in hole. Opening pressure of 2550 kPa.																									
184		23:00:00	Wireline on surface. Aquired sample of bale and gas samples. (container #s 30829. & 19566.)																									
185	1999/10/02	01:30:00	Wireline on surface with second bale run. Aquired sample.																									
186		04:30:00	Wireline on surfacee with third bale run. Aquired sample.																									
187		07:00:00	Wireline on surface with fourth bale run. Aquired sample.																									
188		08:45:00	Wireline on surface with fifth bale run. Aquired sample.																									

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/06

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
189	1999/10/02	10:45:00	Wireline on surface with sixth bale run. Aquired sample.																									
190		12:00:00	3125																									
191		12:30:00	3125																									
192		13:00:00	3200																									
193		13:30:00	3250																									
194		14:00:00	3250																									
195		14:30:00	3250																									
196		15:00:00	3250																									
197		15:30:00	3250																									
198		16:00:00	3300																									
199		16:30:00	3300																									
200		17:00:00	3300																									
201		17:30:00	3300																									
202	1999/10/02	18:00:00	3350																									
203		18:30:00	3350																									
204		19:00:00	3350																									
205		19:30:00	3350																									
206		20:00:00	3350																									
207		20:30:00	3400																									
208		21:00:00	3400																									
209		21:00:00	Safety meeting held for perforation.																									
210		21:30:00	3450																									
211		21:30:00	Wireline run in hole with guns.																									
212		22:00:00	3450																									
213		22:30:00	3450																									
214		23:00:00	3450																									
215		23:25:00	Set off guns. Wireline run out of hole.																									
216		23:30:00	3450																									
217	1999/10/03	00:00:00	3450																									
218		00:30:00	3450																									
219		01:00:00	3450																									
220		01:30:00	Wireline on surface. Guns did not fire. Recapping guns.																									
221		01:30:00	3450																									
222		02:00:00	3450																									
223		02:30:00	3450																									
224		02:30:00	Wireline running in hole with guns.																									
225		03:00:00	3450																									
226		03:30:00	3450																									
227		03:30:00	Guns fire successfully.																									
228		03:40:00	3550																									
229		04:00:00	3550																									
230		04:30:00	3550																									
231	1999/10/03	04:45:00	Wireline on surface. Bleed off. Bottom master valve shut.																									
232		06:00:00	Dowell rigging in.																									
233		08:40:00	Pressure test surface lines.																									
234		09:35:00	Start filling well with water.																									
235		09:43:00	Coil start in hole.																									

Fast

Canadian Forsest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/06

FieldNotes
Field Measurements

N-61 et al Flett
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date	Clock Time	Tbg Pres	Csg Pres	WHT	Orifice1	Static1 Pres	Diff1 Pres	Meter1 Temp	Gas1 Rate	Cum. Gas1	Orifice2	Static2 Pres	Diff2 Pres	Meter2 Temp	Gas2 Rate	Cum. Gas2	Tot Cum Gas	Fluid Gain	BSW1	Oil Gain	Oil1 Rate	Cum. Oil1	H20 Gain	H20 Rate	H20 Cum	pH	Salinity
	yyyy/mm/d	hh:mm	kPa(g)	kPa(g)	°C	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	mm	kPa(g)	kPa	°C	$10^3m^3/d$	10^3m^3	10^3m^3	m^3	%	m^3	m^3/d	m^3	m^3	m^3/d	m^3		
236	1999/10/03	12:22:00	Water to surface.																									
237		12:46:00	Shut in at manifold. 3m³ recovered. Start acid squeeze.																									
238		15:45:00	Finish acid squeeze. Dowell to monitor pressures for 30 min.																									
239		16:14:59	2700	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	65.95		
240		16:15:00	Bleed off tubing.																									
241		16:25:00	Start pumping N2 at 10 scm/min.																									
242		16:30:00	0			0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	0.30	100.00	0.00	0.00	0.00	0.30	28.77	66.25	6	0
243		16:50:00	Increase N2 rate to 15 scm/min.																									
244		17:00:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	0.00	0.00	0.00	0.00	0.00	0.00	0.00	66.25		
245		17:01:00	Fluid to surface. Increase N2 rate to 20 scm/min.																									
246		17:30:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	15.408	15.408	13.20	100.00	0.00	0.00	0.00	13.20	633.60	79.45	6	0
247		18:00:00	1500	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	0.00	0.00	0.00	0.000	15.408	15.408	15.90	100.00	0.00	0.00	0.00	15.90	763.20	95.35	6	180000
248		18:05:00	Meter in service with a 50.80mm plate.																									
249		18:30:00	1300			0.00	0.00	0.00	0.00	0.000	0.000	50.80	650.00	41.50	16.00	94.512	17.385	17.385	9.20	100.00	0.00	0.00	0.00	9.20	441.60	104.55	4	210000
250		18:50:00	N2 rate at 40 scm/min.																									
251		19:00:00	1400			0.00	0.00	0.00	0.00	0.000	0.000	50.80	350.00	26.00	16.00	57.777	18.976	18.976	11.70	100.00	0.00	0.00	0.00	11.70	561.60	116.25	3	240000
252		19:23:00	Start pumping foam. Decrease N2 to 27 scm/min.																									
253		19:30:00	1100	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	400.00	30.70	17.00	66.062	20.266	20.266	9.00	100.00	0.00	0.00	0.00	9.00	432.00	125.25	4	220000
254		19:32:00	Stop pumping fluid.																									
255		20:00:00	900	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	400.00	25.80	18.00	60.662	21.586	21.586	0.00	100.00	0.00	0.00	0.00	0.00	0.00	125.25	5	216000
256		20:30:00	1650	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	400.00	22.40	18.00	56.660	22.808	22.808	11.50	100.00	0.00	0.00	0.00	11.50	552.00	136.75	5	201000
257		20:35:00	Stop pumping fluid. Increase N2 to 40 scm/min.																									
258		20:52:00	Decrease choke to 96/64".																									
259		21:00:00	450	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	150.00	11.40	13.00	28.555	23.696	23.696	11.00	100.00	0.00	0.00	0.00	11.00	528.00	147.75	5	214000
260		21:10:00	Start pumping fluid. Decrease N2 to 27 scm/min.																									
261		21:30:00	650	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	250.00	36.60	15.00	59.517	24.613	24.613	11.00	100.00	0.00	0.00	0.00	11.00	528.00	158.75	5	217000
262		21:48:00	Stop pumping fluid. Increase N2 to 40 scm/min.																									
263		22:00:00	850	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	250.00	9.00	13.00	30.388	25.550	25.550	11.00	100.00	0.00	0.00	0.00	11.00	528.00	169.75	5	204000
264		22:15:00	Coil running out of hole. Decrease N2 to 25 scm/min.																									
265		22:30:00	1500	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	1000.00	5.00	8.00	41.456	26.298	26.298	0.00	100.00	0.00	0.00	0.00	0.00	0.00	169.75	5	207000
266		22:32:00	Decrease choke to 1".																									
267		22:37:00	Decrease choke to 48/64".																									
268		22:44:00	Decrease choke to 32/64".																									
269		22:45:00	Decrease choke to 24/64".																									
270		22:47:00	Decrease N2 to 20 scm/min. Decrease choke to 20/64".																									
271		22:52:00	Decrease N2 to 15 scm/min.																									
272		23:00:00	3500	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	800.00	0.00	20.00	0.000	26.298	26.298	11.00	100.00	0.00	0.00	0.00	11.00	528.00	180.75	5	180000
273		23:30:00	3200	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	200.00	16.00	20.00	36.607	27.061	27.061	0.00	100.00	0.00	0.00	0.00	0.00	0.00	180.75	5	184000
274		23:47:00	Increase choke to 32/64".																									
275		23:52:00	Decrease N2 to 5 scm/min.																									
276	1999/10/04	00:00:00	3400	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	50.80	320.00	38.00	0.00	68.630	28.157	28.157	8.00	100.00	0.00	0.00	0.00	8.00	384.00	188.75	5	184000
277		00:05:00	Increase choke to 48/64".																									
278		00:22:00	Increase choke to 2".																									
279		00:25:00	Coil tubing out of hole. Shut in and bleed off.																									
280		00:25:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	28.157	28.157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
281		00:29:59				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	28.157	28.157	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
282		00:30:00	Change orifice plate to 19.050mm.																									

G:\Jobs\NOTES\EAST32\CanForest\Cardin7 FLD 21 Oct 99 Ver 1.813

Fast

Canadian Forest Oil

Start Test Date: 1999/09/28
Final Test Date: 1999/10/08

FieldNotes
Field Measurements

H-61 et al Field
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-120

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H20 Gain m^3	H20 Rate m^3/d	H20 Cum m^3	pH	Salinity
283	1999/10/04	00:40:00	75	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	1.60	1.60	-8.00	0.993	28.164	28.164	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
284		00:45:00	70																									
285		00:50:00	H2S = 1.1%.																									
286		00:50:00	50																									
257		00:55:00	25																									
288		01:00:00	2	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	1.60	1.60	-8.00	0.993	28.178	28.178	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
289		01:15:00	2	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	1.50	1.50	-8.00	0.907	28.188	28.188	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
290		01:30:00	1	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	1.00	1.00	-8.00	0.741	28.136	28.196										
291		02:00:00	2	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	1.40	1.40	-10.00	0.879	28.213	28.213	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
292		02:30:00	5	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	5.00	3.00	-10.00	1.302	28.236	28.236										
293		03:00:00	5	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	5.00	3.00	-11.00	1.305	28.263	28.263										
294		03:30:00	5	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	5.00	3.50	-11.00	1.407	28.291	28.291										
295		04:00:00	10	0	0.0	0.00	0.00	0.00	0.00	0.000	0.000	19.05	8.00	5.00	-11.00	1.698	28.323	28.323										
296		04:15:00	Shut in wing valve. Wireline run in with gauge ring.																									
297		04:15:01				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	28.323	28.323	0.00	0.00	0.00	0.00	0.00	0.00	0.00	188.75		
298	1999/10/04	06:00:00	PRODUCTION SUMMARY: Cum Gas: 28.323 E^3m^3, Cum H2O = 188.75 m^3, Cum Oil = 0.0 m^3.																									
299		06:00:00	Pressure up to manifold and monitor buildups.																									
300		06:00:00	100																									
301		06:30:00	100																									
302		07:00:00	100																									
303		07:30:00	110																									
304		08:00:00	110																									
305		08:30:00	120																									
306		09:00:00	125																									
307		09:30:00	125																									
308		10:00:00	125																									
309		10:15:00	Guns fired.																									
310		10:30:00	125																									
311		11:00:00	130																									
312		12:00:00	130																									
313		12:30:00	140																									
314		13:00:00	143																									
315		13:30:00	150																									
316		14:00:00	155																									
317		14:30:00	160																									
318		15:00:00	160																									
319		15:30:00	160																									
320		16:00:00	165																									
321		16:30:00	165																									
322		17:00:00	165																									
323		17:30:00	165																									
324	1999/10/04	18:00:00	170																									
325		18:30:00	175																									
326		19:00:00	175																									
327		20:00:00	175																									
328		20:30:00	175																									
329		21:00:00	175																									

Fast

Canadian Forest Oil

Start Test Date: 1999/09/29
Final Test Date: 1999/10/08

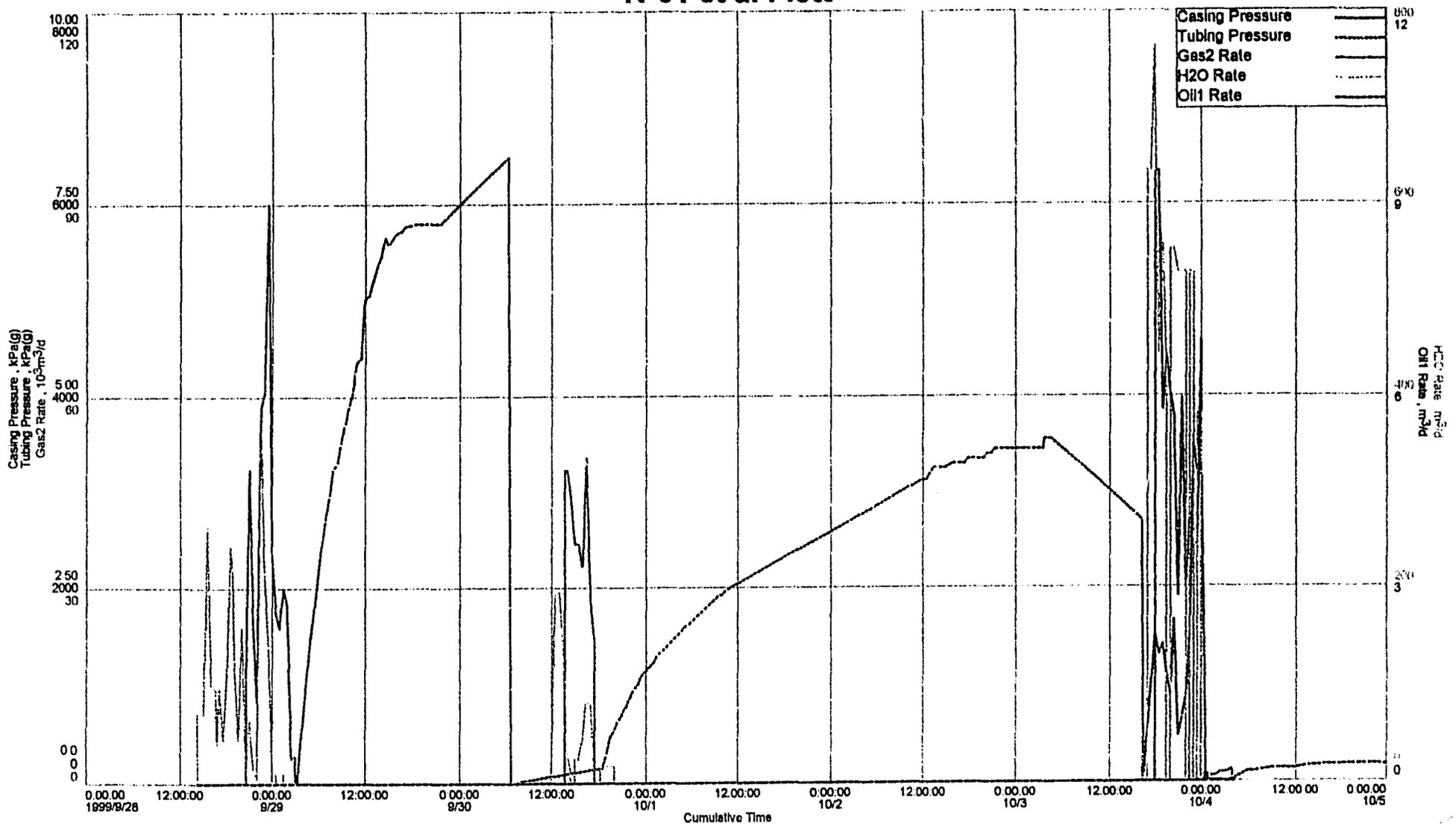
FieldNotes
Field Measurements

N-81 et al Pool
Formation: Nahanni
Pool: Nahanni
Job Number: GP-99-123

	Date yyyy/mm/d	Clock Time hh:mm	Tbg Pres kPa(g)	Csg Pres kPa(g)	WHT °C	Orifice1 mm	Static1 Pres kPa(g)	Diff1 Pres kPa	Meter1 Temp °C	Gas1 Rate $10^3m^3/d$	Cum. Gas1 10^3m^3	Orifice2 mm	Static2 Pres kPa(g)	Diff2 Pres kPa	Meter2 Temp °C	Gas2 Rate $10^3m^3/d$	Cum. Gas2 10^3m^3	Tot Cum Gas 10^3m^3	Fluid Gain m^3	BSW1 %	Oil Gain m^3	Oil1 Rate m^3/d	Cum. Oil1 m^3	H2O Gain m^3	H2O Rate m^3/d	H2O Cum m^3	pH	Salinity
330	1999/10/04	21:30:00	178																									
331		21:35:00	Wireline running in hole with special tool.																									
332		22:00:00	178																									
333		22:30:00	178																									
334		23:00:00	178																									
335		23:30:00	178																									
336		23:35:00	Wireline out of hole. Change to new tool.																									
337	1999/10/05	00:00:00	180																									
338		00:30:00	180																									
339		01:00:00	180																									
340		01:30:00	180																									
341		01:35:00	Wireline running in hole with new tool.																									
342		02:00:00	180																									
343		02:30:00	180																									
344		03:00:00	180			0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	28.323	28.323	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.78		
345		03:00:00	Water off tubing. Left well open to flow.																									
346		03:30:00	Shut in well to pump water down hole.																									
347		03:35:00				0.00	0.00	0.00	0.00	0.000	0.000	0.00	0.00	0.00	0.00	0.000	28.323	28.323	0.00	0.00	0.00	0.00	0.00	0.00	0.00	180.78		
348		06:00:00	Wireline running in hole to run log																									
349		09:30:00	Pump more water down hole																									
350		14:45:00	Wireline on surface, log complete																									
351		17:00:00	Wireline run in hole																									
352		19:00:00	Wireline on surface																									
353		21:30:00	Wireline running in hole with gauge ring																									
354		23:30:00	Wireline on surface																									
355		23:35:00	Wireline running in hole with gauge ring again																									
356	1999/10/06	01:35:00	Wireline on surface																									
357		01:55:00	Wireline running in hole with recorders																									
358		03:30:00	Wireline on surface																									
359		04:00:00	Shut down, rig out																									

Fast

N-61 et al Flett



Fact

Attach #16

CLIENT INFORMATION

Company: Canadian Forest Oil Ltd.
Contact: Jim Monroe

Street 1: 600-800 6 Ave. S.W.
Street 2:
City: Calgary Prov./State: Alberta
Country: Canada Postal Code: T2P 3G3

Phone: 403-292-8000 Fax: 403-266-5708
e-mail: dpmoore@cfol.ab.ca

SITE INFORMATION

Contact: N/A
Phone: N/A Fax: N/A
e-mail: N/A

Remarks

GENERAL INFORMATION

Client Information:

Company: Canadian Forest Oil Ltd.

Contact: Jim Monroe

Phone: 403-292-8000 Fax: 403-266-5708 e-mail: dpmoore@cfol.ab.ca

Site Information:

Contact: N/A

Phone: N/A Fax: N/A e-mail: N/A

Well Information:

Name: Flett et al N-61

Operator: N/A

Location-Downhole: N-61

Location-Surface: N-61

Test Information:

Company: Bonnett's Wireline Services Ltd.

Representative: Frank Helm

Supervisor:

Test Type: Extended Job Number: PTN0232

Test Unit:

Start Date: 1999/10/04 Start Time: 19:43:00

End Date: 1999/10/16 End Time: 08:31:00

Report Date: 1999/10/19 Prepared By: Scott Kirk

Remarks: Qualified By:

WELL INFORMATION

Well Name : Flett et al N-61

Well Operator : N/A

Well Location : N-61

Location-Surface : N-61

Field :

Well Type : Vertical

Pool : Nahanni

Formation : Nahanni

Perforation Type :			Producing Through : Tubing	Size	114.50 mm
Pool Datum	m	CF	Elevation Referenced Fro	610.70 m	KB
Datum Depth	m	CF	Elevation Referenced To	604.10 m	CF
			Offset	6.60 m	

Production Intervals

Production Interval & MPP Reference To : CF

MPP Pressure Reference : None

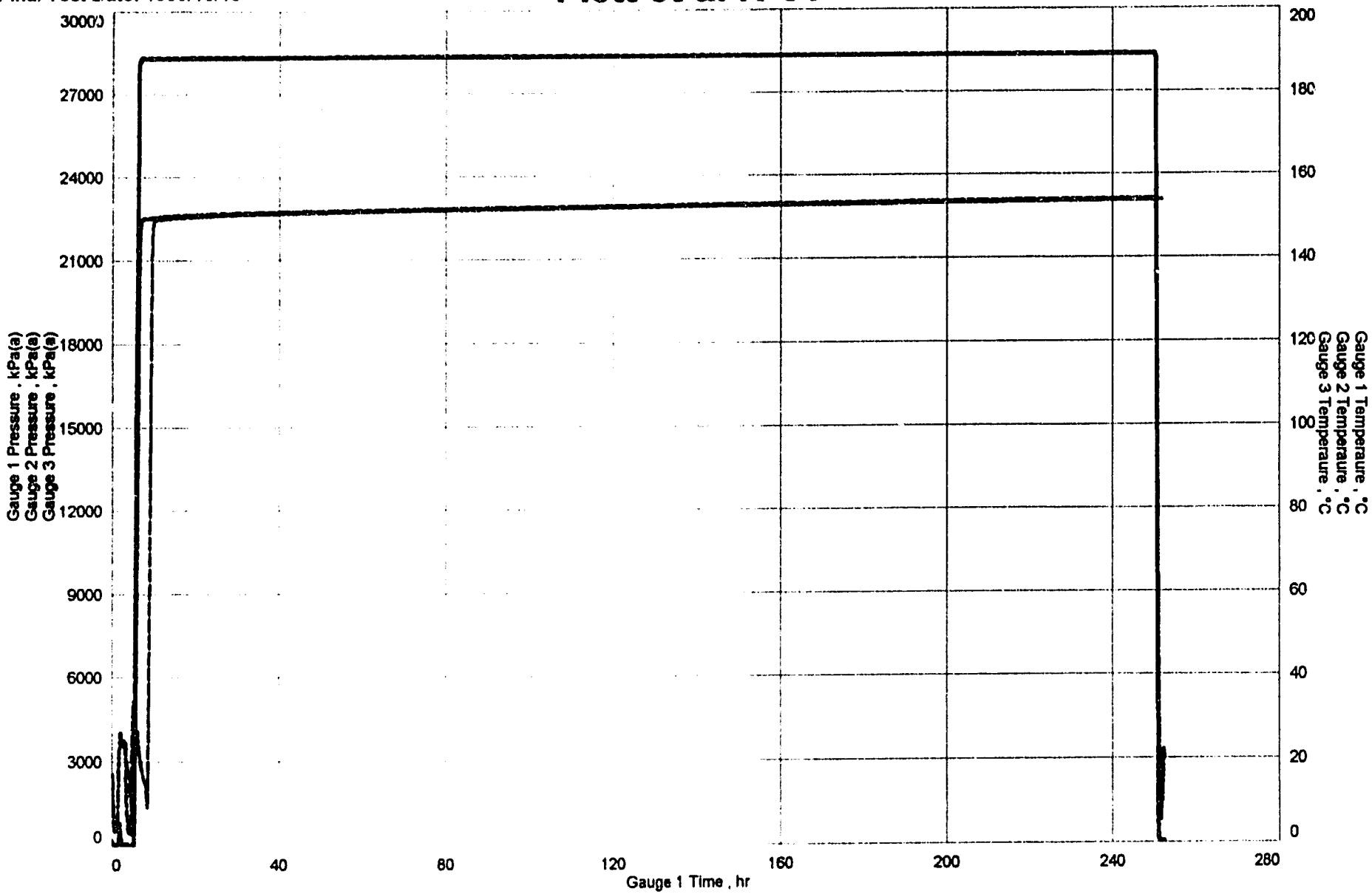
	From - m	To - m		Depth - m	Pressure - kPa
1.	3147.00	3255.00	1.		
2.			2.		
3.			3.		
4.			4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		
9.			9.		
10.			10.		
11.			11.		
12.			12.		

Remarks :

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232



PROBETECH
SERVICES LTD.

C:\Zip+\n\Data\PTN232\BONNETT'S SECOND 2 FKT 02-Nov-99 Ver 2.305

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Fiett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
1	50.53	15.68	0.0000	89.94	24.48	9.1000	61.22	16.36	0.0000
2	57.37	3.53	1.0417	74.37	11.96	4.1417	73.34	3.41	1.0417
3	272.14	31.83	2.0833	5207.62	17.74	5.1833	93.63	25.32	2.0833
4	60.98	21.87	3.1250	28261.71	145.82	6.2250	66.59	20.97	3.1250
5	49.35	15.98	4.1667	28315.53	150.13	7.2667	63.34	15.33	4.1667
6	4469.02	16.32	5.2083	28316.87	150.26	8.3083	4878.06	17.28	5.2083
7	28184.53	142.58	6.2500	28318.21	150.36	9.3500	28252.16	142.65	6.2500
8	28279.95	149.75	7.2917	28319.32	150.47	10.3917	28331.47	149.92	7.2917
9	28281.25	149.89	8.3333	28320.29	150.57	11.4333	28332.88	150.05	8.3333
10	28282.79	150.01	9.3750	28321.31	150.65	12.4750	28334.24	150.15	9.3750
11	28284.03	150.10	10.4167	28322.23	150.72	13.5167	28335.46	150.25	10.4167
12	28285.24	150.19	11.4583	28323.11	150.79	14.5583	28336.61	150.34	11.4583
13	28286.43	150.26	12.5000	28324.14	150.86	15.6000	28337.69	150.41	12.5000
14	28287.45	150.33	13.5417	28325.10	150.91	16.6417	28339.75	150.50	13.5417
15	28288.48	150.39	14.5833	28325.96	150.97	17.6833	28339.80	150.56	14.5833
16	28289.53	150.44	15.6250	28326.83	151.02	18.7250	28340.26	150.63	15.6250
17	28290.49	150.50	16.6667	28327.78	151.07	19.7667	28341.33	150.69	16.6667
18	28291.37	150.55	17.7083	28328.61	151.12	20.8083	28342.02	150.74	17.7083
19	28292.19	150.59	18.7500	28329.47	151.14	21.8500	28342.92	150.79	18.7500
20	28293.20	150.64	19.7917	28330.25	151.19	22.8917	28343.82	150.85	19.7917
21	28294.08	150.68	20.8333	28331.02	151.22	23.9333	28344.69	150.89	20.8333
22	28294.60	150.74	21.8750	28331.62	151.26	24.9750	28345.31	150.94	21.8750
23	28295.65	150.79	22.9167	28332.28	151.30	26.0167	28346.19	150.97	22.9167
24	28296.14	150.84	23.9583	28332.98	151.34	27.0583	28346.81	151.01	23.9583
25	28296.95	150.88	25.0000	28333.59	151.37	28.1000	28347.47	151.04	25.0000
26	28297.69	150.92	26.0417	28334.29	151.40	29.1417	28348.30	151.08	26.0417
27	28298.10	150.95	27.0833	28334.83	151.43	30.1833	28348.85	151.11	27.0833
28	28299.19	150.98	28.1250	28335.66	151.46	31.2250	28349.31	151.14	28.1250
29	28300.21	151.02	29.1667	28336.21	151.48	32.2667	28350.13	151.17	29.1667
30	28300.26	151.04	30.2083	28336.88	151.50	33.3083	28350.74	151.21	30.2083
31	28301.52	151.05	31.2500	28337.45	151.52	34.3500	28351.44	151.23	31.2500
32	28302.19	151.07	32.2917	28337.85	151.55	35.3917	28351.94	151.26	32.2917
33	28301.43	151.10	33.3333	28338.34	151.57	36.4333	28352.50	151.30	33.3333
34	28302.24	151.12	34.3750	28338.86	151.59	37.4750	28353.21	151.32	34.3750
35	28304.07	151.14	35.4167	28339.25	151.61	38.5167	28353.69	151.35	35.4167
36	28304.44	151.16	36.4583	28339.62	151.64	39.5583	28354.05	151.37	36.4583
37	28305.73	151.18	37.5000	28340.19	151.66	40.6000	28354.50	151.40	37.5000

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
38	28306.07	151.21	38.5417	28340.74	151.68	41.6417	28354.92	151.42	38.5417
39	28306.75	151.23	39.5833	28341.15	151.70	42.6833	28355.29	151.43	39.5833
40	28307.29	151.25	40.6250	28341.75	151.72	43.7250	28355.66	151.46	40.6250
41	28306.95	151.27	41.6667	28342.19	151.74	44.7667	28356.05	151.49	41.6667
42	28308.89	151.30	42.7083	28342.65	151.77	45.8083	28356.67	151.50	42.7083
43	28308.82	151.32	43.7500	28342.96	151.78	46.8500	28357.32	151.52	43.7500
44	28309.39	151.34	44.7917	28343.48	151.81	47.8917	28357.70	151.54	44.7917
45	28309.53	151.36	45.8333	28343.74	151.82	48.9333	28358.12	151.57	45.8333
46	28310.08	151.38	46.8750	28344.10	151.84	49.9750	28358.48	151.59	46.8750
47	28310.03	151.40	47.9167	28344.41	151.86	51.0167	28358.76	151.60	47.9167
48	28311.15	151.42	48.9583	28344.64	151.88	52.0583	28359.28	151.63	48.9583
49	28312.39	151.44	50.0000	28345.00	151.90	53.1000	28359.25	151.65	50.0000
50	28311.80	151.46	51.0417	28345.44	151.92	54.1417	28359.60	151.67	51.0417
51	28312.59	151.48	52.0833	28345.75	151.94	55.1833	28360.04	151.67	52.0833
52	28313.50	151.50	53.1250	28346.16	151.95	56.2250	28360.36	151.70	53.1250
53	28313.37	151.52	54.1667	28346.59	151.97	57.2667	28360.48	151.73	54.1667
54	28313.44	151.53	55.2083	28347.03	151.99	58.3083	28361.08	151.74	55.2083
55	28313.65	151.55	56.2500	28347.26	152.00	59.3500	28361.42	151.76	56.2500
56	28314.50	151.57	57.2917	28347.41	152.02	60.3917	28361.84	151.78	57.2917
57	28314.77	151.58	58.3333	28347.74	152.04	61.4333	28362.20	151.79	58.3333
58	28315.01	151.60	59.3750	28347.87	152.06	62.4750	28364.59	151.80	59.3750
59	28314.65	151.62	60.4167	28348.07	152.08	63.5167	28363.96	151.82	60.4167
60	28315.92	151.64	61.4583	28348.33	152.09	64.5583	28364.52	151.85	61.4583
61	28315.73	151.65	62.5000	28348.58	152.11	65.6000	28364.74	151.85	62.5000
62	28315.69	151.67	63.5417	28348.91	152.13	66.6417	28364.58	151.87	63.5417
63	28315.96	151.69	64.5833	28349.37	152.14	67.6833	28363.84	151.89	64.5833
64	28316.24	151.70	65.6250	28349.47	152.16	68.7250	28364.56	151.91	65.6250
65	28317.53	151.72	66.6667	28349.85	152.17	69.7667	28364.84	151.92	66.6667
66	28316.97	151.74	67.7083	28350.00	152.19	70.8083	28365.50	151.94	67.7083
67	28317.71	151.75	68.7500	28350.20	152.20	71.8500	28364.91	151.96	68.7500
68	28317.58	151.76	69.7917	28350.43	152.22	72.8917	28364.39	151.97	69.7917
69	28317.79	151.78	70.8333	28350.40	152.23	73.9333	28366.11	151.99	70.8333
70	28316.75	151.79	71.8750	28350.68	152.25	74.9750	28366.12	152.01	71.8750
71	28318.23	151.81	72.9167	28350.96	152.26	76.0167	28366.11	152.02	72.9167
72	28318.29	151.83	73.9583	28351.13	152.28	77.0583	28365.48	152.04	73.9583
73	28318.09	151.85	75.0000	28351.49	152.30	78.1000	28366.12	152.05	75.0000
74	28319.31	151.86	76.0417	28351.56	152.31	79.1417	28366.39	152.06	76.0417

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
75	28316.40	151.88	77.0833	28351.79	152.32	80.1833	28366.96	152.08	77.0833
76	28318.17	151.89	78.1250	28352.24	152.34	81.2250	28367.26	152.10	78.1250
77	28319.32	151.91	79.1667	28352.39	152.36	82.2667	28368.76	152.12	79.1667
78	28319.54	151.92	80.2083	28352.59	152.37	83.3083	28368.21	152.13	80.2083
79	28319.37	151.94	81.2500	28352.71	152.39	84.3500	28370.97	152.15	81.2500
80	28319.13	151.96	82.2917	28352.86	152.40	85.3917	28371.62	152.16	82.2917
81	28319.10	151.96	83.3333	28352.96	152.41	86.4333	28372.15	152.18	83.3333
82	28318.72	151.98	84.3750	28352.98	152.43	87.4750	28370.10	152.19	84.3750
83	28318.07	151.99	85.4167	28353.18	152.44	88.5167	28370.06	152.20	85.4167
84	28319.76	152.01	86.4583	28353.37	152.46	89.5583	28367.88	152.21	86.4583
85	28319.14	152.03	87.5000	28353.75	152.47	90.6000	28367.48	152.22	87.5000
86	28318.74	152.04	88.5417	28353.92	152.49	91.6417	28367.73	152.24	88.5417
87	28319.80	152.05	89.5833	28354.07	152.49	92.6833	28368.43	152.26	89.5833
88	28319.96	152.07	90.6250	28354.19	152.51	93.7250	28369.05	152.27	90.6250
89	28320.99	152.08	91.6667	28354.56	152.53	94.7667	28369.00	152.29	91.6667
90	28320.87	152.09	92.7083	28354.69	152.54	95.8083	28369.60	152.30	92.7083
91	28320.28	152.11	93.7500	28354.75	152.55	96.8500	28369.24	152.32	93.7500
92	28320.64	152.12	94.7917	28354.83	152.56	97.8917	28369.43	152.32	94.7917
93	28320.77	152.14	95.8333	28354.92	152.58	98.9333	28370.99	152.34	95.8333
94	28319.63	152.15	96.8750	28354.94	152.59	99.9750	28371.72	152.36	96.8750
95	28320.40	152.16	97.9167	28355.13	152.61	101.0167	28370.55	152.38	97.9167
96	28320.67	152.18	98.9583	28355.38	152.62	102.0583	28369.68	152.39	98.9583
97	28320.65	152.19	100.0000	28355.50	152.63	103.1000	28369.37	152.40	100.0000
98	28321.84	152.20	101.0417	28355.67	152.65	104.1417	28369.48	152.41	101.0417
99	28320.82	152.22	102.0833	28355.87	152.66	105.1833	28369.40	152.42	102.0833
100	28321.70	152.23	103.1250	28356.21	152.67	106.2250	28370.25	152.44	103.1250
101	28320.27	152.24	104.1667	28356.23	152.69	107.2667	28371.97	152.45	104.1667
102	28320.90	152.26	105.2083	28356.40	152.70	108.3083	28369.69	152.47	105.2083
103	28321.63	152.27	106.2500	28356.52	152.71	109.3500	28371.78	152.48	106.2500
104	28320.19	152.28	107.2917	28356.51	152.73	110.3917	28376.34	152.50	107.2917
105	28321.43	152.30	108.3333	28356.60	152.75	111.4333	28376.88	152.50	108.3333
106	28321.61	152.31	109.3750	28356.57	152.75	112.4750	28371.04	152.52	109.3750
107	28321.29	152.32	110.4167	28356.66	152.77	113.5167	28370.93	152.53	110.4167
108	28321.28	152.33	111.4583	28356.95	152.78	114.5583	28370.79	152.54	111.4583
109	28321.49	152.35	112.5000	28357.10	152.80	115.6000	28372.35	152.56	112.5000
110	28322.17	152.36	113.5417	28357.45	152.80	116.6417	28371.78	152.57	113.5417
111	28321.34	152.38	114.5833	28357.43	152.82	117.6833	28370.79	152.59	114.5833

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
112	28322.60	152.38	115.6250	28357.61	152.83	118.7250	28370.98	152.60	115.6250
113	28324.65	152.40	116.6667	28357.72	152.85	119.7667	28371.18	152.61	116.6667
114	28323.02	152.41	117.7083	28357.79	152.86	120.8083	28371.30	152.62	117.7083
115	28322.90	152.43	118.7500	28357.80	152.87	121.8500	28371.61	152.64	118.7500
116	28322.50	152.44	119.7917	28357.90	152.87	122.8917	28371.46	152.65	119.7917
117	28322.19	152.45	120.8333	28357.93	152.90	123.9333	28372.03	152.66	120.8333
118	28322.47	152.46	121.8750	28357.95	152.91	124.9750	28371.18	152.68	121.8750
119	28322.75	152.47	122.9167	28358.17	152.92	126.0167	28372.46	152.69	122.9167
120	28323.21	152.49	123.9583	28358.23	152.93	127.0583	28372.30	152.70	123.9583
121	28323.13	152.50	125.0000	28358.42	152.95	128.1000	28372.11	152.71	125.0000
122	28322.93	152.51	126.0417	28358.54	152.95	129.1417	28372.19	152.73	126.0417
123	28323.00	152.52	127.0833	28358.66	152.97	130.1833	28372.38	152.73	127.0833
124	28323.40	152.54	128.1250	28358.90	152.98	131.2250	28371.43	152.75	128.1250
125	28323.63	152.55	129.1667	28358.86	152.99	132.2667	28372.71	152.76	129.1667
126	28325.63	152.57	130.2083	28358.96	153.00	133.3083	28373.21	152.77	130.2083
127	28322.99	152.58	131.2500	28358.99	153.02	134.3500	28372.76	152.78	131.2500
128	28325.50	152.59	132.2917	28359.21	153.02	135.3917	28372.79	152.79	132.2917
129	28325.35	152.60	133.3333	28359.17	153.05	136.4333	28372.28	152.80	133.3333
130	28325.43	152.61	134.3750	28359.34	153.05	137.4750	28372.58	152.82	134.3750
131	28325.06	152.62	135.4167	28359.27	153.06	138.5167	28373.26	152.83	135.4167
132	28324.85	152.64	136.4583	28359.44	153.07	139.5583	28373.01	152.84	136.4583
133	28324.13	152.65	137.5000	28359.55	153.09	140.6000	28372.30	152.86	137.5000
134	28325.16	152.66	138.5417	28359.67	153.10	141.6417	28373.41	152.87	138.5417
135	28324.64	152.67	139.5833	28359.88	153.11	142.6833	28372.54	152.89	139.5833
136	28324.85	152.68	140.6250	28360.02	153.12	143.7250	28373.29	152.89	140.6250
137	28325.32	152.70	141.6667	28360.02	153.13	144.7667	28372.48	152.90	141.6667
138	28325.87	152.71	142.7083	28359.86	153.15	145.8083	28372.32	152.91	142.7083
139	28325.25	152.72	143.7500	28359.96	153.16	146.8500	28373.46	152.93	143.7500
140	28325.76	152.73	144.7917	28360.02	153.17	147.8917	28373.53	152.94	144.7917
141	28326.08	152.74	145.8333	28360.06	153.18	148.9333	28372.68	152.95	145.8333
142	28326.78	152.75	146.8750	28360.18	153.19	149.9750	28373.74	152.96	146.8750
143	28325.44	152.76	147.9167	28360.19	153.20	151.0167	28374.09	152.97	147.9167
144	28326.32	152.78	148.9583	28360.27	153.22	152.0583	28373.23	152.99	148.9583
145	28325.57	152.79	150.0000	28360.43	153.23	153.1000	28373.35	153.00	150.0000
146	28327.36	152.80	151.0417	28360.55	153.24	154.1417	28374.15	153.01	151.0417
147	28325.89	152.81	152.0833	28360.63	153.26	155.1833	28373.65	153.02	152.0833
148	28325.84	152.82	153.1250	28360.75	153.26	156.2250	28374.41	153.03	153.1250

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH Resources Inc

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
149	28326.57	152.83	154.1667	28360.61	153.27	157.2667	28373.67	153.04	154.1667
150	28327.31	152.85	155.2083	28360.88	153.28	158.3083	28373.75	153.05	155.2083
151	28326.58	152.86	156.2500	28360.81	153.30	159.3500	28374.48	153.06	156.2500
152	28326.64	152.87	157.2917	28360.92	153.31	160.3917	28374.45	153.08	157.2917
153	28328.94	152.88	158.3333	28361.01	153.32	161.4333	28374.21	153.09	158.3333
154	28327.08	152.89	159.3750	28361.05	153.33	162.4750	28374.29	153.09	159.3750
155	28327.84	152.90	160.4167	28361.08	153.34	163.5167	28373.96	153.10	160.4167
156	28326.17	152.91	161.4583	28361.22	153.35	164.5583	28374.69	153.12	161.4583
157	28327.95	152.93	162.5000	28361.31	153.36	165.6000	28374.69	153.13	162.5000
158	28327.33	152.93	163.5417	28361.44	153.38	166.6417	28374.27	153.14	163.5417
159	28328.40	152.94	164.5833	28361.40	153.39	167.6833	28374.56	153.15	164.5833
160	28327.90	152.95	165.6250	28361.46	153.40	168.7250	28374.85	153.16	165.6250
161	28327.90	152.97	166.6667	28361.48	153.40	169.7667	28374.76	153.18	166.6667
162	28329.50	152.98	167.7083	28361.49	153.42	170.8083	28374.54	153.19	167.7083
163	28328.83	152.99	168.7500	28361.47	153.43	171.8500	28374.61	153.20	168.7500
164	28328.04	153.00	169.7917	28361.56	153.44	172.8917	28374.73	153.21	169.7917
165	28329.83	153.01	170.8333	28361.52	153.45	173.9333	28374.53	153.22	170.8333
166	28327.93	153.02	171.8750	28361.58	153.46	174.9750	28374.36	153.23	171.8750
167	28326.90	153.03	172.9167	28361.51	153.47	176.0167	28373.79	153.24	172.9167
168	28328.22	153.04	173.9583	28361.80	153.48	177.0583	28373.91	153.26	173.9583
169	28327.96	153.06	175.0000	28361.86	153.49	178.1000	28374.89	153.26	175.0000
170	28328.42	153.06	176.0417	28361.76	153.50	179.1417	28373.96	153.27	176.0417
171	28329.08	153.08	177.0833	28361.77	153.51	180.1833	28374.26	153.28	177.0833
172	28327.99	153.09	178.1250	28362.01	153.53	181.2250	28374.57	153.30	178.1250
173	28327.93	153.10	179.1667	28362.05	153.53	182.2667	28375.54	153.31	179.1667
174	28328.09	153.11	180.2083	28362.29	153.54	183.3083	28374.31	153.32	180.2083
175	28327.97	153.12	181.2500	28362.02	153.55	184.3500	28374.44	153.33	181.2500
176	28329.49	153.13	182.2917	28362.26	153.56	185.3917	28375.49	153.33	182.2917
177	28329.98	153.14	183.3333	28362.36	153.58	186.4333	28374.98	153.35	183.3333
178	28329.88	153.15	184.3750	28362.36	153.58	187.4750	28374.61	153.36	184.3750
179	28328.70	153.16	185.4167	28362.49	153.59	188.5167	28374.78	153.37	185.4167
180	28327.77	153.17	186.4583	28362.46	153.61	189.5583	28375.15	153.38	186.4583
181	28330.20	153.18	187.5000	28362.63	153.62	190.6000	28375.53	153.39	187.5000
182	28328.61	153.19	188.5417	28362.76	153.63	191.6417	28375.81	153.40	188.5417
183	28328.20	153.20	189.5833	28362.71	153.65	192.6833	28375.87	153.41	189.5833
184	28330.01	153.21	190.6250	28362.72	153.65	193.7250	28375.50	153.42	190.6250
185	28328.58	153.22	191.6667	28362.70	153.66	194.7667	28375.75	153.44	191.6667

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
186	28328.66	153.23	192.7083	28362.94	153.67	195.6083	28375.75	153.44	192.7083
187	28330.31	153.24	193.7500	28362.77	153.68	196.8500	28375.42	153.45	193.7500
188	28329.46	153.26	194.7917	28362.76	153.69	197.8917	28377.11	153.46	194.7917
189	28330.63	153.27	195.8333	28362.86	153.70	198.9333	28375.21	153.48	195.8333
190	28328.87	153.28	196.8750	28362.85	153.71	199.9750	28375.43	153.49	196.8750
191	28329.39	153.28	197.9167	28363.00	153.73	201.0167	28375.17	153.50	197.9167
192	28329.94	153.30	198.9583	28363.19	153.73	202.0583	28375.67	153.50	198.9583
193	28330.22	153.31	200.0000	28363.12	153.74	203.1000	28375.81	153.51	200.0000
194	28330.29	153.31	201.0417	28363.21	153.75	204.1417	28375.87	153.53	201.0417
195	28328.94	153.32	202.0833	28363.42	153.76	205.1833	28376.55	153.53	202.0833
196	28330.69	153.34	203.1250	28363.59	153.77	206.2250	28376.25	153.55	203.1250
197	28330.27	153.34	204.1667	28363.46	153.78	207.2667	28375.93	153.55	204.1667
198	28332.31	153.36	205.2083	28363.51	153.79	208.3083	28377.02	153.56	205.2083
199	28330.69	153.37	206.2500	28363.58	153.80	209.3500	28375.89	153.57	206.2500
200	28329.68	153.38	207.2917	28363.68	153.81	210.3917	28376.43	153.58	207.2917
201	28330.26	153.39	208.3333	28363.82	153.82	211.4333	28375.92	153.60	208.3333
202	28329.47	153.39	209.3750	28363.84	153.84	212.4750	28376.18	153.60	209.3750
203	28329.57	153.41	210.4167	28363.99	153.84	213.5167	28376.94	153.61	210.4167
204	28330.39	153.42	211.4583	28363.89	153.85	214.5583	28376.75	153.62	211.4583
205	28329.27	153.42	212.5000	28364.02	153.86	215.6000	28377.51	153.64	212.5000
206	28331.18	153.44	213.5417	28364.10	153.87	216.6417	28376.11	153.65	213.5417
207	28331.55	153.45	214.5833	28364.08	153.88	217.6833	28376.83	153.66	214.5833
208	28330.17	153.46	215.6250	28364.12	153.89	218.7250	28376.15	153.66	215.6250
209	28331.86	153.47	216.6667	28364.13	153.90	219.7667	28376.45	153.67	216.6667
210	28330.46	153.47	217.7083	28364.12	153.91	220.8083	28376.45	153.68	217.7083
211	28330.94	153.49	218.7500	28364.22	153.92	221.8500	28376.90	153.69	218.7500
212	28331.27	153.50	219.7917	28364.12	153.93	222.8917	28377.99	153.70	219.7917
213	28330.98	153.50	220.8333	28364.38	153.94	223.9333	28376.37	153.72	220.8333
214	28331.51	153.52	221.8750	28364.24	153.95	224.9750	28375.84	153.72	221.8750
215	28331.40	153.53	222.9167	28364.29	153.96	226.0167	28376.08	153.73	222.9167
216	28330.18	153.53	223.9583	28364.42	153.97	227.0583	28376.53	153.75	223.9583
217	28330.17	153.54	225.0000	28364.50	153.98	228.1000	28376.85	153.75	225.0000
218	28330.25	153.55	226.0417	28364.51	153.99	229.1417	28375.77	153.76	226.0417
219	28331.27	153.56	227.0833	28364.75	154.00	230.1833	28376.49	153.77	227.0833
220	28332.15	153.57	228.1250	28364.65	154.01	231.2250	28376.47	153.78	228.1250
221	28330.50	153.58	229.1667	28364.96	154.02	232.2667	28376.71	153.78	229.1667
222	28332.58	153.59	230.2083	28364.77	154.02	233.3083	28377.85	153.79	230.2083

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
223	28331.72	153.60	231.2500	28364.92	154.04	234.3500	28377.22	153.81	231.2500
224	28332.40	153.61	232.2917	28364.91	154.04	235.3917	28376.83	153.82	232.2917
225	28333.07	153.62	233.3333	28364.94	154.05	236.4333	28377.53	153.82	233.3333
226	28332.69	153.63	234.3750	28364.83	154.06	237.4750	28377.50	153.83	234.3750
227	28332.30	153.34	235.4167	28364.92	154.07	238.5167	28377.45	153.85	235.4167
228	28332.53	153.65	236.4583	28365.02	154.09	239.5583	28377.08	153.85	236.4583
229	28332.99	153.66	237.5000	28364.97	154.09	240.6000	28376.39	153.87	237.5000
230	28333.40	153.67	238.5417	28365.10	154.10	241.6417	28377.01	153.88	238.5417
231	28332.25	153.67	239.5833	28365.12	154.11	242.6833	28377.14	153.89	239.5833
232	28332.86	153.69	240.6250	28365.09	154.12	243.7250	28377.76	153.89	240.6250
233	28332.05	153.69	241.6667	28365.00	154.13	244.7667	28377.73	153.90	241.6667
234	28331.69	153.70	242.7083	28365.48	154.14	245.8083	28378.24	153.91	242.7083
235	28333.41	153.71	243.7500	28365.52	154.15	246.8500	28377.92	153.92	243.7500
236	28333.26	153.72	244.7917	28365.37	154.16	247.8917	28377.08	153.93	244.7917
237	28334.02	153.73	245.8333	28365.20	154.16	248.9333	28377.40	153.94	245.8333
238	28334.66	153.74	246.8750	28362.22	154.15	249.9750	28378.90	153.95	246.8750
239	28332.67	153.74	247.9167	121.58	17.61	251.0167	28378.57	153.96	247.9167
240	28334.64	153.76	248.9583	94.85	22.13	252.0583	28376.99	153.97	248.9583
241	28204.61	153.74	250.0000				28369.85	153.94	250.0000
242	88.75	19.92	251.0417				166.31	25.86	251.0417
243	60.42	21.26	252.0833				61.85	21.33	252.0833
244							69.06	20.06	252.2458

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

Flett
PROBETECH SERVICES LTD.

GENERAL INFORMATION

Client Information:

Company: Canadian Forest Oil Ltd.

Contact: Jim Monroe

Phone: 403-292-800 Fax: 403-266-5708 e-mail:

Site Information:

Contact: N/A

Phone: N/A Fax: N/A e-mail: N/A

Well Information:

Name: Flett et al N-61

Operator: N/A

Location-Downhole: N-61

Location-Surface: N-61

Test Information:

Company: Bonnett's Wireline Services Ltd.

Representative: Frank Helm

Supervisor:

Test Type: Extended

Job Number: PTN0232

Test Unit:

Start Date: 1999/10/04

End Date: 1999/10/16

Report Date: 1999/10/19

Start Time: 19:43:00

End Time: 08:31:00

Prepared By: Scott Kirk

Qualified By:

Remarks:

WELL INFORMATION

Well Name : Flett et al N-61

Well Operator : N/A

Well Location : N-61

Location-Surface : N-61

Field :

Well Type :

Pool : Nahanni

Formation : Nahanni

Perforation Type :			Producing Through : Tubing	Size	114.50 mm
Pool Datum	m	CF	Elevation Referenced Fro	610.70 m	KB
Datum Depth	3125.00 m	KB	Elevation Referenced To	604.10 m	CF
			Offset	6.60 m	

Production Intervals

Production Interval & MPP Reference To : CF

MPP Pressure Reference : None

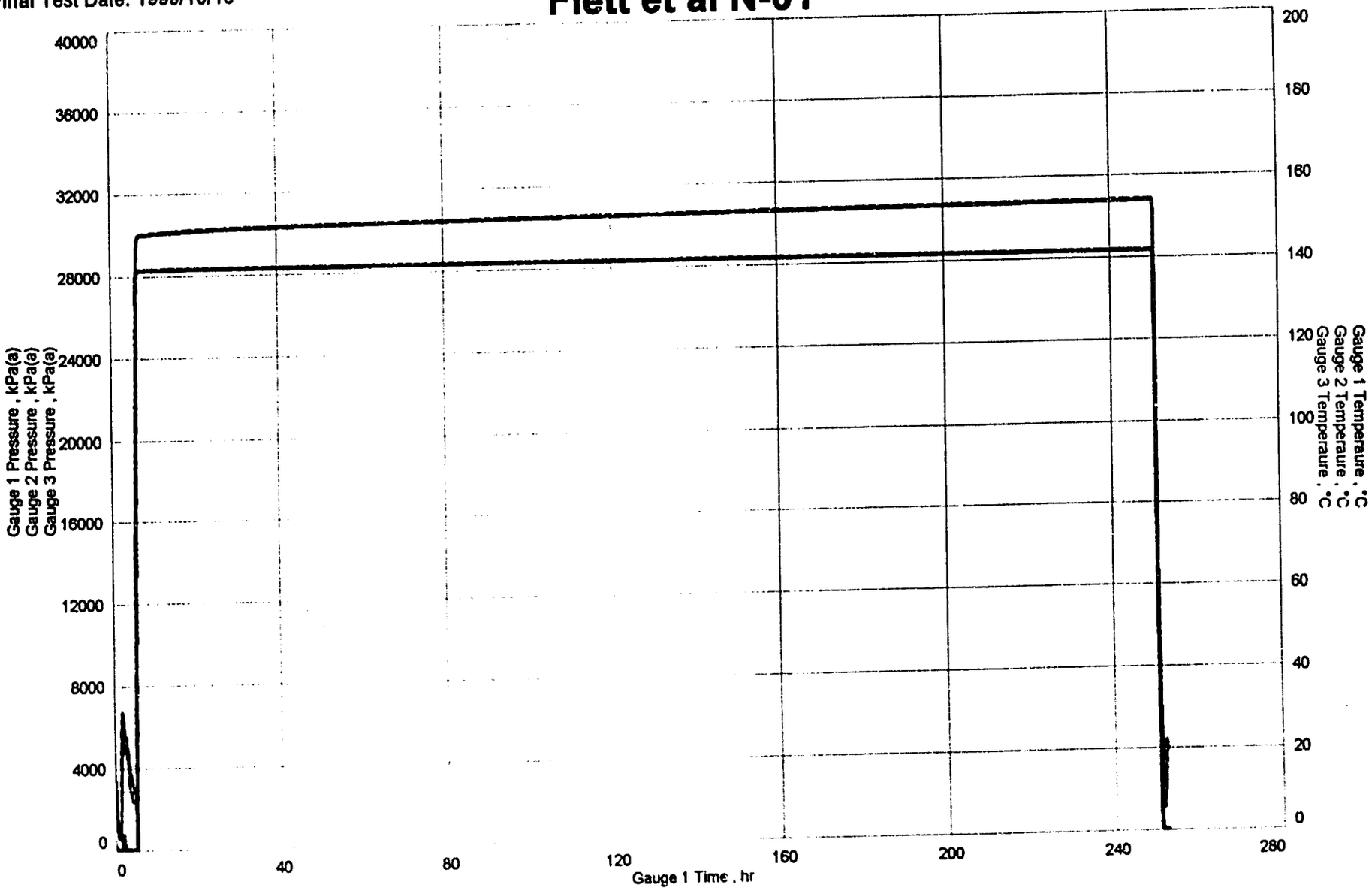
	From - m	To - m		Depth - m	Pressure - kPa
1.	3147.00	3255.00	1.		
2.			2.		
3.			3.		
4.			4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		
9.			9.		
10.			10.		
11.			11.		
12.			12.		

Remarks :

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

Flett et al N-61



PROBETECH SERVICES LTD.

C:\Zipwin\Data\PTN232\BONNETT'S SECOND 2.FKT 19-Oct-99 Ver 2.305

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
1	50.53	15.68	0.0000	83.94	24.48	3.1000	61.22	16.36	0.0000
2	57.37	3.53	1.0417	74.37	11.96	4.1417	73.34	3.41	1.0417
3	272.14	31.83	2.0833	5207.62	17.74	5.1833	93.63	25.32	2.0833
4	60.98	21.87	3.1250	28261.71	145.82	6.2250	66.59	20.97	3.1250
5	49.35	15.98	4.1667	28315.53	150.13	7.2667	63.34	15.33	4.1667
6	4469.02	16.32	5.2083	28316.87	150.26	8.3083	4878.06	17.28	5.2083
7	28164.53	142.58	6.2500	28318.21	150.36	9.3500	28252.16	142.85	6.2500
8	28279.95	149.75	7.2917	28319.32	150.47	10.3917	28331.47	149.92	7.2917
9	28281.25	149.89	8.3333	28320.29	150.57	11.4333	28332.88	150.05	8.3333
10	28282.79	150.01	9.3750	28321.31	150.65	12.4750	28334.24	150.15	9.3750
11	28284.03	150.10	10.4167	28322.23	150.72	13.5167	28335.46	150.25	10.4167
12	28285.24	150.19	11.4583	28323.11	150.79	14.5583	28336.61	150.34	11.4583
13	28286.43	150.26	12.5000	28324.14	150.86	15.6000	28337.69	150.41	12.5000
14	28287.45	150.33	13.5417	28325.10	150.91	16.6417	28339.75	150.50	13.5417
15	28288.48	150.39	14.5833	28325.96	150.97	17.6833	28339.80	150.56	14.5833
16	28289.53	150.44	15.6250	28326.83	151.02	18.7250	28340.26	150.63	15.6250
17	28290.49	150.50	16.6667	28327.78	151.07	19.7667	28341.33	150.69	16.6667
18	28291.37	150.55	17.7083	28328.61	151.12	20.8083	28342.02	150.74	17.7083
19	28292.19	150.59	18.7500	28329.47	151.14	21.8500	28342.92	150.79	18.7500
20	28293.20	150.64	19.7917	28330.25	151.19	22.8917	28343.82	150.85	19.7917
21	28294.08	150.68	20.8333	28331.02	151.22	23.9333	28344.69	150.89	20.8333
22	28294.60	150.74	21.8750	28331.62	151.26	24.9750	28345.31	150.94	21.8750
23	28295.65	150.79	22.9167	28332.26	151.30	26.0167	28346.19	150.97	22.9167
24	28296.14	150.84	23.9583	28332.98	151.34	27.0583	28346.81	151.01	23.9583
25	28296.95	150.88	25.0000	28333.59	151.37	28.1000	28347.47	151.04	25.0000
26	28297.69	150.92	26.0417	28334.29	151.40	29.1417	28348.30	151.08	26.0417
27	28298.10	150.95	27.0833	28334.83	151.43	30.1833	28348.85	151.11	27.0833
28	28299.19	150.98	28.1250	28335.66	151.46	31.2250	28349.31	151.14	28.1250
29	28300.21	151.02	29.1667	28336.21	151.48	32.2667	28350.13	151.17	29.1667
30	28300.26	151.04	30.2083	28336.88	151.50	33.3083	28350.74	151.21	30.2083
31	28301.52	151.05	31.2500	28337.45	151.52	34.3500	28351.44	151.23	31.2500
32	28302.19	151.07	32.2917	28337.85	151.55	35.3917	28351.94	151.26	32.2917
33	28301.43	151.10	33.3333	28333.34	151.57	36.4333	28352.50	151.30	33.3333
34	28302.24	151.12	34.3750	28338.86	151.59	37.4750	28353.21	151.32	34.3750
35	28304.07	151.14	35.4167	28339.25	151.61	38.5167	28353.69	151.35	35.4167
36	28304.44	151.16	36.4583	28339.62	151.64	39.5583	28354.05	151.37	36.4583
37	28305.73	151.18	37.5000	28340.19	151.66	40.6000	28354.50	151.40	37.5000

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
38	28306.07	151.21	38.5417	28340.74	151.68	41.6417	28354.92	151.42	38.5417
39	28306.75	151.23	39.5833	28341.15	151.70	42.6833	28355.29	151.43	39.5833
40	28307.29	151.25	40.6250	28341.75	151.72	43.7250	28355.66	151.46	40.6250
41	28306.95	151.27	41.6667	28342.19	151.74	44.7667	28356.05	151.49	41.6667
42	28308.89	151.30	42.7083	28342.65	151.77	45.8083	28356.67	151.50	42.7083
43	28308.82	151.32	43.7500	28342.96	151.78	46.8500	28357.32	151.52	43.7500
44	28309.39	151.34	44.7917	28343.48	151.81	47.8917	28357.70	151.54	44.7917
45	28309.53	151.36	45.8333	28343.74	151.82	48.9333	28358.12	151.57	45.8333
46	28310.08	151.38	46.8750	28344.10	151.84	49.9750	28358.48	151.59	46.8750
47	28310.03	151.40	47.9167	28344.41	151.86	51.0167	28358.76	151.60	47.9167
48	28311.15	151.42	48.9583	28344.64	151.88	52.0583	28359.28	151.63	48.9583
49	28312.39	151.44	50.0000	28345.00	151.90	53.1000	28359.25	151.65	50.0000
50	28311.80	151.46	51.0417	28345.44	151.92	54.1417	28359.60	151.67	51.0417
51	28312.59	151.48	52.0833	28345.75	151.94	55.1833	28360.04	151.67	52.0833
52	28313.50	151.50	53.1250	28346.16	151.95	56.2250	28360.36	151.70	53.1250
53	28313.37	151.52	54.1667	28346.59	151.97	57.2667	28360.48	151.73	54.1667
54	28313.44	151.53	55.2083	28347.03	151.99	58.3083	28361.08	151.74	55.2083
55	28313.65	151.55	56.2500	28347.26	152.00	59.3500	28361.42	151.76	56.2500
56	28314.50	151.57	57.2917	28347.41	152.02	60.3917	28361.84	151.78	57.2917
57	28314.77	151.58	58.3333	28347.74	152.04	61.4333	28362.20	151.79	58.3333
58	28315.01	151.60	59.3750	28347.87	152.06	62.4750	28364.59	151.80	59.3750
59	28314.65	151.62	60.4167	28348.07	152.08	63.5167	28363.96	151.82	60.4167
60	28315.92	151.64	61.4583	28348.33	152.09	64.5583	28364.52	151.85	61.4583
61	28315.73	151.65	62.5000	28348.58	152.11	65.6000	28364.74	151.85	62.5000
62	28315.69	151.67	63.5417	28348.91	152.13	66.6417	28364.58	151.87	63.5417
63	28315.96	151.69	64.5833	28349.37	152.14	67.6833	28363.84	151.89	64.5833
64	28316.24	151.70	65.6250	28349.47	152.16	68.7250	28364.56	151.91	65.6250
65	28317.53	151.72	66.6667	28349.85	152.17	69.7667	28364.84	151.92	66.6667
66	28316.97	151.74	67.7083	28350.00	152.19	70.8083	28365.50	151.94	67.7083
67	28317.71	151.75	68.7500	28350.20	152.20	71.8500	28364.91	151.96	68.7500
68	28317.58	151.76	69.7917	28350.43	152.22	72.8917	28364.39	151.97	69.7917
69	28317.79	151.78	70.8333	28350.40	152.23	73.9333	28366.11	151.99	70.8333
70	28316.75	151.79	71.8750	28350.68	152.25	74.9750	28366.12	152.01	71.8750
71	28318.23	151.81	72.9167	28350.96	152.26	76.0167	28366.11	152.02	72.9167
72	28318.29	151.83	73.9583	28351.13	152.28	77.0583	28365.48	152.04	73.9583
73	28318.09	151.85	75.0000	28351.49	152.30	78.1000	28366.12	152.05	75.0000
74	28319.31	151.86	76.0417	28351.56	152.31	79.1417	28366.39	152.06	76.0417

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
75	28318.40	151.88	77.0833	28351.79	152.32	80.1833	28366.35	152.08	77.0833
76	28318.17	151.89	78.1250	28352.24	152.34	81.2250	28367.26	152.10	78.1250
77	28319.32	151.91	79.1667	28352.39	152.36	82.2667	28368.76	152.12	79.1667
78	28319.54	151.92	80.2083	28352.59	152.37	83.3083	28368.21	152.13	80.2083
79	28319.37	151.94	81.2500	28352.71	152.39	84.3500	28370.97	152.15	81.2500
80	28319.13	151.96	82.2917	28352.86	152.40	85.3917	28371.62	152.16	82.2917
81	28319.10	151.96	83.3333	28352.96	152.41	86.4333	28372.15	152.18	83.3333
82	28318.72	151.98	84.3750	28352.98	152.43	87.4750	28370.10	152.19	84.3750
83	28318.07	151.99	85.4167	28353.18	152.44	88.5167	28370.08	152.20	85.4167
84	28319.76	152.01	86.4583	28353.37	152.46	89.5583	28367.88	152.21	86.4583
85	28319.14	152.03	87.5000	28353.75	152.47	90.6000	28367.46	152.22	87.5000
86	28318.74	152.04	88.5417	28353.92	152.49	91.6417	28367.73	152.24	88.5417
87	28319.80	152.05	89.5833	28354.07	152.49	92.6833	28368.43	152.26	89.5833
88	28319.96	152.07	90.6250	28354.19	152.51	93.7250	28369.05	152.27	90.6250
89	28320.99	152.08	91.6667	28354.56	152.53	94.7667	28369.00	152.29	91.6667
90	28320.87	152.09	92.7083	28354.69	152.54	95.8083	28369.60	152.30	92.7083
91	28320.28	152.11	93.7500	28354.75	152.55	96.8500	28369.24	152.32	93.7500
92	28320.64	152.12	94.7917	28354.83	152.56	97.8917	28369.43	152.32	94.7917
93	28320.77	152.14	95.8333	28354.92	152.58	98.9333	28370.99	152.34	95.8333
94	28319.63	152.15	96.8750	28354.94	152.59	99.9750	28371.72	152.36	96.8750
95	28320.40	152.16	97.9167	28355.13	152.61	101.0167	28370.55	152.38	97.9167
96	28320.67	152.18	98.9583	28355.38	152.62	102.0583	28369.68	152.39	98.9583
97	28320.65	152.19	100.0000	28355.50	152.63	103.1000	28369.37	152.40	100.0000
98	28321.84	152.20	101.0417	28355.67	152.65	104.1417	28369.48	152.41	101.0417
99	28320.82	152.22	102.0833	28355.87	152.66	105.1833	28369.40	152.42	102.0833
100	28321.70	152.23	103.1250	28356.21	152.67	106.2250	28370.25	152.44	103.1250
101	28320.27	152.24	104.1667	28356.23	152.69	107.2667	28371.97	152.45	104.1667
102	28320.90	152.26	105.2083	28356.40	152.70	108.3083	28369.69	152.47	105.2083
103	28321.63	152.27	106.2500	28356.52	152.71	109.3500	28371.78	152.48	106.2500
104	28320.19	152.28	107.2917	28356.51	152.73	110.3917	28376.34	152.50	107.2917
105	28321.43	152.30	108.3333	28356.60	152.75	111.4333	28376.88	152.50	108.3333
106	28321.61	152.31	109.3750	28356.57	152.75	112.4750	28371.04	152.52	109.3750
107	28321.29	152.32	110.4167	28356.86	152.77	113.5167	28370.93	152.53	110.4167
108	28321.28	152.33	111.4583	28356.95	152.78	114.5583	28370.79	152.54	111.4583
109	28321.49	152.35	112.5000	28357.10	152.80	115.6000	28372.35	152.56	112.5000
110	28322.17	152.36	113.5417	28357.45	152.80	116.6417	28371.78	152.57	113.5417
111	28321.34	152.38	114.5833	28357.43	152.82	117.6833	28370.79	152.59	114.5833

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

Fast
PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
112	28322.60	152.38	115.6250	28357.61	152.83	118.7250	28370.98	152.60	115.6250
113	28324.65	152.40	116.6667	28357.72	152.85	119.7667	28371.18	152.61	116.6667
114	28323.02	152.41	117.7083	28357.79	152.86	120.8083	28371.30	152.62	117.7083
115	28322.90	152.43	118.7500	28357.80	152.87	121.8500	28371.61	152.64	118.7500
116	28322.50	152.44	119.7917	28357.90	152.87	122.8917	28371.46	152.65	119.7917
117	28322.19	152.45	120.8333	28357.93	152.90	123.9333	28372.03	152.66	120.8333
118	28322.47	152.46	121.8750	28357.95	152.91	124.9750	28371.16	152.68	121.8750
119	28322.75	152.47	122.9167	28358.17	152.92	126.0167	28372.46	152.69	122.9167
120	28323.21	152.49	123.9583	28358.23	152.93	127.0583	28372.30	152.70	123.9583
121	28323.13	152.50	125.0000	28358.42	152.95	128.1000	28372.11	152.71	125.0000
122	28322.93	152.51	126.0417	28358.54	152.95	129.1417	28372.19	152.73	126.0417
123	28323.00	152.52	127.0833	28358.66	152.97	130.1833	28372.38	152.73	127.0833
124	28323.40	152.54	128.1250	28358.90	152.98	131.2250	28371.43	152.75	128.1250
125	28323.63	152.55	129.1667	28358.86	152.99	132.2667	28372.71	152.76	129.1667
126	28325.63	152.57	130.2083	28358.96	153.00	133.3083	28373.21	152.77	130.2083
127	28322.99	152.58	131.2500	28358.99	153.02	134.3500	28372.76	152.78	131.2500
128	28325.50	152.59	132.2917	28359.21	153.02	135.3917	28372.79	152.79	132.2917
129	28325.35	152.60	133.3333	28359.17	153.05	136.4333	28372.28	152.80	133.3333
130	28325.43	152.61	134.3750	28359.34	153.05	137.4750	28372.58	152.82	134.3750
131	28325.06	152.62	135.4167	28359.27	153.06	138.5167	28373.26	152.83	135.4167
132	28324.85	152.64	136.4583	28359.44	153.07	139.5583	28373.01	152.84	136.4583
133	28324.13	152.65	137.5000	28359.55	153.09	140.6000	28372.30	152.86	137.5000
134	28325.16	152.66	138.5417	28359.67	153.10	141.6417	28373.41	152.87	138.5417
135	28324.64	152.67	139.5833	28359.88	153.11	142.6833	28372.54	152.89	139.5833
136	28324.85	152.68	140.6250	28360.03	153.12	143.7250	28373.29	152.89	140.6250
137	28325.32	152.70	141.6667	28360.02	153.13	144.7667	28372.48	152.90	141.6667
138	28325.87	152.71	142.7083	28359.86	153.15	145.8083	28372.32	152.91	142.7083
139	28325.25	152.72	143.7500	28359.96	153.16	146.8500	28373.46	152.93	143.7500
140	28325.76	152.73	144.7917	28360.02	153.17	147.8917	28373.53	152.94	144.7917
141	28326.08	152.74	145.8333	28360.06	153.18	148.9333	28372.68	152.95	145.8333
142	28326.78	152.75	146.8750	28360.18	153.19	149.9750	28373.74	152.96	146.8750
143	28325.44	152.76	147.9167	28360.19	153.20	151.0167	28374.09	152.97	147.9167
144	28326.32	152.78	148.9583	28360.27	153.22	152.0583	28373.23	152.99	148.9583
145	28325.57	152.79	150.0000	28360.43	153.23	153.1000	28373.35	153.00	150.0000
146	28327.36	152.80	151.0417	28360.55	153.24	154.1417	28374.15	153.01	151.0417
147	28325.89	152.81	152.0833	28360.63	153.26	155.1833	28373.65	153.02	152.0833
148	28325.84	152.82	153.1250	28360.75	153.26	156.2250	28374.41	153.03	153.1250

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
149	28326.57	152.83	154.1667	28360.81	153.27	157.2667	28373.67	153.04	154.1667
150	28327.31	152.85	155.2083	28360.88	153.28	158.3083	28373.75	153.05	155.2083
151	28326.58	152.86	156.2500	28360.81	153.30	159.3500	28374.48	153.06	156.2500
152	28326.64	152.87	157.2917	28360.92	153.31	160.3917	28374.45	153.08	157.2917
153	28326.94	152.88	158.3333	28361.01	153.32	161.4333	28374.21	153.09	158.3333
154	28327.08	152.89	159.3750	28361.05	153.33	162.4750	28374.29	153.09	159.3750
155	28327.84	152.90	160.4167	28361.08	153.34	163.5167	28373.96	153.10	160.4167
156	28326.17	152.91	161.4583	28361.22	153.35	164.5583	28374.69	153.12	161.4583
157	28327.95	152.93	162.5000	28361.31	153.36	165.6000	28374.69	153.13	162.5000
158	28327.33	152.93	163.5417	28361.44	153.38	166.6417	28374.27	153.14	163.5417
159	28328.40	152.94	164.5833	28361.40	153.39	167.6833	28374.56	153.15	164.5833
160	28327.90	152.95	165.6250	28361.46	153.40	168.7250	28374.85	153.16	165.6250
161	28327.90	152.97	166.6667	28361.48	153.40	169.7667	28374.76	153.18	166.6667
162	28329.50	152.98	167.7083	28361.49	153.42	170.8083	28374.54	153.19	167.7083
163	28328.63	152.99	168.7500	28361.47	153.43	171.8500	28374.61	153.20	168.7500
164	28328.04	153.00	169.7917	28361.56	153.44	172.8917	28374.73	153.21	169.7917
165	28329.83	153.01	170.8333	28361.52	153.45	173.9333	28374.53	153.22	170.8333
166	28327.93	153.02	171.8750	28361.58	153.46	174.9750	28374.36	153.23	171.8750
167	28326.90	153.03	172.9167	28361.51	153.47	176.0167	28373.79	153.24	172.9167
168	28328.22	153.04	173.9583	28361.80	153.48	177.0583	28373.91	153.26	173.9583
169	28327.96	153.06	175.0000	28361.66	153.49	178.1000	28374.89	153.26	175.0000
170	28328.42	153.06	176.0417	28361.76	153.50	179.1417	28373.96	153.27	176.0417
171	28329.08	153.08	177.0833	28361.77	153.51	180.1833	28374.26	153.28	177.0833
172	28327.99	153.09	178.1250	28362.01	153.53	181.2250	28374.57	153.30	178.1250
173	28327.93	153.10	179.1667	28362.05	153.53	182.2667	28375.54	153.31	179.1667
174	28328.09	153.11	180.2083	28362.29	153.54	183.3083	28374.31	153.32	180.2083
175	28327.97	153.12	181.2500	28362.02	153.55	184.3500	28374.44	153.33	181.2500
176	28329.49	153.13	182.2917	28362.26	153.56	185.3917	28375.49	153.33	182.2917
177	28329.98	153.14	183.3333	28362.36	153.58	186.4333	28374.98	153.35	183.3333
178	28329.88	153.15	184.3750	28362.36	153.58	187.4750	28374.61	153.36	184.3750
179	28328.70	153.16	185.4167	28362.49	153.59	188.5167	28374.78	153.37	185.4167
180	28327.77	153.17	186.4583	28362.46	153.61	189.5583	28375.15	153.38	186.4583
181	28330.20	153.18	187.5000	28362.63	153.62	190.6000	28375.53	153.39	187.5000
182	28328.61	153.19	188.5417	28362.76	153.63	191.6417	28375.81	153.40	188.5417
183	28328.20	153.20	189.5833	28362.71	153.65	192.6833	28375.87	153.41	189.5833
184	28330.01	153.21	190.6250	28362.72	153.65	193.7250	28375.50	153.42	190.6250
185	28328.58	153.22	191.6667	28362.70	153.66	194.7667	28375.75	153.44	191.6667

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

Fast
PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
186	28328.66	153.23	192.7083	28362.94	153.67	195.8083	28375.75	153.44	192.7083
187	28330.31	153.24	193.7500	28362.77	153.68	196.8500	28375.42	153.45	193.7500
188	28329.46	153.26	194.7917	28362.76	153.69	197.8917	28377.11	153.46	194.7917
189	28330.63	153.27	195.8333	28362.86	153.70	198.9333	28375.21	153.48	195.8333
190	28328.87	153.28	196.8750	28362.85	153.71	199.9750	28375.43	153.49	196.8750
191	28329.39	153.28	197.9167	28363.00	153.73	201.0167	28375.17	153.50	197.9167
192	28329.94	153.30	198.9583	28363.19	153.73	202.0583	28375.67	153.50	198.9583
193	28330.22	153.31	200.0000	28363.12	153.74	203.1000	28375.81	153.51	200.0000
194	28330.29	153.31	201.0417	28363.21	153.75	204.1417	20375.87	153.53	201.0417
195	28328.94	153.32	202.0833	28363.42	153.76	205.1833	28376.55	153.53	202.0833
196	28330.69	153.34	203.1250	28363.59	153.77	206.2250	28376.25	153.55	203.1250
197	28330.27	153.34	204.1667	28363.46	153.78	207.2667	28375.93	153.55	204.1667
198	28332.31	153.36	205.2083	28363.51	153.79	208.3083	28377.02	153.56	205.2083
199	28330.69	153.37	206.2500	28363.58	153.80	209.3500	28375.89	153.57	206.2500
200	28329.68	153.38	207.2917	28363.68	153.81	210.3917	28376.43	153.58	207.2917
201	28330.26	153.39	208.3333	28363.82	153.82	211.4333	28375.92	153.60	208.3333
202	28329.47	153.39	209.3750	28363.84	153.84	212.4750	28376.18	153.60	209.3750
203	28329.57	153.41	210.4167	28363.99	153.84	213.5167	28376.94	153.61	210.4167
204	28330.39	153.42	211.4583	28363.89	153.85	214.5583	28376.75	153.62	211.4583
205	28329.27	153.42	212.5000	28364.02	153.86	215.6000	28377.51	153.64	212.5000
206	28331.18	153.44	213.5417	28364.10	153.87	216.6417	28376.11	153.65	213.5417
207	28331.55	153.45	214.5833	28364.08	153.88	217.6833	28376.83	153.66	214.5833
208	28330.17	153.46	215.6250	28364.12	153.89	218.7250	28375.15	153.66	215.6250
209	28331.86	153.47	216.6667	28364.13	153.90	219.7667	28376.45	153.67	216.6667
210	28330.46	153.47	217.7083	28364.12	153.91	220.8083	28376.45	153.68	217.7083
211	28330.94	153.49	218.7500	28364.22	153.92	221.8500	28376.90	153.69	218.7500
212	28331.27	153.50	219.7917	28364.12	153.93	222.8917	28377.99	153.70	219.7917
213	28330.98	153.50	220.8333	28364.38	153.94	223.9333	28376.37	153.72	220.8333
214	28331.51	153.52	221.8750	28364.24	153.95	224.9750	28375.84	153.72	221.8750
215	28331.40	153.53	222.9167	28364.29	153.96	226.0167	28376.08	153.73	222.9167
216	28330.16	153.53	223.9583	28364.42	153.97	227.0583	28376.63	153.75	223.9583
217	28330.17	153.54	225.0000	28364.50	153.98	228.1000	28376.85	153.75	225.0000
218	28330.25	153.55	226.0417	28364.51	153.99	229.1417	28375.77	153.76	226.0417
219	28331.27	153.56	227.0833	28364.75	154.00	230.1833	28376.49	153.77	227.0833
220	28332.15	153.57	228.1250	28364.65	154.01	231.2250	28376.47	153.78	228.1250
221	28330.50	153.58	229.1667	28364.96	154.02	232.2667	28376.71	153.78	229.1667
222	28332.58	153.59	230.2083	28364.77	154.02	233.3083	28377.65	153.79	230.2083

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/04
Final Test Date: 1999/10/16

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: PTN0232

	Gauge 1 Pres. kPa(a)	Gauge 1 Temp. °C	Gauge 1 Time hr	Gauge 2 Pres. kPa(a)	Gauge 2 Temp. °C	Gauge 2 Time hr	Gauge 3 Pres. kPa(a)	Gauge 3 Temp. °C	Gauge 3 Time hr
223	28331.72	153.60	231.2500	28364.92	154.04	234.3500	28377.22	153.81	231.2500
224	28332.40	153.61	232.2917	28364.91	154.04	235.3917	28376.83	153.82	232.2917
225	28333.07	153.62	233.3333	28364.94	154.05	236.4333	28377.53	153.82	233.3333
226	28332.69	153.63	234.3750	28364.83	154.06	237.4750	28377.50	153.83	234.3750
227	28332.30	153.64	235.4167	28364.92	154.07	238.5167	28377.45	153.85	235.4167
228	28332.53	153.65	236.4583	28365.02	154.09	239.5583	28377.08	153.85	236.4583
229	28332.99	153.66	237.5000	28364.97	154.09	240.6000	28376.39	153.87	237.5000
230	28333.40	153.67	238.5417	28365.10	154.10	241.6417	28377.01	153.88	238.5417
231	28332.25	153.67	239.5833	28365.12	154.11	242.6833	28377.14	153.89	239.5833
232	28332.86	153.69	240.6250	28365.09	154.12	243.7250	28377.76	153.89	240.6250
233	28332.05	153.69	241.6667	28365.00	154.13	244.7667	28377.73	153.90	241.6667
234	28331.69	153.70	242.7083	28365.48	154.14	245.8083	28378.24	153.91	242.7083
235	28333.41	153.71	243.7500	28365.52	154.15	246.8500	28377.92	153.92	243.7500
236	28333.26	153.72	244.7917	28365.37	154.16	247.8917	28377.08	153.93	244.7917
237	28334.02	153.73	245.8333	28365.20	154.16	248.9333	28377.40	153.94	245.8333
238	28334.66	153.74	246.8750	28362.22	154.15	249.9750	28378.90	153.95	246.8750
239	28332.67	153.74	247.9167	121.58	17.61	251.0167	28378.57	153.96	247.9167
240	28334.64	153.76	248.9583	94.85	22.13	252.0583	28376.99	153.97	248.9583
241	28204.61	153.74	250.0000				28389.85	153.94	250.0000
242	88.75	19.92	251.0417				166.31	25.86	251.0417
243	60.42	21.26	252.0833				61.85	21.33	252.0833
244							69.06	20.06	252.2458

Gauge 1 Start Date 999/10/04 19:43:00
Gauge 2 Start Date 1999/10/04 19:43:00
Gauge 3 Start Date 1999/10/04 19:43:00

Print Filter Used: Nth Line = 250.000

PROBETECH SERVICES LTD.

GENERAL INFORMATION

Client Information:

Company: Canadian Forest Oil Ltd.

Contact: Jim Monroe

Phone: (403) 292-8000 Fax: (403) 292-8145 e-mail:

Site Information:

Contact:

Phone: Fax: e-mail:

Well Information:

Name: Flett et al N-61

Operator: CFO

Location-Downhole: N-61

Location-Surface: N-61

Test Information:

Company: Bonnett's Wireline Services Ltd

Representative: Frank Helm

Supervisor:

Test Type: Static Gradient

Job Number: Ptn 232

Test Unit:

Start Date: 1999/10/05

Start Time: 16:46:00

End Date: 1999/10/05

End Time: 19:42:00

Report Date: 1999/10/08

Prepared By: Scott Kirk

Qualified By:

Remarks:

No site contact information was provided

WELL INFORMATION

Well Name : Flett et al N-61

Well Operator : CFO

Well Location : N-61

Location-Surface : N-61

Field :

Well Type : Vertical

Pool : Nahanni

Formation : Nahanni

Perforation Type :			Producing Through : Tubing	Size	114.30 mm
Pool Datum	m	CF	Elevation Referenced Fro	604.10 m	CF
Datum Depth	m	CF	Elevation Referenced To	610.70 m	KB
			Offset	-6.60 m	

Production Intervals

Production Interval & MPP Reference To : KB

MPP Pressure Reference : None

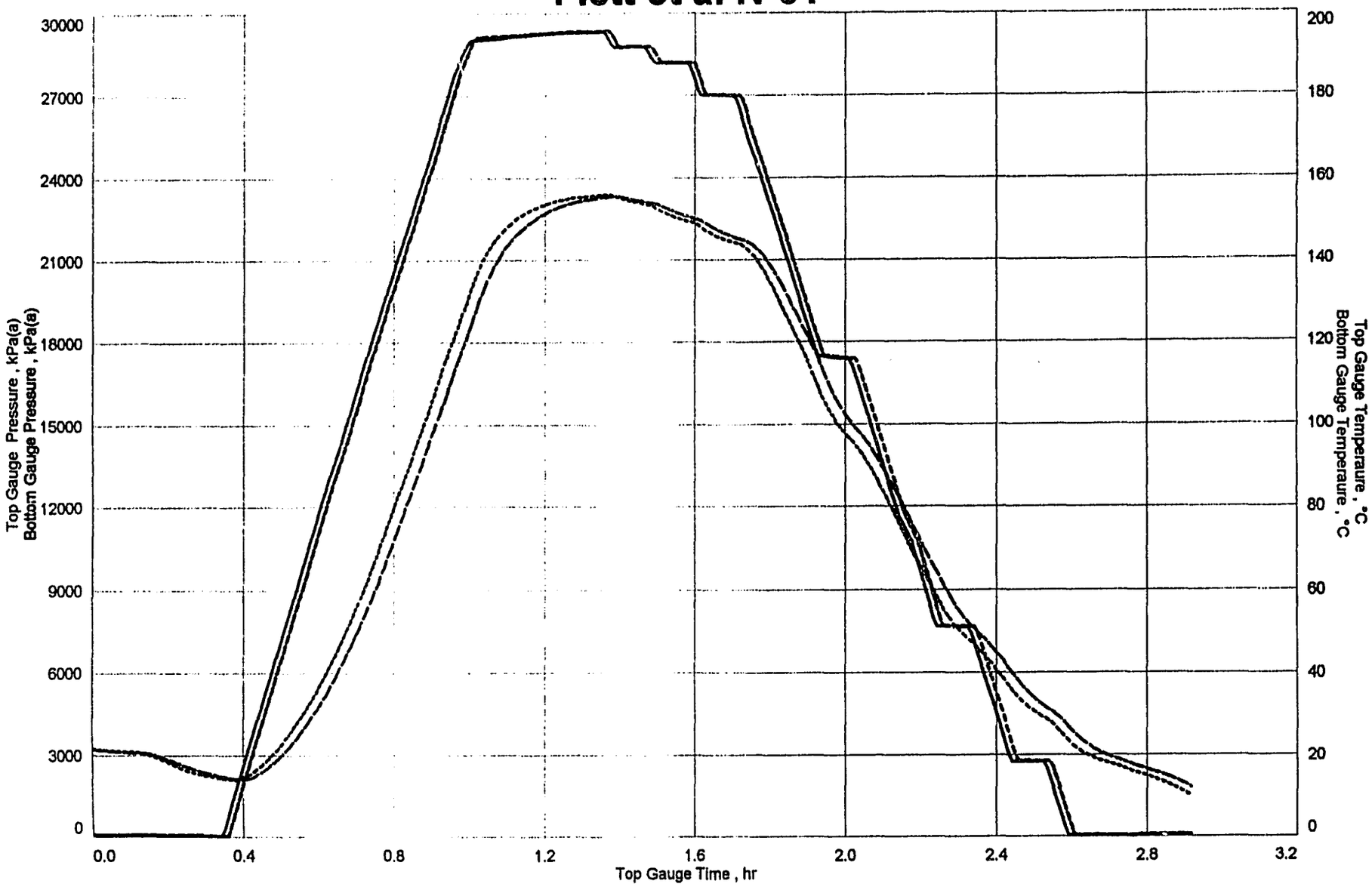
	From - m	To - m		Depth - m	Pressure - kPa
1.	3147.00	3255.00	1.		
2.			2.		
3.			3.		
4.			4.		
5.			5.		
6.			6.		
7.			7.		
8.			8.		
9.			9.		
10.			10.		
11.			11.		
12.			12.		

Remarks : N-61 is the only information available at this time regarding location number.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

Flett et al N-61



PROBETECH

C:\Zipwin\Data\PTN232\BONNETT'S FIRST.FKT 08-Oct-99 Ver 2.305

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
1	0.0000	77.71	21.54	1999/10/05	16:47:00	74.45	21.55	0.0000	1999/10/05	16:46:00
2	0.0167	78.12	21.42	1999/10/05	16:48:00	75.28	21.42	0.0167	1999/10/05	16:47:00
3	0.0333	77.99	21.30	1999/10/05	16:48:59	75.42	[illegible]	[illegible]	1999/10/05	16:47:59
4	0.0500	77.64	21.19	1999/10/05	16:50:00	75.37	21.12	0.0500	1999/10/05	16:49:00
5	0.0667	77.31	21.09	1999/10/05	16:51:00	74.98	20.99	[illegible]	1999/10/05	16:50:00
6	0.0833	77.07	21.01	1999/10/05	16:51:59	74.67	20.88	0.0833	1999/10/05	16:50:59
7	0.1000	76.83	20.94	1999/10/05	16:53:00	74.35	20.76	0.1000	1999/10/05	16:52:00
8	0.1167	75.93	20.85	1999/10/05	16:54:00	74.12	20.71	0.1167	1999/10/05	16:53:00
9	0.1333	79.22	20.59	1999/10/05	16:54:59	73.31	20.66	0.1333	1999/10/05	16:53:59
10	0.1500	78.79	20.15	1999/10/05	16:56:00	76.31	20.47	0.1500	1999/10/05	16:55:00
11	0.1667	79.64	19.60	1999/10/05	16:57:00	78.86	20.09	0.1667	1999/10/05	16:56:00
12	0.1833	79.54	19.02	1999/10/05	16:57:59	79.70	19.60	0.1833	1999/10/05	16:56:59
13	0.2000	61.77	18.38	1999/10/05	16:59:00	80.16	19.05	0.2000	1999/10/05	16:58:00
14	0.2167	62.16	17.58	1999/10/05	17:00:00	78.09	18.47	0.2167	1999/10/05	16:59:00
15	0.2333	60.64	16.87	1999/10/05	17:00:59	71.62	17.84	0.2333	1999/10/05	16:59:59
16	0.2500	58.89	16.31	1999/10/05	17:02:00	69.19	17.26	0.2500	1999/10/05	17:01:00
17	0.2667	57.30	15.81	1999/10/05	17:03:00	68.08	16.78	0.2667	1999/10/05	17:02:00
18	0.2833	24.64	15.39	1999/10/05	17:03:59	67.35	16.24	0.2833	1999/10/05	17:02:59
19	0.3000	23.51	15.02	1999/10/05	17:05:00	36.64	15.80	0.3000	1999/10/05	17:04:00
20	0.3167	30.17	14.72	1999/10/05	17:06:00	35.22	15.38	0.3167	1999/10/05	17:05:00
21	0.3333	29.75	14.49	1999/10/05	17:06:59	37.41	15.03	0.3333	1999/10/05	17:05:59
22	0.3500	274.93	14.30	1999/10/05	17:08:00	37.26	14.73	0.3500	1999/10/05	17:07:00
23	0.3667	1033.50	14.02	1999/10/05	17:09:00	326.74	14.46	0.3667	1999/10/05	17:08:00
24	0.3833	1805.20	13.99	1999/10/05	17:09:59	1086.97	14.20	0.3833	1999/10/05	17:08:59
25	0.4000	2584.68	14.32	1999/10/05	17:11:00	1858.78	14.14	0.4000	1999/10/05	17:10:00
26	0.4167	3359.98	15.17	1999/10/05	17:12:00	2637.99	14.38	0.4167	1999/10/05	17:11:00
27	0.4333	4134.87	16.29	1999/10/05	17:12:59	3415.61	15.06	0.4333	1999/10/05	17:11:59
28	0.4500	4905.71	17.58	1999/10/05	17:14:00	4189.91	15.99	0.4500	1999/10/05	17:13:00
29	0.4667	5670.75	19.05	1999/10/05	17:15:00	4959.19	17.09	0.4667	1999/10/05	17:14:00

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
30	0.4833	6433.53	20.73	1999/10/05	17:15:59	5722.68	18.37	0.4833	1999/10/05	17:15:59
31	0.5000	7194.44	22.53	1999/10/05	17:17:00	6484.53	19.85	0.5000	1999/10/05	17:16:00
32	0.5167	7954.83	24.49	1999/10/05	17:18:00	7244.18	[illegible]	0.5167	1999/10/05	[illegible]
33	0.5333	8708.67	26.63	1999/10/05	17:18:59	8005.43	23.25	0.5333	1999/10/05	17:17:59
34	0.5500	9500.56	28.96	1999/10/05	17:20:00	8764.39	[illegible]	0.5500	1999/10/05	[illegible]
35	0.5667	10289.91	31.42	1999/10/05	17:21:00	9544.87	27.35	0.5667	1999/10/05	17:20:00
36	0.5833	11080.03	33.99	1999/10/05	17:22:59	10339.05	29.63	0.5833	1999/10/05	[illegible]
37	0.6000	11865.60	36.67	1999/10/05	17:23:00	11123.85	32.04	0.6000	1999/10/05	17:22:00
38	0.6167	12629.05	39.51	1999/10/05	17:24:00	11907.68	34.55	0.6167	1999/10/05	17:23:00
39	0.6333	13371.37	42.58	1999/10/05	17:24:59	12673.95	37.25	0.6333	1999/10/05	17:23:59
40	0.6500	13989.25	45.76	1999/10/05	17:26:00	13409.86	40.14	0.6500	1999/10/05	17:26:00
41	0.6667	14710.44	48.96	1999/10/05	17:27:00	14026.21	43.16	0.6667	1999/10/05	17:26:00
42	0.6833	15469.22	52.27	1999/10/05	17:27:59	14718.82	46.24	0.6833	1999/10/05	17:26:59
43	0.7000	16221.73	55.76	1999/10/05	17:29:00	15507.59	49.42	0.7000	1999/10/05	17:28:00
44	0.7167	16971.60	59.43	1999/10/05	17:30:00	16260.02	52.77	0.7167	1999/10/05	17:29:00
45	0.7333	17712.68	63.27	1999/10/05	17:30:59	17008.41	56.30	0.7333	1999/10/05	17:29:59
46	0.7500	18450.82	67.26	1999/10/05	17:32:00	17749.38	59.98	0.7500	1999/10/05	17:31:00
47	0.7667	19175.75	71.36	1999/10/05	17:33:00	18487.96	63.82	0.7667	1999/10/05	17:32:00
48	0.7833	19908.19	75.58	1999/10/05	17:33:59	19219.41	67.78	0.7833	1999/10/05	17:32:59
49	0.8000	20628.81	79.85	1999/10/05	17:35:00	19953.53	71.87	0.8000	1999/10/05	17:34:00
50	0.8167	21352.29	84.05	1999/10/05	17:36:00	20675.59	76.02	0.8167	1999/10/05	17:35:00
51	0.8333	22080.13	88.18	1999/10/05	17:36:59	21401.95	80.15	0.8333	1999/10/05	17:35:59
52	0.8500	22804.57	92.27	1999/10/05	17:38:00	22126.98	84.23	0.8500	1999/10/05	17:37:00
53	0.8667	23522.85	96.45	1999/10/05	17:39:00	22855.14	88.30	0.8667	1999/10/05	17:38:00
54	0.8833	24238.70	100.69	1999/10/05	17:39:59	23577.41	92.44	0.8833	1999/10/05	17:38:59
55	0.9000	24964.26	105.00	1999/10/05	17:41:00	24297.58	96.64	0.9000	1999/10/05	17:40:00
56	0.9167	25759.25	109.45	1999/10/05	17:42:00	25030.80	100.92	0.9167	1999/10/05	17:41:00
57	0.9333	26573.37	113.98	1999/10/05	17:42:59	25835.61	105.32	0.9333	1999/10/05	17:41:59
58	0.9500	27378.21	118.50	1999/10/05	17:44:00	26655.74	109.80	0.9500	1999/10/05	17:43:00

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
59	0.9667	28080.38	122.91	1999/10/05	17:45:00	27488.39	[illegible]	[illegible]	[illegible]	[illegible]
60	0.9833	28648.00	127.32	1999/10/05	17:45:59	28152.73	118.70	0.9833	1999/10/05	17:44:59
61	1.0000	29024.75	131.89	1999/10/05	17:47:00	28743.67	[illegible]	[illegible]	[illegible]	[illegible]
62	1.0167	29041.75	136.00	1999/10/05	17:48:00	29129.95	127.62	1.0167	1999/10/05	17:47:00
63	1.0333	29046.54	139.41	1999/10/05	17:48:59	29118.07	[illegible]	[illegible]	[illegible]	[illegible]
64	1.0500	29064.06	142.21	1999/10/05	17:50:00	29149.08	135.42	1.0500	1999/10/05	17:49:00
65	1.0667	29085.72	144.54	1999/10/05	17:51:00	29158.15	[illegible]	[illegible]	[illegible]	[illegible]
66	1.0833	29112.29	146.49	1999/10/05	17:51:59	29171.77	141.13	1.0833	1999/10/05	17:50:59
67	1.1000	29143.72	148.11	1999/10/05	17:53:00	29187.55	[illegible]	[illegible]	[illegible]	[illegible]
68	1.1167	29164.35	149.47	1999/10/05	17:54:00	29204.62	145.31	1.1167	1999/10/05	17:53:00
69	1.1333	29188.04	150.61	1999/10/05	17:54:59	29222.01	[illegible]	[illegible]	[illegible]	[illegible]
70	1.1500	29210.28	151.56	1999/10/05	17:56:00	29238.60	148.34	1.1500	1999/10/05	17:55:00
71	1.1667	29230.02	152.35	1999/10/05	17:57:00	29253.80	[illegible]	[illegible]	[illegible]	[illegible]
72	1.1833	29246.97	153.02	1999/10/05	17:57:59	29268.05	150.56	1.1833	1999/10/05	17:56:59
73	1.2000	29262.20	153.58	1999/10/05	17:59:00	29281.00	151.43	1.2000	1999/10/05	17:58:00
74	1.2167	29275.21	154.05	1999/10/05	18:00:00	29292.76	152.18	1.2167	1999/10/05	17:59:00
75	1.2333	29286.74	154.44	1999/10/05	18:00:59	29302.83	152.82	1.2333	1999/10/05	17:59:59
76	1.2500	29296.80	154.77	1999/10/05	18:02:00	29312.03	153.36	1.2500	1999/10/05	18:01:00
77	1.2667	29304.93	155.05	1999/10/05	18:03:00	29320.36	153.82	1.2667	1999/10/05	18:02:00
78	1.2833	29311.77	155.28	1999/10/05	18:03:59	29327.63	154.22	1.2833	1999/10/05	18:02:59
79	1.3000	29317.62	155.48	1999/10/05	18:05:00	29333.76	154.65	1.3000	1999/10/05	18:04:00
80	1.3167	29322.75	155.65	1999/10/05	18:06:00	29339.22	154.84	1.3167	1999/10/05	18:05:00
81	1.3333	29326.99	155.79	1999/10/05	18:06:59	29343.70	155.08	1.3333	1999/10/05	18:05:59
82	1.3500	29330.59	155.91	1999/10/05	18:08:00	29347.63	155.29	1.3500	1999/10/05	18:07:00
83	1.3667	29079.06	155.99	1999/10/05	18:09:00	29351.15	155.47	1.3667	1999/10/05	18:08:00
84	1.3833	28764.40	155.72	1999/10/05	18:09:59	29091.82	155.61	1.3833	1999/10/05	18:08:59
85	1.4000	28788.79	155.19	1999/10/05	18:11:00	28877.85	155.50	1.4000	1999/10/05	18:10:00
86	1.4167	28795.83	154.71	1999/10/05	18:12:00	28791.95	155.14	1.4167	1999/10/05	18:11:00
87	1.4333	28795.83	154.31	1999/10/05	18:12:59	28797.97	154.78	1.4333	1999/10/05	18:11:59

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
88	1.4500	28792.68	153.98	1999/10/05	18:14:50	28795.85	[illegible]	[illegible]	1999/10/05	[illegible]
89	1.4667	28787.99	153.70	1999/10/05	18:15:00	28797.90	154.20	1.4667	1999/10/05	18:14:00
90	1.4833	28432.71	153.34	1999/10/05	18:15:59	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
91	1.5000	28217.71	152.50	1999/10/05	18:17:00	28435.03	153.66	1.5000	1999/10/05	18:16:00
92	1.5167	28226.84	151.85	1999/10/05	18:17:59	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
93	1.5333	28222.21	150.91	1999/10/05	18:18:59	28223.11	152.21	1.5333	1999/10/05	18:17:59
94	1.5500	28214.04	150.33	1999/10/05	18:20:00	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
95	1.5667	28204.70	149.84	1999/10/05	18:21:00	28215.74	150.99	1.5667	1999/10/05	18:20:00
96	1.5833	28195.69	149.43	1999/10/05	18:21:59	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
97	1.6000	27545.02	148.93	1999/10/05	18:23:00	28203.30	150.10	1.6000	1999/10/05	18:22:00
98	1.6167	27012.79	147.99	1999/10/05	18:24:00	27514.31	[illegible]	[illegible]	1999/10/05	[illegible]
99	1.6333	27019.76	146.95	1999/10/05	18:24:59	27014.58	148.77	1.6333	1999/10/05	18:23:59
100	1.6500	27014.12	146.11	1999/10/05	18:26:00	27020.16	[illegible]	[illegible]	1999/10/05	[illegible]
101	1.6667	27004.55	145.41	1999/10/05	18:27:00	27016.31	146.96	1.6667	1999/10/05	18:26:00
102	1.6833	26993.81	144.83	1999/10/05	18:27:59	27009.61	[illegible]	1.6833	1999/10/05	[illegible]
103	1.7000	26983.61	144.35	1999/10/05	18:29:00	27001.87	145.63	1.7000	1999/10/05	18:28:00
104	1.7167	26529.94	143.88	1999/10/05	18:30:00	26994.25	145.10	1.7167	1999/10/05	18:29:00
105	1.7333	25751.47	143.00	1999/10/05	18:30:59	26538.24	144.60	1.7333	1999/10/05	18:29:59
106	1.7500	25021.43	141.54	1999/10/05	18:32:00	25763.59	143.80	1.7500	1999/10/05	[illegible]
107	1.7667	24347.42	139.52	1999/10/05	18:33:00	25010.89	142.52	1.7667	1999/10/05	18:32:00
108	1.7833	23663.24	137.05	1999/10/05	18:33:59	24327.28	140.75	1.7833	1999/10/05	18:32:59
109	1.8000	22956.36	134.31	1999/10/05	18:35:00	23638.05	138.57	1.8000	1999/10/05	18:34:00
110	1.8167	22238.09	131.30	1999/10/05	18:36:00	22926.15	136.09	1.8167	1999/10/05	18:35:00
111	1.8333	21511.74	128.12	1999/10/05	18:36:59	22208.00	133.35	1.8333	1999/10/05	18:35:59
112	1.8500	20764.14	124.91	1999/10/05	18:38:00	21481.72	130.72	1.8500	1999/10/05	[illegible]
113	1.8667	20006.14	121.65	1999/10/05	18:39:00	20737.87	127.40	1.8667	1999/10/05	18:38:00
114	1.8833	19272.96	118.30	1999/10/05	18:39:59	19984.36	[illegible]	1.8833	1999/10/05	[illegible]
115	1.9000	18536.88	114.80	1999/10/05	18:41:00	19255.01	121.12	1.9000	1999/10/05	18:40:00
116	1.9167	17789.66	111.16	1999/10/05	18:42:00	18522.09	117.80	1.9167	1999/10/05	[illegible]

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
117	1.9333	17462.84	107.47	1999/10/05	18:42:59	[illegible]	[illegible]	[illegible]	1999/10/05	18:41:59
118	1.9500	17431.50	104.31	1999/10/05	18:44:00	17456.59	110.77	1.9500	1999/10/05	18:43:00
119	1.9667	17402.74	101.68	1999/10/05	18:45:00	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
120	1.9833	17378.76	99.45	1999/10/05	18:45:59	17411.24	104.77	1.9833	1999/10/05	18:44:59
121	2.0000	17358.87	97.55	1999/10/05	18:47:00	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
122	2.0167	17159.21	95.92	1999/10/05	18:48:00	17375.05	100.26	2.0167	1999/10/05	18:47:00
123	2.0333	16485.92	94.13	1999/10/05	18:48:59	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
124	2.0500	15751.90	92.00	1999/10/05	18:50:00	16504.90	96.56	2.0500	1999/10/05	18:49:00
125	2.0667	15016.26	89.51	1999/10/05	18:[illegible]:00	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
126	2.0833	14270.11	86.75	1999/10/05	18:51:59	15034.19	92.05	2.0833	1999/10/05	18:50:59
127	2.1000	13520.13	83.84	1999/10/05	18:53:00	[illegible]	[illegible]	[illegible]	1999/10/05	18:52:00
128	2.1167	12762.58	80.84	1999/10/05	18:54:00	13538.64	86.64	2.1167	1999/10/05	18:53:00
129	2.1333	12001.52	77.68	1999/10/05	18:54:59	[illegible]	[illegible]	[illegible]	1999/10/05	[illegible]
130	2.1500	11409.96	74.43	1999/10/05	18:56:00	12021.90	80.74	2.1500	1999/10/05	18:55:00
131	2.1667	10967.39	71.28	1999/10/05	18:57:00	11450.85	[illegible]	2.1667	1999/10/05	18:56:00
132	2.1833	10372.07	68.34	1999/10/05	18:57:59	10989.39	74.53	2.1833	1999/10/05	18:56:59
133	2.2000	9586.91	65.48	1999/10/05	18:59:00	10396.78	74.59	2.2000	1999/10/05	18:58:00
134	2.2167	8784.27	62.61	1999/10/05	19:00:00	9612.55	68.73	2.2167	1999/10/05	18:59:00
135	2.2333	7975.11	59.72	1999/10/05	19:00:59	8809.99	65.67	2.2333	1999/10/05	18:59:59
136	2.2500	7672.98	56.78	1999/10/05	19:02:00	8000.99	62.99	2.2500	1999/10/05	19:01:00
137	2.2667	7664.92	54.28	1999/10/05	19:03:00	7696.61	60.07	2.2667	1999/10/05	19:02:00
138	2.2833	7657.83	52.20	1999/10/05	19:03:59	7690.04	57.45	2.2833	1999/10/05	19:02:59
139	2.3000	7652.39	50.41	1999/10/05	19:05:00	7683.75	55.18	2.3000	1999/10/05	19:04:00
140	2.3167	7647.92	48.87	1999/10/05	19:06:00	7678.54	53.18	2.3167	1999/10/05	19:05:00
141	2.3333	7452.42	47.52	1999/10/05	19:06:59	7674.22	51.48	2.3333	1999/10/05	19:05:59
142	2.3500	6718.74	46.03	1999/10/05	19:08:00	7482.07	49.89	2.3500	1999/10/05	19:07:00
143	2.3667	5976.63	44.35	1999/10/05	19:09:00	6747.46	48.61	2.3667	1999/10/05	19:08:00
144	2.3833	5230.78	42.58	1999/10/05	19:09:59	6004.76	46.61	2.3833	1999/10/05	19:08:59
145	2.4000	4483.21	40.67	1999/10/05	19:11:00	5259.62	[illegible]	2.4000	1999/10/05	19:10:00

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
146	2.4167	3725.61	38.69	1999/10/05	19:12:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
147	2.4333	2968.12	36.69	1999/10/05	19:12:59	3754.10	41.00	2.4333	1999/10/05	19:11:59
148	2.4500	2756.99	34.75	1999/10/05	19:14:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
149	2.4667	2753.69	33.11	1999/10/05	19:15:00	2781.23	37.07	2.4667	1999/10/05	19:14:00
150	2.4833	2750.65	31.73	1999/10/05	19:15:59	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
151	2.5000	2747.61	30.55	1999/10/05	19:17:00	2775.64	33.84	2.5000	1999/10/05	19:16:00
152	2.5167	2745.27	29.53	1999/10/05	19:18:00	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
153	2.5333	2522.56	28.61	1999/10/05	19:18:59	2771.02	31.36	2.5333	1999/10/05	19:17:59
154	2.5500	1826.68	27.51	1999/10/05	19:20:00	2562.05	30.32	2.5500	1999/10/05	19:19:00
155	2.5667	1090.17	25.94	1999/10/05	19:21:00	1852.01	29.19	2.5667	1999/10/05	19:20:00
156	2.5833	351.61	24.31	1999/10/05	19:21:59	1115.75	[illegible]	2.5833	1999/10/05	19:20:59
157	2.6000	49.90	22.70	1999/10/05	19:23:00	378.87	26.14	2.6000	1999/10/05	19:22:00
158	2.6167	45.15	21.42	1999/10/05	19:24:00	56.43	[illegible]	2.6167	1999/10/05	19:23:00
159	2.6333	41.08	20.42	1999/10/05	19:24:59	53.00	23.22	2.6333	1999/10/05	19:23:59
160	2.6500	37.56	19.62	1999/10/05	19:26:00	49.54	22.00	2.6500	1999/10/05	19:25:00
161	2.6667	34.75	18.98	1999/10/05	19:27:00	46.81	21.15	2.6667	1999/10/05	19:26:00
162	2.6833	32.35	18.49	1999/10/05	19:27:59	44.22	20.35	2.6833	1999/10/05	19:26:59
163	2.7000	31.37	18.04	1999/10/05	19:29:00	42.07	19.72	2.7000	1999/10/05	19:28:00
164	2.7167	31.08	17.54	1999/10/05	19:30:00	40.69	19.17	2.7167	1999/10/05	19:29:00
165	2.7333	30.50	16.97	1999/10/05	19:30:59	40.37	18.64	2.7333	1999/10/05	19:29:59
166	2.7500	29.81	16.41	1999/10/05	19:32:00	40.14	18.09	2.7500	1999/10/05	19:31:00
167	2.7667	62.30	15.87	1999/10/05	19:33:00	39.85	17.55	2.7667	1999/10/05	19:32:00
168	2.7833	61.40	15.36	1999/10/05	19:33:59	72.21	17.02	2.7833	1999/10/05	19:32:59
169	2.8000	61.31	14.85	1999/10/05	19:35:00	71.94	16.50	2.8000	1999/10/05	19:34:00
170	2.8167	60.77	14.26	1999/10/05	19:36:00	71.90	15.00	2.8167	1999/10/05	19:35:00
171	2.8333	61.08	13.69	1999/10/05	19:36:59	71.79	15.50	2.8333	1999/10/05	19:35:59
172	2.8500	62.18	13.01	1999/10/05	19:38:00	72.88	14.92	2.8500	1999/10/05	19:37:00
173	2.8667	63.15	12.30	1999/10/05	19:39:00	75.10	14.29	2.8667	1999/10/05	19:38:00
174	2.8833	61.67	11.59	1999/10/05	19:39:59	75.01	13.62	2.8833	1999/10/05	19:38:59

Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Time hr	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
175	2.9000	61.66	10.89	1999/10/05	19:41:00	75.86	12.90	2.9000	1999/10/05	19:40:00
176	2.9167	61.42	10.15	1999/10/05	19:42:00	75.74	12.07	2.9167	1999/10/05	19:41:00

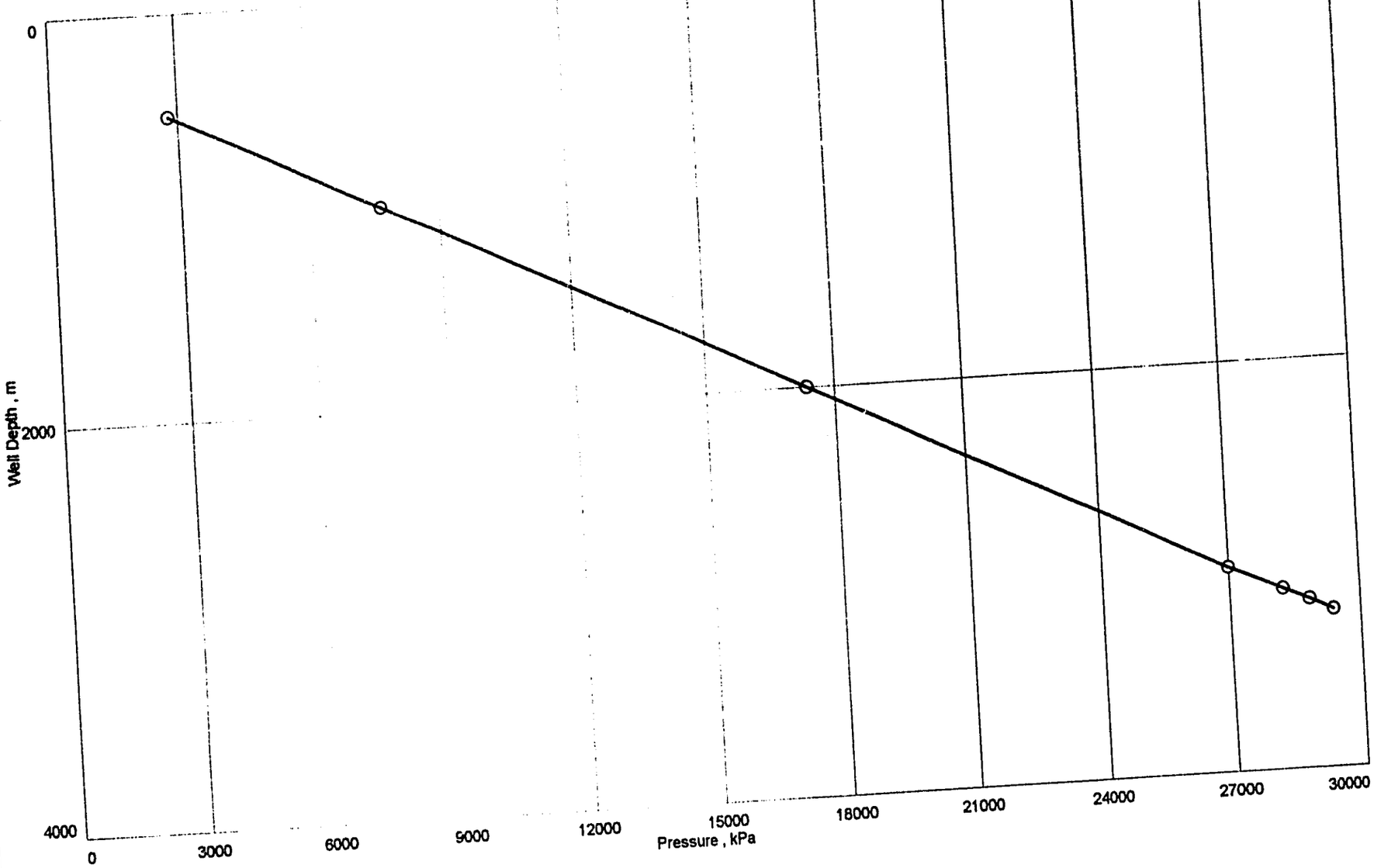
Gauge 1 Start Date 1999/10/05 16:47:00
Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Used: Nth Line = 2.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation Nahanni
Pool: Nahanni
Job Number: Ptn 232

Static Gradient



PROBETECH
SERVICES LTD.

c:\2\pwin\Data\PTN232\BONNETT'S FIRST.FKT 08-Oct-99 Ver 2.305

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/05
Final Test Date: 1999/10/05

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Depth m	Pres. kPa	Temp. °C	Calc. Grad. kPa/m	Spec. Grad. kPa/m	LL Depth m	LL Pres. kPa	Temp. Grad °C/m	Time hr
1	3230.000	29351.85	155.5						1.3708
2	3172.500	28795.72	154.0	9.672				0.087	1.4833
3	3115.000	28203.30	150.1	10.303				0.218	1.6000
4	3000.000	26994.25	145.1	10.513				0.141	1.7167
5	2000.000	17367.85	99.3	9.626				0.148	2.0250
6	1000.000	7655.83	50.3	9.712				0.159	2.3458
7	500.000	2770.06	30.8	9.772				0.126	2.5417
8	0.000								

Bottom Gauge Start Date 1999/10/05 16:46:00

Print Filter Off

GENERAL INFORMATION

Client Information:

Company: Canadian Forest Oil Ltd.

Contact: Jim Monroe

Phone: (403) 292-8000 Fax: (403) 292-8145 e-mail:

Site Information:

Contact: N/A

Phone: N/A Fax: N/A e-mail:

Well Information:

Name: Flett et al N-61

Operator: CFO

Location-Downhole: N-61

Location-Surface: N-61

Test Information:

Company: Bonnett's Wireline Service Ltd.

Representative: Frank Helm

Supervisor:

Test Type: Static Gradient Job Number: Ptn 232

Test Unit:

Start Date: 1999/10/01 Start Time: 14:15:00

End Date: 1999/10/01 End Time: 23:36:00

Report Date: 1999/10/08 Prepared By: Scott Kirk

Remarks: Qualified By:

Significant pressure increases are present, the well does not appear to be stable.

WELL INFORMATION

Well Name : Flett et al N-61

Well Operator : CFO

Well Location : N-61

Location-Surface : N-61

Field :

Well Type : Vertical

Pool : Nahanni

Formation : Nahanni

Perforation Type :			Producing Through : Tubing	Size	114.30 mm
Pool Datum	m	CF	Elevation Referenced Fro	604.10 m	CF
Datum Depth	m	CF	Elevation Referenced To	610.70 m	KB
			Offset	-6.60 m	

Production Intervals

Production Interval & MPP Reference To : CF

MPP Pressure Reference : None

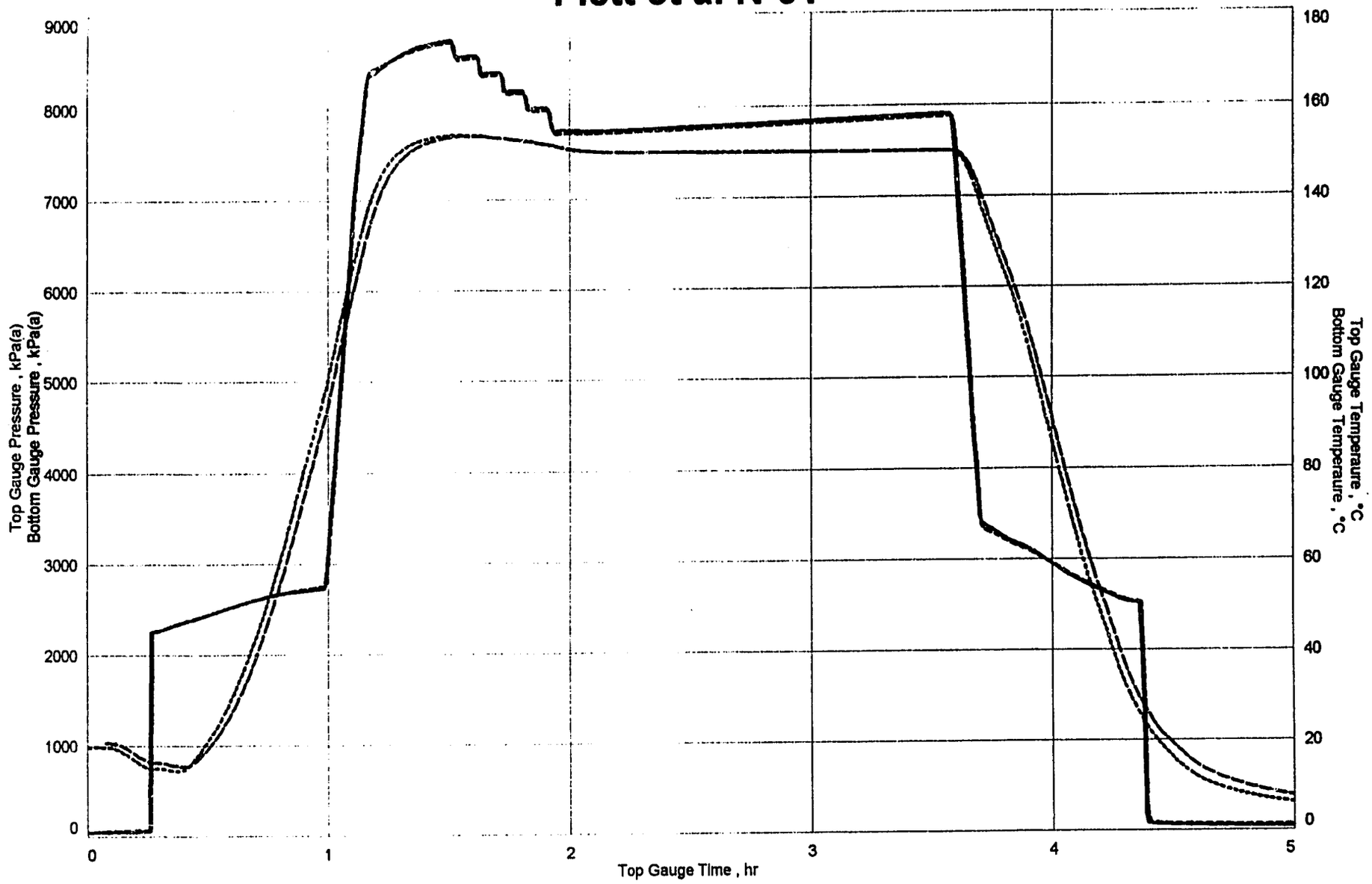
	From - m	To - m	Depth - m	Pressure - kPa
1.	3147.00	3255.00	1.	
2.			2.	
3.			3.	
4.			4.	
5.			5.	
6.			6.	
7.			7.	
8.			8.	
9.			9.	
10.			10.	
11.			11.	
12.			12.	

Remarks : N-61 is the only information available at this time regarding location number.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

Flett et al N-61



C:\Zipwin\Data\PTN232\Satic Grad. n-61.FKT 08-Oct-99 Ver 2.305

PROBETECH SERVICES LTD.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Time hr	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
1	0.0000	44.87	19.70	1999/10/01	14:15:00	0.0750	54.91	20.04	1999/10/01	14:16:29
2	0.0417	46.95	19.80	1999/10/01	14:17:30	0.1167	56.38	20.55	1999/10/01	14:18:00
3	0.0833	45.42	19.68	1999/10/01	14:19:59	0.1583	58.19	19.72	1999/10/01	14:20:29
4	0.1250	48.65	19.23	1999/10/01	14:22:30	0.2000	61.76	18.32	1999/10/01	14:23:00
5	0.1667	49.32	18.06	1999/10/01	14:25:00	0.2417	65.05	16.93	1999/10/01	14:25:30
6	0.2083	49.03	16.63	1999/10/01	14:27:29	0.2833	2265.72	16.40	1999/10/01	14:27:59
7	0.2500	54.54	15.28	1999/10/01	14:30:00	0.3250	2295.87	16.29	1999/10/01	14:30:29
8	0.2917	2264.28	15.15	1999/10/01	14:32:30	0.3667	2335.90	15.71	1999/10/01	14:33:00
9	0.3333	2301.26	14.82	1999/10/01	14:34:59	0.4083	2373.01	15.51	1999/10/01	14:35:29
10	0.3750	2339.21	14.58	1999/10/01	14:37:29	0.4500	2403.24	16.58	1999/10/01	14:38:00
11	0.4167	2371.96	15.24	1999/10/01	14:40:00	0.4917	2437.51	18.81	1999/10/01	14:40:30
12	0.4583	2403.23	17.78	1999/10/01	14:42:29	0.5333	2473.40	21.49	1999/10/01	14:42:59
13	0.5000	2441.27	20.87	1999/10/01	14:45:00	0.5750	2509.69	24.64	1999/10/01	14:45:29
14	0.5417	2478.24	24.26	1999/10/01	14:47:30	0.6167	2544.31	29.01	1999/10/01	14:48:00
15	0.5833	2516.07	28.55	1999/10/01	14:49:59	0.6583	2579.50	33.80	1999/10/01	14:50:29
16	0.6250	2552.97	33.59	1999/10/01	14:52:29	0.7000	2608.28	39.43	1999/10/01	14:53:00
17	0.6667	2588.01	38.93	1999/10/01	14:55:00	0.7417	2640.04	45.98	1999/10/01	14:55:30
18	0.7083	2617.56	45.05	1999/10/01	14:57:29	0.7833	2667.28	52.58	1999/10/01	14:57:59
19	0.7500	2645.66	51.83	1999/10/01	15:00:00	0.8250	2690.31	59.93	1999/10/01	15:00:29
20	0.7917	2668.57	59.16	1999/10/01	15:02:30	0.8667	2709.70	67.91	1999/10/01	15:03:00
21	0.8333	2686.39	67.06	1999/10/01	15:04:59	0.9083	2726.78	76.35	1999/10/01	15:05:29
22	0.8750	2697.14	75.61	1999/10/01	15:07:29	0.9500	2746.29	84.72	1999/10/01	15:08:00
23	0.9167	2711.33	84.02	1999/10/01	15:10:00	0.9917	2767.00	92.92	1999/10/01	15:10:30
24	0.9583	2724.60	92.03	1999/10/01	15:12:29	1.0333	4146.94	102.54	1999/10/01	15:12:59
25	1.0000	3236.74	100.57	1999/10/01	15:15:00	1.0750	5595.45	112.55	1999/10/01	15:15:29
26	1.0417	4647.29	110.50	1999/10/01	15:17:30	1.1167	7116.64	122.16	1999/10/01	15:18:00
27	1.0833	6105.17	120.41	1999/10/01	15:19:59	1.1583	8141.29	131.34	1999/10/01	15:20:29
28	1.1250	7443.82	129.63	1999/10/01	15:22:30	1.2000	8436.32	138.89	1999/10/01	15:23:00

Gauge 1 Start Date 1999/10/01 14:15:00
Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Used: Nth Line = 5.000

Fast
ProbeTech

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Time hr	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
29	1.1667	8348.44	138.17	1999/10/01	15:25:00	1.2417	8493.65	144.10	1999/10/01	15:25:30
30	1.2083	8411.49	144.18	1999/10/01	15:27:29	1.2833	8552.26	147.61	1999/10/01	15:27:59
31	1.2500	8499.28	147.98	1999/10/01	15:30:00	1.3250	8602.25	149.98	1999/10/01	15:30:29
32	1.2917	8575.07	150.40	1999/10/01	15:32:30	1.3667	8641.58	151.57	1999/10/01	15:33:00
33	1.3333	8631.11	151.96	1999/10/01	15:34:59	1.4083	8671.50	152.69	1999/10/01	15:35:29
34	1.3750	8672.23	152.96	1999/10/01	15:37:29	1.4500	8694.09	153.34	1999/10/01	15:38:00
35	1.4167	8702.48	153.61	1999/10/01	15:40:00	1.4917	8711.41	153.81	1999/10/01	15:40:30
36	1.4583	8724.28	154.02	1999/10/01	15:42:29	1.5333	8524.04	154.10	1999/10/01	15:42:59
37	1.5000	8740.42	154.29	1999/10/01	15:45:00	1.5750	8541.05	154.11	1999/10/01	15:45:29
38	1.5417	8558.29	154.36	1999/10/01	15:47:30	1.6167	8548.72	154.10	1999/10/01	15:48:00
39	1.5833	8570.21	154.28	1999/10/01	15:49:59	1.6583	8355.02	153.92	1999/10/01	15:50:29
40	1.6250	8369.97	154.22	1999/10/01	15:52:29	1.7000	8360.66	153.69	1999/10/01	15:53:00
41	1.6667	8387.44	153.88	1999/10/01	15:55:00	1.7417	8156.67	153.49	1999/10/01	15:55:30
42	1.7083	8389.14	153.65	1999/10/01	15:57:29	1.7833	8164.01	153.19	1999/10/01	15:57:59
43	1.7500	8189.79	153.37	1999/10/01	16:00:00	1.8250	8067.26	152.98	1999/10/01	16:00:29
44	1.7917	8191.89	153.10	1999/10/01	16:02:30	1.8667	7972.45	152.54	1999/10/01	16:03:00
45	1.8333	7993.27	152.83	1999/10/01	16:04:59	1.9083	7974.09	152.17	1999/10/01	16:05:29
46	1.8750	8002.53	152.36	1999/10/01	16:07:29	1.9500	7724.52	151.73	1999/10/01	16:08:00
47	1.9167	7903.25	152.08	1999/10/01	16:10:00	1.9917	7728.29	151.21	1999/10/01	16:10:30
48	1.9583	7760.14	151.44	1999/10/01	16:12:29	2.0333	7726.77	150.86	1999/10/01	16:12:59
49	2.0000	7758.14	150.96	1999/10/01	16:15:00	2.0750	7726.01	150.62	1999/10/01	16:15:29
50	2.0417	7753.82	150.67	1999/10/01	16:17:30	2.1167	7727.04	150.46	1999/10/01	16:18:00
51	2.0833	7751.82	150.48	1999/10/01	16:19:59	2.1583	7729.15	150.35	1999/10/01	16:20:29
52	2.1250	7751.93	150.36	1999/10/01	16:22:30	2.2000	7732.18	150.28	1999/10/01	16:23:00
53	2.1667	7753.80	150.28	1999/10/01	16:25:00	2.2417	7735.96	150.2[illegible]	1999/10/01	16:25:30
54	2.2083	7756.66	150.23	1999/10/01	16:27:29	2.2833	7739.69	150.20	1999/10/01	16:27:59
55	2.2500	7760.24	150.20	1999/10/01	16:30:00	2.3250	7744.19	150.18	1999/10/01	16:30:29
56	2.2917	7764.32	150.18	1999/10/01	16:32:30	2.3667	7748.57	150.17	1999/10/01	16:33:00

Gauge 1 Start Date 1999/10/01 14:15:00
Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Used: Nth Line = 5.000

Fast Zipwin N232 d. n-6 3-Oct-9 305
ProbeTech Services Corp.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Time hr	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
57	2.3333	7768.85	150.17	1999/10/01	16:34:59	2.4083	7753.20	150.16	1999/10/01	16:35:29
58	2.3750	7773.05	150.16	1999/10/01	16:37:29	2.4500	7757.85	150.15	1999/10/01	16:38:00
59	2.4167	7777.68	150.16	1999/10/01	16:40:00	2.4917	7762.63	150.15	1999/10/01	16:40:30
60	2.4583	7782.38	150.15	1999/10/01	16:42:29	2.5333	7767.27	150.14	1999/10/01	16:42:59
61	2.5000	7787.01	150.15	1999/10/01	16:45:00	2.5750	7771.94	150.14	1999/10/01	16:45:29
62	2.5417	7791.79	150.15	1999/10/01	16:47:30	2.6167	7776.84	150.14	1999/10/01	16:48:00
63	2.5833	7796.58	150.15	1999/10/01	16:49:59	2.6583	7781.50	150.14	1999/10/01	16:50:29
64	2.6250	7801.38	150.15	1999/10/01	16:52:29	2.7000	7786.42	150.14	1999/10/01	16:53:00
65	2.6667	7806.02	150.15	1999/10/01	16:55:00	2.7417	7791.10	150.14	1999/10/01	16:55:30
66	2.7083	7810.89	150.14	1999/10/01	16:57:29	2.7833	7795.82	150.14	1999/10/01	16:57:59
67	2.7500	7815.53	150.14	1999/10/01	17:00:00	2.8250	7800.69	150.14	1999/10/01	17:00:29
68	2.7917	7820.33	150.14	1999/10/01	17:02:30	2.8667	7805.36	150.14	1999/10/01	17:03:00
69	2.8333	7825.13	150.14	1999/10/01	17:04:59	2.9083	7810.19	150.13	1999/10/01	17:05:29
70	2.8750	7829.77	150.14	1999/10/01	17:07:29	2.9500	7814.85	150.13	1999/10/01	17:08:00
71	2.9167	7834.54	150.14	1999/10/01	17:10:00	2.9917	7819.72	150.13	1999/10/01	17:10:30
72	2.9583	7839.28	150.14	1999/10/01	17:12:29	3.0333	7824.34	150.13	1999/10/01	17:12:59
73	3.0000	7844.10	150.14	1999/10/01	17:15:00	3.0750	7829.16	150.13	1999/10/01	17:15:29
74	3.0417	7849.03	150.14	1999/10/01	17:17:30	3.1167	7833.89	150.13	1999/10/01	17:18:00
75	3.0833	7853.67	150.14	1999/10/01	17:19:59	3.1583	7838.51	150.13	1999/10/01	17:20:29
76	3.1250	7858.41	150.14	1999/10/01	17:22:30	3.2000	7843.28	150.13	1999/10/01	17:23:00
77	3.1667	7862.95	150.14	1999/10/01	17:25:00	3.2417	7847.91	150.13	1999/10/01	17:25:30
78	3.2083	7867.70	150.14	1999/10/01	17:27:29	3.2833	7852.63	150.13	1999/10/01	17:27:59
79	3.2500	7872.39	150.14	1999/10/01	17:30:00	3.3250	7857.36	150.13	1999/10/01	17:30:29
80	3.2917	7877.21	150.14	1999/10/01	17:32:30	3.3667	7862.13	150.13	1999/10/01	17:33:00
81	3.3333	7881.83	150.14	1999/10/01	17:34:59	3.4083	7866.91	150.13	1999/10/01	17:35:29
82	3.3750	7886.58	150.14	1999/10/01	17:37:29	3.4500	7871.57	150.13	1999/10/01	17:38:00
83	3.4167	7891.40	150.14	1999/10/01	17:40:00	3.4917	7876.24	150.13	1999/10/01	17:40:30
84	3.4583	7895.93	150.14	1999/10/01	17:42:29	3.5333	7881.11	150.13	1999/10/01	17:42:59

Gauge 1 Start Date 1999/10/01 14:15:00
Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Used: Nth Line = 5.000

Fast [redacted] \Zipw [redacted] PTN23 [redacted] rad. n [redacted] 08-Oct [redacted] 2.305 [redacted]
ProbeTech Services Inc.

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Time hr	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
85	3.5000	7900.86	150.14	1999/10/01	17:45:00	3.5750	7885.73	150.13	1999/10/01	17:45:29
86	3.5417	7905.50	150.14	1999/10/01	17:47:30	3.6167	6997.45	149.69	1999/10/01	17:48:00
87	3.5833	7879.79	150.14	1999/10/01	17:49:59	3.6583	5291.37	148.89	1999/10/01	17:50:29
88	3.6250	6368.68	148.55	1999/10/01	17:52:29	3.7000	3716.95	141.66	1999/10/01	17:53:00
89	3.6667	4686.14	144.24	1999/10/01	17:55:00	3.7417	3305.79	135.30	1999/10/01	17:55:30
90	3.7083	3411.87	137.58	1999/10/01	17:57:29	3.7833	3252.46	129.20	1999/10/01	17:57:59
91	3.7500	3346.96	131.19	1999/10/01	18:00:00	3.8250	3190.85	123.18	1999/10/01	18:00:29
92	3.7917	3266.92	125.06	1999/10/01	18:02:30	3.8667	3140.71	116.66	1999/10/01	18:03:00
93	3.8333	3202.30	118.94	1999/10/01	18:04:59	3.9083	3092.03	109.35	1999/10/01	18:05:29
94	3.8750	3157.91	111.71	1999/10/01	18:07:29	3.9500	3035.38	101.31	1999/10/01	18:08:00
95	3.9167	3098.37	103.57	1999/10/01	18:10:00	3.9917	2972.12	92.90	1999/10/01	18:10:30
96	3.9583	3029.29	94.75	1999/10/01	18:12:29	4.0333	2906.29	84.22	1999/10/01	18:12:59
97	4.0000	2954.09	85.96	1999/10/01	18:15:00	4.0750	2837.69	76.70	1999/10/01	18:15:29
98	4.0417	2879.47	77.22	1999/10/01	18:17:30	4.1167	2778.09	67.47	1999/10/01	18:18:00
99	4.0833	2813.06	68.79	1999/10/01	18:19:59	4.1583	2721.11	59.72	1999/10/01	18:20:29
100	4.1250	2752.83	60.59	1999/10/01	18:22:30	4.2000	2667.00	52.63	1999/10/01	18:23:00
101	4.1667	2695.66	53.17	1999/10/01	18:25:00	4.2417	2619.48	45.88	1999/10/01	18:25:30
102	4.2083	2642.20	46.47	1999/10/01	18:27:29	4.2833	2569.36	39.02	1999/10/01	18:27:59
103	4.2500	2594.59	39.57	1999/10/01	18:30:00	4.3250	2537.67	33.21	1999/10/01	18:30:29
104	4.2917	2548.48	33.32	1999/10/01	18:32:30	4.3667	2519.13	28.65	1999/10/01	18:33:00
105	4.3333	2526.98	28.48	1999/10/01	18:34:59	4.4083	87.93	24.83	1999/10/01	18:35:29
106	4.3750	1390.68	24.55	1999/10/01	18:37:29	4.4500	80.05	21.78	1999/10/01	18:38:00
107	4.4167	73.95	21.11	1999/10/01	18:40:00	4.4917	75.58	19.64	1999/10/01	18:40:30
108	4.4583	68.62	18.55	1999/10/01	18:42:29	4.5333	75.76	17.53	1999/10/01	18:42:59
109	4.5000	66.03	16.12	1999/10/01	18:45:00	4.5750	74.17	15.55	1999/10/01	18:45:29
110	4.5417	62.41	14.06	1999/10/01	18:47:30	4.6167	71.08	14.02	1999/10/01	18:48:00
111	4.5833	60.24	12.43	1999/10/01	18:49:59	4.6583	69.21	12.83	1999/10/01	18:50:29
112	4.6250	57.36	11.16	1999/10/01	18:52:29	4.7000	67.78	11.85	1999/10/01	18:53:00

Gauge 1 Start Date 1999/10/01 14:15:00
Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Used: Nth Line = 5.000

ProbeTech

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Top Gauge Time hr	Top Gauge Pres. kPa(a)	Top Gauge Temp. °C	Top Gauge Date yyyy/mm/dd	Top Gauge Clk Time hh:mm:ss	Bottom Gauge Time hr	Bottom Gauge Pres. kPa(a)	Bottom Gauge Temp. °C	Bottom Gauge Date yyyy/mm/dd	Bottom Gauge Clk Time hh:mm:ss
113	4.6667	54.73	10.15	1999/10/01	18:55:00	4.7417	66.69	11.01	1999/10/01	18:55:30
114	4.7083	52.68	9.32	1999/10/01	18:57:29	4.7833	65.74	10.29	1999/10/01	18:57:59
115	4.7500	50.95	8.64	1999/10/01	19:00:00	4.8250	64.95	9.65	1999/10/01	19:00:29
116	4.7917	49.52	8.07	1999/10/01	19:02:30	4.8667	64.24	9.10	1999/10/01	19:03:00
117	4.8333	48.20	7.58	1999/10/01	19:04:59	4.9083	64.18	8.61	1999/10/01	19:05:29
118	4.8750	47.04	7.16	1999/10/01	19:07:29	4.9500	63.52	8.17	1999/10/01	19:08:00
119	4.9167	46.09	6.81	1999/10/01	19:10:00	4.9917	62.92	7.78	1999/10/01	19:10:30
120	4.9583	45.18	6.49	1999/10/01	19:12:29					
121	5.0000	44.46	6.22	1999/10/01	19:15:00					

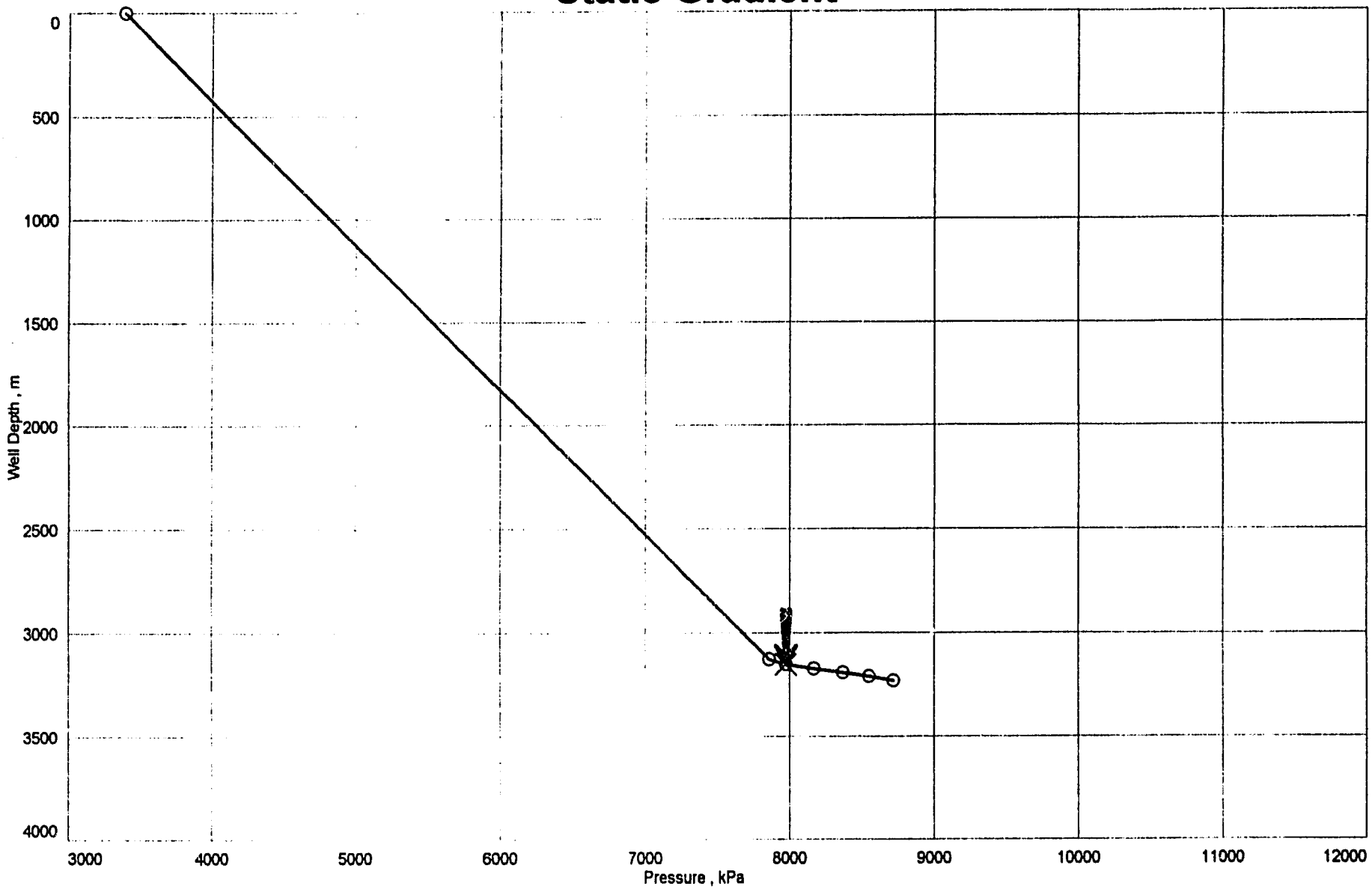
Gauge 1 Start Date 1999/10/01 14:15:00
Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Used: Nth Line = 5.000

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

Static Gradient



PROBETECH

Canadian Forest Oil Ltd.
N-61
Start Test Date: 1999/10/01
Final Test Date: 1999/10/01

Flett et al N-61
Formation: Nahanni
Pool: Nahanni
Job Number: Ptn 232

	Depth	Pres.	Temp.	Calc. Grad.	Spec. Grad.	LL Depth	LL Pres.	Temp. Grad	Time
	m	kPa	°C	kPa/m	kPa/m	m	kPa	°C/m	hr
1	3230.000	8717.25	153.9						1.5083
2	3210.000	8548.72	154.1	8.426				-0.024	1.6167
3	3190.000	8361.58	153.6	9.357				0.078	1.7167
4	3170.000	8165.27	153.0	9.816				0.097	1.8167
5	3150.000	7974.00	152.1	9.563	9.563			0.146	1.9167
6	3125.000	7857.38	150.1	4.665	4.665	3150.00	7974.00	0.257	3.5917
7	0.000	3389.37	140.4	1.430	1.430			0.010	3.7083

Bottom Gauge Start Date 1999/10/01 14:11:00

Print Filter Off

PROBETECH SERVICES LTD.

Attach #17

Orig to wellfile
p.c. to Troy Brown - Rann

CORELAB

NOV 1 1999

CANADIAN FOREST OIL LTD

CORE LABORATORIES

Core Laboratories Reservoir Fluids Report - Calgary

Various Analyses
for

Canadian Forest Oil Ltd.

Canadian Forest et al Flett

Number of Pages (Including Cover): 13

File Number: 52137-99-5266

Date: November 9, 1999

Report Distribution: Jim Munro, Cdn. Forest (Calgary) - 2 copies and invoice

APPROVED BY: Tracey Henselwood

Tracey Henselwood, M.Sc.
Technical Specialist, Non-Routine Reservoir Fluids
Phone # 250-4084

Please contact the above person should there be any questions concerning the contents of this report.

The analysis, opinions or interpretations contained in this report are based upon observations and material supplied by the client for whose exclusive and confidential use this report has been made. The interpretations or opinions expressed represent the best judgement of Core Laboratories. Core Laboratories assumes no responsibility and makes no warranty or representations, expressed or implied, as to the productivity, proper operations, or profitableness however of any oil, gas, coal or other mineral, proper well or sand in connection with which such report is used or relied upon for any reason whatsoever.

CORELAB

CORE LABORATORIES

COMPANY	Canadian Forest Oil Ltd.	PAGE	1 of 12
SAMPLE ID	Canadian Forest et al Flett	FILE	52137-99-5266
PROJECT	Various Analyses	DATE	1999-11-09

Scope of the Work

To conduct the required testing on the samples as received.

Samples Received and Description

Sample #1:	Canadian Forest et al Flett	Date Sampled: 99-10-04
Description:	Separator, **Water**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: 99-10-22
Sample #2:	Canadian Forest et al Flett	Date Sampled: 99-10-04
Description:	Bale Number 2, **Solids**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: N/A
Sample #3:	Canadian Forest et al Flett	Date Sampled: 99-10-04
Description:	Choke Manifold, **Water**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: 99-10-22
Sample #4:	Canadian Forest et al Flett	Date Sampled: 99-10-04
Description:	Water Well Number 1, **Water**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: 99-10-22
Sample #5:	Canadian Forest et al Flett	Date Sampled: 99-10-04
Description:	Water Well Number 2, **Water**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: 99-10-22
Sample #6:	Canadian Forest et al Flett	Date Sampled: 99-10-01
Description:	Bailer 1st Run, **Solids**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: N/A
Sample #7:	Canadian Forest et al Flett	Date Sampled: 99-10-02
Description:	Bailer 2nd Run, **Solids**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: 99-10-27
Sample #8:	Canadian Forest et al Flett	Date Sampled: 99-10-02
Description:	Bailer 3rd Run, **Solids**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: N/A
Sample #9:	Canadian Forest et al Flett	Date Sampled: 99-10-02
Description:	Bailer 4th Run, **Solids**	Date Received: 99-10-14
Location:	Tight Hole	Date Analyzed: N/A

COMPANY	Canadian Forest Oil Ltd.	PAGE	2 of 12
SAMPLE ID	Canadian Forest et al Flett	FILE	52137-99-5266
PROJECT	Various Analyses	DATE	1999-11-09

Samples Received and Description - Continued

Sample #10:	Canadian Forest et al Flett	Date Sampled:	99-10-02
Description:	Bailer 5th Run, **Solids**	Date Received:	99-10-14
Location:	Tight Hole	Date Analyzed:	N/A
Sample #11:	Canadian Forest et al Flett	Date Sampled:	99-10-02
Description:	Bailer 6th Run, **Solids**	Date Received:	99-10-14
Location:	Tight Hole	Date Analyzed:	N/A
Sample #12:	Canadian Forest et al Flett	Date Sampled:	99-10-02
Description:	2700 m, **Gas**	Date Received:	99-10-14
Location:	Tight Hole	Date Analyzed:	99-10-22
Sample #13:	Canadian Forest et al Flett	Date Sampled:	99-10-02
Description:	2700 m. **Gas**	Date Received:	99-10-14
Location:	Tight Hole	Date Analyzed:	99-10-22

Results

Sample #1 – Separator Water

Water Analysis

A routine water analysis was performed on this sample. Refer to page 7 for these results.

Sample #2 – Bale Number 2, Solids

No analysis was performed on this sample. The sample appeared to consist primarily of shale pieces with small pieces of what is likely carbonate formation material. Mica flakes could also be seen in this sample.

Sample #3 – Choke Manifold, Water

Water Analysis

A routine water analysis was performed on this sample. Refer to page 8 for these results.

Sample #4 – Water Well Number 1, Water

Water Analysis

A routine water analysis was performed on this sample. Refer to page 9 for these results.

Sample #5 – Water Well Number 2, Water

Water Analysis

A routine water analysis was performed on this sample. Refer to page 10 for these results.

Sample #6 – Bailer 1st Run, Solids

The sample contained solids and free water. The solids were separated from the water by filtration and appeared to consist of a black sludge. Washing the sludge with toluene provided a sample that contained what appeared to be a fine rock powder and larger pieces of formation material. Mica was also present in the sample.

Sample #7 – Bailer 2nd Run, Solids

The sample contained solids and free water. The solids were separated from the water by filtration and appeared to consist of a black sludge. Washing the sludge with toluene provided a sample that contained what appeared to be fine and medium rock pieces. Mica was also present in the sample. The sample was further characterized as shown below.

A. Compositional Analysis

	weight %
Toluene soluble - hydrocarbon fraction (excluding asphaltenes)	7.7
Toluene soluble, pentane insoluble – asphaltenes	5.4
Toluene insoluble - inorganic fraction	86.9
	100

Toluene Solubility

Toluene soluble infers hydrocarbon material and can include glycol, asphaltenes, waxes and oil. Toluene insolubility infers inorganic material or very refractory organic material such as coke, pyrobitumen or polymeric type material.

Pentane Solubility

The sample was also subjected to a pentane solubility test. Pentane will separate the asphaltenes from the hydrocarbon fraction of the sample. This separation allows the amount of asphaltenes to be quantified.

B. Ash Content

The toluene washed solids were heated to approximately 800°C to remove any high molecular weight organic species. The ash content is defined as the weight percent of the material that is not driven off by the combustion process. The result is as follows:

Ash Content ..... 73.7 Wt%

Typically, mass lost is due to the loss of hydrocarbon material such as pyrobitumen. It has been noted for samples previously analyzed from this location that mass may also be decreased due to the loss of carbon dioxide from carbonate species. The XRD analysis for this sample does not show the presence of carbonates, however, the degree of heterogeneity of the sample may lead to overall differences in results from one sub-sample to the next. It is not possible to rule out the existence of bitumenous material in this sample, but it is likely that the majority of the sample mass lost is due to carbonate chemistry changes.

C. X-ray Diffraction (XRD) Analysis - on inorganic fraction after ashing

The inorganic portion of the sample was analyzed by XRD in order to determine what crystalline compounds, if any, are present. This analysis is semi-quantitative only and as such, small quantities of crystalline material may be present but not detected. Furthermore, the XRD report gives weight percent based on the crystalline compounds only which may or may not represent the entire sample analyzed. Therefore, if there is amorphous material present, it is not detected nor is it accounted for in the XRD analysis.

The results of the XRD analysis are given on the following page. The crystalline species detected are as follows:

Quartz ..... SiO_2

Muscovite ..... $KAl_2[AlSi_3]O_{10}[OH,F]_2$

Halite ..... $NaCl$

Anhydrite ..... $CaSO_4$

Hematite ..... Fe_2O_3

COMPANY	Canadian Forest Oil Ltd.	PAGE	5 of 12
SAMPLE ID	Canadian Forest et al Flett	FILE	52137-99-5266
PROJECT	Various Analyses	DATE	1999-11-09

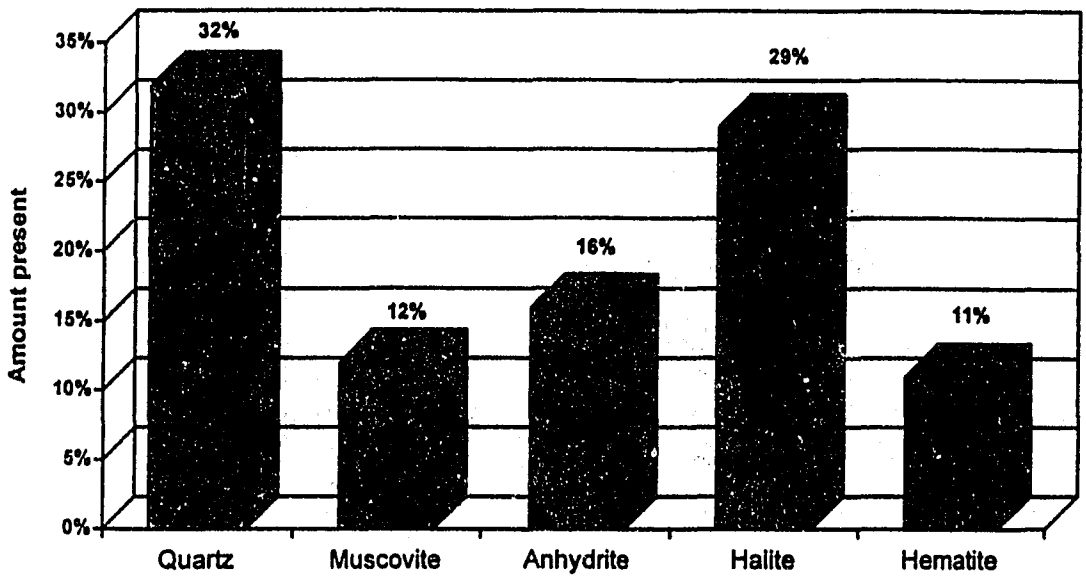


Figure 1 - Detected Crystalline Components from the XRD scan

Quartz has most likely originated from the formation material. Muscovite indicates the presence of mica used in the drilling mud system. Anhydrite is the product of removing water from a gypsum scale, a process easily done in the furnace used to ash this sample. Halite has formed as a result of evaporating the brine originally present with the solids during the process of filtration. Hematite has likely formed as a result of iron scaling.

Sample #8 – Bailer 3rd Run, Solids

The sample contained solids and free water. The solids were separated from the water by filtration and appeared to consist of a medium to large pieces of formation material. Washing the sludge with toluene provided a sample that contained what appeared to be a fine rock powder with medium to large pieces of formation material. Mica was also present in the sample.

Sample #9 – Bailer 4th Run, Solids

This sample was similar in appearance to Sample #8 both before and after washing with toluene.

Sample #10 – Bailer 5th Run, Solids

This sample was similar in appearance to Samples #8 and 9 both before and after washing with toluene.

Sample #11 – Bailer 6th Run, Solids

The sample contained solids and free water. The solids were separated from the water by filtration and appeared to consist of a black sludge along with medium to large pieces of formation rock. Washing the sludge with toluene provided a sample that contained what appeared to be a fine rock powder and medium to large pieces of formation material. Mica was also present in the sample.

Sample #12 – 2700 m, Gas

A routine gas analysis was performed on this sample. Refer to page 11 for these results.

Sample #13 – 2700 m, Gas

A routine gas analysis was performed on this sample. Refer to page 12 for these results.

CORELAB

WATER ANALYSIS

200 - 1	52137-1999-5266
CONTAINER IDENTITY	LABORATORY NUMBER

Canadian Forest Oil Ltd. — OPERATOR

7 — PAGE

LOCATION

Cdn Forest et al Flett — WELL OR SAMPLE LOCATION

KB ELEV (m) | GR ELEV (m)

Flett — FIELD OR AREA

POOL OR ZONE

Norward — SAMPLER

TEST TYPE AND NO

TEST RECOVERY

Separator — POINT OF SAMPLE

AMT. AND TYPE CUSHION

@ °C — MUD RESISTIVITY

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/c

TEST INTERVAL (meters)

SEPARATOR | RESERVOIR | @ °C CONTAINER WHEN SAMPLED | @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR

Temperatures, °C

1999 10 04	1999 10 14	1999 10 23	MS/MR	
DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	SIGNATURE

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	38 320	0.1953	1 668.8
K	6 290	0.0321	160.9
Ca	21 380	0.1089	1 066.9
Mg	5 480	0.0279	450.9
Ba			
Sr			
Fe	Pres.		
Mn			

ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	123 932	0.6315	3 495.7
Br			
I			
HCO_3	234	0.0012	3.8
SO_4	617	0.0031	12.8
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C

By Evaporation @ 180 °C

At Ignition

196253 — Calculated

1.1411 @ 15.6 °C — Specific Gravity

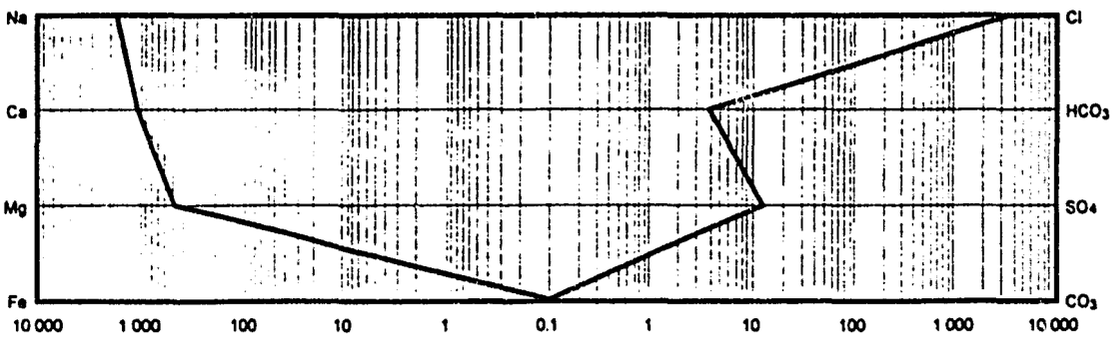
1.3700 @ 23 °C — Refractive Index

5.0 — pH

0.051 @ 25 °C — Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: Pres.- Analyte Present. N.D.- Not Detected.

CORELAB

WATER ANALYSIS

203 - 3	52137-1999-5266
CONTAINER IDENTITY	LABORATORY NUMBER

Canadian Forest Oil Ltd. — OPERATOR

8 — PAGE

LOCATION: Cdn Forest et al Flett — WELL OR SAMPLE LOCATION — KB ELEV (m) — GR ELEV (m)

FIELD OR AREA: Flett — POOL OR ZONE — SAMPLER: Norward

TEST TYPE AND NO — TEST RECOVERY

POINT OF SAMPLE: Choke Manifold — AMT. AND TYPE CUSHION — MUD RESISTIVITY @ °C

TEST INTERVAL (meters)

PUMPING — FLOWING — GAS LIFT — SWAB

WATER m³/d — OIL m³/d — GAS m³/d

Pressures, kPa (gauge): SEPARATOR — RESERVOIR — CONTAINER WHEN SAMPLED @ °C — CONTAINER WHEN RECEIVED @ °C

Temperatures, °C: SEPARATOR

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	SIGNATURE
1999 10 04	1999 10 14	1999 10 23	MS/MR	

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	44 990	0.2335	1 957.0
K	7 040	0.0365	180.1
Ca	18 070	0.0938	901.7
Mg	3 140	0.0163	258.4
Ba			
Sr			
Fe	Pres.		
Mn			

ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	110 563	0.6152	3 344.2
Br			
I			
HCO_3	420	0.0022	6.9
SO_4	492	0.0026	10.2
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C — By Evaporation @ 180 °C

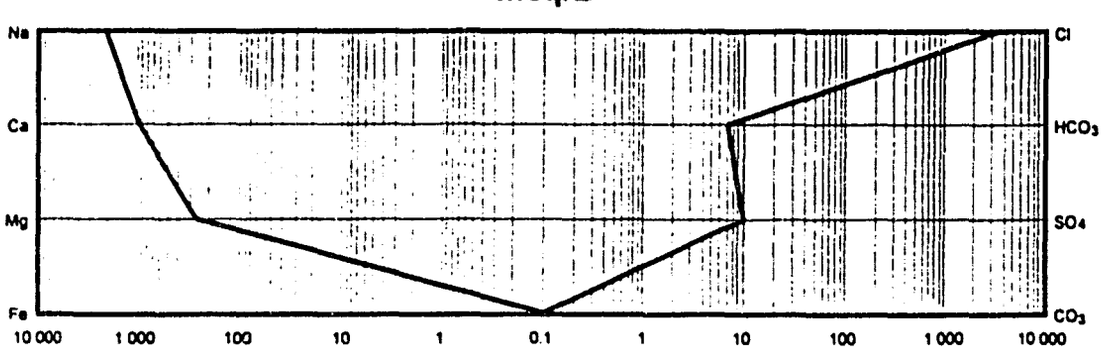
At Ignition — Calculated: 192715

Specific Gravity: 1.1367 @ 15.6 °C — Refractive Index: 1.3679 @ 23 °C

pH: 5.9 — Resistivity (Ohm-Meters): 0.050 @ 25 °C

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: Pres.- Analyte Present. N.D.- Not Detected.

CORELAB

WATER ANALYSIS

204 - 4	52137-1999-5266
CONTAINER IDENTITY	LABORATORY NUMBER

Canadian Forest Oil Ltd. — OPERATOR

9 — PAGE

Cdn Forest et al Flett — WELL OR SAMPLE LOCATION

LOCATION | KB ELEV (m) | GR ELEV (m)

Flett — FIELD OR AREA

POOL OR ZONE

Norward — SAMPLER

TEST TYPE AND NO.

TEST RECOVERY

Water Well No.1 — POINT OF SAMPLE

AMT. AND TYPE CUSHION

@ °C — MUD RESISTIVITY

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

TEST INTERVAL (meters)

SEPARATOR | RESERVOIR | @ °C CONTAINER WHEN SAMPLED | @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR

Temperatures, °C

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	SIGNATURE
1999 10 04	1999 10 14	1999 10 23	MS/TW	

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	8.7	0.0082	0.4
K	2.8	0.0026	0.1
Ca	234	0.2200	11.7
Mg	38	0.0357	3.1
Ba			
Sr			
Fe	N.D.		
Mn			

ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	1.9	0.0018	0.1
Br			
I			
HCO_3	274	0.2579	4.5
SO_4	504	0.4740	10.5
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C

By Evaporation @ 180 °C

At Ignition

1063 — Calculated

1.0009 @ 15.6 °C — Specific Gravity

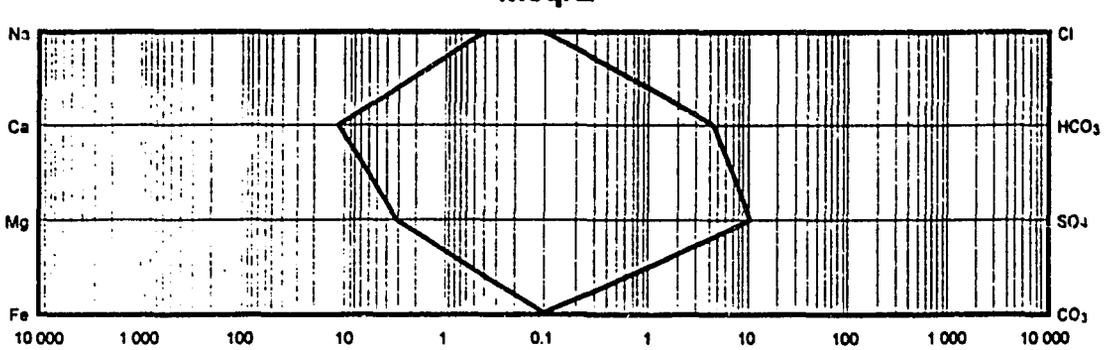
1.3350 @ 22 °C — Refractive Index

7.1 — pH

7.536 @ 25 °C — Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

meq/L



REMARKS: N.D.- Not Detected.

CORELAB

WATER ANALYSIS

205 - 5	52137-1999-5266
CONTAINER IDENTITY	LABORATORY NUMBER

Canadian Forest Oil Ltd. — OPERATOR

10 — PAGE

LOCATION: Cdn Forest et al Flett — WELL OR SAMPLE LOCATION — KB ELEV (m) — GR ELEV (m)

FIELD OR AREA: Flett — POOL OR ZONE — SAMPLER: Norward

TEST TYPE AND NO. — TEST RECOVERY

POINT OF SAMPLE: Water Well No.2 — AMT. AND TYPE CUSHION — MUD RESISTIVITY @ °C

TEST INTERVAL (meters)

PUMPING — FLOWING — GAS LIFT — SWAB

WATER m³/d — OIL m³/d — GAS m³/c

SEPARATOR — RESERVOIR — CONTAINER WHEN SAMPLED @ °C — CONTAINER WHEN RECEIVED @ °C — SEPARATOR

Pressures, kPa (gauge) — Temperatures, °C

DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	SIGNATURE
1999 10 04	1999 10 14	1999 10 23	MS/MR	

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	11	0.0134	0.5
K	4.3	0.0053	0.1
Ca	185	0.2261	9.2
Mg	33	0.0403	2.7
Ba			
Sr			
Fe	N.D.		
Mn			

ANIONS

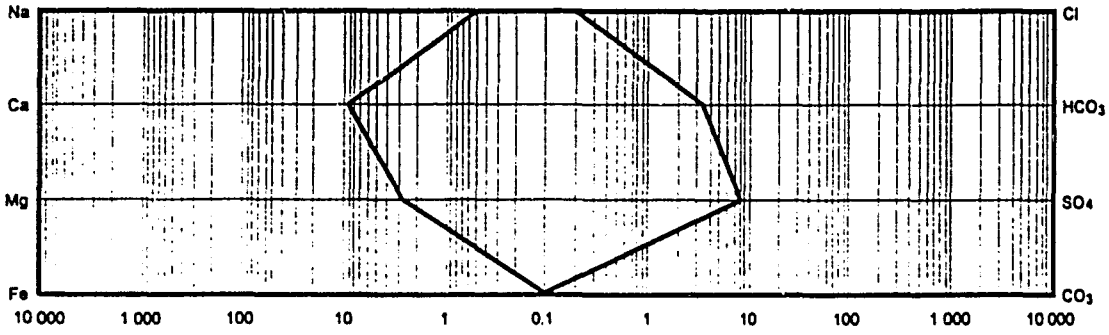
ION	mg/L	mg Fraction	meq/L
Cl	8.1	0.0099	0.2
Br			
I			
HCO_3	199	0.2430	3.3
SO_4	378	0.4619	7.9
CO_3	0.00	0.0000	0.0
OH	0.00	0.0000	0.0
H_2S	N.D.		

Total Dissolved Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C
At Ignition	818 Calculated
1.0009 @ 15.6 °C Specific Gravity	1.3324 @ 22 °C Refractive Index
7.0 pH	9.009 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

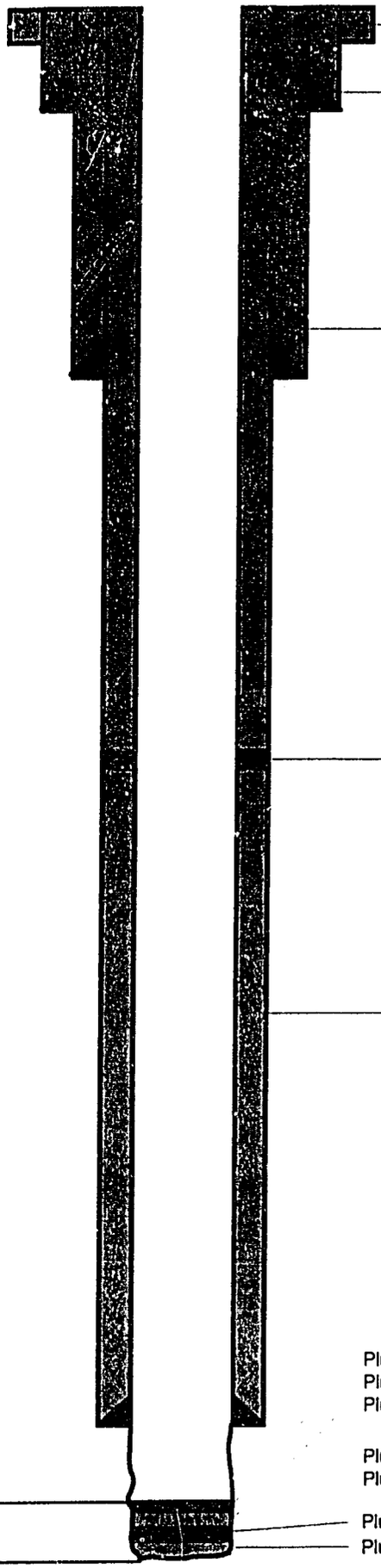
meq/L



REMARKS: N.D.- Not Detected.

tach #18

Attachment # 18
WELLBORE SCHEMATIC
CDN Forest et al North Liard N-61



762mm Conductor Pipe
Set at 23.7m. Grouted in place

Casing: 508mm, 138.87kg/m, K-55, BT&C
Set at 185mKB
Cement:30.4m3 0:1:0 Class "G" + 1% CaCl2
Followed by 14.3m3 Quick Set.

Casing: 339.7mm, 101.2kg/m, K-55, BT&C
Set at 736mKB
Cement:19.1m3 0:1:0 Class "G" + additives
Followed by 44.2m3 0:1:0 "G" + additives
Followed by 4.3m3 Quick Set.

244.5mm Stage Tool
Set at 1506mKB

Casing:From Bottom Up
361.9m of 244.5mm, 79.62kg/m, L-80HC
996.9m of 244.5mm, 69.94kg/m, C-95
286.7m of 244.5mm, 64.74kg/m, L-80
Stage Tool @ 1506.0mKB
1219.3m of 244.5mm, 64.74kg/m, L-80
286.7m of 244.5mm, 79.62kg/m, L-80HC
Set at 3147.0mKB
Cement:
Stage #1: 23.21m3 Thermal 40 + additives
Stage #2: 57.12m3 0:1:0 "G" + additives

Plug #6: 3280.0mKB to 3253.0mKB - Polished to 3254.5mKB.
Plug #5: 3280.0mKB to 3280.0mKB - Leaked Off.
Plug #4: 3300.0mKB to 3280.0mKB

Plug #3b: 3300.0mKB to 3300.3 mKB - Leaked Off.
Plug #3a: Circulated Out.

PBTD: 3254.5mKB

Plug #2: 3328.0mKB to 3300.7mKB

TD: 3383.0mKB

Plug #1: 3383.0mKB to 3328.0mKB

Attach #19

Stream Flo INDUSTRIES LTD.
CROWN ENERGY PRODUCTS

4505 - 74 AVENUE
EDMONTON, ALBERTA, T6B 2H5
TELEPHONE (780) 468-6789
G.S.T. # R105044390

DATE	NUMBER	PAGE
09/21/99	FS10834	1

VENDOR NUMBER: 18489

SOLD TO:
CANADIAN FOREST OIL LTD.
600, 800 - 6 AVENUE S.W.
CALGARY, AB T2P 3G3

SHIP TO:
CANADIAN FOREST OIL LTD.
LOCATION C/O
POWELL TRUCKING
FORT ST JOHN

G.S.T. STATUS	SHIPPING CHARGES	CUSTOMER ORDER NO.	DATE ORDERED	DATE SHIPPED	QUOTE NO.
GST TAXABLE	COLLECT		09/21/99	09/21/99	

SHIP VIA	BILL OF LADING NO.	WELL NO.	REFERENCE NO.
PICKUP-POWELL	3324	CAN FOREST OIL: N-61 FT LIARD	FS10834

ITEM	ORDERED	PART NUMBER	DESCRIPTION	SHIPPED	UNIT PRICE	DISC.	AMOUNT
1	1	RG-RX54SS	RING GASKET RX-54 STAINLESS STEEL	1			
2	1	CU1AEN-TH11X412NSBPVCL-3	CROWN TUBING HANGER TYPE 'CU-1A-EN' 11" NOM. X 4.1/2" NSCT (12.6 lb/ft) BOX X BOX C/W 4" TYPE H BPV THREAD AND 1/4" CONTROL LINE PREP. 7.25" DIA. X 5.00 EFF. LENGTH EXTENDED NECK, VITON O-RINGS, HSN PACKING RUBBER, TEMP RATING L. MAT'L CLASS DD, PSL-3 S/N(s): 84209-01	1			
3	1	CUEN-TB115X45SUCL-3	CROWN TUBING HEAD ADAPTOR TYPE 'CU-EN' 11" 5000 X 4 1/16" 5000 DOUBLE STUDDED C/W 1/4" CONTROL LINE PREP., HIDDEN NEEDLE VALVE AND POCKET FOR 7.25" DIA. X 5.00 EFF. LENGTH EXTENDED NECK. TEMP RATING L. MAT'L CLASS DD, PSL-3 S/N(s): 84202-01	1			
4	10	RG-RX39SS	RING GASKET RX-39 STAINLESS STEEL	10			
5	1	4G-52SB50-T35S-3	CROWN GATE VALVE 4 1/16" API 5000# RTJ FLANGED ENDS, 5000# WP, T-35S TRIM. MATL: EE. TEMP: L&U. 718 INCONEL STEM & 410SS GATE W/ STELLITE 6 HF. PSL-3 S/N(s): 83399-01	1			
6	32	S-L7M-114X834	STUD, L7M 1 1/4" X 8 3/4" LOW TEMP./SOUR SERVICE ASTM A-320	32			
7	64	N-2HM-114	NUT, 1 1/4" 2HM SOUR SERVICE ASTM A-194	64			
8	1	4G-52SB50-T35S-RA-00	CROWN GATE VALVE 4 1/16" API 5000# RTJ FLANGED END, 5000 PSI WORKING PRESSURE, T-35S TRIM, REVERSE ACTING SLAB GATE. C/W BETTIS MODEL GVO-HP-FS-UM-7X5 HYDRAULIC SPRING RETURN ACTUATOR. FAIL SAFE CLOSED (7" X 5"). MAT'L CLASS: EE. TEMP RATING: L&U. PSL-2 S/N(s): 83397-01	1			

TERMS: NET 30 DAYS. A SERVICE CHARGE OF 1.5% (18% PER ANNUM) CHARGED ON OVERDUE ACCOUNTS. RESTOCKING CHARGE WILL BE APPLIED TO GOODS RETURNED FOR CREDIT. NO GOODS MAY BE RETURNED WITHOUT PRIOR APPROVAL.

* G.S.T. ZERO RATED ITEM
= G.S.T. EXEMPT ITEM

TOTAL AMOUNT ▶ Cont.:

CUSTOMER'S INVOICE COPY

Stream Flo INDUSTRIES LTD.
CROWN ENERGY PRODUCTS

4505 - 74 AVENUE
EDMONTON, ALBERTA, T6B 2H5
TELEPHONE (780) 468-6789
G.S.T. # R105044390

DATE	NUMBER	PAGE
09/21/99	FS10834	2

VENDOR NUMBER: 18469

SOLD TO:
CANADIAN FOREST OIL LTD.
600, 800 - 6 AVENUE S.W.
CALGARY, AB T2P 3G3

SHIP TO:
CANADIAN FOREST OIL LTD.
LOCATION C/O
POWELL TRUCKING
FORT ST JOHN

G.S.T. STATUS	SHIPPING CHARGES	CUSTOMER ORDER NO.	DATE ORDERED	DATE SHIPPED	QUOTE NO.
GST TAXABLE	COLLECT		09/21/99	09/21/99	

SHIP VIA	BILL OF LADING NO.	WELL NO.	REFERENCE NO.
PICKUP-POWELL	3324	CAN FOREST OIL: N-61 FT LIARD	FS10834

ITEM	ORDERED	PART NUMBER	DESCRIPTION	SHIPPED	UNIT PRICE	DISC.	AMOUNT
9	1	CA-CR45X45-2	CROWN STUDDED CROSS 'CA' 4 1/16" - 5000# RUN X 4 1/16" - 5000# OUTLETS, 4.12" BORE MATERIAL CLASS "DD", TEMPERATURE RATING "L" PSL-2 S/N(s): 83393-01	1			
10	3	4G-52SB50-T35S-2	CROWN GATE VALVE 4 1/16" API 5000# RTJ FLANGED ENDS, 5000# WP, T-35S TRIM, MATL: EE, TEMP: L&U, 718 INCONEL STEM & 410SS GATE W/ STELLITE 6 HF, PSL-2 S/N(s): 83398-01, 83398-02, 83398-03	3			
11	1	BHTA-45X412E-2	CROWN BOTTOM HOLE TEST ADAPTOR TYPE CB-11-AO, 4-1/16 5000 RWP X 4-1/2 EUE INTERNAL LIFT THREAD, W/TWO PIECE CAP TAPPED 1/2 NPT, W/HSN SEAL, PSL-2 S/N(s): 70778-01	1			
12	2	CF-45X4LP-2	CROWN COMPANION FLANGE 4 1/16" 5000 X 4" L.P. 3000 PSI RWP, TEMP RATING L, MAT'L CLASS DD, PSL-2 S/N(s): 83392-01, 83392-02	2			
13	2	BP-4XXH	4" L.P. -XXH- BULL PLUG	2			
14	1	NV-12STR316	NEEDLE VALVE, 1/2" STRAIGHT MALE X FEMALE, 10,000#WP 316 STAINLESS STEEL	1			
15	1	GAU-5M	PRESSURE GAUGE, 0 5000 PSI 1/2" CONNECTION, 4 1/2" FACE LIQUID FILLED, SERIES 301	1			
16	1	*ASSY	ASSEMBLE, TEST & PAINT	1			
17	1	*FRTA	FREIGHT ALLOWANCE	1			
18	1	*RENT	10' MANUAL BPV ROD C/W BPV ROD ADAPTOR $50.00 10 DAY MINIMUM $5.00 EACH ADDITIONAL DAY	1			

TERMS: NET 30 DAYS. A SERVICE CHARGE OF 1.5% (18% PER ANNUM) CHARGED ON OVERDUE ACCOUNTS. RESTOCKING CHARGE WILL BE APPLIED TO GOODS RETURNED FOR CREDIT. NO GOODS MAY BE RETURNED WITHOUT PRIOR APPROVAL.

* G.S.T. ZERO RATED ITEM
** G.S.T. EXEMPT ITEM

TOTAL AMOUNT ▶ Cont.:

CUSTOMER'S INVOICE COPY

Stream Flo INDUSTRIES LTD.
CROWN ENERGY PRODUCTS

4505 - 74 AVENUE
EDMONTON, ALBERTA, T6B 2H5
TELEPHONE (780) 488-5789
G.S.T. # R105044390

DATE	NUMBER	PAGE
09/21/99	FS10834	3

VENDOR NUMBER: 18489

SOLD TO
CANADIAN FOREST OIL LTD.
600, 800 - 6 AVENUE S.W.
CALGARY, AB T2P 3G3

SHIP TO
CANADIAN FOREST OIL LTD.
LOCATION C/O
POWELL TRUCKING
FORT ST JOHN

G.S.T. STATUS	SHIPPING CHARGES	CUSTOMER ORDER NO.	DATE ORDERED	DATE SHIPPED	QUOTE NO.
GST TAXABLE	COLLECT		09/21/99	09/21/99	

SHIP VIA	BILL OF LADING NO.	WELL NO.	REFERENCE NO.
PICKUP-POWELL	3324	CAN FOREST OIL: N-61 FT LIARD	FS10834

ITEM	ORDERED	PART NUMBER	DESCRIPTION	SHIPPED	UNIT PRICE	DISC.	AMOUNT
			SUB-TOTAL				
			GST AMOUNT				
			ORDER TAKEN BY : MAX M/VIC L CONTACT : KEITH HYNES				
			PRICES IN CANADIAN FUNDS				
			THANK YOU...				

TERMS: NET 30 DAYS. A SERVICE CHARGE OF 1.0% (18% PER ANNUM) CHARGED ON OVERDUE ACCOUNTS. RESTOCKING CHARGE WILL BE APPLIED TO GOODS RETURNED FOR CREDIT. NO GOODS MAY BE RETURNED WITHOUT PRIOR APPROVAL.

* G.S.T. ZERO RATED ITEM
** G.S.T. EXEMPT ITEM

TOTAL AMOUNT

CUSTOMER'S INVOICE COPY

Stream Flo INDUSTRIES LTD.
CROWN ENERGY PRODUCTS

4505 - 74 AVENUE
EDMONTON, ALBERTA, T6B 2H5
TELEPHONE (780) 468-6789
G.S.T. # R105044390

DATE	NUMBER	PAGE
09/21/99	FS10814	1

VENDOR NUMBER: 18489

SOLD TO:
CANADIAN FOREST OIL LTD.
600, 800 - 6 AVENUE S.W.
CALGARY, AB T2P 3G3

SHIP TO:
CANADIAN FOREST OIL LTD.
LOCATION C/O
BECKER'S HOTSHOT

G.S.T. STATUS	SHIPPING CHARGES	CUSTOMER ORDER NO.	DATE ORDERED	DATE SHIPPED	QUOTE NO.
GST TAXABLE	COLLECT		09/16/99	09/21/99	

SHIP VIA	BILL OF LADING NO.	WELL NO.	REFERENCE NO.
HOTSHOT	3310	CANADIAN FOREST OIL: N-61 FT LIARD	FS10814

ITEM	ORDERED	PART NUMBER	DESCRIPTION	SHIPPED	UNIT PRICE	DISC.	AMOUNT
1	1	RG-BX160SS	RING GASKET BX-160 316 STAINLESS STEEL	1			
2	16	S-L7-158X1212	STUD, L7 1 5/8" X 12 1/2" LOW TEMP. SERVICE ASTM A-320	16			
3	32	N-2HM-158	NUT, 1 5/8" 2HM SOUR SERVICE ASTM A-194	32			
4	1	CU-AP135X115SSCP-3	CROWN ALL PURPOSE HEAD TYPE 'CU' 13 5/8" 5000# X 11" 5000# C/W 2-2 1/16" 5000# SSO & 'CP' SECONDARY PREP & ALIGNING PIN PSL-3 S/N(s): 83208-01	1			
5	1	CP-SP13X958-2	CROWN SECONDARY PACKOFF, 'CP' 13" X 9 5/8", PSL-2 S/N(s): 83618-01	1			
6	1	CU1AEN-TH11X412NSBPV-3	CROWN TUBING HANGER TYPE 'CU-1A-EN' 11" NOM. X 4 1/2" NSCT BOX X BOX (12.60 lb/ft) C/W 4" TYPE 'H' BVT THREAD AND 6.75" DIA. X 3.38" EFF. LENGTH EXT. NECK, TEMP RATING L, MAT'L CLASS DD, PSL-3 S/N(s): 83437-01	1			
7	1	*RENT	4" 2-WAY BACK PRESSURE VALVE $180.00 10 DAY MINIMUM $18.00 EACH ADDITIONAL DAY ********** INSTALLED IN TUBING HANGER **********	1			
8	1	RG-RX54SS	RING GASKET RX-54 STAINLESS STEEL	1			
9	4	RG-RX24SS	RING GASKET RX-24 STAINLESS STEEL	4			
10	2	2G-52SB50-T35S-2	CROWN GATE VALVE 2 1/16" API 5000# RTJ FLANGED ENDS, 5000# WP, T-35S TRIM, MATL: EE, TEMP: L&U, 718 INCONEL STEM & 410SS GATE W/ STELLITE 6 HF, PSL-2 S/N(s): 83400-01, 83400-02	2			

TERMS: NET 30 DAYS. A SERVICE CHARGE OF 1.5% (18% PER ANNUM) CHARGED ON OVERDUE ACCOUNTS. RESTOCKING CHARGE WILL BE APPLIED TO GOODS RETURNED FOR CREDIT. NO GOODS MAY BE RETURNED WITHOUT PRIOR APPROVAL.

* G.S.T. ZERO RATED ITEM
** G.S.T. EXEMPT ITEM

TOTAL AMOUNT ▶ Cont.: 2

CUSTOMER'S INVOICE COPY

Stream Flo INDUSTRIES LTD.
CROWN ENERGY PRODUCTS
4505 - 74 AVENUE
EDMONTON, ALBERTA, T6B 2H5
TELEPHONE (780) 468-6789
G.S.T. # R105044390

DATE	NUMBER	PAGE
09/21/99	FS10814	2

VENDOR NUMBER: 18489

SOLD TO:
CANADIAN FOREST OIL LTD.
600, 800 - 6 AVENUE S.W.
CALGARY, AB T2P 3G3

SHIP TO:
CANADIAN FOREST OIL LTD.
LOCATION C/O
BECKER'S HOTSHOT

G.S.T. STATUS	SHIPPING CHARGES	CUSTOMER ORDER NO.	DATE ORDERED	DATE SHIPPED	QUOTE NO.
GST TAXABLE	COLLECT		09/16/99	09/21/99	

SHIP VIA	BILL OF LADING NO.	WELL NO.	REFERENCE NO.
HOTSHOT	3310	CANADIAN FOREST OIL: N-61 FT LIARD	FS10814

ITEM	ORDERED	PART NUMBER	DESCRIPTION	SHIPPED	UNIT PRICE	DISC.	AMOUNT
11	16	S-L7M-78X612	STUD, L7M 7/8" X 6 1/2" LOW TEMP./SOUR SERVICE ASTM A-320	16			
12	32	N-2HM-78	NUT, 7/8" 2HM SOUR SERVICE ASTM A-194	32			
13	2	CF-25X2LP-2	COMPANION FLANGE 2 1/16" API 5000# X 2" LP, RTJ API TYPE 60K MATERIAL (QCP 2-49) PSL-2 S/N(s): 81334-75, 81334-69	2			
14	1	BP-2XXH	BULL PLUG 2" LP XXH	1			
15	1	BP-2X12XXH	BULL PLUG 2" LP XXH TAPPED 1/2"	1			
16	1	NV-12ANG316	NEEDLE VALVE, 1/2" ANGLE MALE X FEMALE, 10,000#WP 316 STAINLESS STEEL	1			
17	1	GAU-5M	PRESSURE GAUGE, 0-5000 PSI 1/2" CONNECTION, 4 1/2" FACE LIQUID FILLED, SERIES 901	1			
18	1	CV-2LP	CASING VENT ASSEMBLY 2" C/W BALL VALVE	1			
19	1	*RENT	CROWN 'CC-22' COMBINATION TEST PLUG & RETRIEVAL TOOL 11" X 4 1/2" IF BOX X BOX	1			
20	1	*ASSY	ASSEMBLE, TEST & PAINT	1			
21	1	*FRTA	FREIGHT ALLOWANCE	1			
			SUB-TOTAL GST AMOUNT				
			ORDER TAKEN BY : MAX M/VIC L CONTACT : KEITH HYNES				
			PRICES IN CANADIAN FUNDS				
			THANK YOU...				

TERMS: NET 30 DAYS. A SERVICE CHARGE OF 1.5% (18% PER ANNUM) CHARGED ON OVERDUE ACCOUNTS. RESTOCKING CHARGE WILL BE APPLIED TO GOODS RETURNED FOR CREDIT. NO GOODS MAY BE RETURNED WITHOUT PRICE APPROVAL.

* G.S.T. ZERO RATED ITEM
* G.S.T. EXEMPT ITEM

TOTAL AMOUNT

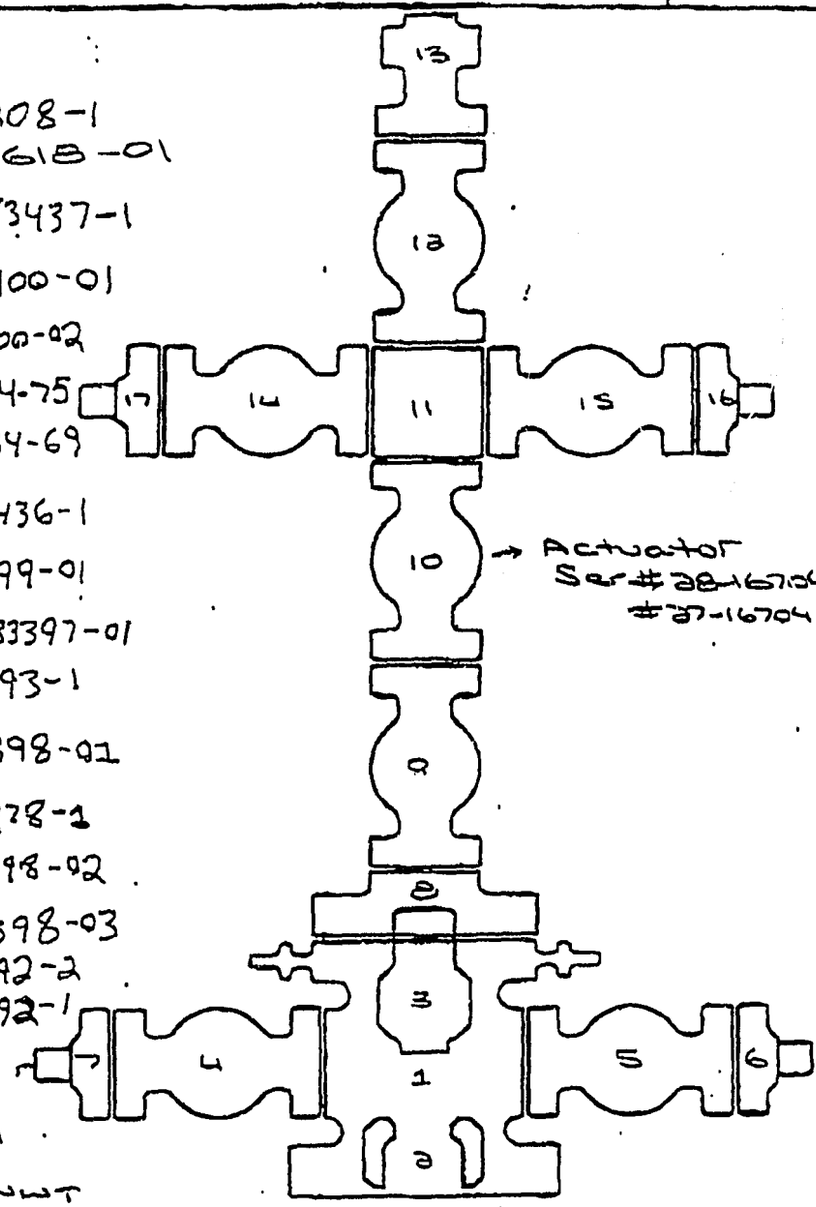
CUSTOMER'S INVOICE COPY

FILE NO.

WELLHEAD EQUIPMENT PRESSURE TEST
INSPECTION RECORD

PARTS:

1. CU-AP13SX11SSSCP-3	83208-1
2. CP-SP13X9SB-2	83618-01
3. CU1AEN-TH11X412NSBPV-3	83437-1
4. 2G-52SB50-T35S-2	83400-01
5. 2G-52SB50-T35S-2	83400-02
6. CF-25X2LP-2	81334-75
7. CF-25X2LP-2	81334-69
8. CUEN-TB115X45SUX-3	83436-1
9. 4G-52SB50-T35S-3	83399-01
10. 4G-52SB50-T35S-RA-00	83397-01
11. CA-CR45X45-2	83393-1
12. 4G-52SB50-T35S-2	83398-01
13. BHTA-45X412E-2	70778-1
14. 4G-52SB50-T35S-2	83398-02
15. 4G-52SB50-T35S-2	83398-03
16 CF-45X4LP-2	83392-2
17 CF-45X4LP-2	83392-1



→ Actuator
Ser#28-16704-2-1
#27-16704-1-1

END USER: Canadian Forest Oil

LOC#: N-61 Fort Liard NWT

CUSTOMER: _____

D.S. # Bottom Section FS10914 / Top Section FS10834

W.O.# _____ TIME: _____

PULLED BY: _____ BUILT BY _____

TESTED BY: _____ INSPECTED BY: _____

SERIAL NUMBER: _____

REMARKS: _____

W.P. _____

TEST PRESSURE: _____

DURATION: _____

GAS/FLUID: _____

TEST CHART: _____

SCALE: _____

DATE: _____

Contact: Keith Hynes

Ship: TBA

Attach #20

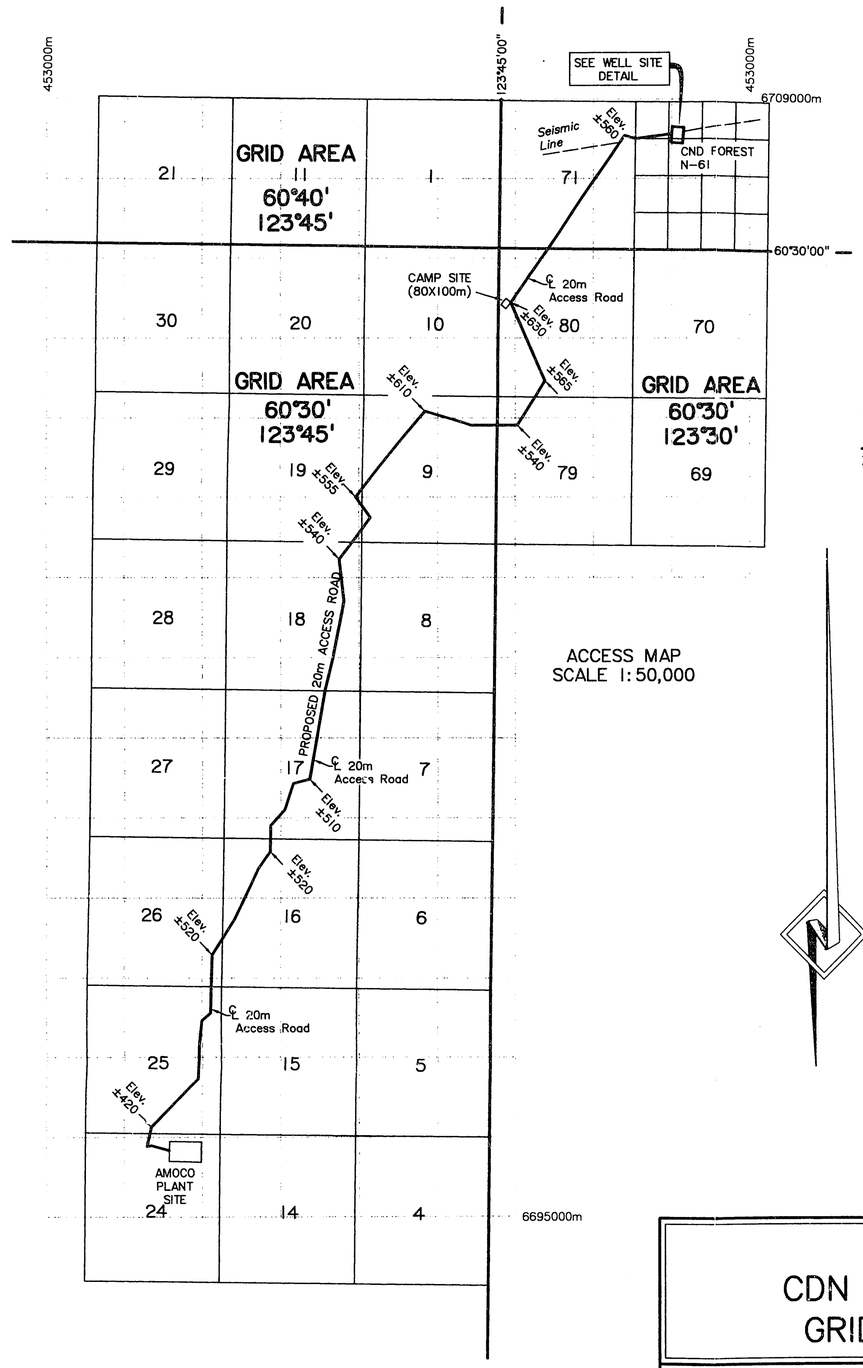
OVERSIZED

DOCUMENT

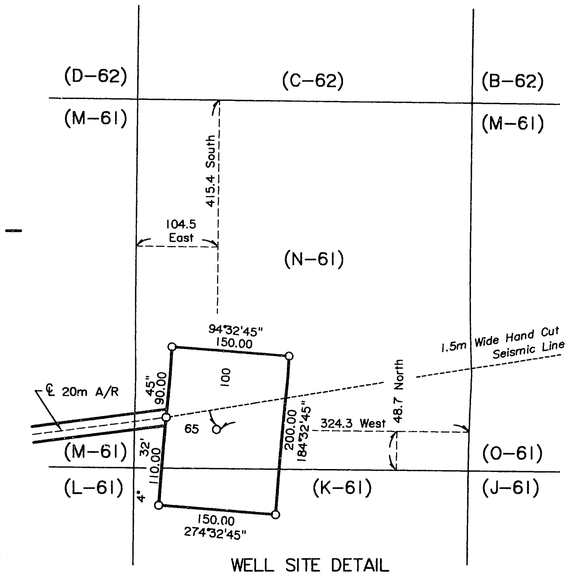
FILMED

ON

35mm



ACCESS MAP
SCALE 1:50,000



WELL SITE DETAIL
SCALE 1:5000

AREA REQUIRED

WELL SITE	=	3.00 ha
CAMP SITE	=	0.80 ha
ACCESS ROAD	=	33.84 ha
TOTAL	=	37.64 ha

Total Length of Access Road = 16920m

NATURAL RESOURCES CANADA
RE: SECTION 40(1), INDIAN OIL AND GAS REGULATIONS 1995, REVIEWED

FOR SURVEYOR GENERAL DATE

CANADA LANDS SURVEYS RECORDS

DATE

NOTE:
GRID AND GRATICULE ARE NAD-27 DATUM

I PAT LANTEIGNE, CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAN IS CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND WAS COMPLETED ON THE 11th DAY OF DECEMBER , 1998.

P. Lanteigne
Pat Lanteigne
CANADA LANDS SURVEYOR

Exploratory Well

CDN FOREST ET AL, FLETT N-61
GRID AREA N60°40', W 123°30'

Elevations:
GROUND: 603.7
Corners:
N.W.: 603.5 N.E.: 619.5
S.W.: 598.0 S.E.: 614.0
Datum:

UTM Surface Co-ords:
6708546.0 N.
461064.7 E.
NAD 27 (ATS Ver. 3.1)
Referred To The Central Meridian W. 123° Longitude

Michael J. Sutherland P.Eng.

Geographic Surface Co-ords:
Latitude: 60° 30' 46.690"
Longitude: 123° 42' 32.512"
NAD: 27

Scale 1:5000 50 25 0 25 50 100 200
Survey monuments found are shown thus: . . . . .●
Survey monuments planted are shown thus: . . . .○
Portions referred to are shown thus: . . . . . —○—
Distances are in metres between monuments unless shown otherwise.
Bearing are grid and referred to 123° W. Longitude

SESL GEOMATICS
LAND SURVEYING & SURVEY ENGINEERING

Surveyor: MW Calculator: FS
Draftsperson: CW Chk'd:

Job No.: 98N018

No.	Revision	Date
1	Relocated Camp Site	98/12/14

TOLL FREE 1-800-565-2389 PH. (403) 234-9018 FAX. (403) 266-2919

WELL TERMINATION RECORD (with attachment)

National Energy Board | Office national de l'énergie

WELL TERMINATION RECORD

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

Well Name: CDN FOREST ET AL NORTH LIARD N-61 Area: FLETT RAPIDS

Grid Area: 60° 40'N, 123° 30'W Field/Pool: WILD CAT

Interest Identifier ..... Final Coordinates: Lat: 60° 30' 46.690"N Long: 123° 42' 32.512"W

Drilling Unit: AKITA 58E Elevations-KB/RT KB = 610.7m (ASL) GL/Seafloor GL = 604.0m

Spud Date: MARCH 21, 1999 R.R. SEPTEMBER 19, 1999 Total Depth: 3383m/PBTD = 3254.5m

B.H.Coordinates: Lat. 60°30'49.330" Long. 123°42'24.514"

O.D. (mm)	Weight (kg/m)	Grade	Depth Set (m KB)	Cement (m^3)
SEE ATTACHMENT #1				

PLUGGING PROGRAM

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

Type of Plug	Interval (m KB)	Felt	Cement (m^3)
SEE ATTACHMENT #1			

Lost Circulation/Overpressure Zones: NO LOST CIRCULATION. OVER PRESSURE ZONES AS PER ATTACHMENT #1

Equipment left on Seafloor (Describe): SEE ATTACHMENT #2 - WELLHEAD SCHEMATIC

Provision for Re-entry (Describe and attach sketch): WELL IS CURRENTLY SUSPENDED.

Cores: Type: NONE Intervals: .....

Other Downhole Completion/Suspension Equipment: SEE ATTACHMENT #3 - WELLBORE SCHEMATIC

CERTIFICATION

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

Signed: [signature] Title: VICE PRESIDENT, MANAGER OF PROJECTS

Name: MICKEY J. SUTHERLAND, P.ENG. Date: DECEMBER 24, 1999

Company: PAJAK ENGINEERING LTD.
FOR: CANADIAN FOREST OIL LTD.

Acknowledged by: [signature]

Chief Conservation Officer

Date: Jan. 19/2000

Well Status

Suspended ☒

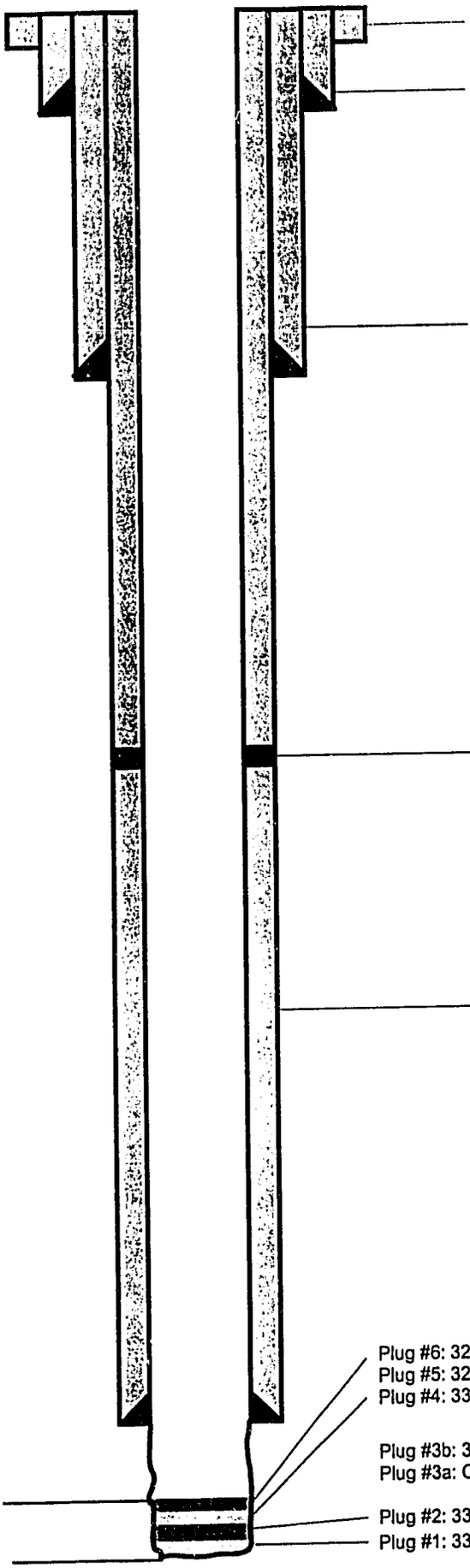
Completed ☐

Abandoned ☐

File: 9211-C131-1-3

UWI: 300N6160401233000 WID: 1863

Attachment # 3
WELLBORE SCHEMATIC
CDN Forest et al Flett N-61



762mm Conductor Pipe
Set at 23.7m. Grouted in place

Casing: 508mm, 138.87kg/m, K-55, BT&C
Set at 185mKB
Cement:30.4m3 0:1:0 Class "G" + 1% CaCl2
Followed by 14.3m3 Quick Set.

Casing: 339.7mm, 101.2kg/m, K-55, BT&C
Set at 736mKB
Cement:19.1m3 0:1:0 Class "G" + additives
Followed by 44.2m3 0:1:0 "G" + additives
Followed by 4.3m3 Quick Set.

244.5mm Stage Tool
Set at 1506mKB

Casing:From Bottom Up
361.9m of 244.5mm, 79.62kg/m, L-80HC
996.9m of 244.5mm, 69.94kg/m, C-95
286.7m of 244.5mm, 64.74kg/m, L-80
Stage Tool @ 1506.0mKB
1219.3m of 244.5mm, 64.74kg/m, L-80
286.7m of 244.5mm, 79.62kg/m, L-80HC
Set at 3147.0mKB
Cement:
Stage #1: 23.21m3 Thermal 40 + additives
Stage #2: 57.12m3 0:1:0 "G" + additives

Plug #6: 3280.0mKB to 3253.0mKB - Polished to 3254.5mKB.
Plug #5: 3280.0mKB to 3280.0mKB - Leaked Off.
Plug #4: 3300.0mKB to 3280.0mKB

Plug #3b: 3300.0mKB to 3300.3 mKB - Leaked Off.
Plug #3a: Circulated Out.

PBTD: 3254.5mKB

Plug #2: 3328.0mKB to 3300.7mKB
Plug #1: 3383.0mKB to 3328.0mKB

TD: 3383.0mKB

WELL TERMINATION RECORD

CDN FOREST ET AL FLETT N-61

ATTACHMENT #1

OD (mm)	Weight (kg/m)	Grade	Depth Set (mKB)	Cement (m^3)
762.0	Conductor Pipe		23.7	
508.0	138.87	K-55	185.0	44.7
339.7	101.2	K-55	736.0	67.8
244.5	79.62	L-80HC	3147.0-2785.1	80.3
244.5	69.94	C-95	2785.1-1788.2	
244.5	64.74	L-80	1788.2-286.7	
244.5	79.62	L-80HC	286.7- 0.0	

Type of Plug	Interval (mKB)	Felt	Cement (m^3)
Plug Back #1	3333.0-3383.0	3328.6	2.03
Plug Back #2	3290.0-3328.0	3300.7	1.58
Plug Back #3A	3300.7-3255.0	Circulated Out	1.88
Plug Back #3B	3300.7-3255.0	3300.3	1.88
Plug Back #4	3300.0-3255.0	3280.0	1.88
Plug Back #5	3280.0-3255.0	3280.0	1.50
Plug Back #6	3280.0-3255.0	3253.0	1.50

Overpressure Zones:

#1. 74mKB to 135mKB
#2. 243mKB to 298mKB
#3. 493mKB to 505mKB
#4. 752mKB to 756mKB
#5. 1142mKB to 1146mKB
#6. 1610mKB to 1611mKB
#7 3147mKB to 3195mKB

Application to change a well name

National Energy Board | Office national de l'énergie

WID - N° d'id. du puits
1863

APPLICATION TO CHANGE A WELL NAME
DEMANDE DE MODIFICATION DU NOM D'UN PUITS

Application is made hereby to change the name of a well, recorded in the Name Register as -
Nous demandons l'autorisation de modifier le nom d'un puits, inscrit au répertoire des puits sous le nom de -

Old Name - Ancien nom:

CDN Forest et al Flett N-61

Proposed new name - Nouveau nom proposé:

CDN Forest et al North Liard N-61

WELL LOCATION - EMPLACEMENT DU PUITS

	Unit - Unité	Section	Grid Area - Étendue quadrillée
Location:	N	61	North Liard
	Latitude		Longitude
Emplacement:	6030467		12342325

Unique Well Identifier - Code de l'ordinateur

300N616040123300

Reason(s) for Changing Well Name - Motif(s) de modification du nom du puits

Provide consistency of well name with the newly assigned grid name.

Date at: Calgary, Alberta this 15th day of July, 1999

Daté à: ce jour de

Signed by - Signé par	Title - Titre	Company - Société
R.S. Bachynski	Manager, Land	Canadian Forest Oil Ltd.

NEB USE ONLY - À L'USAGE DE L'ONÉ

APPROVED - APPROUVÉ - This application has been examined and approved by. Demande étudiée et approuvée par:

Date - Date	Chief Conservation Officer - Délégué à l'exploitation
July 7, 1999	

444 Seventh Avenue SW
Calgary, Alberta T2P 0X8

444 Septième Avenue S.-O.
Calgary (Alberta) T2P 0X8

Canada

Telephone/Téléphone : (403) 292-4800
Facsimile/Télécopieur : (403) 292-5876
http://www.neb.gc.ca

RESISTIVITY/ CONDUCTIVITY

N.E.B. COPY

N.E.B. COPY 1863

COMPUTALOG

CS400

SIMULTANEOUS
TRIPLE INDUCTION
SFL GAMMA RAY LOG

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION
300/N-61-6040-12330/0

Other Services:
SPD-CNS-UGR-DAC
MDA / SED / VSP

Perm. Datum Ground Level Elev. 604.0
Log measured from K.B., 6.7 m above Permanent Datum.

ELEV.K.B. 610.7
G.L. 604.0
CBF

Date	AUGUST 18 1999		
Run No.	ONE		
First Reading	3144.8		
Last Reading	735.5		
Meters Meas.	2409.3		
Depth Reached	3146.9		
Bot. Driller	3147.0		
Csg. Logger	735.5		
Csg. Driller	735.6	339.7mm @101.2kg/m	
Fluid Type	POTASSIUM SULPHATE		
Dens. & Visc.	1635 / 90		
Mud pH	10.5		
Mud Water Loss	6.0		
Mud Res.	0.15 @ 24 °C	@ °C	@ °C
Mud Res. @ BHT	0.05 @ 114 °C	@ °C	@ °C
Rmc	0.12 @ 23 °C	@ °C	@ °C
Rmf	0.10 @ 24 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	311mm		
Spacing	N/A		
Operating Time	20.5hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21059

Drilling Stopped 2130 /16 Circulation Stopped 1115 /22 Tool on Bottom 0615 /23 BHT 114 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION. PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST. SP NOT AVAILABLE FROM 2500m TO TD DUE TO TENSION INDUCED LINE LEAKS. LOG DOWN DATA USED FOR MAJORITY OF INDUCTION CURVES AS CENTRALIZATION APPEARS TO BE BETTER, YIELDING BETTER DATA. A LOG UP REPEAT IS PRESENTED FOR COMPARISION. INDUCTION AND SP LOG QUALITY POOR DUE TO LOW RESISTIVITY MUD.

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date / Sample No.		
Depth - Driller		
Type Fluid in Hole		
Dens. / Visc.		
pH / Water Loss		
Source of Sample		
Rm @ Meas. Temp.	@	°C
Rmf @ Meas. Temp.	@	°C
Rmc @ Meas. Temp.	@	°C
Source Rmf / Rmc		
Rm @ BHT	@	°C
Rmf @ BHT	@	°C
Rmc @ BHT	@	°C

SCALE CHANGES

Type Log	Interval	Scale

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	STI-AC	122122	2-38mm STANDOFFS USED
ONE	UGR-JA	117	RA-20S-681

REMARKS

MAIN PASS
1:600 SCALE

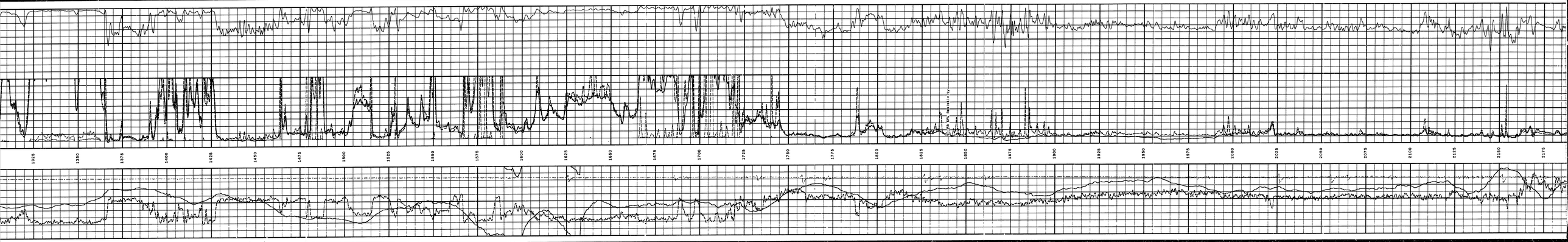
VERSION 1999.07.05.155

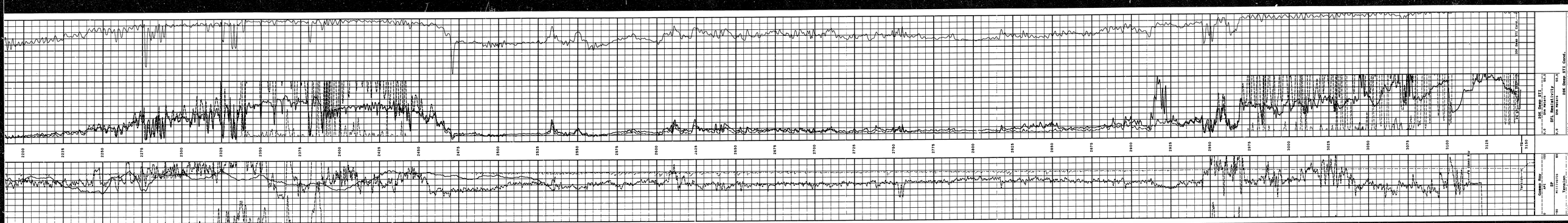
MAIN PASS

21059 STIMP

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension		20K Deep STI Cond.
20000 Pounds 0		1000.0 Milli-Mho/Meter 0.0
SP		SFL Resistivity
-90 Millivolts 60		0.0 Ohm Meters 50.0
Gamma Ray		20K Deep STI
0 API 150		0.0 Ohm Meters 50.0


1325
1350
1375
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
2050
2075
2100
2125
2150
2175


2200
2225
2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000
3025
3050
3075
3100
3125
To 3150
Gamma Ray
0
150
API
Temperature
PD
Millivolts
80
Gamma Ray
0.0
50.0
Deep STI
Probability
0.0
50.0
Deep STI Cond.
Deep STI Cond.

Tension	20K Deep STI Cond.
20000 Pounds 0	1000.0 Millimho/Meter 0.0

START DEPTH: 3155.2 DIRECTION: UP DATE: 08/23/1999 TIME: 23:19 MODE: TRACE PLAYBACK

21059 STIMP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Lower	3168.0	Meters
TDU	TD-Upper	311.0	Meters
BHT	Bottom Hole Temp	124	Degrees Centigrade
SFT	Mean Surface Temp	6	Degrees Centigrade
LOG	Log Number	31	
STZA	STI Z Channel Return	72	
STZX	STI Z Level Analogs	OFF	
STZS	STI SFL Log Mode On	ON	

REMARKS

MAIN PASS
1:240 SCALE

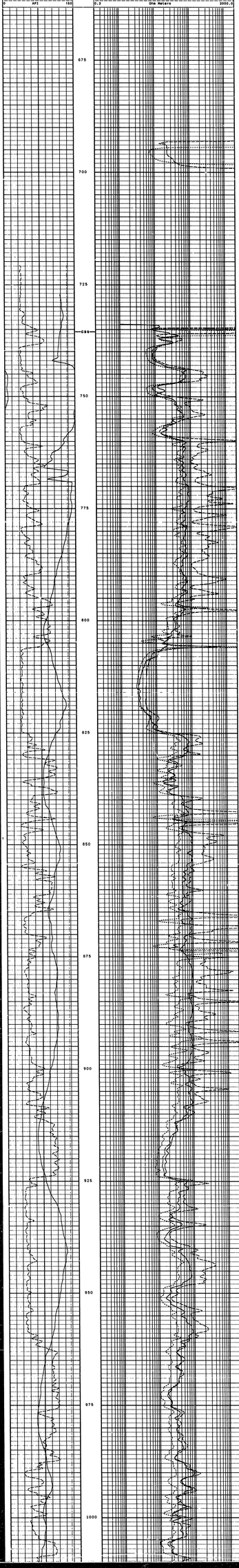
VERSION 1999.07.05.155

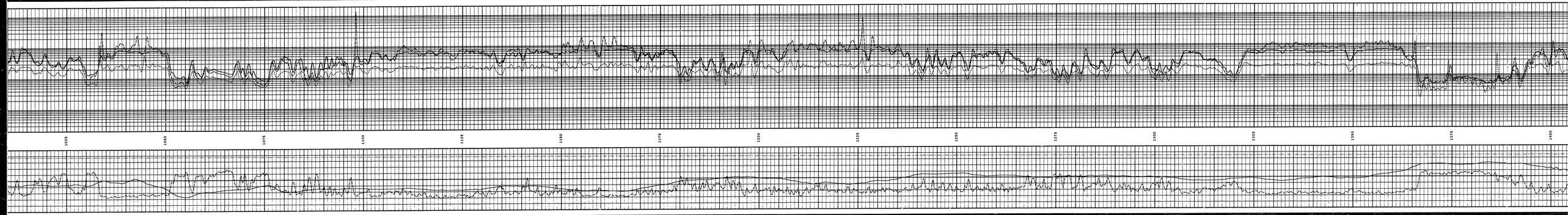
MAIN PASS

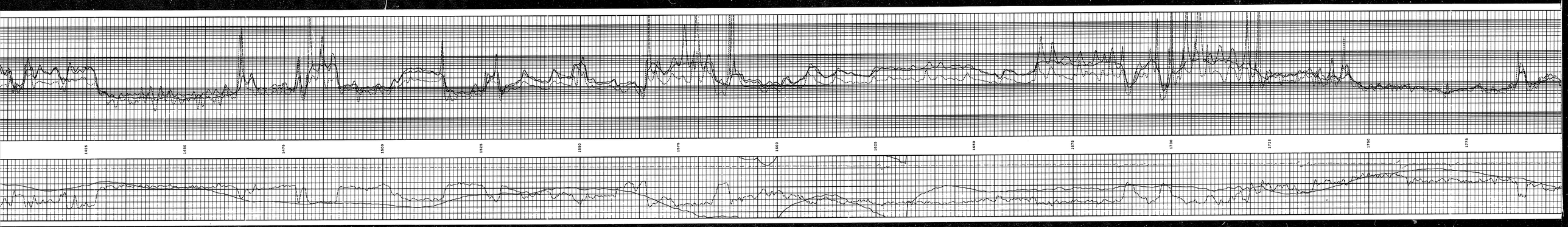
21059 STIMP

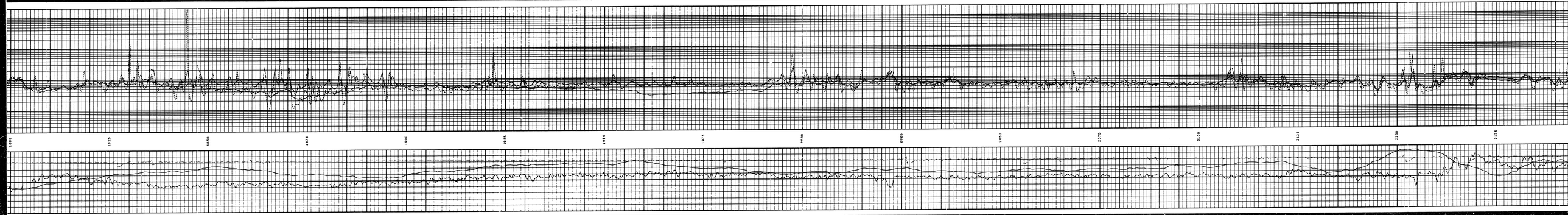
FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

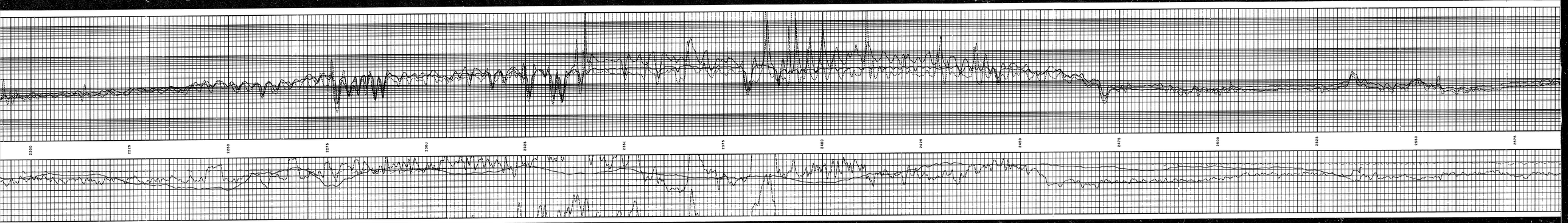
Tension	SFL Resistivity
20000 Pounds 0	0.2 Ohm Meters 2000.0
SP	20K Medium STI
-80 Millivolts 80	0.2 Ohm Meters 2000.0
Gamma Ray	20K Deep STI
0 API 150	0.2 Ohm Meters 2000.0

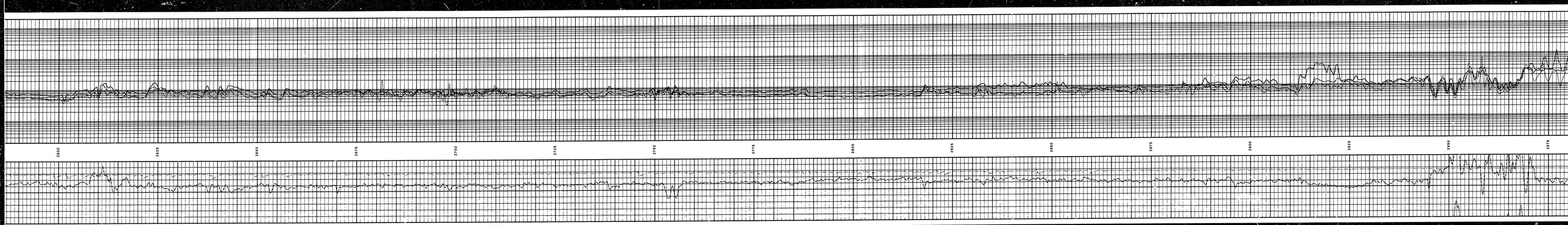


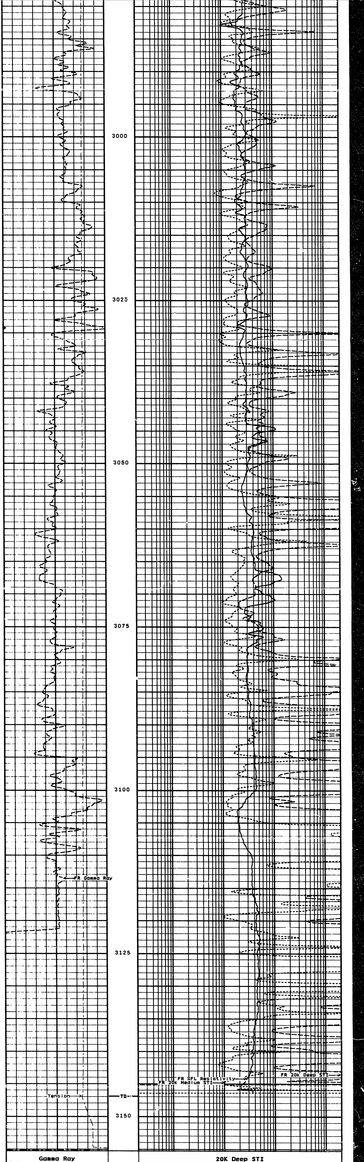

1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400


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
2050
2075
2100
2125
2150
2175


2200
2225
2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575


2600
2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975



START DEPTH: 3155.2 DIRECTION: UP DATE: 08/23/1999 TIME:23:19 MODE: TRACE PLAYBACK

21059 STINP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3160.9	Meters
BS	Bit Size	311.000	Millimeters
MBT	Bottom Hole Temp	116	Degrees Centigrade
SFTL	Mean Annual Surf Temp	7	Degrees Centigrade
STIB	STI Bias Voltage	32	V
STIR	STI SFL Channel Return	3M	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	

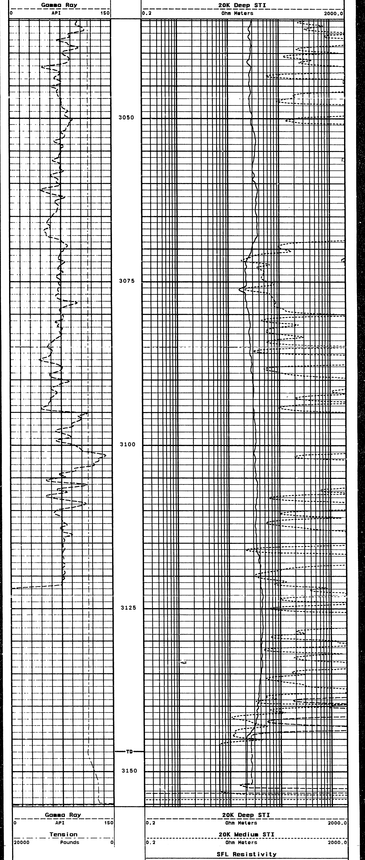
REMARKS

REPEAT PASS
1:240 SCALE

VERSION: 1999.07.05.155

21059 STINP2

FINISH DEPTH: 3034.9 Meters DIRECTION: UP DATE: 08/24/1999 TIME: 03:09 MODE: TRACE PLAYBACK



START DEPTH: 3155.4 DIRECTION: UP DATE: 08/24/1999 TIME:03:09 MODE: TRACE PLAYBACK

21059 STINP2

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3160.9	Meters
BS	Bit Size	311.000	Millimeters
MBT	Bottom Hole Temp	116	Degrees Centigrade
SFTL	Mean Annual Surf Temp	7	Degrees Centigrade
SFTL	Log With SP Free	STI	
STIB	STI SFL Channel Return	3M	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	

09/17/99 18:57 0.0 M Ver 2.00-2.00 Job 21059

Gamma Ray Before Survey Calibration

Tool Type: GGR-J6
Calibrator No: RA-205-881 Serial No: 117

Background	Calibrator	Standard	Units
129.4	855.7	140.0	API

03/15/99 10:06 0.0 M Ver 3.00-3.00 Job SHSP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHz DEEP	10KHz MEDIUM	20KHz DEEP	20KHz MEDIUM	40KHz DEEP	40KHz MEDIUM
Gain:	1.050	0.995	1.014	0.993	1.003	0.980
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	0.54	0.60	0.82	0.58	0.63	0.46
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SONDE ERROR:

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
Deep:	9.0	-13.0	3.4	-16.9	2.0	-12.8
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0
Medium:	-9.7	-68.7	-0.7	-64.6	3.0	-72.8
Upper Limit:	20.0	100.0	20.0	100.0	20.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0

SHOP ELECTRONICS CALIBRATION:

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	8.3	17.4	7.7	10.8	0.0	9.1
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.998	0.995	1.000	0.989	1.001	0.992
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.54	-0.00	-0.06	-0.37	0.48	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	6.8	17.6	10.2	11.3	2.9	6.5
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.995	0.999	0.989	0.998	0.992
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.82	-1.09	0.13	-0.59	0.85	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.1	-100.0	100.0	mV	1.041	0.800	1.200
Current:	-0.2	-35.0	35.0	uA	1.032	0.800	1.200

08/18/99 07:23 855.0 M Ver 3.00-3.00 Job 21059

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	83.8	-3.7	17.3	10.7	7.6	10.4
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.998	0.990	0.998	0.987	0.997	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.85	-0.01	-0.37	-0.51	0.34	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	83.0	10.7	17.3	11.3	6.5	10.0
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.994	0.993	0.999	0.987	0.998	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.98	-0.00	-0.11	-0.63	0.49	-0.35
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.3	-100.0	100.0	mV	1.048	0.800	1.200
Current:	-0.1	-35.0	35.0	uA	1.028	0.800	1.200

08/23/99 13:38 435.0 M Ver 3.00-3.00 Job 21059

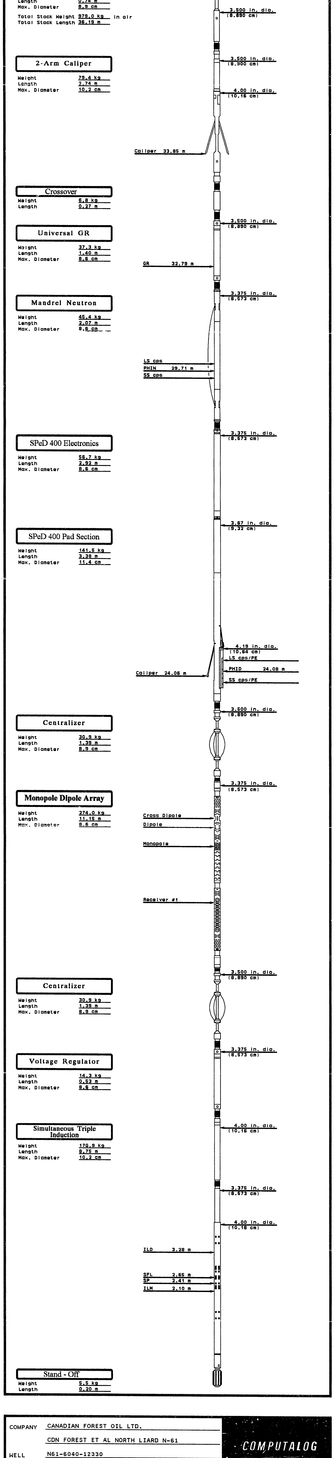
SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	81.3	-6.0	17.4	11.1	5.5	9.7
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.998	0.993	0.998	0.987	0.997	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.85	-0.01	-0.37	-0.51	0.34	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	81.3	-4.7	17.4	11.9	5.5	11.5
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.998	0.991	0.998	0.987	0.997	0.988
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.98	0.03	-0.09	-0.61	0.54	-0.34
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.3	-100.0	100.0	mV	1.043	0.800	1.200
Current:	-0.1	-35.0	35.0	uA	1.030	0.800	1.200



COMPANY	CANADIAN FOREST OIL LTD.
	CDN FOREST ET AL NORTH LIARD N-61
WELL	N61-6040-12330
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

COMPUTALOG

CS400

SIMULTANEOUS
TRIPLE INDUCTION
SFL GAMMA RAY LOG

- TRUE VERTICAL DEPTH -

PROVINCE	
FIELD	
COMPANY	CDN FOREST ET AL NORTH LIARD N-61

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

LOCATION 200/N-61-6040-13330-0	Other Services: BHC-CNL-NGR-SFL DIL / BHC / VDP
Perm. Datum Ground Level. Elev 604.0	Elev.K.B.625.7
Log measured from K.B. , 5.7 m above Permanent Datum.	G.L.604.0. CBF

Date	AUGUST 18 1999		
Run No.	ONE		
First Reading	3139.0		
Last Reading	735.5		
Meters Meas.	2402.5		
Depth Reached	3140.1		
Bot. Driller	3140.2		
Top. Logger	735.5		
Csg. Driller	730.6	339.7mm @101.2kg/m	
Fluid Type	POTASSIUM SULPHATE		
Dens. & Visc.	1635	50	
Mud pH	10.5		
Mud Meter Loss	0.0		
Mud Res.	0.15 @ 24 °C	@ °C	@ °C
Mud Res. @ BHT	0.06 @ 114 °C	@ °C	@ °C
Mmf	0.12 @ 23 °C	@ °C	@ °C
Rmf @ BHT	0.10 @ 24 °C	@ °C	@ °C
Bit Size	311mm		
Casing Size	339mm		
Operating Time	20 Hrs.		
Unit #	268		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	M.KELLY		

ALL INTERPRETATIONS AND OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION, AND WE SHALL NOT 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 OUR TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

Services Signed BIG, JERKY & Flocation signed LIZ, TAG on Rollers SHELTER Zero 0.0 Ft.

All GR-Gamma Ray Curves are Recorded in API Units. All Resistivity Curves are Recorded in Ohm-Meters. Depth Scale Recorded in Meters. Log Data Displayed Vertically at 1:200 Scale. Log Data Displayed Horizontally at 1:1000 Scale. Log Data Displayed Vertically at 1:1000 Scale. Log Data Displayed Horizontally at 1:2000 Scale.

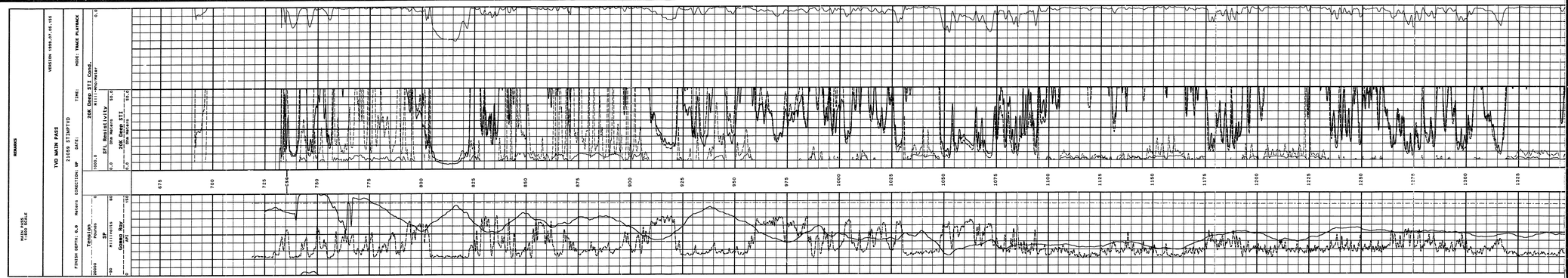
Logging Company: SCHLUMBERGER
Logging Engineer: BIG JERKY
Logging Truck: 1101
Logging Date: AUGUST 18 1999
Logging Time: 20:00-04:00

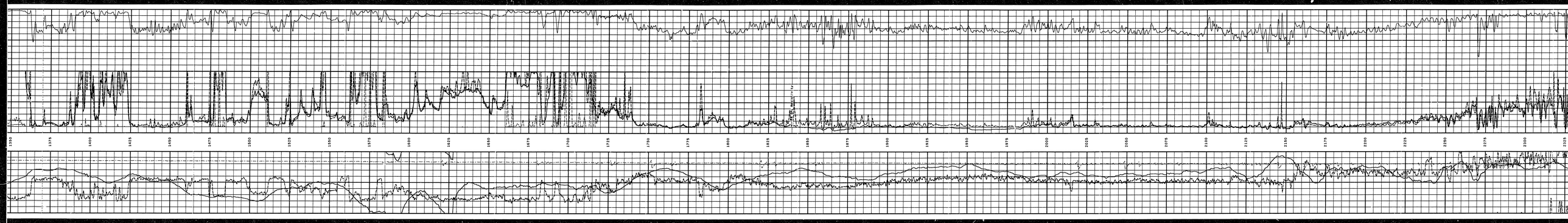
Run No.	Depth Logged	Logged Interval	Casing Shoe	Casing Driller	Casing Logger	BIT	Type	Size	From	To
ONE	3140.1	2402.5	730.6	730.6	735.5	1	TRI-CONE	311	730.6	3140.1

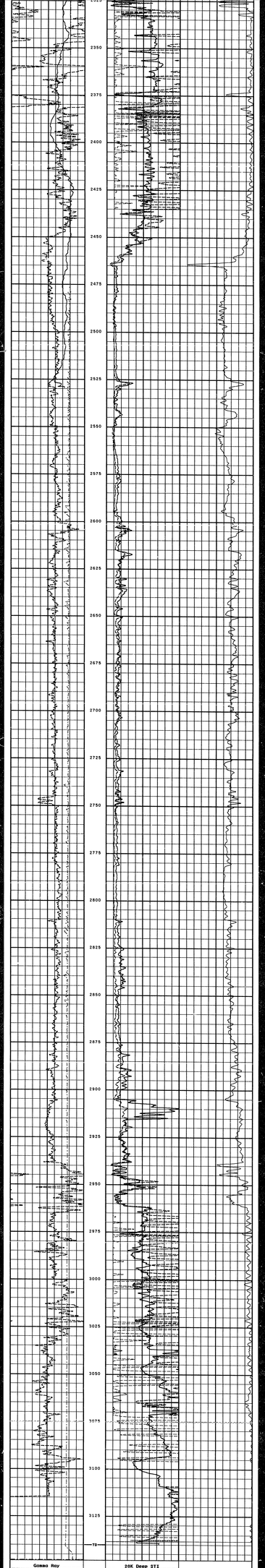
Run No.	Tool Type	Serial No.	Hours
ONE	DIL	1208-DA	20
	SDL	1208-DA	
	DSN	1208-DA	

Equipment Data	
Tool Type	Serial No.
DIL	1208-DA
SDL	1208-DA
DSN	1208-DA
Mud Meter	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA

Equipment Data	
Tool Type	Serial No.
Mud Sensor	1208-DA
Temp. Sensor	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA
Mud Sensor	1208-DA
Temp. Sensor	1208-DA




1350
1375
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
2050
2075
2100
2125
2150
2175
2200
2225
2250
2275
2300
2325



START DEPTH: 3148.2 DIRECTION: UP DATE: 08/24/1999 TIME:04:34 MODE: TRACE PLAYBACK

21059 STIMPTVD

TVD MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3148.3	Meters
BHT	Bottom Hole Temp	311.000	Millimeters
BST	Bottom Hole Temp	1	Degrees Centigrade
SFT	Mean Annual Surf Temp	1	Degrees Centigrade
STIS	STI Start Depth	53.0	Meters
STIE	STI Stop Depth	3148.2	Meters
STIA	STI # Level Average	OFF	
STIS	STI Log Mode On	ON	

REMARKS

MAIN PASS
1:240 SCALE

TVD MAIN PASS

VERSION 1999.07.05.155

21059 STIMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension
20000 Pounds 0

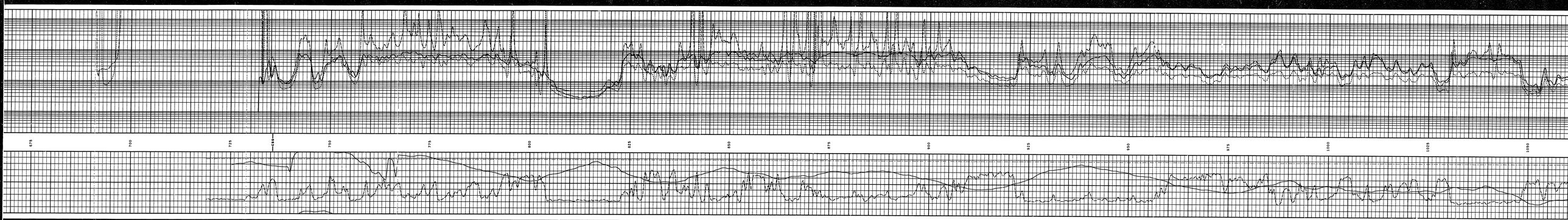
SP
-80 Millivolts 80

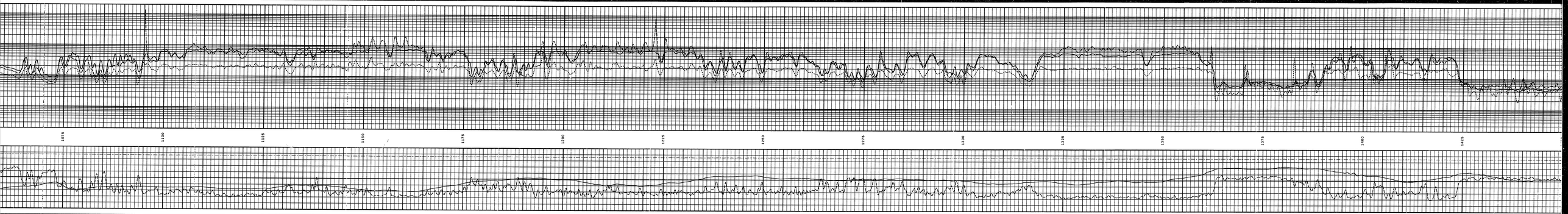
Gamma Ray
0 API 150

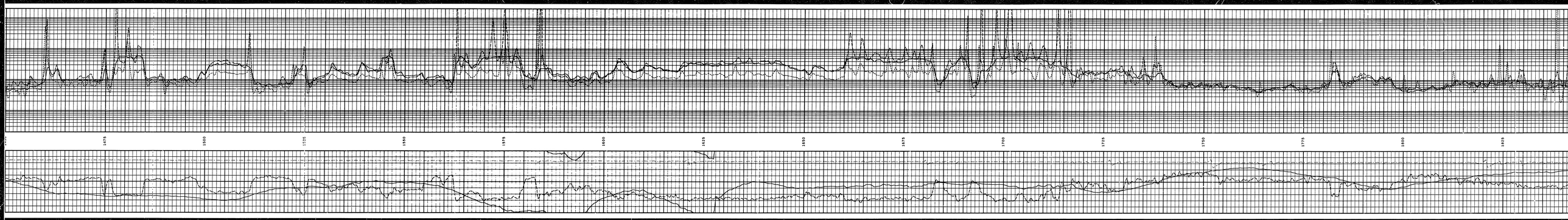
SFL Resistivity
0.0 Ohm Meters 2000.0

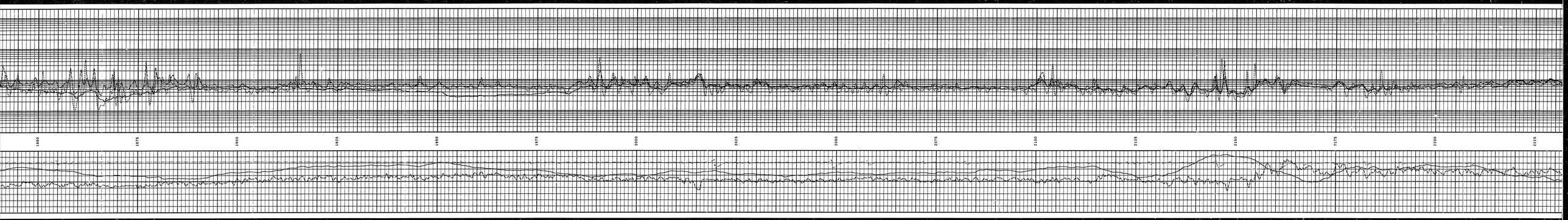
20K Medium STI
0.0 Ohm Meters 2000.0

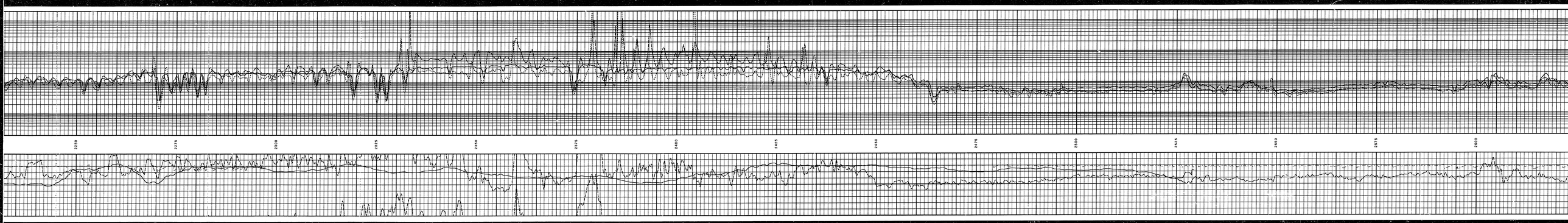
20K Deep STI
0.0 Ohm Meters 2000.0

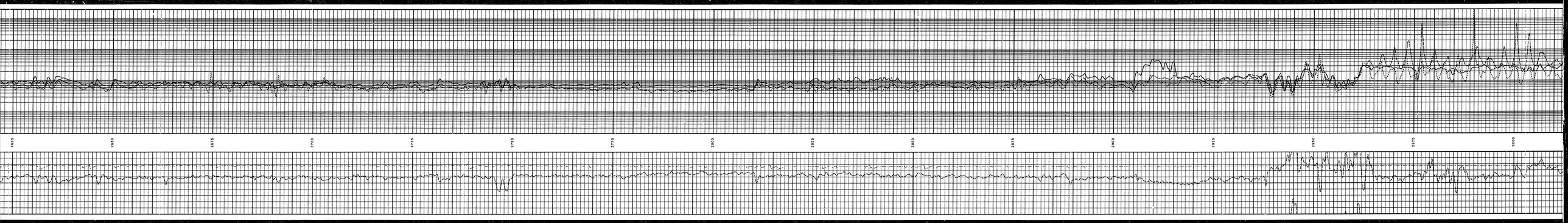

675
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050

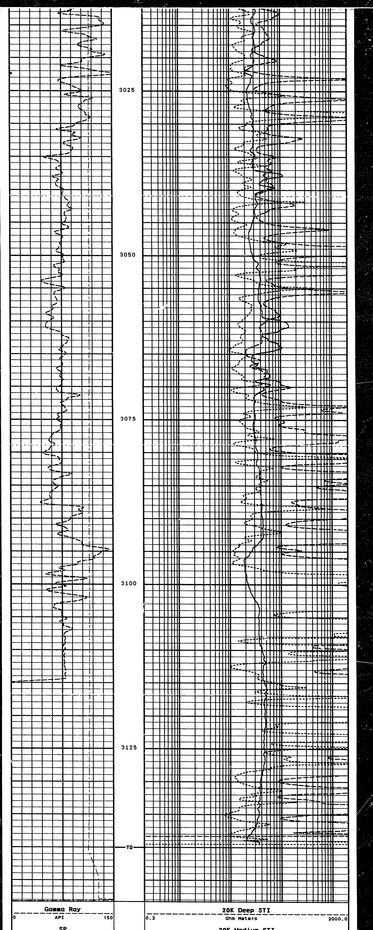

1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425


1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825


1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225


2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600


2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000



START DEPTH: 3148.2 DIRECTION: UP DATE: 08/24/1999 TIME:04:34 MODE: TRACE PLAYBACK

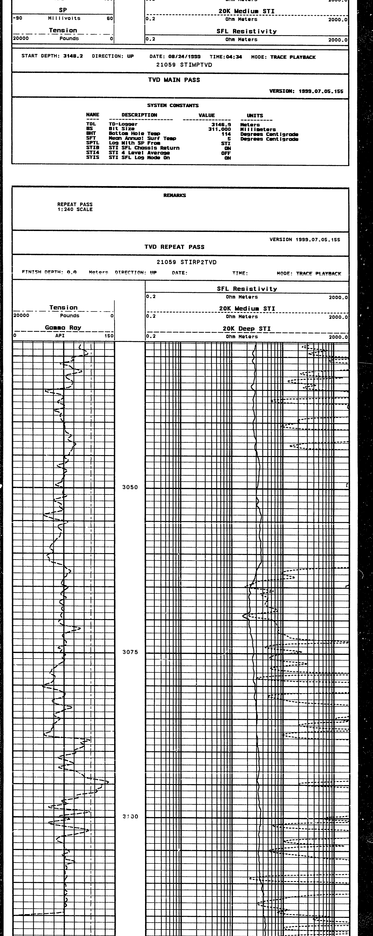
21059 STIMPTVD

TVD MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3168.0	Meters
BS	Bit Size	311.000	Millimeters
BHT	Bottom Hole Temp	114	Degrees Centigrade
SFT	Surface Surface Temp	14	Degrees Centigrade
SPTL	Log With SP Free	SP	
STIR	STI SFL Chassis Return	ON	
STIA	STI SFL Amp Average	OFF	
STIS	STI SFL Log Mode On	ON	



START DEPTH: 3148.4 DIRECTION: UP DATE: 08/24/1999 TIME:04:36 MODE: TRACE PLAYBACK

21059 STIRPZTVD

TVD REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3168.0	Meters
BS	Bit Size	311.000	Millimeters
BHT	Bottom Hole Temp	114	Degrees Centigrade
SFT	Surface Surface Temp	14	Degrees Centigrade
SPTL	Log With SP Free	STI	
STIR	STI SFL Chassis Return	ON	
STIA	STI SFL Amp Average	OFF	
STIS	STI SFL Log Mode On	ON	

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature VERSION : 1.0
TVD DATA FILE : /mnt/opt400/2000/21059/20159tvd.tvdb

COMPANY : Canadian Forest Oil Ltd.
WELL : 100/06-08-048-13W5 Lloyd Ker Pool
LOCATION : 300-065-0340-1332-01
DATE : August 18, 1999

DRILLED DEPTH : 3145.00 m
VERTICAL DEPTH : 1672.91 m
WITH WELL DISPLACEMENT : N 0.00 m E 120.46 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH (M)	EAST (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	56.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	55.80	1568.28	55.32	75.95
6	1582.90	8.40	56.00	1578.37	56.11	77.23
7	1592.40	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.28	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.60	59.30	1625.47	59.62	83.13
12	1639.40	7.50	58.40	1634.33	60.29	84.23
13	1649.40	7.30	59.70	1644.21	60.91	85.25
14	1658.10	6.80	58.70	1652.84	61.51	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.38	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.70	5.10	60.20	1768.73	66.73	96.74
27	1783.90	5.00	61.30	1777.80	67.14	97.47
28	1793.70	4.90	61.80	1787.46	67.53	98.19
29	1803.80	4.80	64.00	1797.53	67.88	98.90
30	1813.60	4.50	64.20	1807.30	68.19	99.57

30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.03	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3147.00	0.70	340.00	3140.18	76.89	120.44

08/17/99 18:57 0.0 M Ver 2.0b-2.0b Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGK-JA Serial No: 117
Calibrator No: RA-20S-681

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

03/15/99 10:06 0.0 M Ver 2.0b-2.0b Job SHOP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHz		20KHz		40KHz	
	DEEP	MEDIUM	DEEP	MEDIUM	DEEP	MEDIUM
Gain:	1.010	0.995	1.014	0.993	1.003	0.980
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	0.94	0.60	0.82	0.58	0.63	0.46
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SONDE ERROR:

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
Deep:	4.5	-5.5	3.4	-6.9	2.8	-12.8
Upper Limit:	20.0	100.0	20.0	100.0	20.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0
Medium:	-8.7	-86.7	-0.7	-64.5	2.0	-72.8
Upper Limit:	20.0	150.0	20.0	150.0	20.0	150.0
Lower Limit:	-20.0	-150.0	-20.0	-150.0	-20.0	-150.0

SHOP ELECTRONICS CALIBRATION:

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
			DEEP			
Zero Error(mmho/m):	5.3	17.4	2.7	10.8	2.9	8.7
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.995	1.000	0.989	1.001	0.992
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.94	-0.08	-0.06	-0.57	0.46	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	5.6	17.6	3.1	11.2	2.9	8.9
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.995	0.999	0.989	0.998	0.992
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.95	-0.09	0.12	-0.58	0.85	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.1	-100.0	100.0	uV	1.041	0.800	1.200
Current:	-0.2	-25.0	25.0	uA	1.022	0.800	1.200

08/18/99 07:23 655.0 M Ver 2.0b-2.0b Job 21059

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
			DEEP			
Zero Error(mmho/m):	81.8	-3.7	17.3	10.7	7.6	10.4
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.990	0.998	0.987	0.997	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.85	-0.01	-0.27	-0.51	0.24	-0.44
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	83.0	-7.7	17.7	11.3	5.5	10.8
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.994	0.992	0.999	0.987	0.998	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.98	-0.00	-0.11	-0.52	0.49	-0.35
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.3	-100.0	100.0	uV	1.048	0.800	1.200
Current:	-0.1	-25.0	25.0	uA	1.029	0.800	1.200

08/23/99 12:36 425.0 M Ver 2.0b-2.0b Job 21059

SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 122
ELECTRONICS SERIAL NO: 122

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
			DEEP			
Zero Error(mmho/m):	81.2	-6.0	17.4	11.1	6.5	9.7
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.991	0.998	0.987	0.997	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.92	0.00	-0.26	-0.52	0.20	-0.39
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	81.3	-6.7	17.4	11.9	5.5	11.5
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.996	0.991	0.999	0.987	0.997	0.988
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.96	0.03	-0.09	-0.51	0.54	-0.34
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-0.3	-100.0	100.0	uV	1.049	0.800	1.200
Current:	-0.1	-25.0	25.0	uA	1.030	0.800	1.200

O.H. Adaptor Head

Weight 18.0 kg
Length 0.74 m
Max. Diameter 8.9 cm

Total Stack Weight 979.0 kg in air
Total Stack Length 36.19 m

2-Arm Caliper

Weight 79.4 kg
Length 2.74 m
Max. Diameter 10.2 cm

Crossover

Weight 6.8 kg
Length 0.27 m

Universal GR

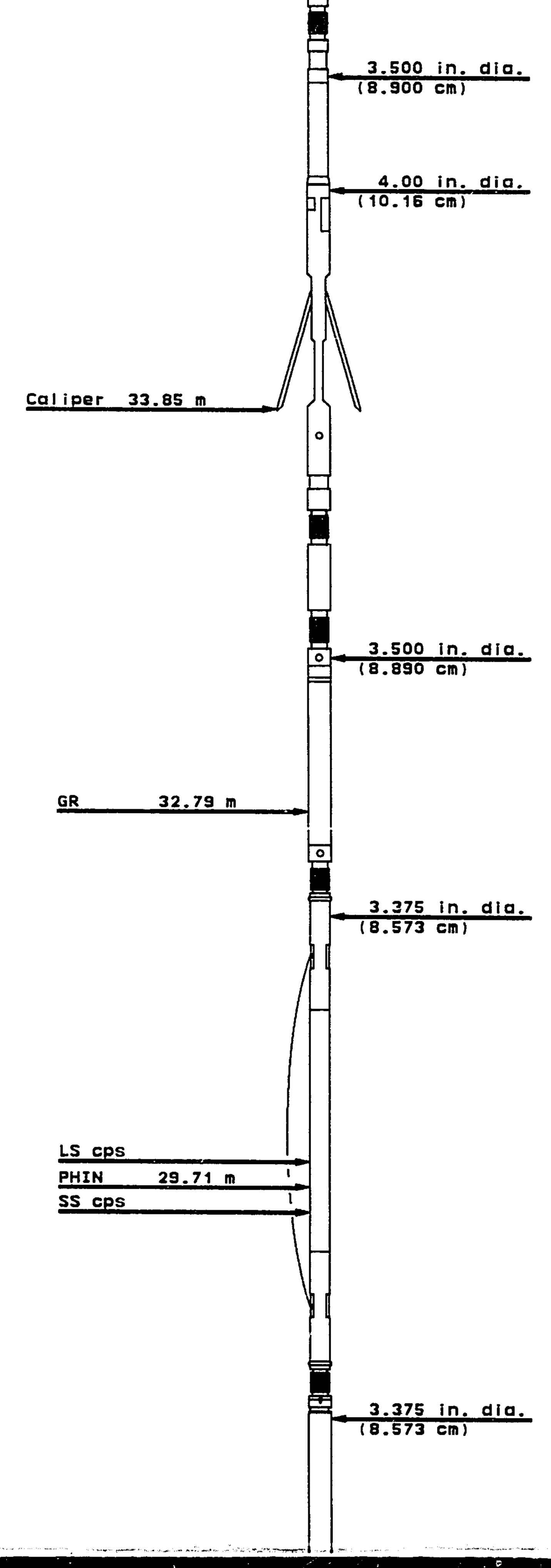
Weight 37.3 kg
Length 1.40 m
Max. Diameter 8.6 cm

Mandrel Neutron

Weight 45.4 kg
Length 2.07 m
Max. Diameter 8.6 cm

SPeD 400 Electronics

Weight 56.7 kg
Length 2.92 m
Max. Diameter 8.6 cm



SPeD 400 Pad Section

Weight	141.5 kg
Length	3.38 m
Max. Diameter	11.4 cm

Centralizer

Weight	30.9 kg
Length	1.39 m
Max. Diameter	8.9 cm

Monopole Dipole Array

Weight	274.0 kg
Length	11.15 m
Max. Diameter	8.9 cm

Centralizer

Weight	30.9 kg
Length	1.39 m
Max. Diameter	8.9 cm

Voltage Regulator

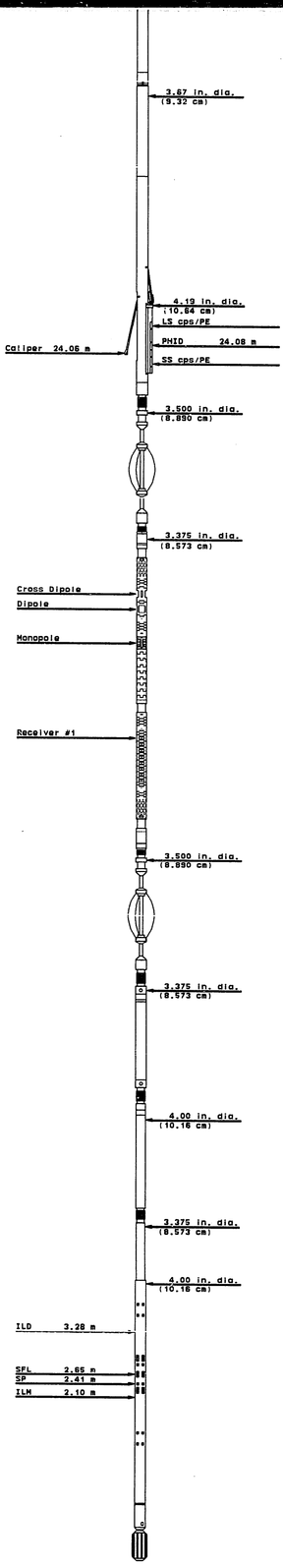
Weight	14.3 kg
Length	0.53 m
Max. Diameter	8.6 cm

Simultaneous Triple Induction

Weight	176.9 kg
Length	8.75 m
Max. Diameter	10.2 cm

Stand - Off

Weight	5.5 kg
Length	0.20 m



COMPANY	CANADIAN FOREST OIL LTD.
	CDN FOREST ET AL NORTH LIARD N-61
WELL	N61-6040-12330
FIELD	UNDEFINED
PROVINCE	N.W.T.

COMPUTALOG

FILE COPY

COMPUTALOG

CS400

SIMULTANEOUS TRIPLE INDUCTION SFL GAMMA RAY LOG

PROVINCE NORTHWEST TERRITORIES
FIELD UNDEFINED
WELL CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION 300/N-61-6040-12330/0

Other Services: SPD-CNS-UGR-DAC MDA / EMI / VSP

Perm. Datum Ground Level Elev. 604.0
Log measured from K.B., 6.7 m above Permanent Datum.

ELEV. K.B. 610.7
G.L. 604.0
CBF

Date	SEPTEMBER 10, 1999		
Run No.	TWO		
First Reading	3376.9		
Last Reading	3148.0		
Meters Meas.	228.9		
Depth Reached	3379.0		
Bot. Driller	3384.0		
Csg. Logger	3148.0		
Csg. Driller	3147.0	244.5mm@79.62kg/m	
Fluid Type	POLYMER		
Dens. & Visc.	1045 / 49		
Mud pH	10.0		
Mud Water Loss	9.0		
Mud Res.	1.7 @ 21 °C	1.9 @ 21 °C	1.8 @ 21 °C
Mud Res. @ BHT	0.5 @ 129 °C	@ °C	@ °C
Rmc	1.7 @ 20 °C	@ °C	@ °C
Rmf	1.9 @ 21 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	215.9mm		
Spacing	N/A		
Operating Time	4.5 hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21066

Drilling Stopped 1600 /07 Circulation Stopped 1515 /11 Tool on Bottom 0429 /12 BHT 129 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION.

PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST. Prints: 2

SP NOT AVAILABLE ON MAIN PASS, BUT PRESENTED ON REPEAT.

REPEAT PRESENTED FROM LOG DOWN BEFORE BRIDGING.

100mV SP SCALE

CHANGES IN MUD TYPE OR NEW SAMPLE

Date	Sample No.		
Depth - Driller			
Type Fluid in Hole			
Dens. / Visc.			
pH / Water Loss			
Source of Sample			
Rm @ Meas. Temp.	@ °C		@ °C
Rmf @ Meas. Temp.	@ °C		@ °C
Rmc @ Meas. Temp.	@ °C		@ °C
Source Rmf / Rmc			
Rm @ BHT	@ °C		@ °C
Rmf @ BHT	@ °C		@ °C
Rmc @ BHT	@ °C		@ °C

SCALE CHANGES

Type Log	Interval	Scale

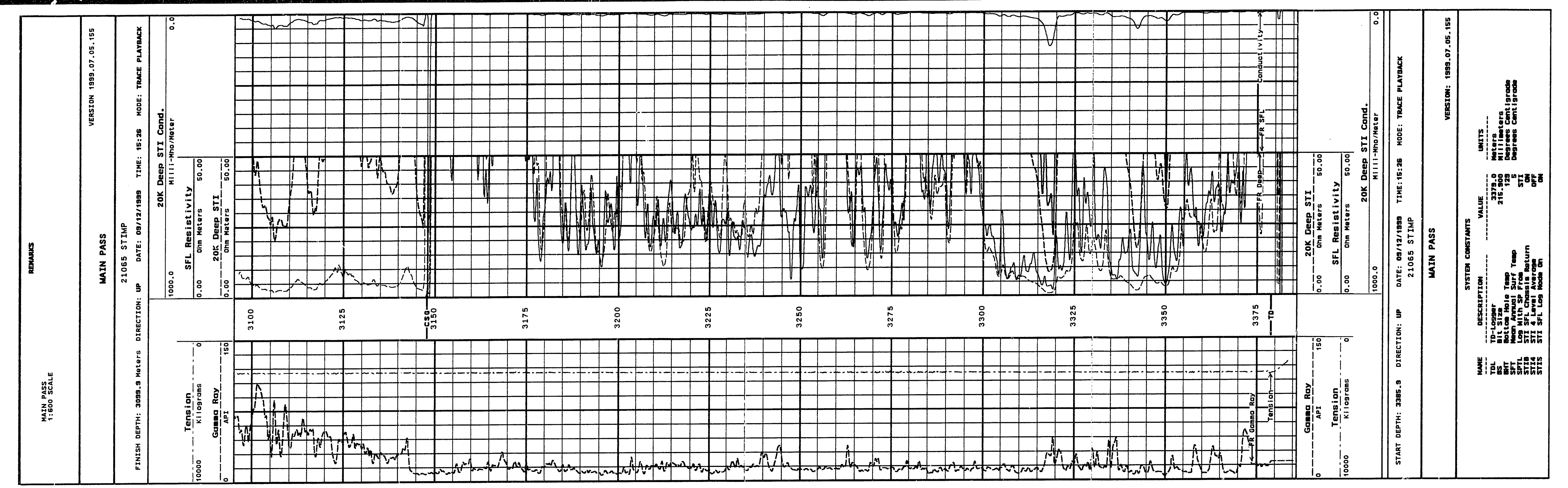
EQUIPMENT DATA

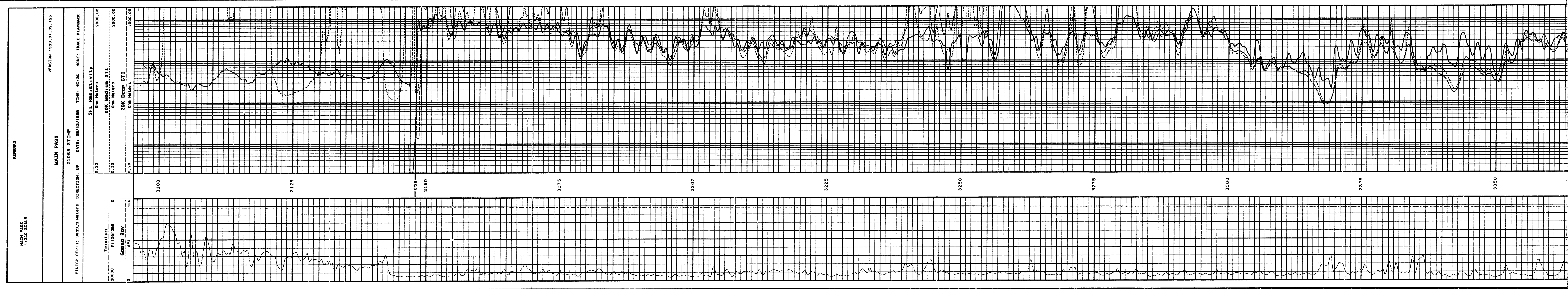
Run No.	Tool Type	Tool No.	Other
ONE	STI-AC	115115	2-38mm STANDOFFS USED
ONE	UGR-JA	117	RA-205-681

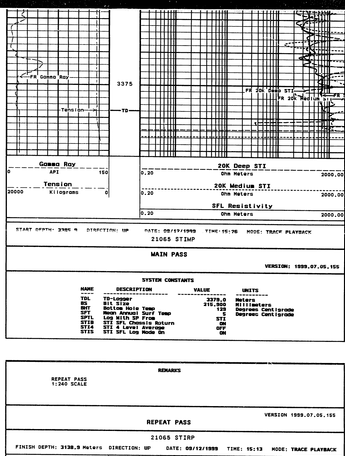
REMARKS

MAIN PASS 1:600 SCALE

VERSION 1999.07.05.155







START DEPTH: 3385 M DIRECTION: UP DATE: 08/17/1999 TIME: 15:26 MODE: TRACE PLAYBACK

21065 STIMP

MAIN PASS

VERSION: 1999.07.09.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3378.0	Meters
BS	Bit Size	311.900	Millimeters
BHT	Bottom Hole Temp	125	Degrees Centigrade
SPT	Mean Annual Surf Temp	15	Degrees Centigrade
SFL1	Log With SP Free	STI	
STI2	STI SFL Chemnis Return	OW	
STI3	STI SFL Log Mode On	OW	
STI4	STI SFL Log Mode On	OW	

REMARKS

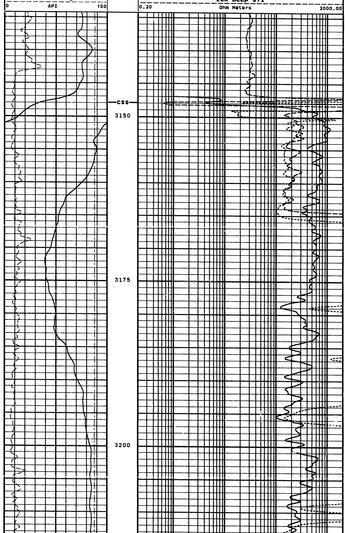
REPEAT PASS
1:240 SCALE

VERSION 1999.07.09.155

REPEAT PASS

21065 STIRP

FINISH DEPTH: 3138.9 Meters DIRECTION: UP DATE: 08/12/1999 TIME: 15:13 MODE: TRACE PLAYBACK



START DEPTH: 3363.9 DIRECTION: UP DATE: 08/12/1999 TIME: 15:13 MODE: TRACE PLAYBACK

21065 STIRP

REPEAT PASS

VERSION: 1999.07.09.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3378.0	Meters
BS	Bit Size	311.900	Millimeters
BHT	Bottom Hole Temp	125	Degrees Centigrade
SPT	Mean Annual Surf Temp	15	Degrees Centigrade
SFL1	Log With SP Free	STI	
STI2	STI SFL Chemnis Return	OW	
STI3	STI SFL Log Mode On	OW	
STI4	STI SFL Log Mode On	OW	

08/17/99 16:57 0.0 M Ver 2.0b-2.0b JOB 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 117
Calibrator No: AA-325-881

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

03/15/99 14:00 0.0 M Ver 2.0b-2.0b JOB SHOP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-XC SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHz DEEP	10KHz MEDIUM	20KHz DEEP	20KHz MEDIUM	40KHz DEEP	40KHz MEDIUM
Gain:	1.000	1.000	1.000	1.000	1.000	0.997
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	1.00	0.74	0.90	0.86	0.33	0.27
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SONDE ERROR:

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
Deep:	-1.5	-4.6	3.5	-30.5	1.0	-26.3
Upper Limit:	20.0	100.0	20.0	100.0	20.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0
Medium:	3.4	-33.8	0.5	-37.8	-1.0	-87.0
Upper Limit:	20.0	100.0	20.0	100.0	20.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0

SHOP ELECTRONICS CALIBRATION:

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
Zero Error(mmho/m):	13.3	26.9	-11.5	16.0	-2.4	12.9
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.000	0.988	0.999	0.990	0.988	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.56	0.43	0.06	-0.16	0.26	-0.08
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00

Upper Limit:	10.00	10.00	10.00		10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00		-10.00	-10.00	-10.00

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
DEEP						
Zero Error(mmho/m):	12.6	37.3	16.1	-2.6	13.2	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.000	0.998	1.000	0.997	0.999	
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.55	0.51	0.32	-0.14	0.06	-0.09
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
MEDIUM						
Zero Error(mmho/m):	12.6	37.3	16.1	-2.6	13.2	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.000	0.998	1.000	0.997	0.999	
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.55	0.51	0.32	-0.14	0.06	-0.09
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-3.1	-100.0	100.0	mV	1.031	0.800	1.200
Current:	-0.6	-25.0	25.0	uA	1.008	0.800	1.200

09/12/89 03:47 243.0 M Ver 2.00-2.00 Job 21065

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
DEEP						
Zero Error(mmho/m):	20.5	38.0	16.8	-2.6	13.0	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.001	0.999	0.998	0.985	0.989	0.990
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.60	0.42	-0.30	-0.18	-0.24	-0.14
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
MEDIUM						
Zero Error(mmho/m):	37.1	38.5	17.2	-2.3	13.6	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.993	1.001	0.998	0.993	
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.73	0.35	-0.05	-0.17	0.29	-0.15
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-3.1	-100.0	100.0	mV	1.039	0.800	1.200
Current:	-0.6	-25.0	25.0	uA	1.018	0.800	1.200

09/12/89 05:32 3063.0 M Ver 2.00-2.00 Job 21065

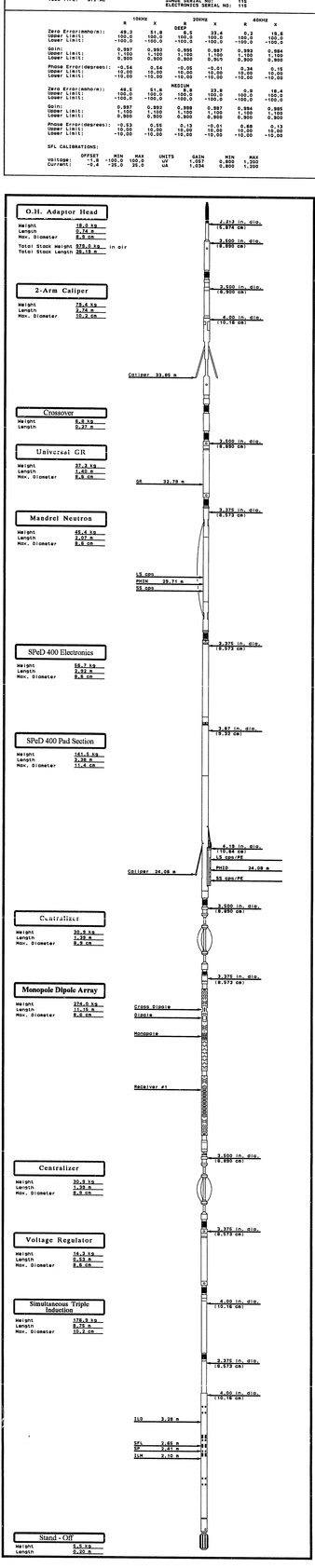
SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
DEEP						
Zero Error(mmho/m):	49.3	51.8	22.6	-2.2	15.6	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.993	0.995	0.987	0.993	0.984
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.54	-0.56	-0.05	-0.01	0.34	0.15
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
MEDIUM						
Zero Error(mmho/m):	48.6	51.4	23.8	-0.9	18.4	
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.993	0.998	0.987	0.994	0.985
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.53	0.65	0.13	-0.01	0.08	0.13
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SFL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-1.8	-100.0	100.0	mV	1.057	0.800	1.200
Current:	-0.4	-25.0	25.0	uA	1.034	0.800	1.200



COMPANY	CANADIAN FOREST OIL LTD.
	300-N61-6040-12330
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

N.E.B. COPY

COMPUTALOG

CS400

SIMULTANEOUS
TRIPLE INDUCTION
SFL GAMMA RAY LOG

TRUE VERTICAL DEPTH

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION
300/N-61-6040-12330/0

Other Services:
SPD-CNS-UGR-DAC
MDA / EMI / VSP

Perm. Datum Ground Level Elev. 604.0
Log measured from K.B. , 6.7 m above
Permanent Datum.

ELEV.K.B. 610.7
G.L. 604.0
CBF

Date	SEPTEMBER 10, 1999		
Run No.	TWO		
First Reading	3370.0		
Last Reading	3141.2		
Meters Meas.	228.8		
Depth Reached	3372.1		
Bot. Driller	3377.1		
Csg. Logger	3141.2		
Csg. Driller	3140.2	244.5mm@79.62kg/m	
Fluid Type	POLYMER		
Dens. & Visc.	1045 | 49		
Mud pH	10.0		
Mud Water Loss	9.0		
Mud Res.	1.7 @ 21 °C	1.9 @ 21 °C	1.8 @ 21 °C
Mud Res. @ BHT	0.5 @ 129 °C	@ °C	@ °C
Rmc	1.7 @ 20 °C	@ °C	@ °C
Rmf	1.9 @ 21 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	215.9mm		
Spacing	N/A		
Operating Time	4.5 hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21065

Drilling Stopped 1600 /07 Circulation Stopped 1515 /11 Tool on Bottom 0429 /12 BHT 129 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION.

PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST.

SP NOT AVAILABLE ON MAIN PASS, BUT PRESENTED ON REPEAT. Prints: 2

REPEAT PRESENTED FROM LOG DOWN BEFORE BRIDGING.

100mV SP SCALE

CHANGES IN MUD TYPE OR NEW SAMPLE			SCALE CHANGES		
Date | Sample No.			Type Log	Interval	Scale
Depth - Driller					
Type Fluid in Hole					
Dens. | Visc.					
pH | Water Loss					
Source of Sample					

		EQUIPMENT DATA			
Rm @ Meas. Temp.	@ °C	Run No.	Tool Type	Tool No.	Other
Rmf @ Meas. Temp.	@ °C	ONE	STI-AC	115115	2-38mm STANDOFFS USED
Rmc @ Meas. Temp.	@ °C	ONE	UGR-JA	117	RA-205-681
Source Rmf | Rmc					
Rm @ BHT	@ °C				
Rmf @ BHT	@ °C				
Rmc @ BHT	@ °C				

REMARKS

MAIN PASS
1:600 SCALE

TVD PASS

VERSION 1999.07.05.155

21065 T-TF000-2100

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

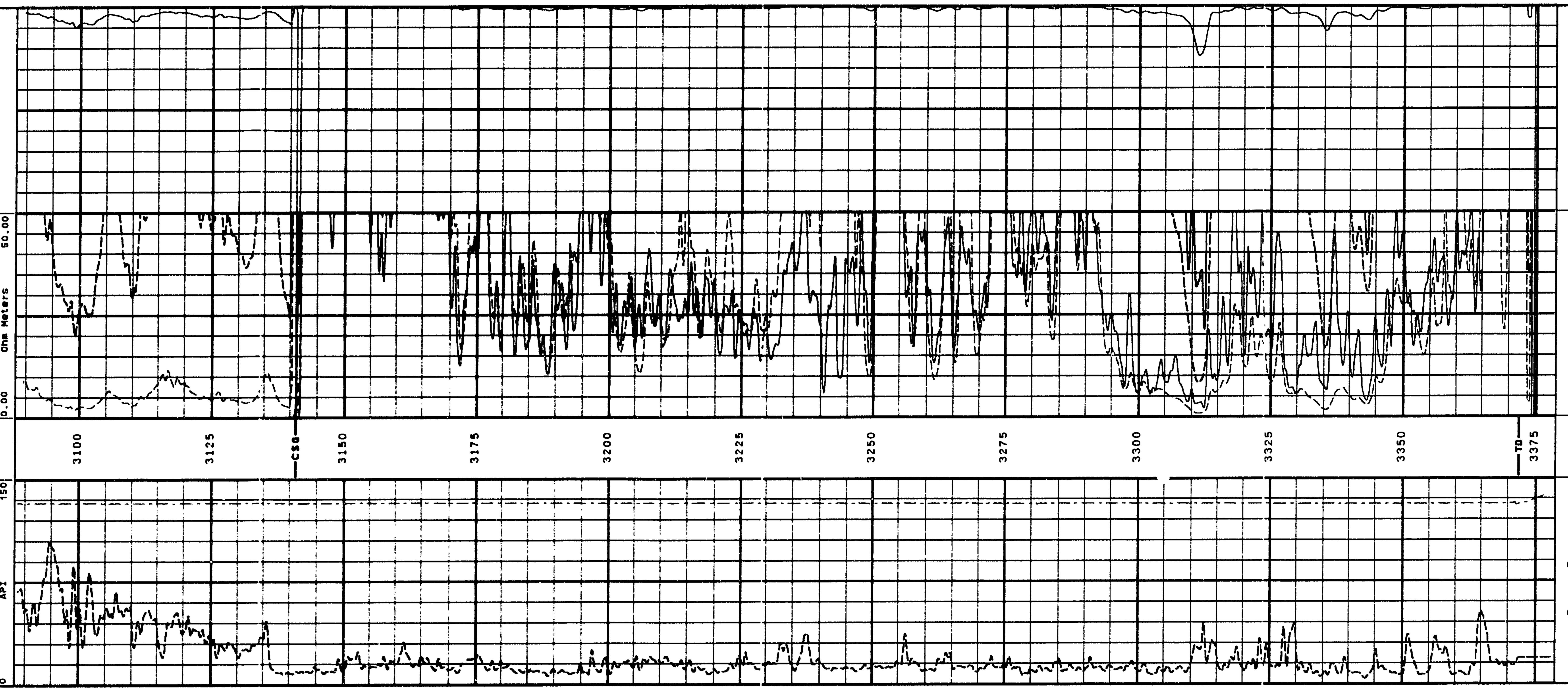
Tension Kilograms 20000 0

Gamma Ray API 0 150

SFL Resistivity Ohm Meters 0.20 2000.00

20K Deep STI Ohm Meters 0.20 2000.00

20K Deep STI Cond. Milli-Mho/Meter 1000.0 0.0



Gamma Ray API 0 150

Tension Kilograms 20000 0

20K Deep STI Ohm Meters

SFL Resistivity Ohm Meters 0.20 2000.00

20K Deep STI Cond. Milli-Mho/Meter 1000.0 0.0

START DEPTH: 3379.8 DIRECTION: UP DATE: 09/13/1999 TIME: 10:46 MODE: TRACE PLAYBACK

21065 T-TF000-2100

TVD PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3383.6	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	129	Degrees Centigrade
SBT	Surface Temp	21	Degrees Centigrade
STI6	STI Annual Surf From		
STI8	STI Channels Return		
STI4	STI 4 Level Average	ON	
STI5	STI SFL Log Mode On	ON	

REMARKS

MAIN PASS
1:240 SCALE

TVD PASS

VERSION 1999.07.05.155

21065 T-TF000-2100

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

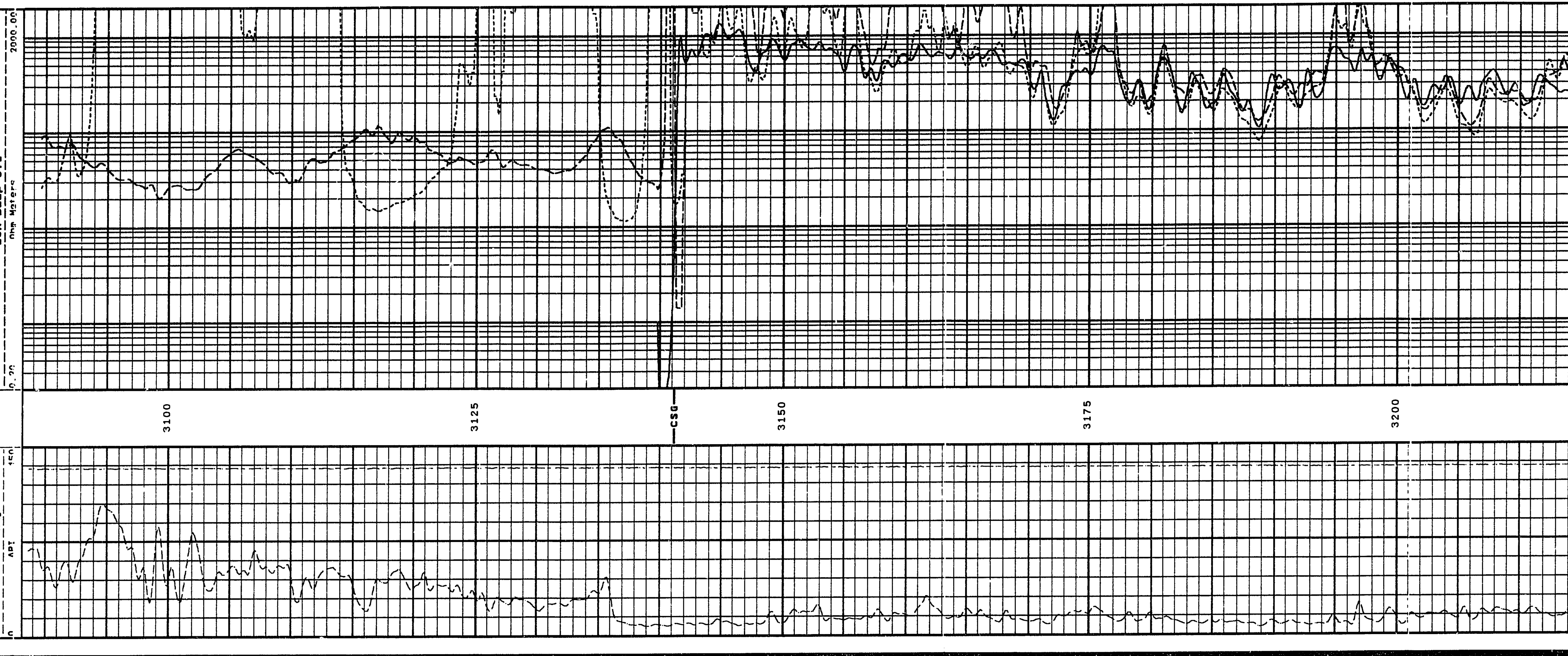
Tension Kilograms

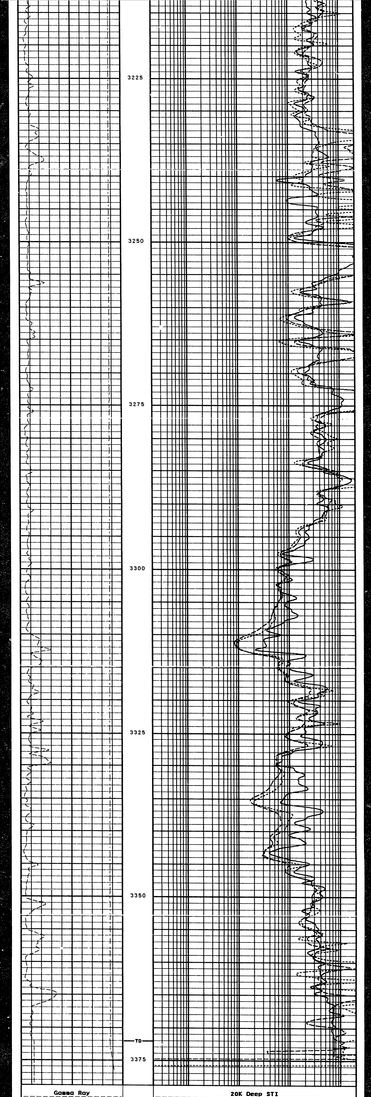
Gamma Ray API

SFL Resistivity Ohm Meters 0.20 2000.00

20K Medium STI Ohm Meters 0.20 2000.00

20K Deep STI Ohm Meters 0.20 2000.00





START DEPTH: 3378.8 DIRECTION: UP DATE: 09/12/1999 TIME: 10:46 MODE: TRACE PLAYBACK

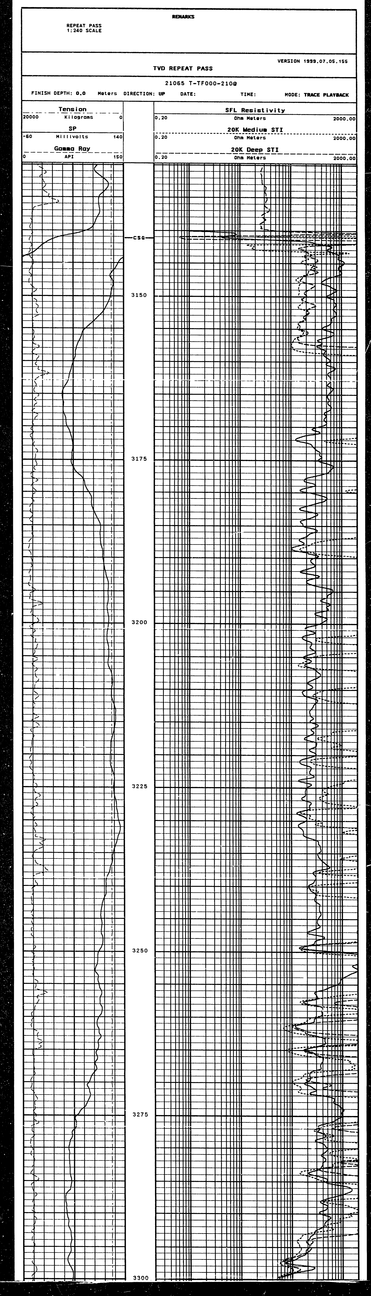
21065 T-TF000-210@

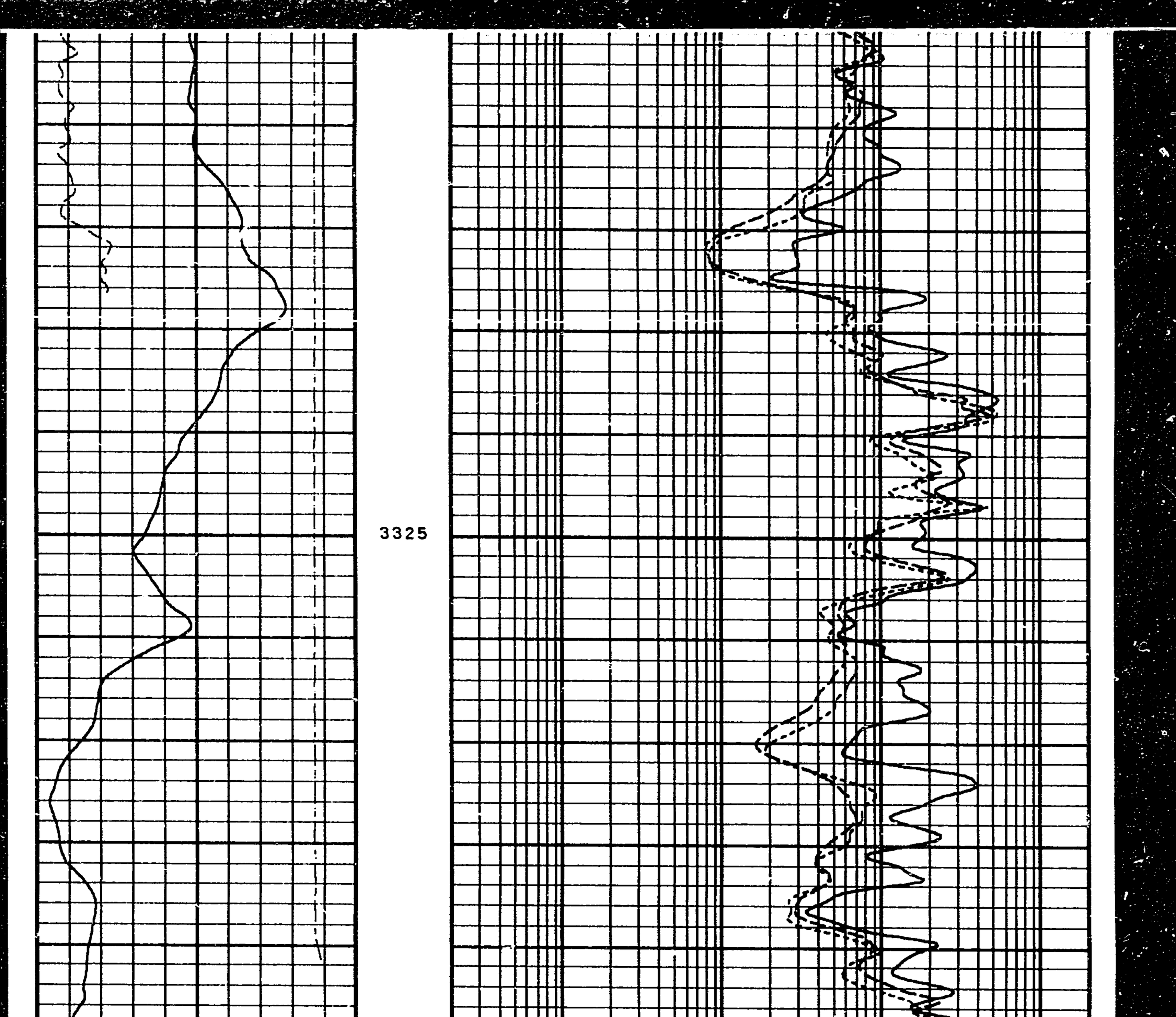
TVD PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TD	TD-Logger	3392.0	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	120	Degrees Centigrade
MBT	Max Bottom Hole Temp	120	Degrees Centigrade
SFT1	Temp with SP Free	37.2	
STIR	STI SFL Chassis Return	0K	
STIA	STI A Level average	OFC	
STIS	STI SFL Log Mode On	ON	





Gamma Ray			20K Deep STI		
0	API	150	0.20	Ohm Meters	2000.00
SP			20K Medium STI		
-60	Millivolts	140	0.20	Ohm Meters	2000.00
Tension			SFL Resistivity		
20000	Kilograms	0	0.20	Ohm Meters	2000.00

START DEPTH: 3356.9 DIRECTION: UP DATE: 09/12/1999 TIME: 10:46 MODE: TRACE PLAYBACK

21065 T-TF000-210@

TVD REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3350.8	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	129	Degrees Centigrade
SFT	Mean Annual Surf Temp	5	Degrees Centigrade
SPTL	Log With SP From	STI	
STIB	STI SFL Chassis Return	ON	
STI4	STI 4 Level Average	OFF	
STIS	STI SFL Log Mode On	ON	

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature VERSION : 1.0
TVD DATA FILE : /mstr/cs400/8000/21065/21065tvd.tvdb

COMPANY : Canadian Forest Oil Ltd.
WELL : Cdn. Forest et al North Liard N-61
LOCATION : 300-N61-6040-12330-0
DATE : September 10, 1999

DRILLED DEPTH : 3384.00 m
TRUE VERTICAL DEPTH : 3377.12 m
BOTTOM HOLE DISPLACEMENT : N 79.15 m E 123.85 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.26	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.80	59.30	1625.47	59.62	83.13
12	1640.10	7.60	58.40	1634.99	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.80	59.70	1652.84	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.90	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.89	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3152.00	0.90	337.70	3145.18	76.99	120.41
170	3159.50	0.80	326.30	3152.68	77.09	120.36
171	3177.50	0.70	325.50	3170.68	77.29	120.23
172	3187.10	0.80	328.80	3180.28	77.39	120.16
173	3196.70	0.80	323.10	3189.88	77.50	120.09
174	3206.28	0.70	319.90	3199.46	77.60	120.01
175	3216.00	0.50	333.20	3209.18	77.68	119.95
176	3225.70	0.40	13.90	3218.88	77.76	119.94
177	3235.40	0.70	43.10	3228.58	77.83	119.99
178	3244.90	1.40	56.60	3238.08	77.94	120.13
179	3254.20	2.10	63.20	3247.37	78.08	120.37
180	3264.30	2.00	65.20	3257.47	78.23	120.70
181	3274.02	1.90	70.20	3267.18	78.36	121.00
182	3283.70	1.80	67.90	3276.85	78.47	121.30
183	3293.40	1.70	65.70	3286.55	78.59	121.57
184	3303.10	1.60	64.60	3296.25	78.71	121.82
185	3312.50	1.50	66.80	3305.64	78.81	122.05
186	3322.54	1.40	72.10	3315.68	78.90	122.29
187	3332.24	1.40	75.40	3325.38	78.97	122.52
188	3342.00	1.50	81.10	3335.13	79.02	122.76
189	3351.20	1.50	83.90	3344.33	79.05	123.00
190	3360.82	1.60	84.60	3353.95	79.07	123.26
191	3370.97	1.50	83.20	3364.09	79.10	123.53
192	3380.00	1.40	81.95	3373.12	79.13	123.76
193	3384.00	1.40	81.95	3377.12	79.15	123.85

08/17/99 18:57 0.0 M Ver 2.0b-2.0b Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 117
Calibrator No: RA-20S-681

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

03/15/99 14:00 0.0 M Ver 2.0b-2.0b Job SHOP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHz		20KHz		40KHz	
	DEEP	MEDIUM	DEEP	MEDIUM	DEEP	MEDIUM
Gain:	1.010	1.001	1.017	1.002	1.001	0.987
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	1.08	0.74	0.90	0.66	0.33	0.27
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SONDE ERROR:

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
Deep:	-11.3	-44.6	2.5	-30.5	1.8	-26.3
Upper Limit:	20.0	100.0	20.0	100.0	20.0	100.0
Lower Limit:	-20.0	-100.0	-20.0	-100.0	-20.0	-100.0
Medium:	3.4	-23.8	0.5	-37.8	1.6	-67.0
Upper Limit:	20.0	150.0	20.0	150.0	20.0	150.0
Lower Limit:	-20.0	-150.0	-20.0	-150.0	-20.0	-150.0

SHOP ELECTRONICS CALIBRATION:

	10KHz		20KHz		40KHz	
	R	X	R	X	R	X
DEEP						
Zero Error(mmho/m):	13.9	36.9	-1.5	14.9	-2.4	12.9
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.000	0.996	0.999	0.990	0.998	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.56	0.43	0.06	-0.16	0.26	-0.09
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
MEDIUM						
Zero Error(mmho/m):	12.5	37.3	-1.9	16.1	-2.5	13.2
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.000	0.996	1.000	0.989	0.997	0.989
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.56	0.51	0.32	-0.14	0.86	-0.09
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SPL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-3.5	-100.0	100.0	uV	1.031	0.800	1.200
Current:	-0.6	-35.0	35.0	uA	1.008	0.800	1.200

09/12/99 03:47 342.0 M Ver 2.0b-2.0b JOB 21065

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC

SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

	10KHZ R	10KHZ X	20KHZ R	20KHZ X	40KHZ R	40KHZ X
			DEEP			
Zero Error(mmho/m):	130.9	39.0	2.0	16.9	-2.6	13.9
Upper Limit:	200.0	200.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	1.001	0.993	0.988	0.989	0.999	0.990
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.60	0.42	-0.30	-0.18	-0.24	-0.14
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	37.1	36.5	16.4	17.2	-2.3	13.6
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.993	0.990	0.987	0.993	0.994
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.54	0.54	-0.00	-0.01	0.34	0.15
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SPL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-3.1	-100.0	100.0	uV	1.039	0.800	1.200
Current:	-0.6	-35.0	35.0	uA	1.016	0.800	1.200

09/12/99 05:32 3062.0 M Ver 2.0b-2.0b JOB 21065

SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

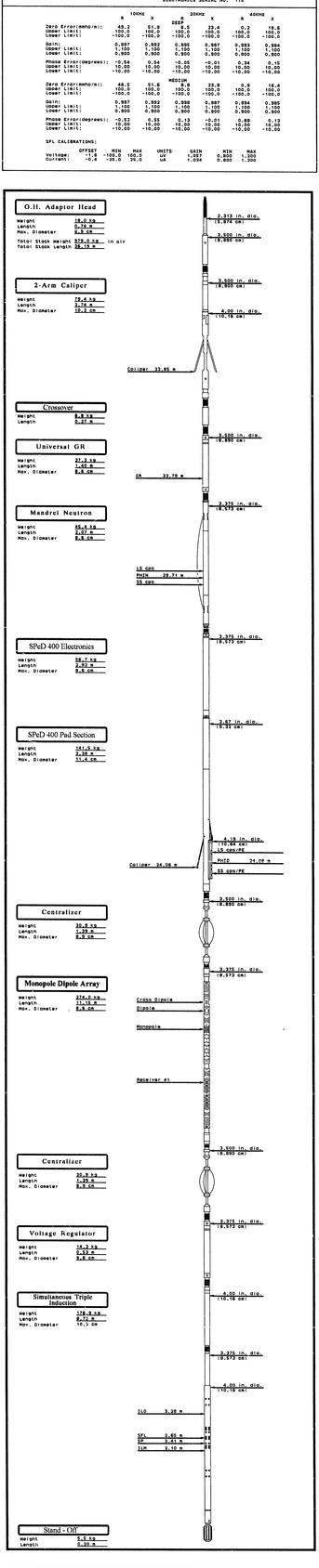
TOOL TYPE: STI-AC

SONDE SERIAL NO: 115
ELECTRONICS SERIAL NO: 115

	10KHZ R	10KHZ X	20KHZ R	20KHZ X	40KHZ R	40KHZ X
			DEEP			
Zero Error(mmho/m):	49.2	51.8	5.5	23.4	0.2	19.5
Upper Limit:	200.0	200.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.992	0.990	0.987	0.993	0.994
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.54	0.54	-0.00	-0.01	0.34	0.15
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00
			MEDIUM			
Zero Error(mmho/m):	48.5	51.6	18.8	23.9	0.9	18.4
Upper Limit:	100.0	100.0	100.0	100.0	100.0	100.0
Lower Limit:	-100.0	-100.0	-100.0	-100.0	-100.0	-100.0
Gain:	0.997	0.993	0.990	0.987	0.994	0.995
Upper Limit:	1.100	1.100	1.100	1.100	1.100	1.100
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	-0.52	0.55	-0.13	-0.01	0.68	-0.13
Upper Limit:	10.00	10.00	10.00	10.00	10.00	10.00
Lower Limit:	-10.00	-10.00	-10.00	-10.00	-10.00	-10.00

SPL CALIBRATIONS:

	OFFSET	MIN	MAX	UNITS	GAIN	MIN	MAX
Voltage:	-2.8	-100.0	100.0	uV	1.057	0.800	1.200
Current:	-0.6	-35.0	35.0	uA	1.036	0.800	1.200



COMPANY	CANADIAN FOREST OIL LTD.
	300-N61-6040-12330
WELL	CON FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

SONIC

N.E.B. COPY

COMPUTALOG

CS-400

MONOPOLE DIPOLE
ARRAY SONIC

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

LOCATION 300/N-61-E060-12330/0	Other Services: CPD-CNS-DGR-SDT-MSFL-BHC-AMS-VDL-CBF
Perm. Datum Ground Level Elev.504.0	ELEV.K.B.510.7
Log measured from R.B. 6.7 m above Permanent Datum.	G.L.504.0 CBF

Date	AUGUST 18 1989
Run No.	ONE
First Reading	3135.6
Last Reading	735.5
Meters Meas.	2400.1
Depth Reached	3149.0
Bot. Driller	3147.0
Cas. Logger	735.5
Cas. Driller	735.6
Fluid Type	POTASSIUM SULPHATE
Dens. & Visc.	1635 50
Mud pH	10.5
Mud Water Loss	8.0
Mud Res.	0.16 @ 34 °C
Mud Res. @ BHT	0.05 @ 114 °C
Res.	0.12 @ 23 °C
Res.	0.10 @ 24 °C
Res. @ BHT	@ °C
Bit Size	311mm
Centre	N/A
Operating Time	20.5hrs.
Equipment	5209
Station	GRANDE PRAIRIE
Recorded By	G.VASEY / C.MURRAY
Witnessed By	R.KELLY

339.7mm @101.2kg/m	

Type Log	SONIC

EQUIPMENT DATA			
Tool Type	Tool No.		
SONIC/LIGHT			
DGR	1227		
SDT-DIFFERT CALIPER			

Max. Temp.	
Equip. Loc.	
Rec. Eng.	
Witnessed By	

PROVINCE NORTHWEST TERRITORIES
FIELD UNDEFINED
COMPANY CANADIAN FOREST OIL LTD.
WELL CDN FOREST ET AL NORTH LIARD N-61
LOCATION 300/N-61-E060-12330/0

ALL INTERPRETATIONS OR OPINIONS MADE IN REPORTS FOR ESTIMATES IN OTHER MEASUREMENTS AND HE CANNOT AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION MADE BY ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES. WE ASSUME NO LIABILITY OR RESPONSIBILITY 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS

SITE: DATA # 25
Drill Pipe Stopped 3120.0m. Circulation Stopped 3135.6m. Tool on Bottom 0515.7hr. BHT 114.4°
Logging Speed 1800m/hr. Tool Stuck Approx. 1 Hour After Logging Out.
Repeat Section Recorded Up From Bottom Approx. 1 Hour After Logging Out.

SERVICE COMP # 21059

Fritzler 3

DELTA TIME (COMP) 100.0 – 200.0

GAMMA RAY 0.0 – 150.0
TENSION 1000.0 – 0
CAL1 200.0 – 800.0 Millimeters
CAL2 200.0 – 800.0

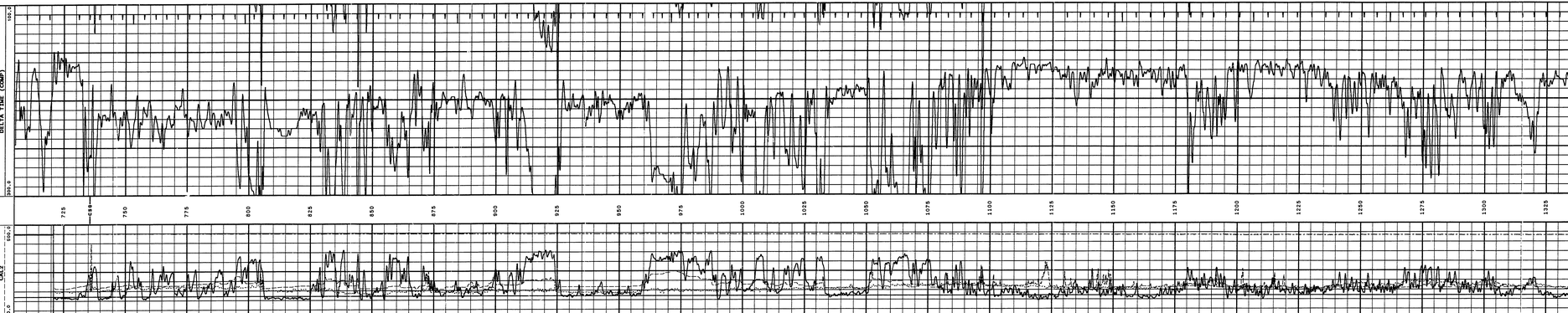
FINISH DEPTH: 709.5 Meters DIRECTION: UP DATE: 08/23/1989 TIME: 21:48 MODE: TRACE PLAYBACK

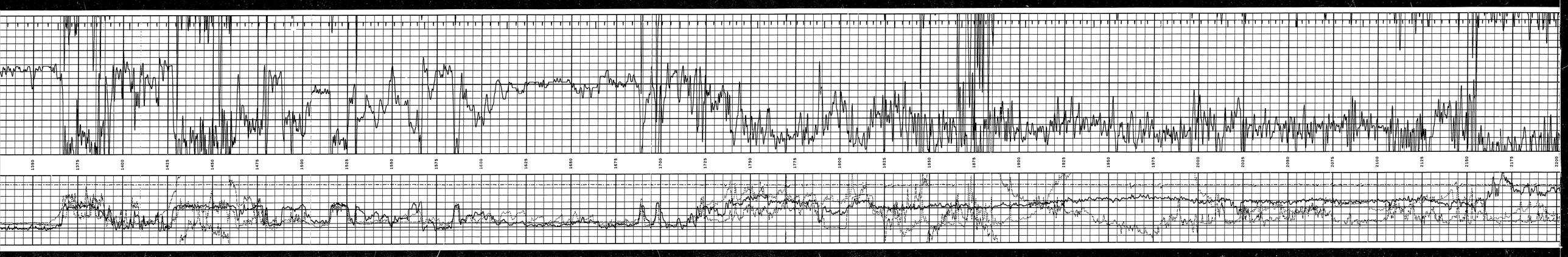
21059 21059DOO

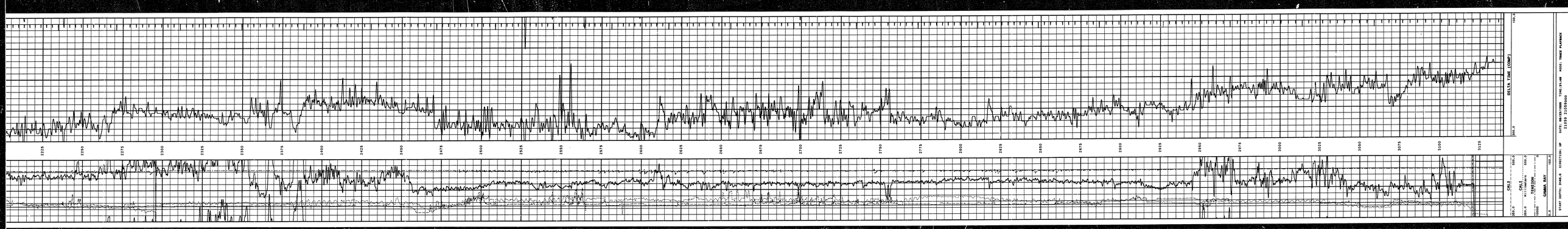
VERSION 1989.27.06.461

REMARKS

MAIN PASS
SONIC & GAMMA
CORRECTIONS, PRESENTATION




1350
1375
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
2050
2075
2100
2125
2150
2175
2200



START DEPTH: 3440.0 STOP DEPTH: 2100.0 STEP: 0.5000 SCALE: TRACE PLOTTAGE

21059 21059000

VERSION: 1999.07.08.461

REMARKS

MAIN PASS
1:240 SCALE
COMPRESSIONAL PRESENTATION

VERSION 1999.07.08.461

21059 21059000

FINISH DEPTH: 709.5 Meters DIRECTION: UP DATE: 08/23/1999 TIME: 21:48 MODE: TRACE PLAYBACK

GAMMA RAY
0.0 150.0

TENSION
10000 0

CALI
250.0 Millimeters 500.0

CAL2
250.0 500.0

DELTA TIME (COMP)
300.0 100.0

725

CS4

750

775

800

825

850

875

900

925

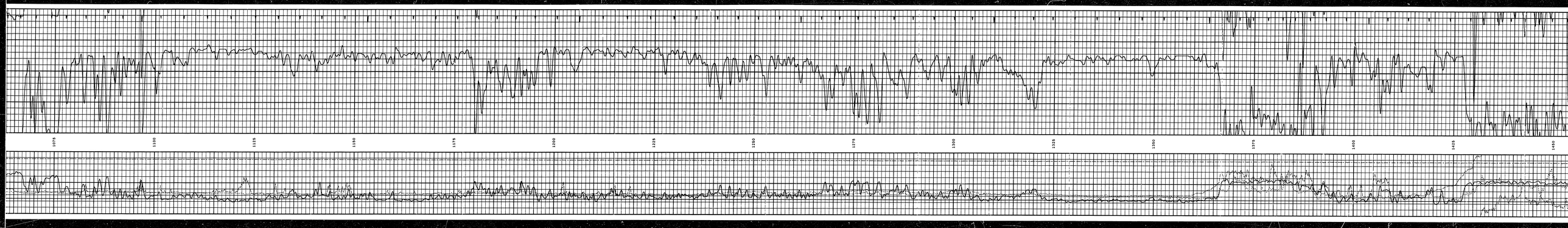
950

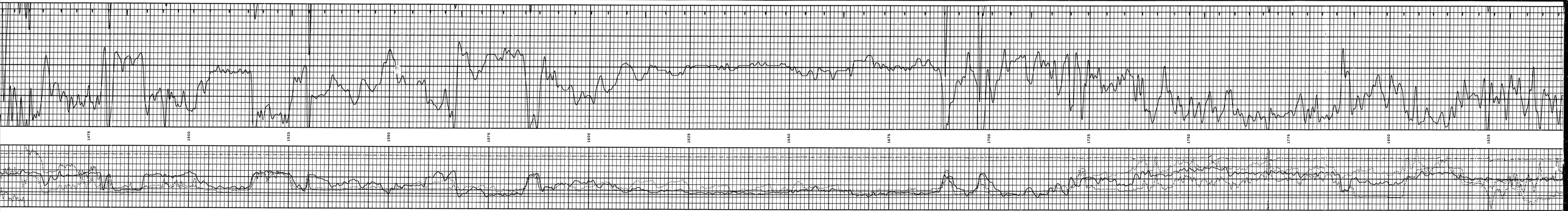
975

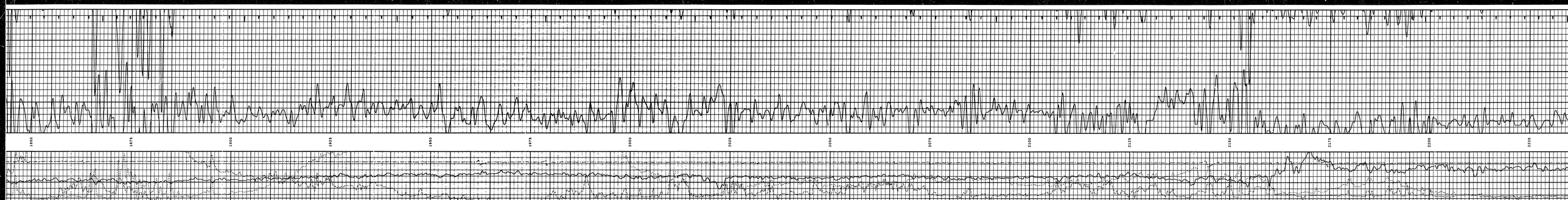
1000

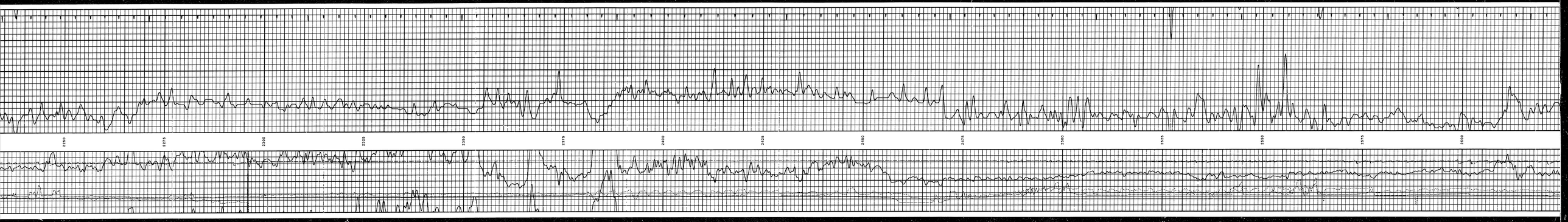
1025

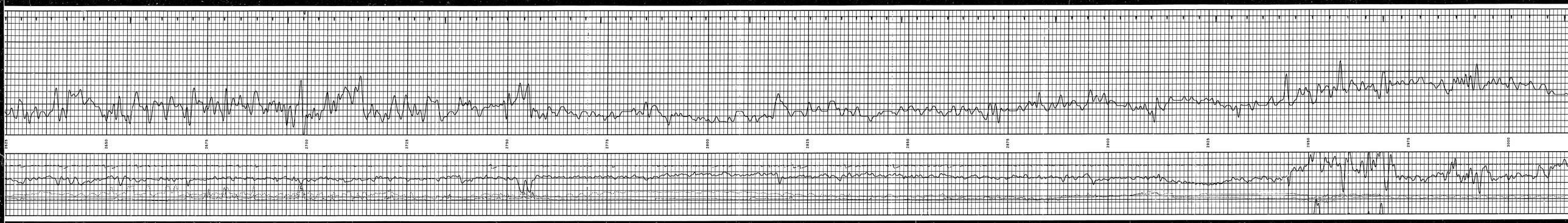
1050

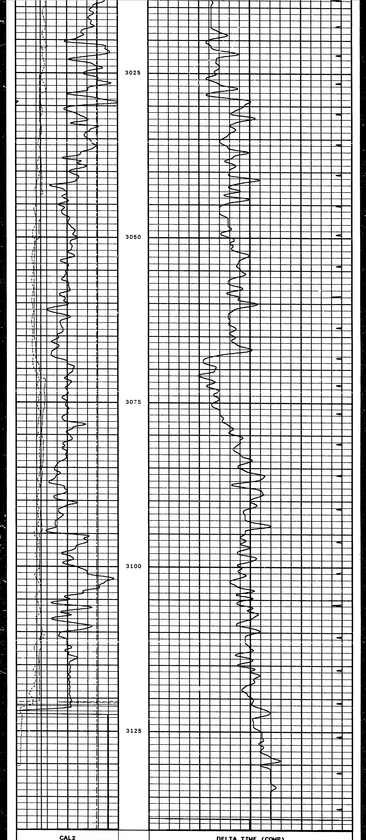

1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450


1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825


1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225


2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600


2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000



START DEPTH: 3140.0 DIRECTION: UP DATE: 08/23/1999 TIME:21:48 MODE: TRACE PLAYBACK

21059 21059000

VERSION: 1999.07.08.461

REMARKS

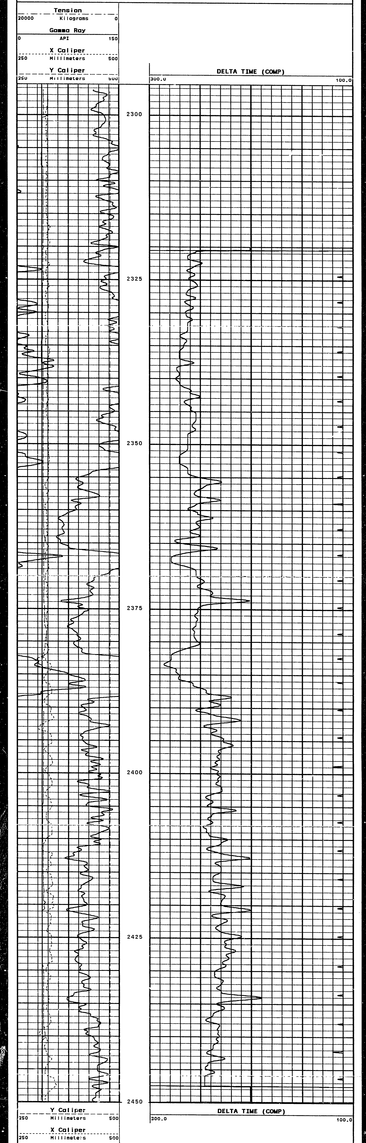
REPEAT PASS
1:240 SCALE

VERSION 1999.07.08.461

MAIN PASS

21059 STI17TRC

FINISH DEPTH: 2300.4 Meters DIRECTION: UP DATE: 08/23/1999 TIME: 18:35 MODE: TRACE PLAYBACK



START DEPTH: 3155.4 DIRECTION: UP DATE: 08/23/1999 TIME:18:34 MODE: TRACE PLAYBACK

21059 STI17TRC

MAIN PASS

VERSION: 1999.07.08.461

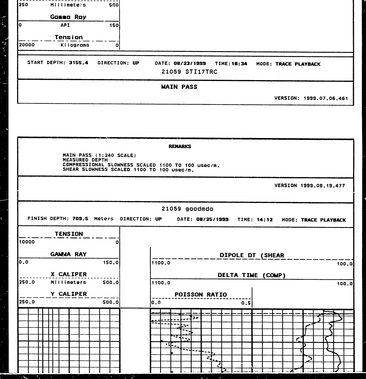
REMARKS

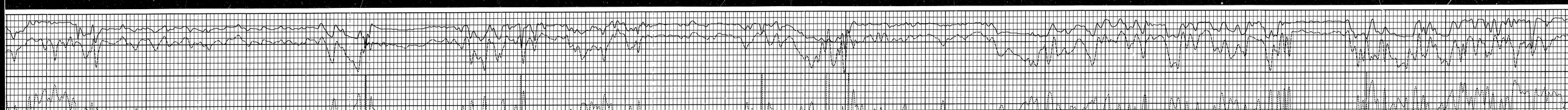
MAIN PASS (1:240 SCALE):
MEASURED DEPTH
COMPRESSIONAL SLOWNESS SCALED 1100 TO 100 usec/m.
SHEAR SLOWNESS SCALED 1100 TO 100 usec/m.

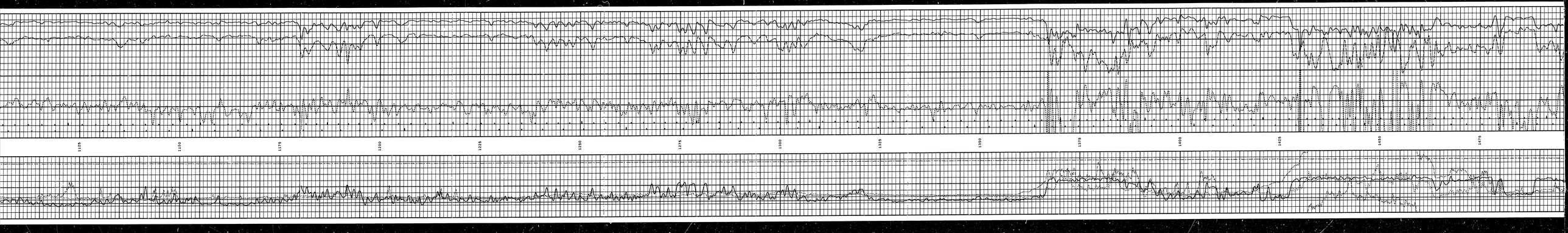
VERSION 1999.08.19.477

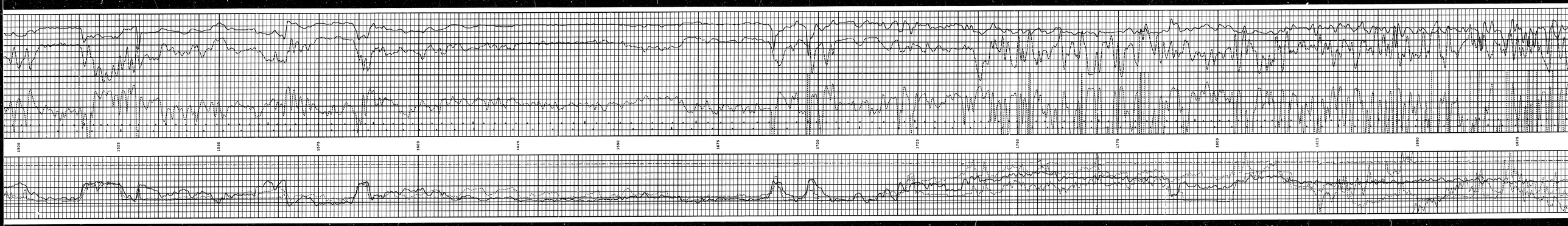
21059 goodada

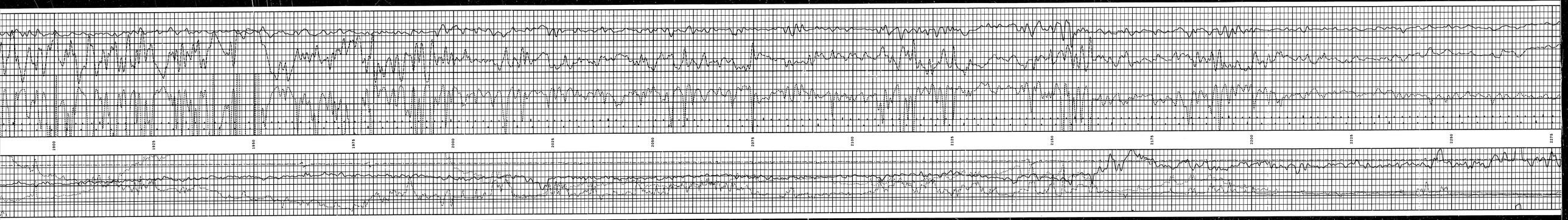
FINISH DEPTH: 709.5 Meters DIRECTION: UP DATE: 08/25/1999 TIME: 14:12 MODE: TRACE PLAYBACK

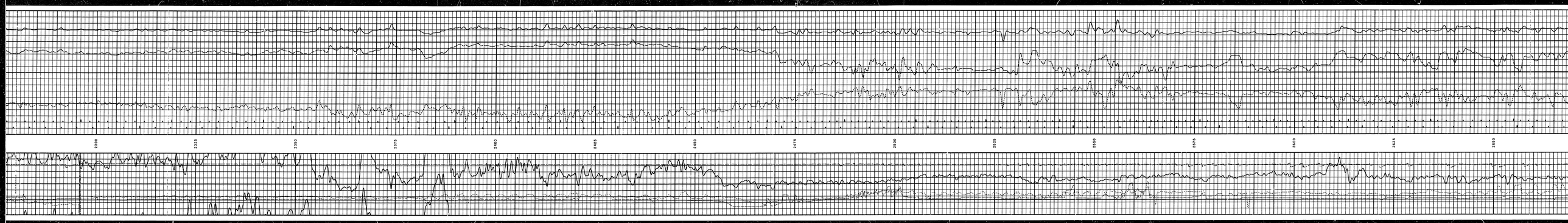


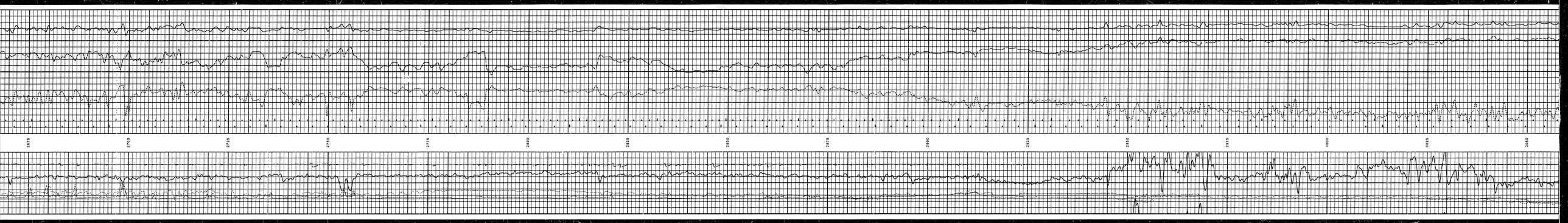

725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050
1075
1100

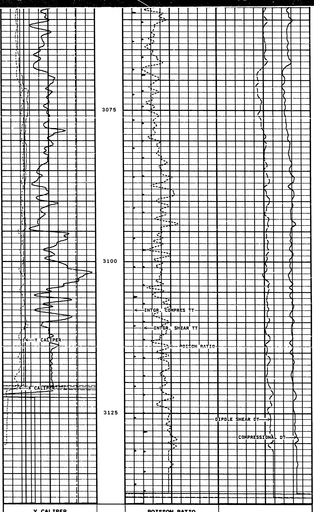

1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450
1475


1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850
1875


1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225
2250
2275


2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625
2650


2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000
3025
3050



Y CALIPER		POISSON RATIO	
250.0	500.0	0.0	0.5
X CALIPER		**DELTA TIME (COMP)**	
250.0 Millimeters	500.0	1100.0	100.0
GAMMA RAY		**DIPOLE GT (SHEAR**	
0.0	150.0	1100.0	100.0
TENSION			
10000	0		

START DEPTH: 3140.0 DIRECTION: UP DATE: 08/25/1999 TIME:14:11 MODE: TRACE PLAYBACK

21059 goodmdo

VERSION: 1999.08.19.477

08/17/99 19:05 0.0 M Ver 3.0b-2.0b Job 21059

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9090

	Measured Large	Units	Calibrated Small	Units
CALX	3039.4	7383.7 mv	312.0	830.0 mm

08/17/99 18:57 0.0 M Ver 3.0b-2.0b Job 21059

Gamma Ray Before Survey Calibration

Tool Type: USR-JA Serial No: 117

Calibrator No: RA-205-681

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

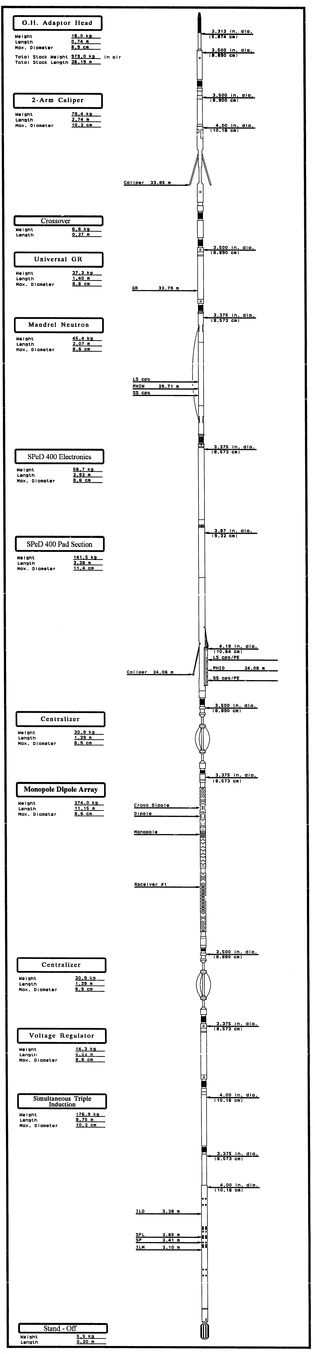
Delta Counts Per Sec: 526.3 CPS/API = 3.760

08/18/99 20:46 0.0 M Ver 3.0b-2.0b Job 21059

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:110

	Measured Small	Units	Calibrated Small	Units
CALX	1937.0	3791.5 mv	312.0	830.0 mm



COMPANY	CANADIAN FOREST OIL LTD.
	CON FOREST ET AL NORTH LIARD N-61
WELL	N61-6040-12330
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

NEW COPY

COMPUTALOG

CS400.

MONOPOLE DIPOLE
ARRAY SONIC

TRUE VERTICAL DEPTH

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

PROVINCE: CDN FOREST ET AL NORTH LIARD N-61-E060-12330.
FIELD:
WELL:
COMPANY: CANADIAN FOREST OIL LTD.

LOCATION: 300/N-61-E060-12330/0

Other Services: SFD-CNS-VSR-SAL, DIT / SGR - VSP

Perm. Datum: Ground Level. Elev. 604.0
Log measured from K.B. , 6.7 m above Permanent Datum.

ELEV.K.B. 610.7
G.L. 604.0
CBF

Date	AUGUST 18 1999	
Run No.	ONE	
First Reading		
Last Reading	735.5	
Meters Meas.		
Depth Reached	3140.1	
Bot. Driller	3140.2	
Csg. Logger	735.5	
Csg. Driller	735.4	339.7mm @101.2Kg/m
Fluid Type	POTASSIUM SULPHATE	
Dens. & Visc.	1035 50	
Mud pH	10.5	
Mud Water Loss	8.0	
Mud Res.	0.15 @ 24 °C	@ °C @ °C
Mud Res. @ BHT	0.05 @ 114 °C	@ °C @ °C
Res.	0.12 @ 23 °C	@ °C @ °C
Mat	0.10 @ 24 °C	@ °C @ °C
Mat @ BHT	@ °C	@ °C @ °C
BIT Size	311mm	
Condition	N/A	
Operating Time	20.5hrs.	
Unit #	248	
Location	GRANDE PRAIRIE	
Recorded By	W.VASEY / C.MURRAY	
Witnessed By	M.KELLY	

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 INTERPRETATION, AND WE SHALL NOT BE LIABLE 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. ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES IS SUBJECT TO OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

DENSITY: 0.0 g/cc
CALIPER: 0.0 in
SURFACE TENSION: 0.0 lbs
TOOL ZERO CHECKED: YES
CALIBRATION TANK USED: YES
TOOL STANDARDIZED: YES
TOOL SPECIFICATION: PRINTED
TOOL ERROR: NONE

Run No.	Tool Type	Tool No.	Eval. Date
1	DSI	1130	
2	CNS-C		
3	VSR		
4	SAL		
5			
6			

EVENTS LOG
DIT-E
SFD-CNS-VSR-SAL
DIT-E
CALIPER

Equipment Location	1130
Recorded By	C.MURRAY
Witnessed By	M.KELLY

Tool Zero Checked: YES
Calibration Tank Used: YES
Tool Standardized: YES
Tool Specification: PRINTED
Tool Error: NONE

Tool On Bottom 08:45 AM
Off Bottom 11:15 AM

Tool Error #1023
Tool Error #2

Tape Log
Scale
Field Logger
Initials

REMARKS

WITH MANY LIGHTS DOCKED.
WITH MANY LIGHTS DOCKED.
COMPRESSIONAL SLOWNESS SCALED 300 TO 100 USEC/M.

VERSION 1999.09.19.477

MERGED PASS

21SEP 99000001V0

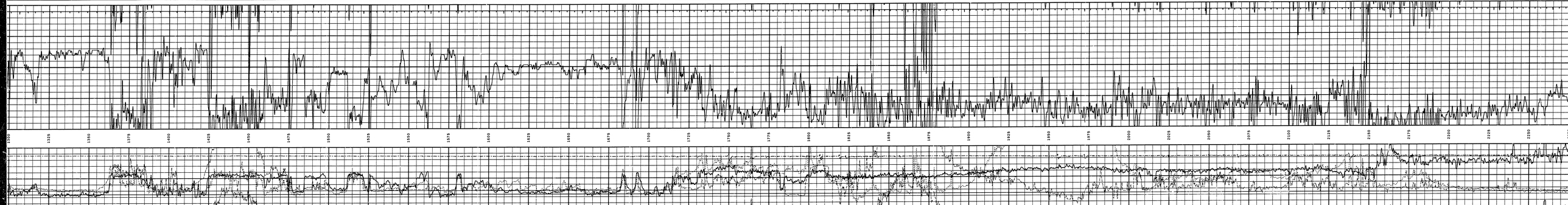
FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE:

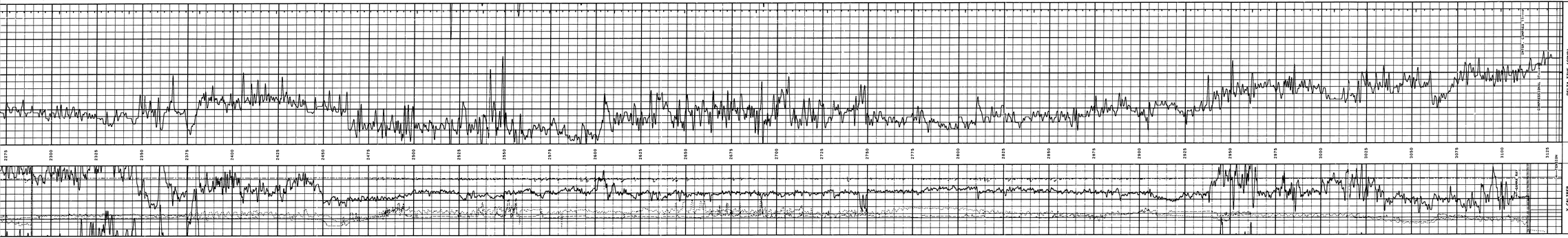
TIME: MODE: TRACE PLAYBACK

TENSION 10000 — 0
GAMMA RAY 0.0 — 150.0
X CALIPER 250.0 MILLIMETERS 500.0
Y CALIPER 250.0 — 500.0

DELTA TIME (COMP) 300.0 — 100.0

725 750 775 800 825 850 875 900 925 950 975 1000 1025 1050 1075 1100 1125 1150 1175 1200 1225 1250 1275


1300
1325
1350
1375
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
2050
2075
2100
2125
2150
2175
2200
2225
2250



REMARKS

MAIN PASS:(1:240-EC441)
COMPENSATED SONIC
COMPENSATIONAL SCANNER SCALED 390 TO 190 USEC/M.

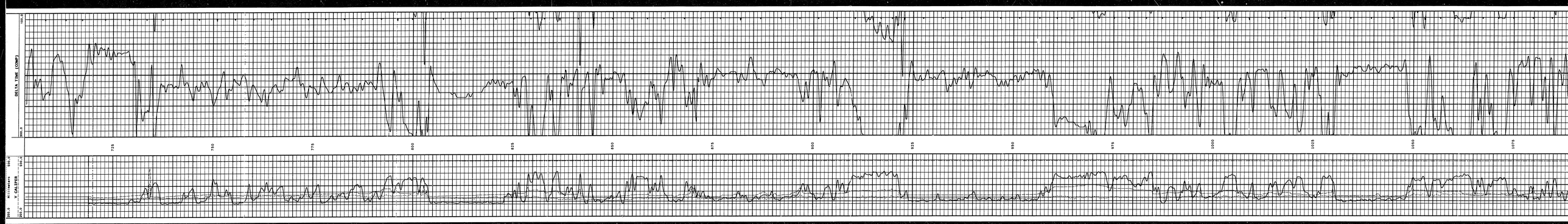
MERGED PASS

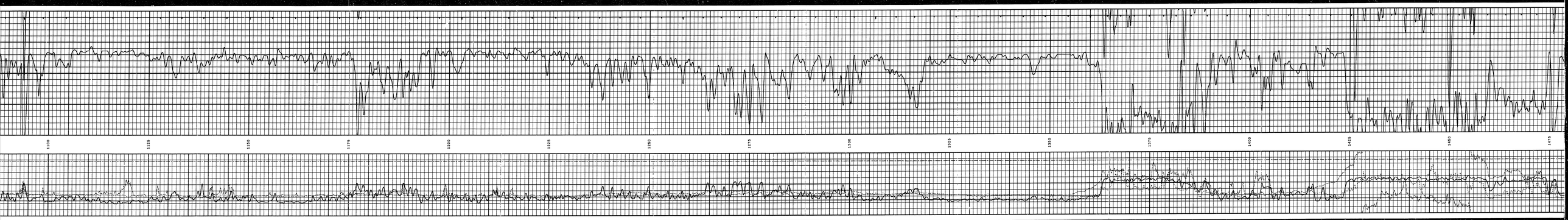
VERSION 1995.06.19.477

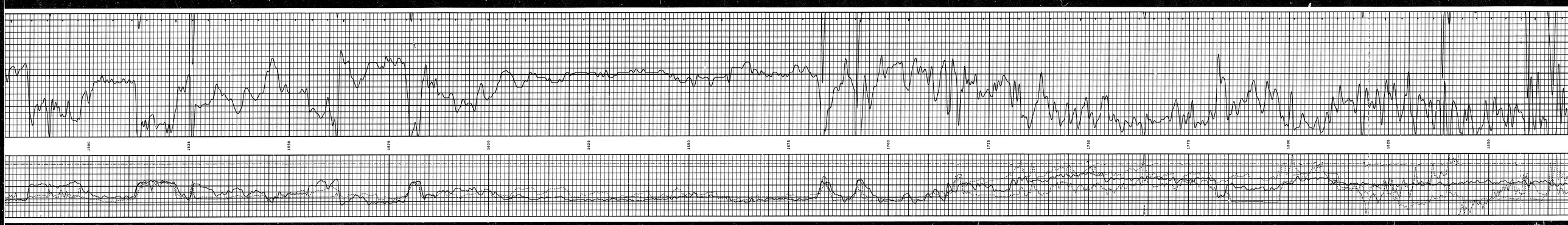
FINISH DEPTH: 2.0 METERS DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

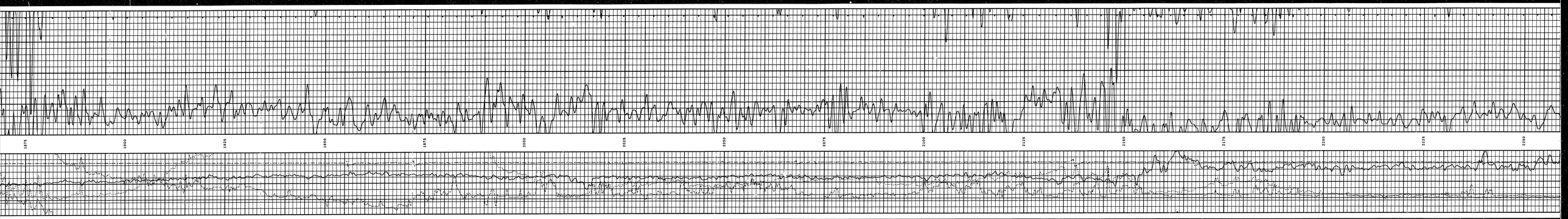
21059 gooohooivd

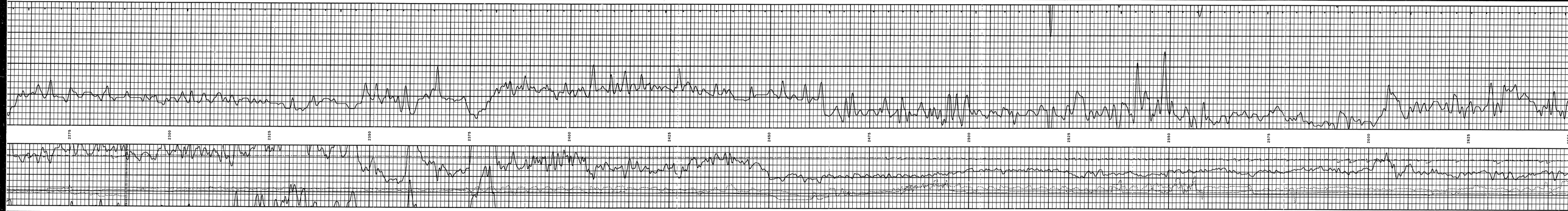
TENSION		GAMMA RAY		X CALIPER
10000	0	0.0	190.0	


DELTA TIME (COMP)
100.0
90.0
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050
1075
X CALIPER
100.0
90.0
90.0
80.0

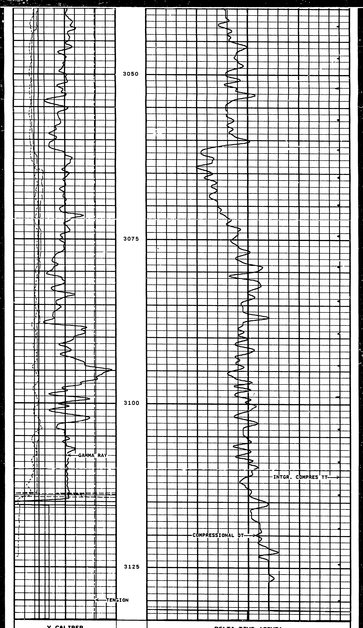

1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450
1475


1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825
1850


1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225
2250


2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625

2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000
3025



Y CALIPER 350.0 — 500.0	DELTA TIME (COMP) 300.0 — 100.0
X CALIPER 350.0 Millimeters 500.0	
GAMMA RAY 0.0 — 150.0	
TENSION 10000 — 0	

START DEPTH: 3133.0 DIRECTION: UP DATE: 08/25/1999 TIME:14:33 MODE: TRACE PLAYBACK

21059 goodmdolvd

MERGED PASS

VERSION: 1999.08.19.477

REMARKS

MAIN PASS (1:240 SCALE)
TRUE VERTICAL DEPTH
COMPRESSIONAL SLOWNESS SCALED 1100 TO 100 usec/m.
SHEAR SLOWNESS SCALED 1100 TO 100 usec/m.

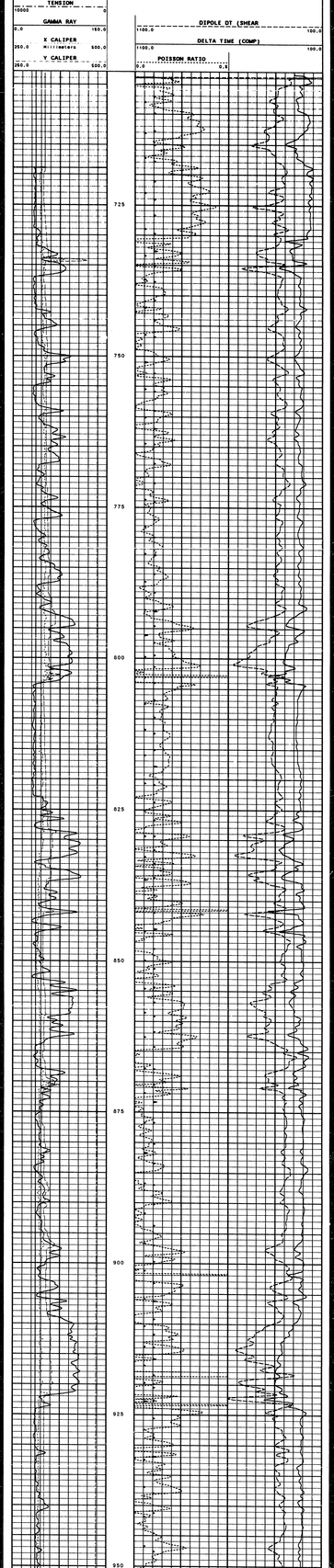
VERSION 1999.08.19.477

MERGED PASS

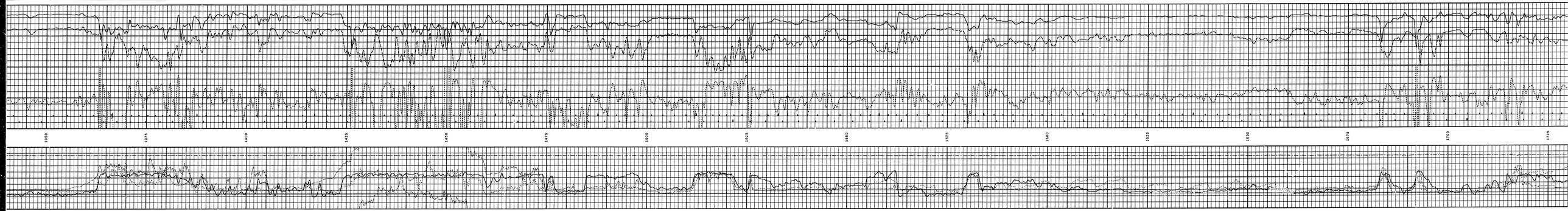
21059 goodmdolvd

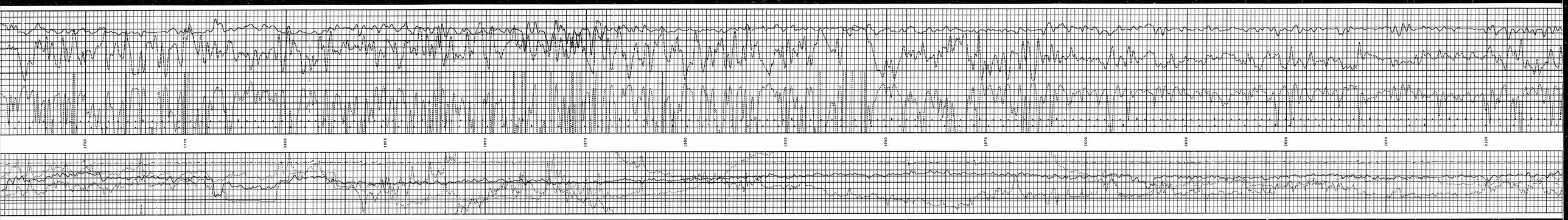
FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

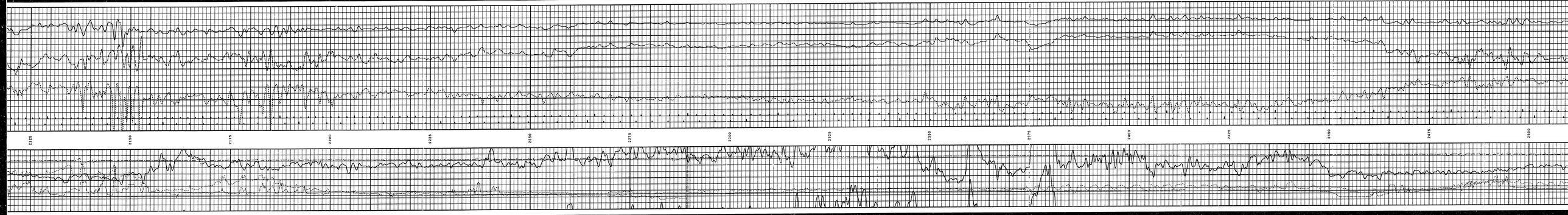
TENSION 10000 — 0	
GAMMA RAY 0.0 — 150.0	DIPOLE DT (SHEAR 1100.0 — 100.0
X CALIPER 350.0 Millimeters 500.0	DELTA TIME (COMP) 1100.0 — 100.0
Y CALIPER 350.0 — 500.0	POISSON RATIO 0.0 — 0.5

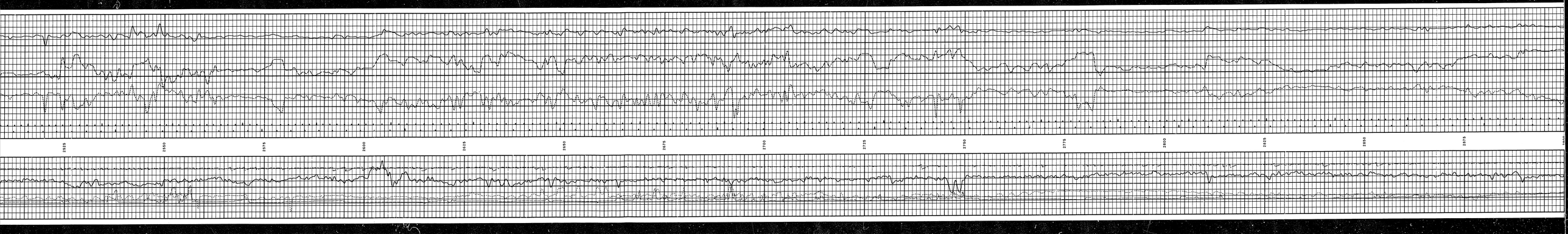


950
975
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325


1350
1375
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
2050
2075
2100


2125
2150
2175
2200
2225
2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500


2925
2950
2975
2600
2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875

Y CALIPER		POISSON RATIO	
250.0	500.0	0.0	0.5
X CALIPER (Millimeters)		DELTA TIME (COMP)	
250.0	500.0	1100.0	100.0
GAMMA RAY		DIPOLE DT (SHEAR	
0.0	150.0	1100.0	100.0
TENSION			
10000	0		

START DEPTH: 3133.0 DIRECTION: UP DATE: 08/25/1999 TIME:14:33 MODE: TRACE PLAYBACK

21059 spoodmdtvd

MERGED PASS

VERSION: 1999.08.19.477

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature
TVD DATA FILE : /mstr/cs400/8000/21059/20159tvd.tvdb

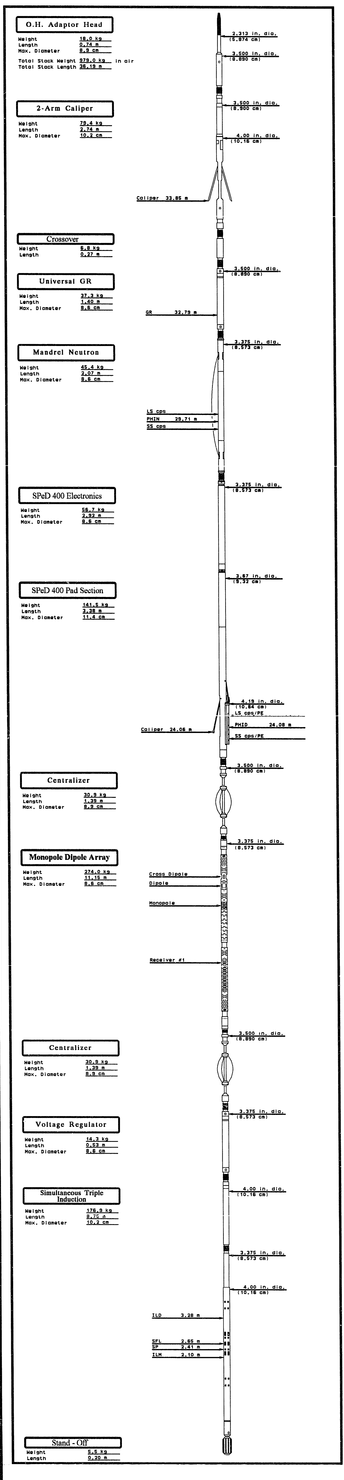
VERSION : 1.0

COMPANY : Canadian Forest Oil Ltd.
WELL : Cdn. Forest et al North Liard N-61
LOCATION : 300-N61-6040-12330-0
DATE : August 18, 1999

DRILLED DEPTH : 3147.00 m
TRUE VERTICAL DEPTH : 3140.18 m
BOTTOM HOLE DISPLACEMENT : N 76.89 m E 120.44 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.26	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.80	59.30	1625.47	59.62	83.13
12	1640.10	7.60	58.40	1634.99	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.80	59.70	1652.84	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.90	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.89	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	186.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35

106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	166.50	2542.13	71.77	119.40
108	2558.00	0.30	183.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.70	2648.43	71.74	119.41
119	2664.80	0.30	57.20	2658.03	71.75	119.45
120	2674.30	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	41.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	93.80	2704.93	71.88	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.65
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.23	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.80	0.70	2.10	2924.81	74.18	119.27
148	2941.40	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.01	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.26
151	2970.20	0.60	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.60	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.49	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	28.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.60	1.40	40.10	3087.79	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.18	76.64	120.48
169	3147.00	0.70	345.00	3140.18	76.85	120.44



COMPANY	CANADIAN FOREST OIL LTD.
	CON FOREST ET AL NORTH LIARD N-61
WELL	N61-6040-12330
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

CS400

COMPUTALOG

MONOPOLE DIPOLE ARRAY SONIC

PROVINCE	NORTHWEST TERRITORIES		
FIELD	UNDEFINED		
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330		
COMPANY	CANADIAN FOREST OIL LTD.		

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION 300/N-61-6040-12330/0

Other Services: SPD-CNS-UGR-DAC STI-SP/EMI/VSP

Perm. Datum Ground Level Elev. 604.0

Log measured from K.B. , 6.7 m above Permanent Datum.

ELEV.K.B. 610.7
G.L. 604.0
CBF

Date	SEPTEMBER 10, 1999								
Run No.	TWO								
First Reading	3362.8								
Last Reading	3148.0								
Meters Meas.	214.8								
Depth Reached	3379.0								
Bot. Driller	3384.0								
Csg. Logger	3148.0								
Csg. Driller	3147.0			244.5mm@79.62kg/m					
Fluid Type	POLYMER								
Dens. & Visc.	1045	49							
Mud pH	10.0								
Mud Water Loss	9.0								
Mud Res.	1.7	@ 21	°C	1.9	@ 21	°C	1.8	@ 21	°C
Mud Res. @ BHT	0.5	@ 129	°C		@	°C		@	°C
Rmc	1.7	@ 20	°C		@	°C		@	°C
Rmf	1.9	@ 21	°C		@	°C		@	°C
Rmf @ BHT		@	°C		@	°C		@	°C
Bit Size	215.9mm								
Spacing	N/A								
Operating Time	4.5 hrs.								
Unit #	348								
Location	GRANDE PRAIRIE								
Recorded By	C.MURRAY								
Witnessed By	R.KELLY								

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21065

Drilling Stopped 1600 /07 Circulation Stopped 1515 /11 Tool on Bottom 0429 /12 BHT 129 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION.

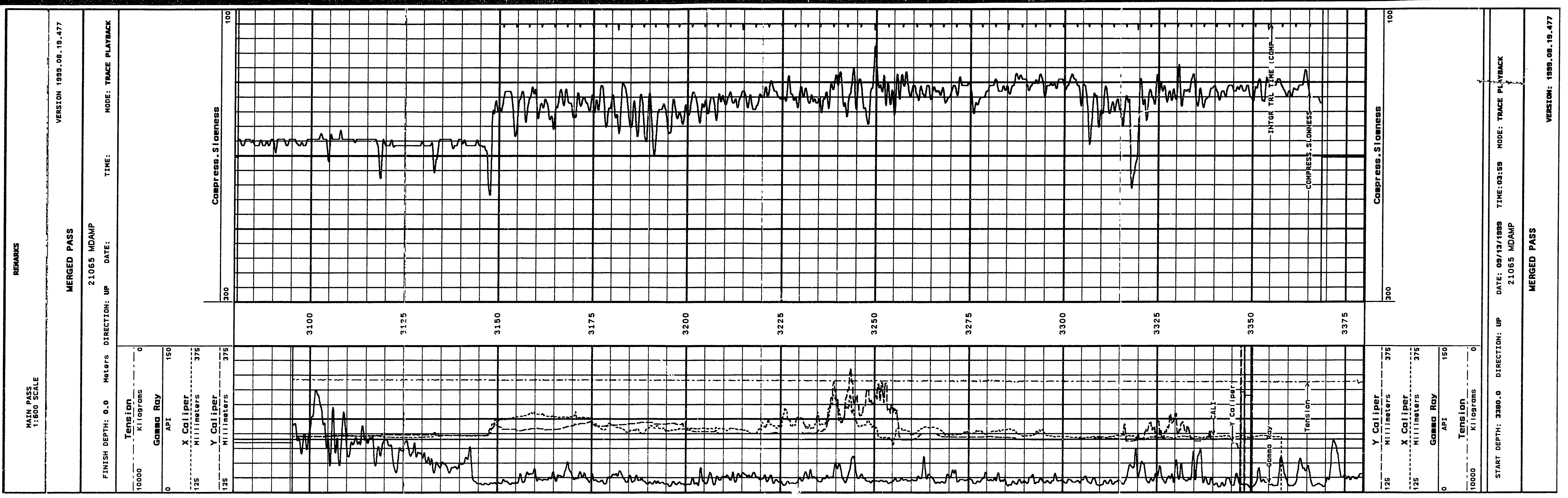
PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST.

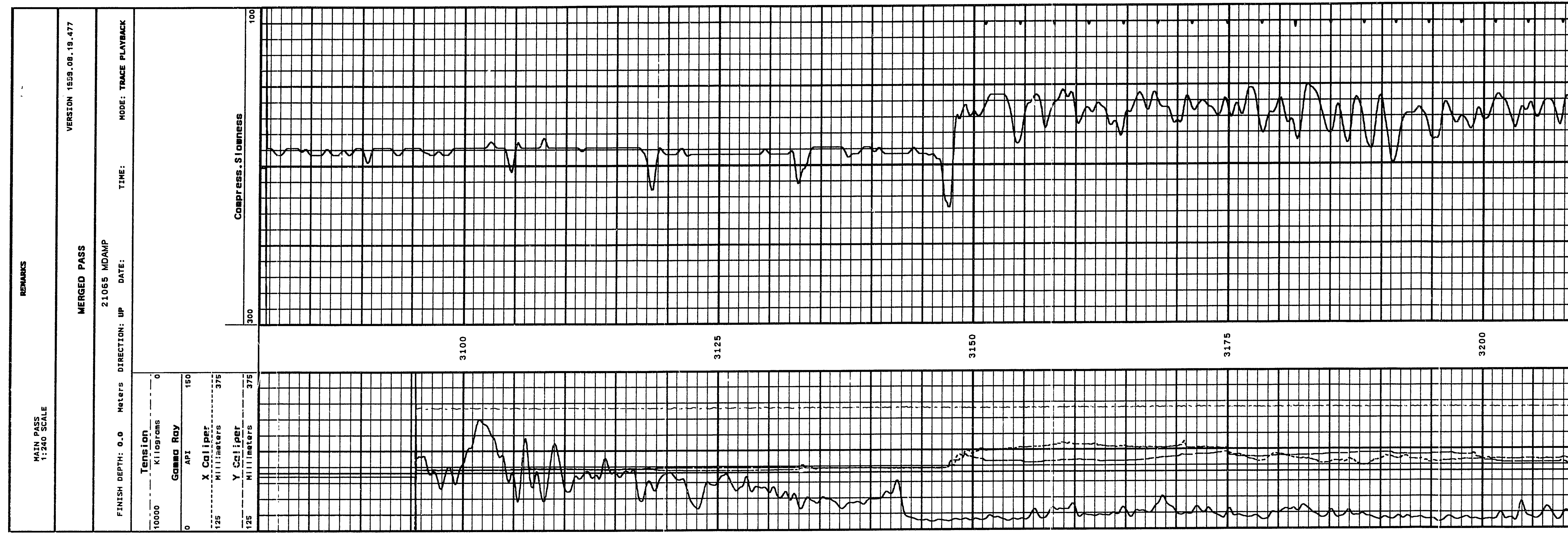
Prints: 2

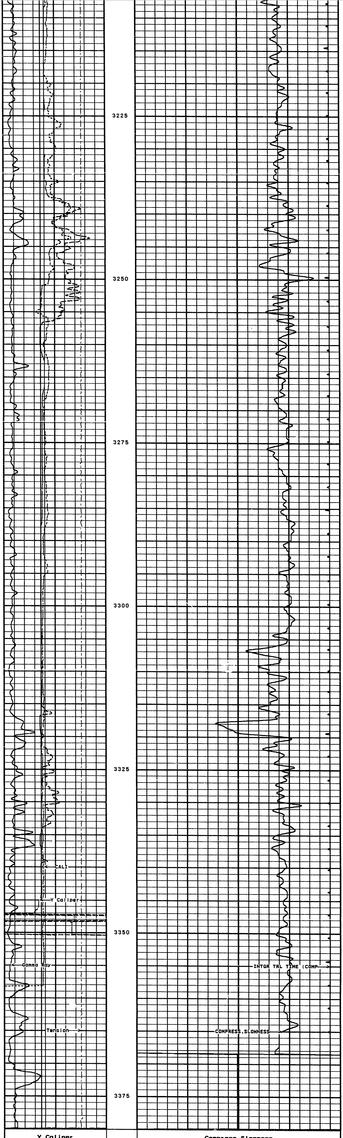
CHANGES IN MUD TYPE OR NEW SAMPLE			SCALE CHANGES		
Date / Sample No.			Type Log	Interval	Scale
Depth - Driller					
Type Fluid in Hole					
Dens. / Visc.					
pH / Water Loss					
Source of Sample					
Rm @ Meas. Temp.	@	°C			
Rmf @ Meas. Temp.	@	°C			
Rmc @ Meas. Temp.	@	°C			
Source Rmf / Rmc					
Rm @ BHT	@	°C			
Rmf @ BHT	@	°C			
Rmc @ BHT	@	°C			

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	MDA-AA	1	CENTRALIZED
ONE	UGR-JA	117	RA-20S-681
ONE	CAL-CC	9090	90° OFFSET CALIPER







Y Caliper
125 Millimeters 375

X Caliper
125 Millimeters 375

Gamma Ray
0 API 150

Tension
5000 Kilograms 0

Compress.Signess
300 100

START DEPTH: 3380.0 DIRECTION: UP DATE: 09/13/1989 TIME:03:59 MODE: TRACE PLAYBACK

21065 MDAMP

MERGED PASS

VERSION: 1989.08.19.477

REMARKS

MAIN PASS
1:240 SCALE

VERSION 1989.08.19.477

MERGED PASS

21065 MDAMP

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

TENSION
10000 0

GAMMA RAY
0.0 150.0

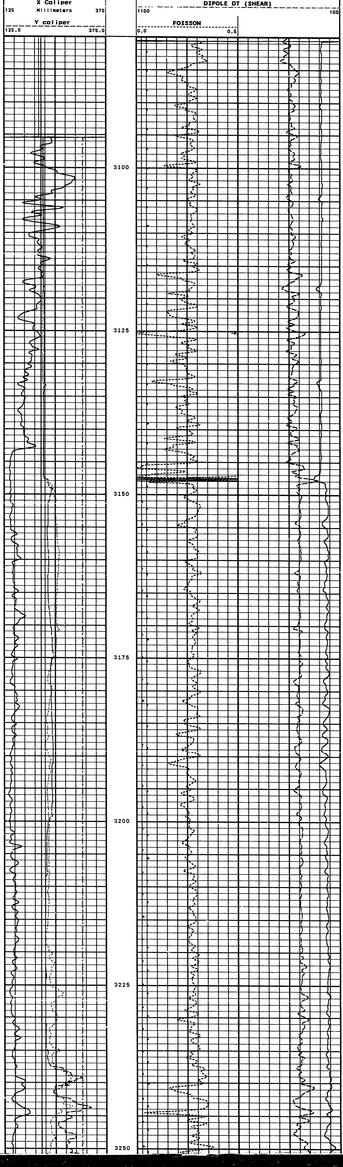
X Caliper
125 Millimeters 375

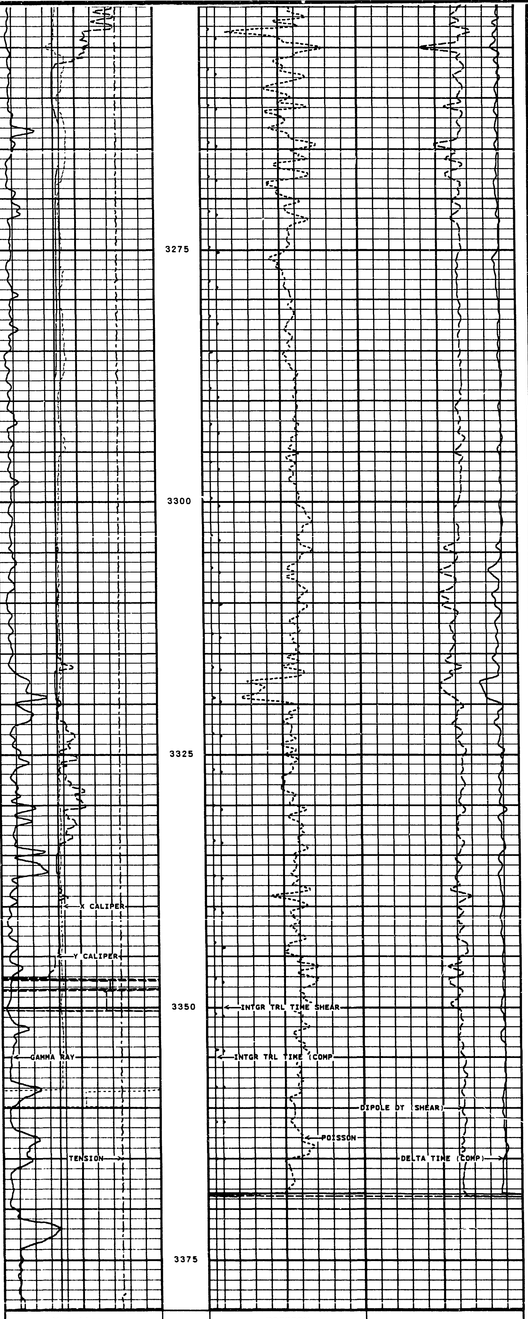
Y caliper
125.0 375.0

DELTA TIME (COMP)
1100 100

DIPOLE DT (SHEAR)
1100 100

POISSON
0.0 0.5





START DEPTH: 3280.0 DIRECTION: UP DATE: 09/13/1999 TIME:03:59 MODE: TRACE PLAYBACK

21065 MDAMP

MERGED PASS

VERSION: 1999.08.19.477

09/11/99	16:19	0.0 M	Ver 2.0b-2.0b	Job 21065

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9090

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	2334.4	4620.0	mv	152.0	310.0	mm

08/17/99	18:57	0.0 M	Ver 2.0b-2.0b	Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-UA Serial No: 117

Calibrator No: RA-205-681

Background	Calibrator	Standard	Units
129.4	855.7	140.0	API

Delta Counts Per Sec: 528.3 CPS/API = 3.760

09/11/99	16:29	9.0 M	Ver 2.0b-2.0b	Job 21065

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:110

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CALX	1907.5	3147.5	mv	152.0	310.0	mm

O.H. Adaptor Head

Weight	18.0 kg
Length	0.74 m
Max. Diameter	8.9 cm

Total Stack Weight 379.0 kg in air
Total Stack Length 26.19 m

2-Arm Caliper

Weight	79.4 kg
Length	2.74 m
Max. Diameter	10.2 cm

Crossover

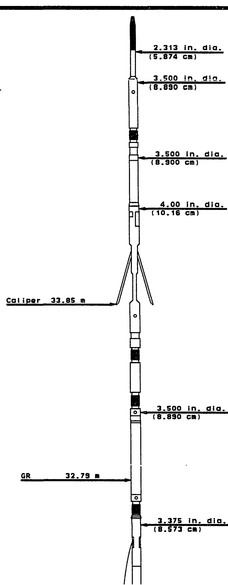
Weight	8.8 kg
Length	0.27 m

Universal GR

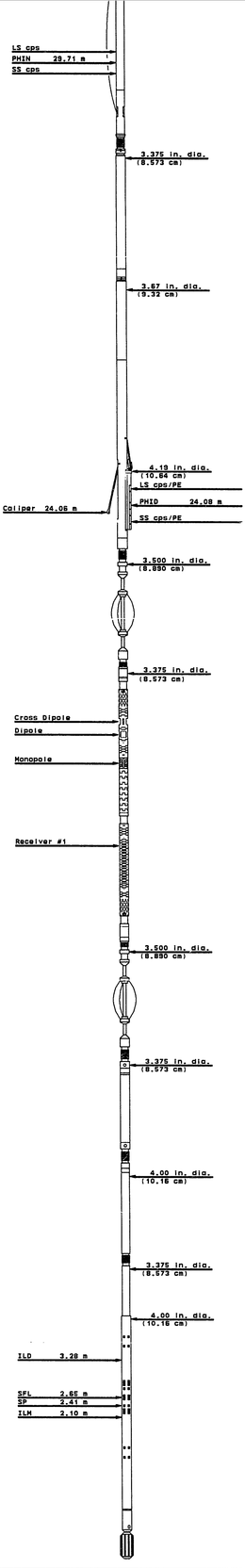
Weight	37.3 kg
Length	1.40 m
Max. Diameter	8.8 cm

Mandrel Neutron

Weight	45.4 kg
Length	2.07 m
Max. Diameter	8.8 cm



Max. Diameter 8.8 cm



SPeD 400 Electronics

Weight	56.7 kg
Length	2.92 m
Max. Diameter	8.8 cm

SPeD 400 Pad Section

Weight	141.5 kg
Length	3.38 m
Max. Diameter	11.4 cm

Centralizer

Weight	30.9 kg
Length	1.39 m
Max. Diameter	8.8 cm

Monopole Dipole Array

Weight	274.0 kg
Length	11.15 m
Max. Diameter	8.8 cm

Centralizer

Weight	30.9 kg
Length	1.39 m
Max. Diameter	8.8 cm

Voltage Regulator

Weight	14.3 kg
Length	0.53 m
Max. Diameter	8.8 cm

Simultaneous Triple Induction

Weight	176.8 kg
Length	8.75 m
Max. Diameter	10.2 cm

Stand - Off

Weight	5.5 kg
Length	0.20 m

COMPANY	CANADIAN FOREST OIL LTD.		COMPUTALOG
	300-N61-6040-12330		
WELL	CDN FOREST ET AL NORTH LIARD N-61		
FIELD	UNDEFINED	PROVINCE N.W.T.	

COMPUTALOG

CS-100

MONOPOLE DIPOLE
ARRAY SONIC

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

Other Services:
SPD-CNS-UGR-DAC
STI-SP-MDA-SPD
ELEV.K.B. 610.7
G.L. 604.0
CBF

LOCATION	300/N-61-6040-12330/0
Perm. Datum	Ground Level Elev. 604.0
Log measured from	K.B. 6.7 m above
Permanent Datum	

Date	SEPTEMBER 10, 1999
Run No.	TWO
First Reading	3362.8
Last Reading	3148.0
Depth Reached	3372.0
Bot. Driller	3364.0
Csg. Logger	3148.0
Csg. Driller	3147.0
Fluid Type	POLYMER
Dens. & Visc.	1.04 / 43
Mud pH	10.0
Mud Water Loss	9.0
Mud Res.	1.7 @ 21 °C
Mud Res. @ BHT	0.5 @ 129 °C
Rmc	1.7 @ 20 °C
Rmf @ BHT	1.9 @ 21 °C
Rmc @ BHT	0.5 @ 129 °C
Rm @ Meas. Temp.	1.9 @ 21 °C
Rmf @ Meas. Temp.	1.9 @ 21 °C
Rmc @ Meas. Temp.	0.5 @ 129 °C
Source Rmf / Rmc	1.9 @ 21 °C
Rm @ BHT	0.5 @ 129 °C
Rmf @ BHT	1.9 @ 21 °C
Rmc @ BHT	0.5 @ 129 °C
Source of Sample	244.5mm@79.62kg/m
Rm @ Meas. Temp.	0 °C
Rmf @ Meas. Temp.	0 °C
Rmc @ Meas. Temp.	0 °C
Source Rmf / Rmc	
Rm @ BHT	0 °C
Rmf @ BHT	0 °C
Rmc @ BHT	0 °C
Time Since Circulation	4.5 hrs.
Max. Rec. Temp.	0 °C
Equipment Location	GRANDE PRAIRIE
Recorded By	C.MURRAY
Witnessed By	R.KELLY

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21065

Drilling Stopped 1600 /07 Circulation Stopped 1515 /11 Tool on Bottom 0429 /12 BHT 129 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION.

PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST.

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date	Sample No.	
Depth - Driller		
Type Fluid in Hole		
Dens.	Visc.	
pH	Water Loss	
Source of Sample		
Rm @ Meas. Temp.	@	°C
Rmf @ Meas. Temp.	@	°C
Rmc @ Meas. Temp.	@	°C
Source Rmf / Rmc		
Rm @ BHT	@	°C
Rmf @ BHT	@	°C
Rmc @ BHT	@	°C

SCALE CHANGES		
Type Log	Interval	Scale

EQUIPMENT DATA			
Run No.	Tool Type	Tool No.	Other
ONE	MDA-AA	1	CENTRALIZED
ONE	UGR-JA	117	RA-20S-681
ONE	CAL-CC	9090	90° OFFSET CALIPER

REMARKS

MAIN PASS
1:600 SCALE

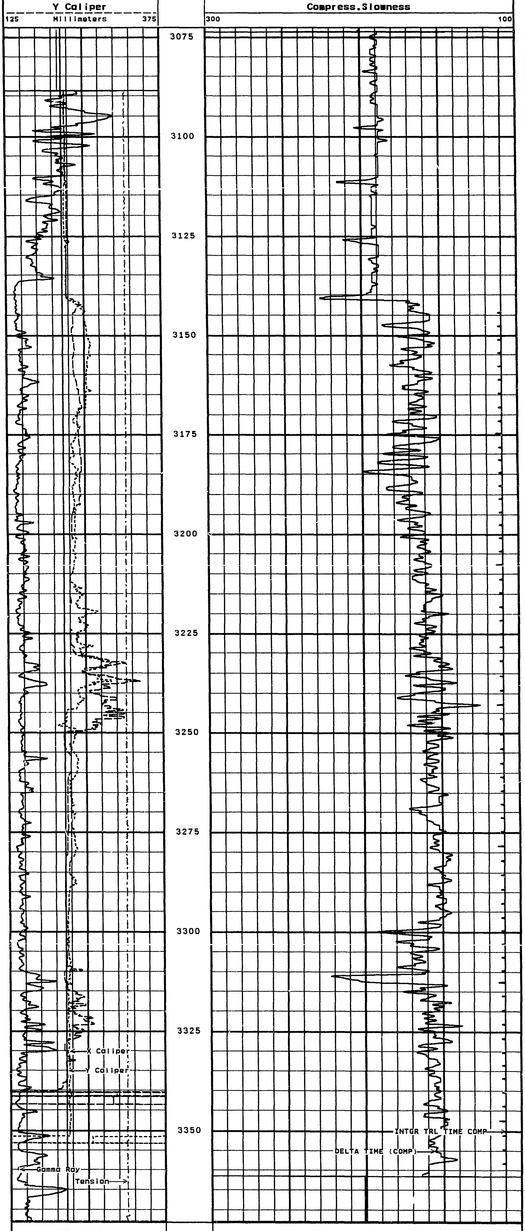
* TRUE VERTICAL DEPTH *

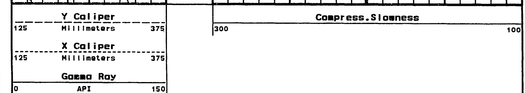
VERSION 1999.08.19.477

MERGED PASS

21065 MDAMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK





START DEPTH: 3372.9 DIRECTION: UP DATE: 09/13/1999 TIME:04:01 MODE: TRACE PLAYBACK

21065 MDAMPTVD

MERGED PASS

VERSION: 1999.08.19.477

REMARKS

MAIN PASS
1:240 SCALE

* TRUE VERTICAL DEPTH *

VERSION 1999.08.19.477

MERGED PASS

21065 MDAMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension

10000 Kilograms 0

Gamma Ray

0 API 150

X Caliper

125 Millimeters 375

Y Caliper

125 Millimeters 375

Compress.Slowness

200 100

3075

3100

3125

3150

3175

3200

3225

3250

3275

3300

3325

3350

Caliper

Caliper

DELTA TM (COMP)

DELTA TM (COMP)

Gamma Ray

Tension

Y Caliper

125 Millimeters 375

X Caliper

125 Millimeters 375

Gamma Ray

0 API 150

Tension

10000 Kilograms 0

Compress.Slowness

200 100

START DEPTH: 3372.0 DIRECTION: UP DATE: 09/13/1999 TIME:04:01 MODE: TRACE PLAYBACK

21065 MDAMPTVD

MERGED PASS

VERSION: 1999.08.19.477

REMARKS

MAIN PASS
1:240 SCALE

* TRUE VERTICAL DEPTH *

VERSION 1999.08.19.477

MERGED PASS

21065 MDAMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

TENSION

10000 0

GAMMA RAY

0.0 150.0

X Caliper

125 375

Y caliper

125.0 375.0

Compress.Slowness

1100 100

DIPOLE DT (SHEAR)

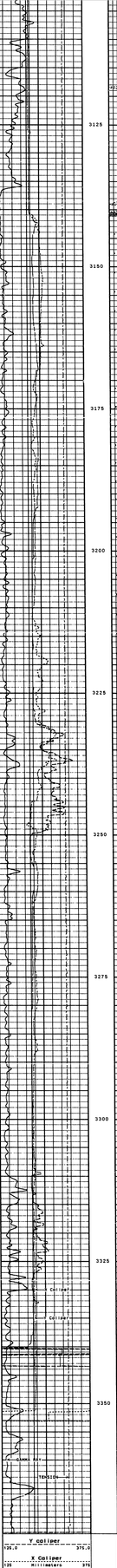
1100 100

POISSON

0.0 0.5

3075

3100



START DEPTH: 3272.8 DIRECTION: UP DATE: 09/13/1999 TIME:04:01 MODE: TRACE PLAYBACK

21065 MDAMPTVD

MERGED PASS

VERSION: 1999.08.19.477

09/11/99	16:19	0.0 M	Ver 2.05-2.00	Job 21065

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9080

	Measured		Calibrated	
	Small Large	Units	Small Large	Units
CAL2	2334.4 4620.0	mv	152.0 310.0	mm

08/17/99	18:57	0.0 M	Ver 2.05-2.00	Job 21059

Gamma Ray Before Survey Calibration

Tool Type: USR-G Serial No: 117

Calibrator NO: RA-205-881

Background	Calibrator	Standard	Units
139.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

09/11/99	16:29	9.9 M	Ver 2.05-2.00	Job 21065

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:110

	Measured		Calibrated	
	Small Large	Units	Small Large	Units
CALX	1957.5 3147.5	mv	153.0 310.0	mm

TVD CALCULATION SUMMARY

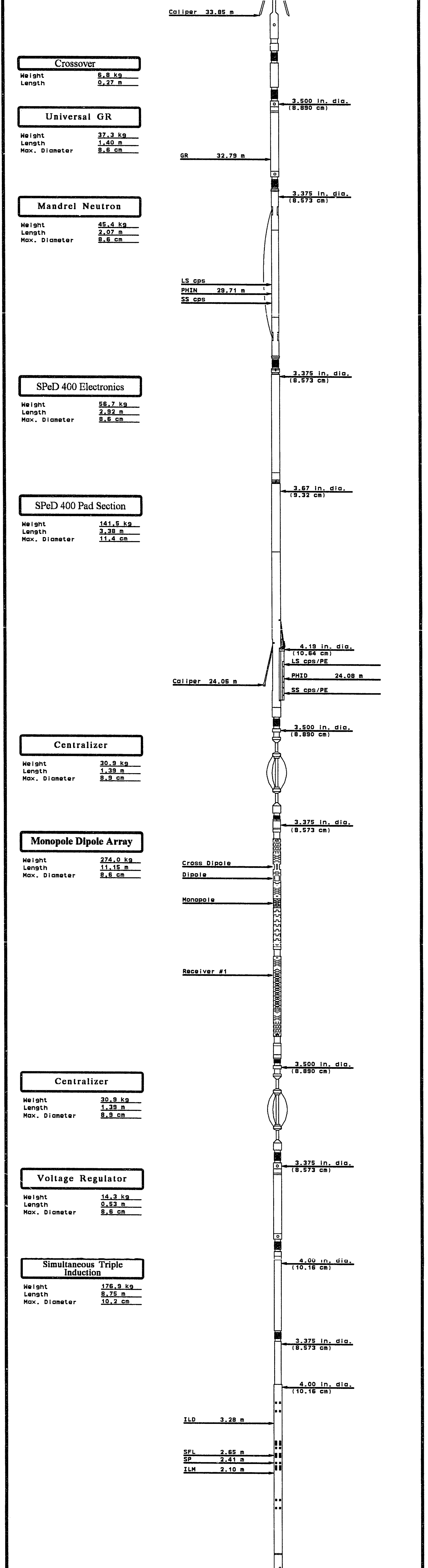
CALCULATION METHOD : Minimum Curvature VERSION : 1.0

TVD DATA FILE : /mnt/cas60/9500/21065/21065tvd.tvdb

COMPANY : Canadian Forest Oil Ltd. DRILLED DEPTH : 3384.00 m
WELL : CDO: Forest et al North Lloyd H-STRIP VERTICAL DEPTH : 3297.12 m
LOCATION : 3D:N61:60:40.12:120:0 BOTTOM HOLE DISPLACEMENT : N 70.15 m E -123.85 m
DATE : September 10, 1999 TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH (M)	EAST (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.42
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1611.10	8.40	59.50	1607.26	58.29	80.80
10	1621.90	8.10	59.70	1618.04	59.01	82.11
11	1630.50	7.80	59.30	1625.67	59.62	83.13
12	1640.10	7.60	58.40	1634.89	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.60	59.70	1652.86	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.81	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1698.90	5.90	62.90	1693.41	63.61	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.80	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.88	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.46	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.16	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.46	103.23

37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3152.00	0.90	337.70	3145.18	76.99	120.41
170	3159.50	0.80	326.30	3152.68	77.09	120.36
171	3177.50	0.70	325.50	3170.68	77.29	120.23
172	3187.10	0.80	328.80	3180.28	77.39	120.16
173	3196.70	0.80	323.10	3189.88	77.50	120.09
174	3206.28	0.70	319.90	3199.46	77.60	120.01
175	3216.00	0.50	333.20	3209.18	77.68	119.95
176	3225.70	0.40	13.90	3218.88	77.76	119.94
177	3235.40	0.70	43.10	3228.58	77.83	119.99
178	3244.90	1.40	56.60	3238.08	77.94	120.13
179	3254.20	2.10	63.20	3247.37	78.08	120.37
180	3264.30	2.00	65.20	3257.47	78.23	120.70
181	3274.02	1.90	70.20	3267.18	78.36	121.00
182	3283.70	1.80	67.90	3276.85	78.47	121.30
183	3293.40	1.70	65.70	3286.55	78.59	121.57
184	3303.10	1.60	64.60	3296.25	78.71	121.82
185	3312.50	1.50	66.80	3305.64	78.81	122.05
186	3322.54	1.40	72.10	3315.68	78.90	122.29
187	3332.24	1.40	75.40	3325.38	78.97	122.52
188	3342.00	1.50	81.10	3335.13	79.02	122.76
189	3351.20	1.50	83.90	3344.33	79.05	123.00
190	3360.82	1.60	84.60	3353.95	79.07	123.26
191	3370.97	1.50	83.20	3364.09	79.10	123.53
192	3380.00	1.40	81.95	3373.12	79.13	123.76
193	3384.00	1.40	81.95	3377.12	79.15	123.85



COMPANY	CANADIAN FOREST OIL LTD.
	300-N61-6040-12330
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

DENSITY

N.E.B. COPY

COMPUTALOG

CS400

SPECTRAL PE DENSITY
COMPENSATED NEUTRON
GAMMA RAY LOG

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION 300/N-61-6040-12330/0

Other Services: STI-SP, MDA / SED / VSP

Perm. Datum Ground Level Elev. 604.0
Log measured from K.B., 6.7 m above Permanent Datum.

ELEV. K.B. 610.7
G.L. 604.0
CBF

Date	AUGUST 18 1999		
Run No.	ONE		
First Reading	3122.2		
Last Reading	735.5		
Meters Meas.	2386.7		
Depth Reached	3146.9		
Bot. Driller	3147.0		
Csg. Logger	735.5		
Csg. Driller	735.6	339.7mm @101.2kg/m	
Fluid Type	POTASSIUM SULPHATE		
Dens. & Visc.	1635 | 90		
Mud pH	10.5		
Mud Water Loss	6.0		
Mud Res.	0.15 @ 24 °C	@ °C	@ °C
Mud Res. @ BHT	0.05 @ 114 °C	@ °C	@ °C
Rmc	0.12 @ 23 °C	@ °C	@ °C
Rmf	0.10 @ 24 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	311mm		
Spacing	N/A		
Operating Time	20.5hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21059

Drilling Stopped 2130 /16 Circulation Stopped 1115 /22 Tool on Bottom 0615 /23 BHT 114 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION. PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST. UNABLE TO GET GOOD DENSITY REPEAT DUE TO HOT WELLBORE CAUSING THE TOOL TO DRIFT. MULTIPLE REPEATS PRESENTED. DENSITY LOGGED WITH BARITE CORRECTION TURNED ON: BARITE ADVERSELY AFFECTED PE VALUES. CNS LOGGED FROM TD TO 2300m WITHOUT BOWSPRINGS IN ORDER TO GET TOOL TO BOTTOM.

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date | Sample No.		
Depth - Driller		
Type Fluid in Hole		
Dens. | Visc.		
pH | Water Loss		
Source of Sample		
Rm @ Meas. Temp.	@	°C
Rmf @ Meas. Temp.	@	°C
Rmc @ Meas. Temp.	@	°C
Source Rmf | Rmc		
Rm @ BHT	@	°C
Rmf @ BHT	@	°C
Rmc @ BHT	@	°C

SCALE CHANGES

Type Log	Interval	Scale

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	SPD-AB	110110	2068-GW
ONE	CNT-SA	107	6097-NE
ONE	UGR-JA	117	RA-20S-681
ONE	CAL-CC	9090	90° OFFSET CALIPER

REMARKS

MAIN PASS
1:600 SCALE
BULK DENSITY PRESENTATION
HOLE HOLE VOLUME ON THE LEFT SIDE OF THE DEPTH TRACK,
ANNULAR CEMENT VOLUME FOR 244.5mm CASING ON RIGHT SIDE OF DEPTH TRACK.

VERSION 1999.07.05.155

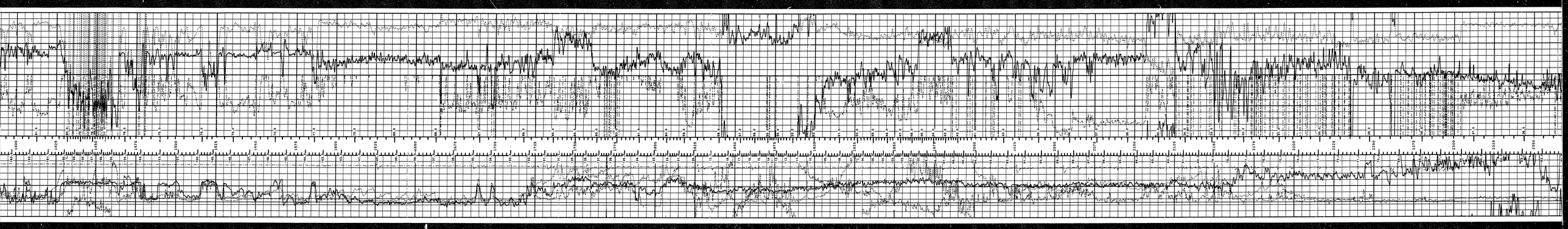
MAIN PASS

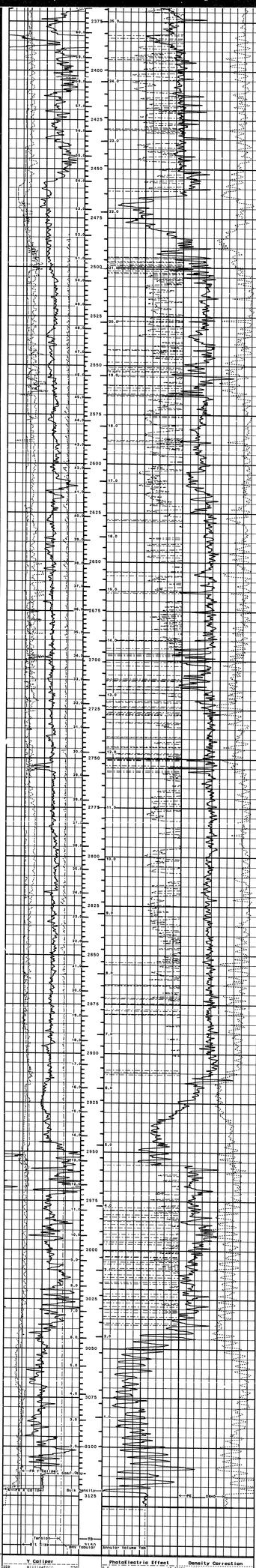
21059 STIMP

BHV CASING SIZE: 244.50 Millimeters CALIPERS: X Caliper, Y Caliper, None

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension: 20000 – 0 Pounds
Gamma Ray: 0 – 150 API
X Caliper: 250 – 500 Millimeters
Y Caliper: 250 – 500 Millimeters
Bulk Density: 2000 – 3000 Kilograms/Cu. Meter
PhotoElectric Effect: 0.0 – 10.0
Density Correction: 450 – -50 Kilograms/Cu. Meter





START DEPTH: 3168.2 DIRECTION: UP DATE: 08/23/1999 TIME: 23:19 MODE: TRACE PLAYBACK

BHV CASING SIZE: 364.50 Millimeters CALIPERS: X Caliper,Y Caliper,None

21059 STIMP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3168.5	Meters
BS	Bit Size	311.000	Millimeters
BHT	Bottom Hole Temp	116	Degrees Centigrade
MRT	Maximum Rec Temp	116	Degrees Centigrade
TACC	Accumulation Time	100	Seconds
MARI	Matrix Correction	.00	
MDEN	Matrix Density	2630.00	Kilograms/Cu. Meter
MSNH	Matrix Sonic	2725.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
FSNH	Fluid Sonic Slowness	0.0000	
HSAF	H Factor-SNS	1.000	
SNS.	Sonic/Cased Hole	Sonic	
CTSC	Total Type-CNT	CNT-G	
HTLD	Total Type-GR	GR-G	
HTMD	TDMS Source-CNT	Gradient	
HCAL	Caliper Source-CNT	X Caliper	
SCAL	Density BH Alma Source	X Caliper	
BHC1	BHV Caliper Source 1	X Caliper	
BHC2	BHV Caliper Source 2	X Caliper	
BHC3	BHV Caliper Source 3	None	

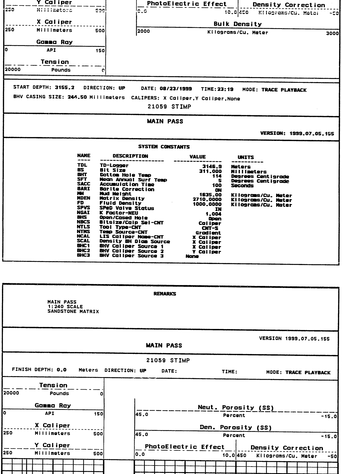
REMARKS

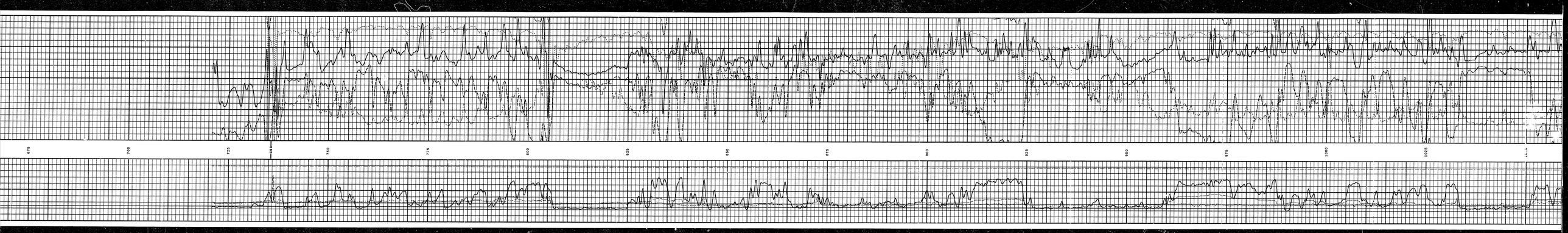
MAIN PASS
BOREHOLE
LANDSTONE MATRIX

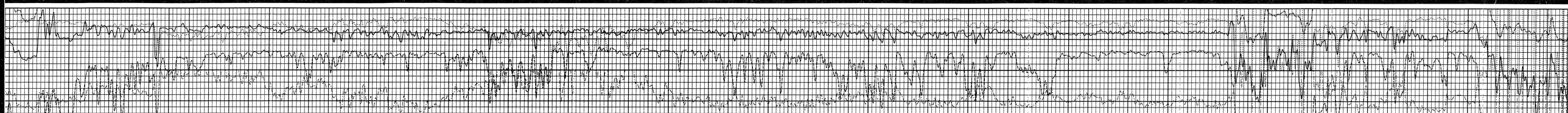
VERSION 1999.07.05.155

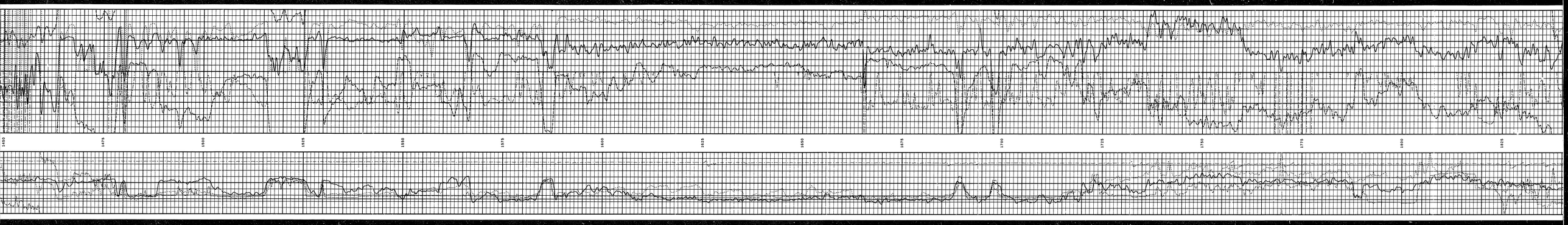
MAIN PASS

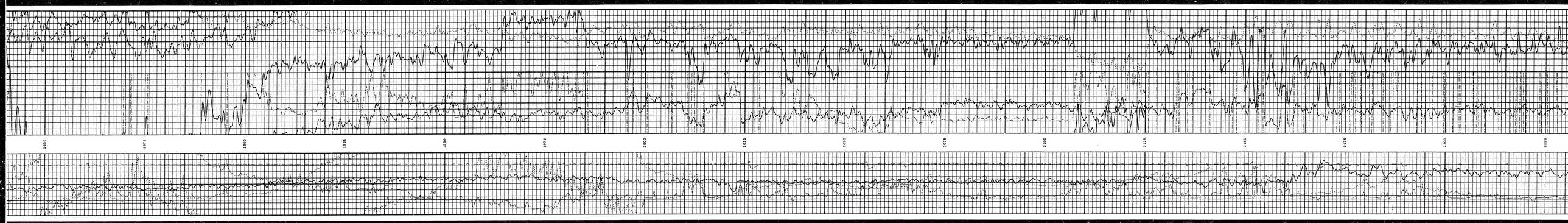
FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

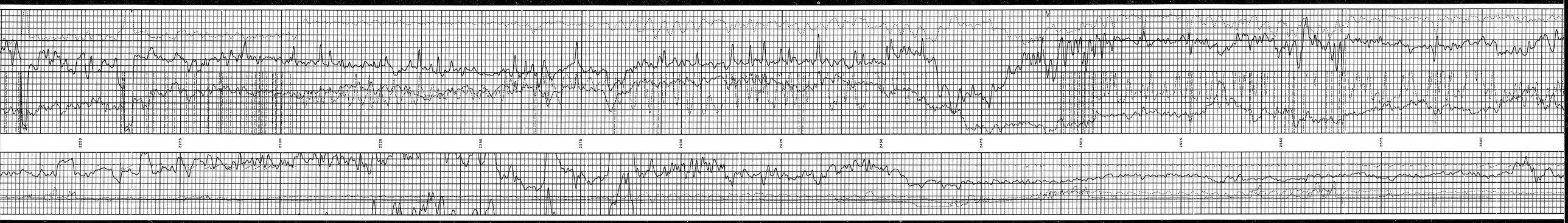


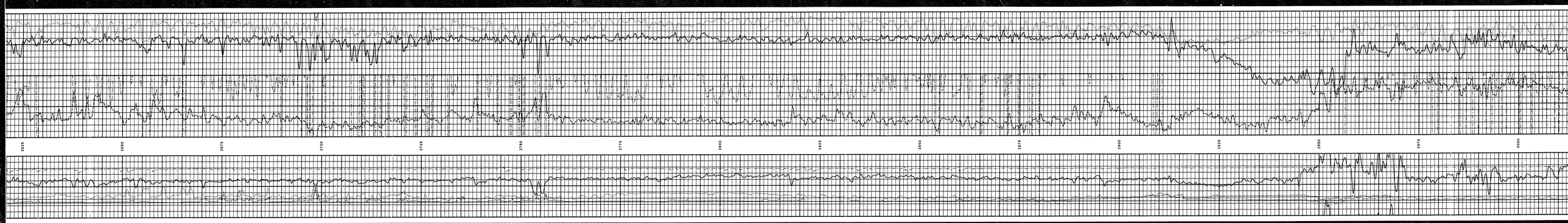

675
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025

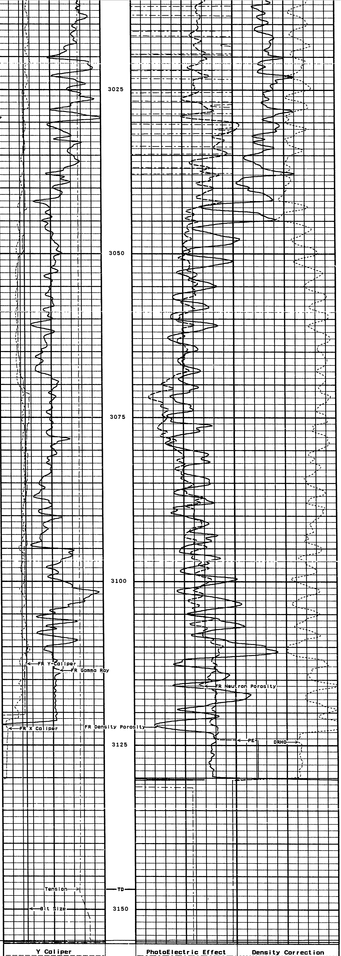

1050
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450


1450
1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825


1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225


2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600


2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000



Y Caliper	PhotoElectric Effect	Density Correction
250 Millimeters 500	0.0 10.0450	Kilograms/Cu. Meter -50
X Caliper	Den. Porosity (SS)	
250 Millimeters 500	45.0 Percent	-15.0
Gamma Ray	Neut. Porosity (SS)	
0 API 150	45.0 Percent	-15.0
Tension		
20000 Pounds 0		

START DEPTH: 3155.2 DIRECTION: UP DATE: 06/23/1999 TIME:23:19 MODE: TRACE PLAYBACK

21059 STIMP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3160.8	Meters
BS	Bit Size	311.000	Millimeters
SFT	Mech Surface Temp	14	Degrees Centigrade
DFT	Mech-Annul Surf Temp	14	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
SGRC	Gamma Ray Correction	0	API
HM	Mud Height	1635.00	Kilograms/Cu. Meter
MDEN	Matrix Density	2710.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVG	Shaft Valve Status	IN	
NGAI	X Factor-NGS	1.004	
NDS	Density Shape Id	1	
NBCS	Bits/Cycle Sel-CNT	Column	
NTLS	Tool Type-CNT	CNT-S	
NTMS	Tool Mode-CNT	Gradient	
NTNS	Temp Source-CNT	X Caliper	
SCAL	Density Bn Stim Source	X Caliper	

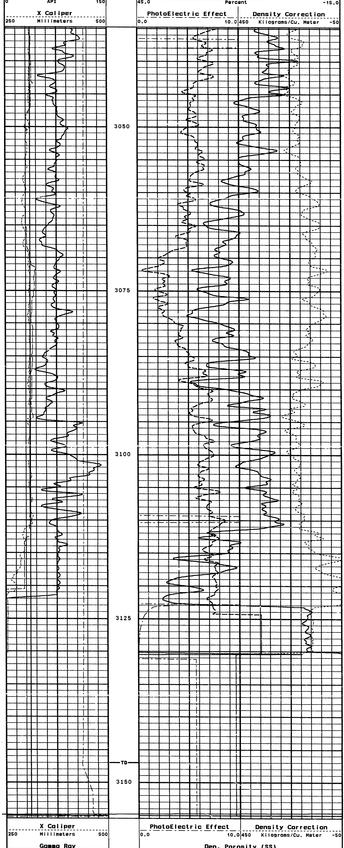
REMARKS

REPEAT PASS
1:240 SCALE
SANDSTONE MATRIX

VERSION 1999.07.05.155

21059 STIRP2

FINISH DEPTH: 3034.9 Meters DIRECTION: UP DATE: 08/24/1999 TIME: 03:09 MODE: TRACE PLAYBACK



Tension	Neut. Porosity (SS)
20000 Pounds 0	45.0 Percent -15.0
Y Caliper	Den. Porosity (SS)
250 Millimeters 500	45.0 Percent -15.0
Gamma Ray	PhotoElectric Effect / Density Correction
0 API 150	0.0 10.0450 Kilograms/Cu. Meter -50
X Caliper	
250 Millimeters 500	

START DEPTH: 3155.4 DIRECTION: UP DATE: 08/24/1999 TIME:03:09 MODE: TRACE PLAYBACK

21059 STIRP2

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3160.8	Meters
BS	Bit Size	311.000	Millimeters
SFT	Mech Surface Temp	14	Degrees Centigrade
DFT	Mech-Annul Surf Temp	14	Degrees Centigrade
HDMC	Mono Cmprs Analysis	AVEDEV	
SACC	Accumulation Time	100	Seconds
SGRC	Gamma Ray Correction	0	API
HM	Mud Height	1635.00	Kilograms/Cu. Meter
MDEN	Matrix Density	2710.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVG	SFmD Valve Status	IN	
NGS	X Factor-NGS	1.004	
NDS	Density Shape Id	1	
NBCS	Bits/Cycle Sel-CNT	Column	
NTLS	Tool Type-CNT	CNT-S	
NTNS	Temp Source-CNT	X Caliper	
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density Bn Stim Source	X Caliper	

REMARKS

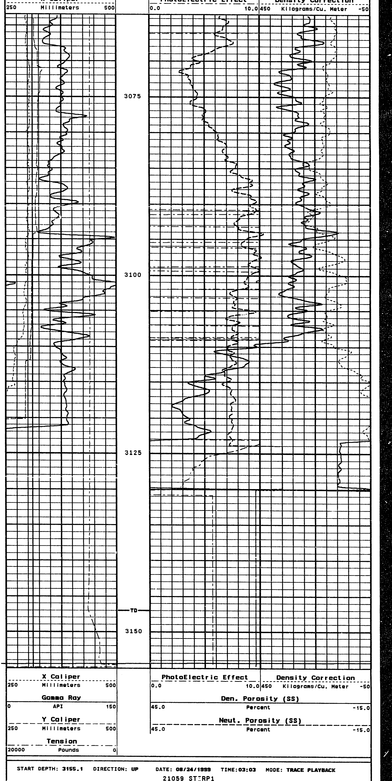
REPEAT PASS
1:240 SCALE
SANDSTONE MATRIX

VERSION 1999.07.05.155

REPEAT PASS

FINISH DEPTH: 3063.5 Meters DIRECTION: UP DATE: 08/24/1999 TIME: 03:03 MODE: TRACE PLAYBACK

Tension
20000 Pounds 0



START DEPTH: 3155.1 DIRECTION: UP DATE: 08/24/1999 TIME:03:03 MODE: TRACE PLAYBACK

21059 ST'RP1

REPEAT PASS

VERSION: 1999.07.06.195

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3168.5	Meters
BS	Bit Size	311.000	Millimeters
BHT	Bottom Hole Temp	114	Degrees Centigrade
SHT	Surface Hole Temp	25	Degrees Centigrade
SACC	Accumulator Time	10	Seconds
BARS	Barite Correction	0	
MW	Mud Weight	1520.000	Kilograms/Cu. Meter
MF	Mud Filtrate	2710.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVS	SPWD Valve Status	0	
MGAI	X Factor-MGU	1.004	
MGBI	Intercept-MGU	0.174	
MBCS	Bitsize/Calp Sel-CNT	Caliper	
MTLS	Tool Type-CNT	CNT-S	
MSNS	Serial No-CNT	6097-NE	
MCAL	LS Caliper-Gamma-CNT	X Caliper	
SCAL	Density SS Stam Source	X Caliper	

08/17/99	19:05	0.0 M	Ver 2.0b-2.0b	Job 21059

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9080

	Measured Small	Large	Units	Calibrated Small	Large	Units
CAL2	3038.4	7383.7	mv	212.0	630.0	mm

08/17/99	18:57	0.0 M	Ver 2.0b-2.0b	Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 117
Calibrator No: RA-205-681

Background	Calibrator	Standard	Units
139.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

03/15/99	14:19	0.0 M	Ver 2.0b-2.0b	Job SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-S Serial No: 107
Verifier No: MSV-187 Source No: 6097-NE

	Low Porosity Before	After	Med Porosity Before	After	High Porosity Before	After	Units
Tank Ratio:	1.684	1.684	1.684	1.684	1.684	1.684	SS/LS
Tank Porosity:	-0.78	10.25	14.35	14.35	25.73	25.73	LM-PU
LS Detector:	1458.7	346.1	1.461	346.1	164.2	164.2	CPS
SS Detector:	999.5	582.3	2.461	582.3	332.3	332.3	CPS
Tool Ratio:	0.685	1.681	1.461	1.681	2.024	2.024	SS/LS
Tool Porosity:	-1.03	10.25	14.35	14.35	26.14	26.14	LM-PU

Tool Constant: 1.004
Surface Temperature: 24 DegC

SS Detector	LS Detector	Ratio	Porosity
314.8 CPS	186.7 CPS	1.686	14.40

08/17/99	18:54	0.0 M	Ver 2.0b-2.0b	Job 21059

Compensated Neutron Before Survey Calibration

Tool Type: CNT-S Serial No: 107
Verifier No: MSV-187 Source No: 6097-NE

	Verifier Check	Units
LS Detector:	188.1	CPS
SS Detector:	316.7	CPS
Tool Ratio:	1.684	SS/LS
Tool Porosity:	14.35	LM-PU

Tool Constant: 1.004

08/23/99	12:39	0.0 M	Ver 2.0b-2.0b	Job 21059

Compensated Neutron After Survey Calibration

Tool Type: CNT-S Serial No: 107
Verifier No: MSV-187 Source No: 6097-NE

	Verifier Check Before	After	Units
LS Detector:	188.1	188.1	CPS
SS Detector:	316.7	318.1	CPS
Tool Ratio:	1.684	1.689	SS/LS
Tool Porosity:	14.35	14.09	LM-PU

Tool Constant: 1.004

03/12/99	17:48	0.0 M	Ver 2.0b-2.0b	Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-SM

	Bkg	Al	Al+Fe	Mg	Units
Cs Pk	108.99	108.92	108.55	111.49	Ch
Gain	0.164	0.164	0.164	0.168	Ch/kev
Tmp Pk	11.47				
Off	0.128				Ch
Res	9.65	9.43	9.28	9.90	%
SLPE	222	220	219	230	%
LUPE	110	1158	880	7012	cps
LSUC	573	1026	951	5957	cps
LCNP	1359	4105	3930	24093	cps
Cs Pk	108.43	110.63	109.83	110.57	Ch
Gain	0.164	0.167	0.168	0.167	Ch/kev
Tmp Pk	11.54				
Off	-0.037				
Res	9.24	9.53	9.45	9.57	%
SLPE	222	3670	1783	4030	cps
LUPE	117	1570	1158	2253	cps
LSUC	637	5970	4659	6253	cps
SCNP	1332	11077	9546	18357	cps
Acc	103	103	103	103	Secs

Density Calibration

	Fresh	Barite
Spine Angle =	127.42	18.34
Spine Length =	155.77	137.70

Pe Calibration

	Fresh
LS Slope =	1.0473
LS Intercept =	-0.0473
SS Slope =	2.2844
SS Intercept =	-0.4473

08/18/99	20:48	0.0 M	Ver 2.0b-2.0b	Job 21059

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-SM

	Shop	Before	Units
Cs Pk	108.99	107.90	Ch
Gain	0.164	0.162	Ch/kev
Tmp Pk	11.47	11.14	Ch
Off	0.128	-0.110	Ch
Res	9.65	9.92	%
SLPE	222	9.82	%
LUPE	110	113	cps
LSUC	573	572	cps
LCNP	1359	1350	cps
Cs Pk	108.43	109.83	Ch
Gain	0.164	0.165	Ch/kev
Tmp Pk	11.54	11.43	Ch
Off	-0.037	0.130	Ch
Res	9.24	9.49	%
SLPE	222	220	%
LUPE	117	118	cps
LSUC	637	636	cps
SCNP	1332	1318	cps
Acc	103	103	Secs

08/23/99	12:37	0.0 M	Ver 2.0b-2.0b	Job 21059

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-SM

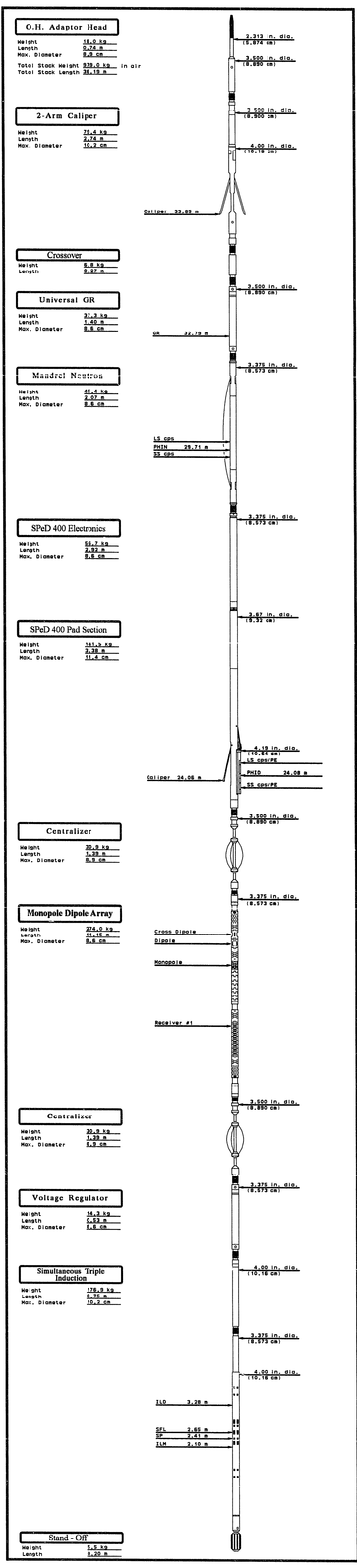
	Shop	Before	After	Units
Cs Pk	108.99	107.90	108.85	Ch
Gain	0.164	0.162	0.165	Ch/kev
Tmp Pk	11.47	11.14	11.20	Ch
Off	0.128	-0.110	0.142	Ch
Res	9.65	9.92	9.85	%
SLPE	222	9.82	9.86	%
LUPE	110	113	114	cps
LSUC	573	572	569	cps
LCNP	1359	1350	1355	cps
Cs Pk	108.43	109.83	109.99	Ch
Gain	0.164	0.165	0.168	Ch/kev
Tmp Pk	11.54	11.43	11.43	Ch
Off	-0.037	0.130	0.130	Ch
Res	9.24	9.49	9.66	%
SLPE	222	220	221	cps
LUPE	117	118	120	cps
LSUC	637	636	630	cps
SCNP	1332	1318	1310	cps
Acc	103	103	103	Secs

08/18/99	20:46	0.0 M	Ver 2.0b-2.0b	Job 21059

Caliper Before Survey Calibration

Tool Type: SPS-AB Serial No:110

	Measured Small	Large	Units	Calibrated Small	Large	Units
CALX	1827.0	3781.5	mv	212.0	630.0	mm



COMPANY	CANADIAN FOREST OIL LTD.
	CDN FOREST ET AL NORTH LIARD N-61
WELL	N61-6040-12330
FIELD	UNDEFINED PROVINCE N.W.T.

COMPUTALOG

NEP COPY

COMPUTALOG

CS400

SPECTRAL PE DENSITY
COMPENSATED NEUTRON
GAMMA RAY LOG

TRUE VERTICAL DEPTH

PROVINCE NORTHWEST TERRITORIES
FIELD UNDEFINED
WELL CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION
300/N-61-6040-12330/0

Other Services:
SPD-CNS-UGR-DAC
MDA / SED / VSP

Perm. Datum Ground Level Elev. 604.0
Log measured from K.B. , 6.7 m above Permanent Datum.

ELEV.K.B. 610.7
G.L. 604.0
CBF

Date	AUGUST 18, 1999		
Run No.	ONE		
First Reading	3115.4		
Last Reading	735.5		
Meters Meas.	2379.9		
Depth Reached	3140.1		
Bot. Driller	3140.2		
Csg. Logger	735.5		
Csg. Driller	735.6	339.7mm @101.2Kg/m	
Fluid Type	POTASSIUM SULPHATE		
Dens. & Visc.	1635 | 30		
Mud pH	6.0		
Mud Water Loss	10.5		
Mud Res.	0.15 @ 24 °C	@ °C	@ °C
Mud Res. @ BHT	0.05 @ 114 °C	@ °C	@ °C
Rmc	0.12 @ 23 °C	@ °C	@ °C
Rmf	0.10 @ 24 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	311mm		
Spacing	N/A		
Operating Time	20.5hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21059

Drilling Stopped 2130 /16 Circulation Stopped 1115 /22 Tool on Bottom 1015 /23 BHT 114 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION. PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST. UNABLE TO GET GOOD DENSITY REPEAT DUE TO HOT WELLBORE CAUSING THE TOOL TO DRIFT. MULTIPLE REPEATS PRESENTED. DENSITY LOGGED WITH BARITE CORRECTION TURNED ON; BARITE ADVERSELY AFFECTED PE VALUES. CNS LOGGED FROM TD TO 2300m WITHOUT BOWSPRINGS IN ORDER TO GET TOOL TO BOTTOM.

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date | Sample No.	08/18/1999	
Depth - Driller		
Type Fluid in Hole		
Dens. | Visc.		
pH | Water Loss		
Source of Sample		
Rm @ Meas. Temp.	@	°C
Rmf @ Meas. Temp.	@	°C
Rmc @ Meas. Temp.	@	°C
Source Rmf | Rmc		
Rm @ BHT	@	°C
Rmf @ BHT	@	°C
Rmc @ BHT	@	°C

SCALE CHANGES

Type Log	Interval	Scale

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	SPD-AB	110110	2068-GW
ONE	CNT-SA	107	6097-NE
ONE	UGR-JA	117	RA-20S-681
ONE	CAL-CC	9090	90° OFFSET CALIPER

REMARKS

MAIN PASS
1:600 SCALE
BULK DENSITY PRESENTATION

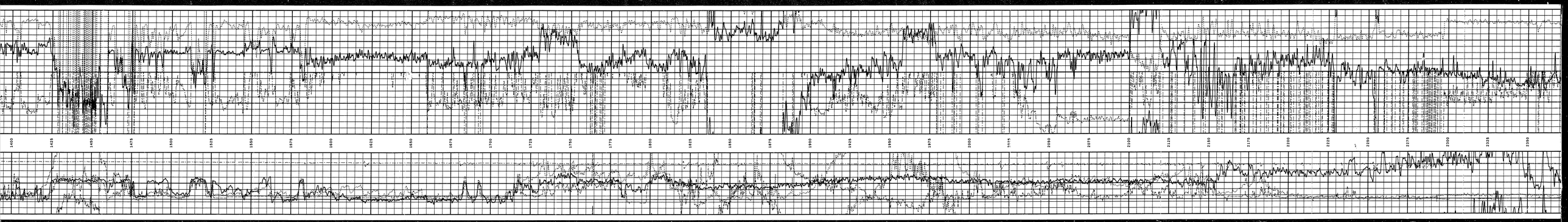
VERSION 1999.07.05.155

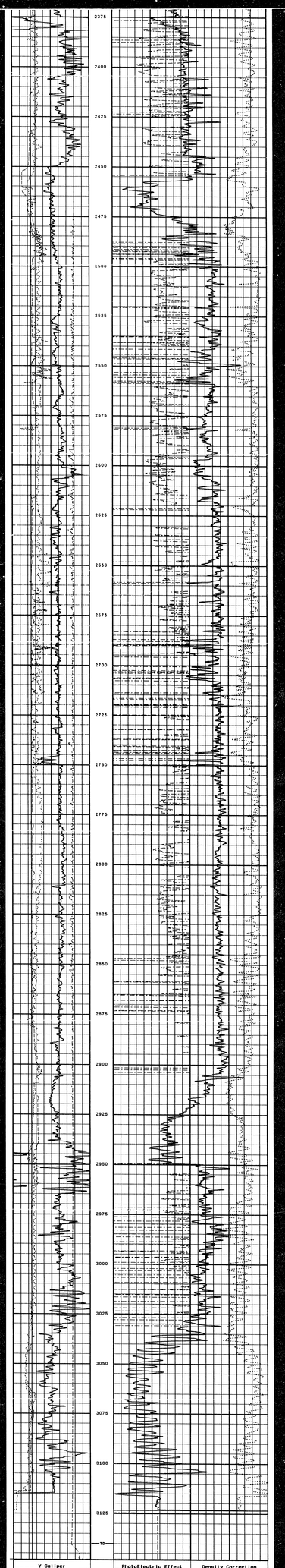
TVD MAIN PASS

21059 STIMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Track 1			Track 2/3		
Tension: 20000	Pounds	0	Bulk Density: 2000	Kilograms/Cu. Meter	3000
Gamma Ray: 0	API	150	PhotoElectric Effect: 0.0		10.0
X Caliper: 250	Millimeters	500	Density Correction: 450	Kilograms/Cu. Meter	-50
Y Caliper: 250	Millimeters	500			


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
2050
2075
2100
2125
2150
2175
2200
2225
2250
2275
2300
2325
2350



START DEPTH: 3148.2 DIRECTION: UP DATE: 08/24/1999 TIME:04:34 MODE: TRACE PLAYBACK

21059 STIMPTVD

TVD MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3148.5	Meters
BS	Bit Size	311.000	Millimeters
MT	Mudcake Max Temp	114	Degrees Centigrade
SPT	Surface Pulse Temp	0	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BARZ	Bar-Ln Correction	0	
MDEN	Mud Density	1030.00	Kilograms/Cu. Meter
MDEN	Matrix Density	2710.2000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
CSTYS	Casing Status	Open	
HOAT	C Factor-GR3	1.004	
BHC	Open/Cased Hole	Open	
NTLS	Tool Type-Neut/CNT	Calipered	
NTLS	Tool Type-CNT	CNT-G	
NTMG	Temp Source-CNT	Gradient	
NTMG	Temp Source-Neut/CNT	Sensor	
DCAL	Density DH Stim Source	X Caliper	

REMARKS

DATA PAST
FINE SCALE
SANDSTONE MATRIX

VERSION 1999.07.05.155

TVD MAIN PASS

21059 STIMPTVD

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension
20000 Pounds 0

Gamma Ray
0 API 150

X Caliper
250 Millimeters 500

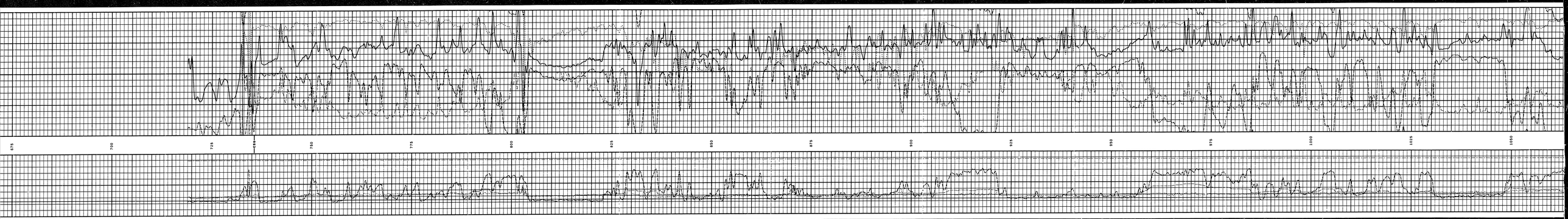
Y Caliper
250 Millimeters 500

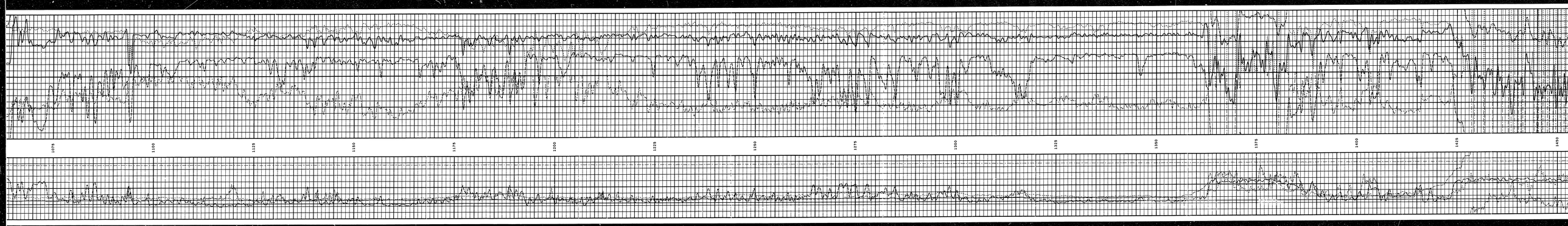
Neut. Porosity (SS)
45.0 Percent -15.0

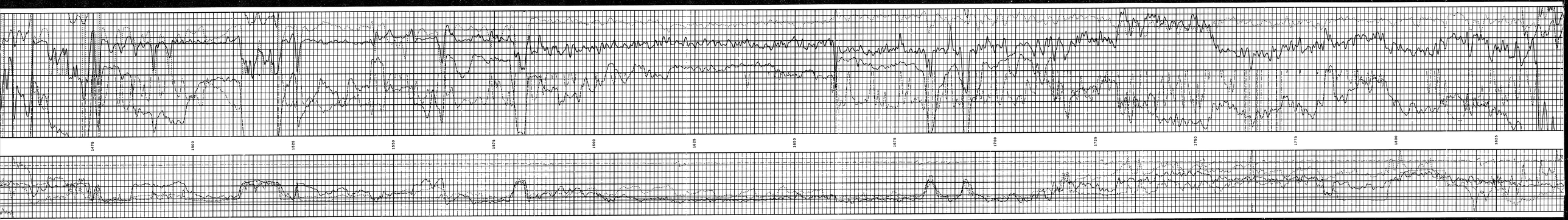
Den. Porosity (SS)
45.0 Percent -15.0

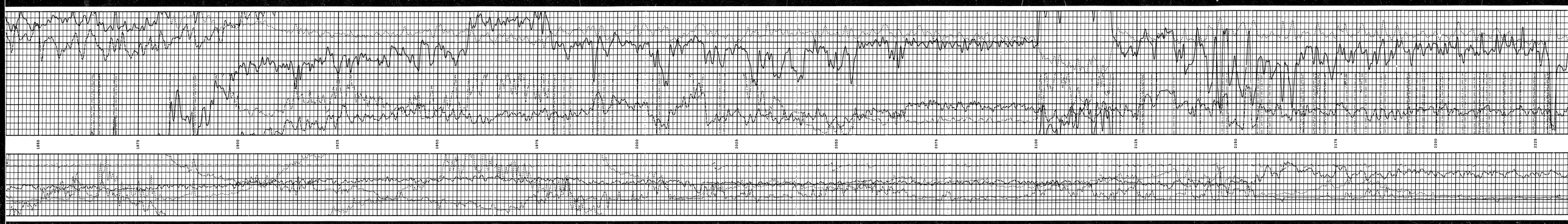
PhotoElectric Effect
0.0 10.0450

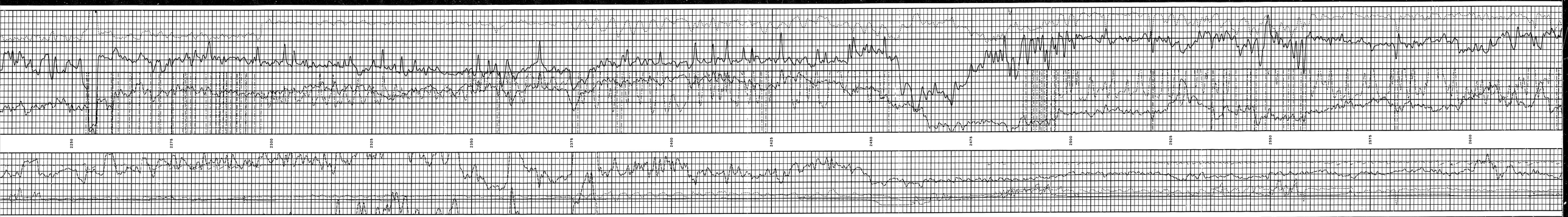
Density Correction
Kilograms/Cu. Meter -50

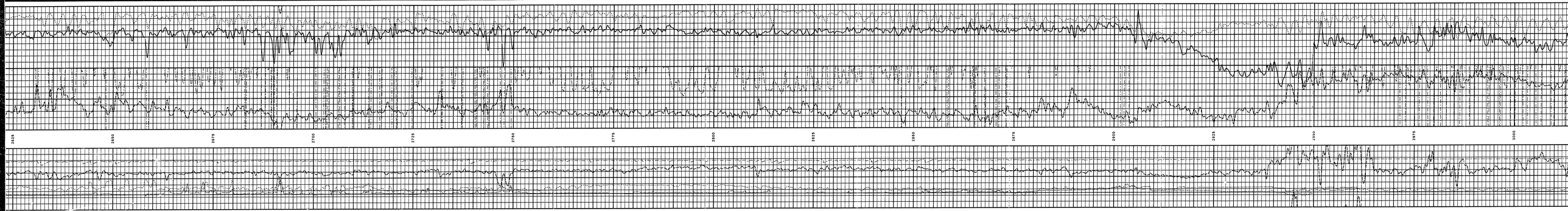

675
700
725
750
775
800
825
850
875
900
925
950
975
1000
1025
1050

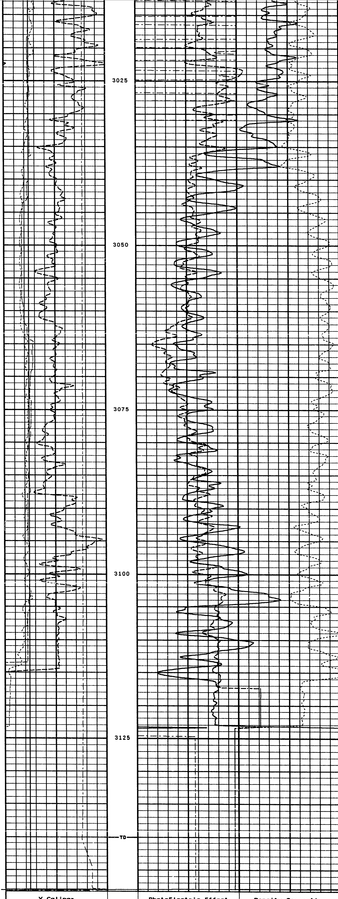

1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
1375
1400
1425
1450


1475
1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750
1775
1800
1825


1850
1875
1900
1925
1950
1975
2000
2025
2050
2075
2100
2125
2150
2175
2200
2225


2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600


2625
2650
2675
2700
2725
2750
2775
2800
2825
2850
2875
2900
2925
2950
2975
3000



Y Caliper	PhotoElectric Effect	Density Correction
250 Millimeters 500	0.0 10.0000 Kilograms/Cu. Meter -50	

Den. Porosity (SS)
45.0 Percent -15.0

Neut. Porosity (SS)
45.0 Percent -15.0

X Caliper	Gamma Ray	Tension
250 Millimeters 500	0 API 150	20000 Pounds 0

START DEPTH: 3148.2 DIRECTION: UP DATE: 08/24/1999 TIME:04:34 MODE: TRACE PLAYBACK

21059 STIMPTVD

TVD MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3148.5	Meters
BS	Bit Size	311.100	Millimeters
BHT	Bottom Hole Temp	154	Degrees Centigrade
SFT	Mean Annual Surf Temp	15	Degrees Centigrade
LUNIT	Length Unit	1	Decimal
DAST	Delta Correction	60	Seconds
HU	Mud Weight	1030.00	Kilograms/Cu. Meter
RMUD	Mud Resistivity	2210.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVS	SPWD Valve Status	ON	
SPVT	SPWD Valve Type	1	Decimal
BHS	Borehole Shape	Open	
MBCS	Bit/Ctrz/Cntr Sel-CNT	Caliper	
MTLS	Tool Type-CNT	CNT-G	
MTNS	TNPH Source-CNT	Gradient	
MCAL	LSS Caliper Name-CNT	X Caliper	
SCAL	Density BH Stab Source	X Caliper	

REMARKS

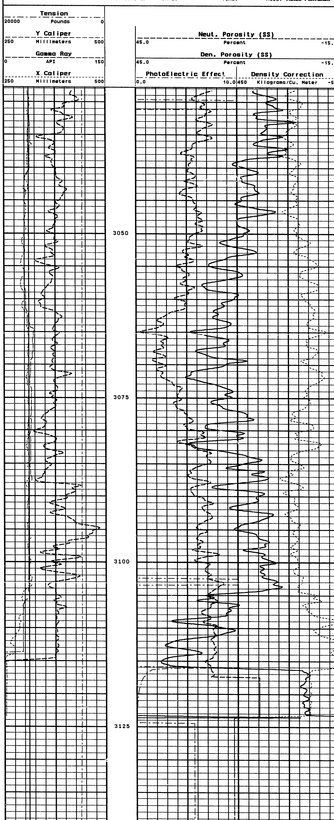
REPEAT PASS
1:240 SCALE
SANDSTONE MATRIX

VERSION 1999.07.05.155

TVD REPEAT PASS

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

21059 STIRP1TVD



X Caliper	PhotoElectric Effect	Density Correction
250 Millimeters 500	0.0 10.0000 Kilograms/Cu. Meter -50	

Den. Porosity (SS)
45.0 Percent -15.0

Neut. Porosity (SS)
45.0 Percent -15.0

Y Caliper	Gamma Ray	Tension
250 Millimeters 500	0 API 150	20000 Pounds 0

START DEPTH: 3148.4 DIRECTION: UP DATE: 08/24/1999 TIME:04:36 MODE: TRACE PLAYBACK

21059 STIRP2TVD

TVD REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3148.5	Meters
BS	Bit Size	311.100	Millimeters
BHT	Bottom Hole Temp	154	Degrees Centigrade
SFT	Mean Annual Surf Temp	15	Degrees Centigrade
DACC	Accumulation Time	10	Seconds
DAST	Delta Correction	30	
HU	Mud Weight	1030.00	Kilograms/Cu. Meter
RMUD	Mud Resistivity	2210.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVS	SPWD Valve Status	ON	
SPVT	SPWD Valve Type	1	Decimal
BHS	Borehole Shape	Open	
MBCS	Bit/Ctrz/Cntr Sel-CNT	Caliper	
MTLS	Tool Type-CNT	CNT-G	
MTNS	TNPH Source-CNT	Gradient	
MCAL	LSS Caliper Name-CNT	X Caliper	
SCAL	Density BH Stab Source	X Caliper	

REMARKS

REPEAT PASS
1:240 SCALE
SANDSTONE MATRIX

VERSION 1999.07.05.155

TVD REPEAT PASS

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

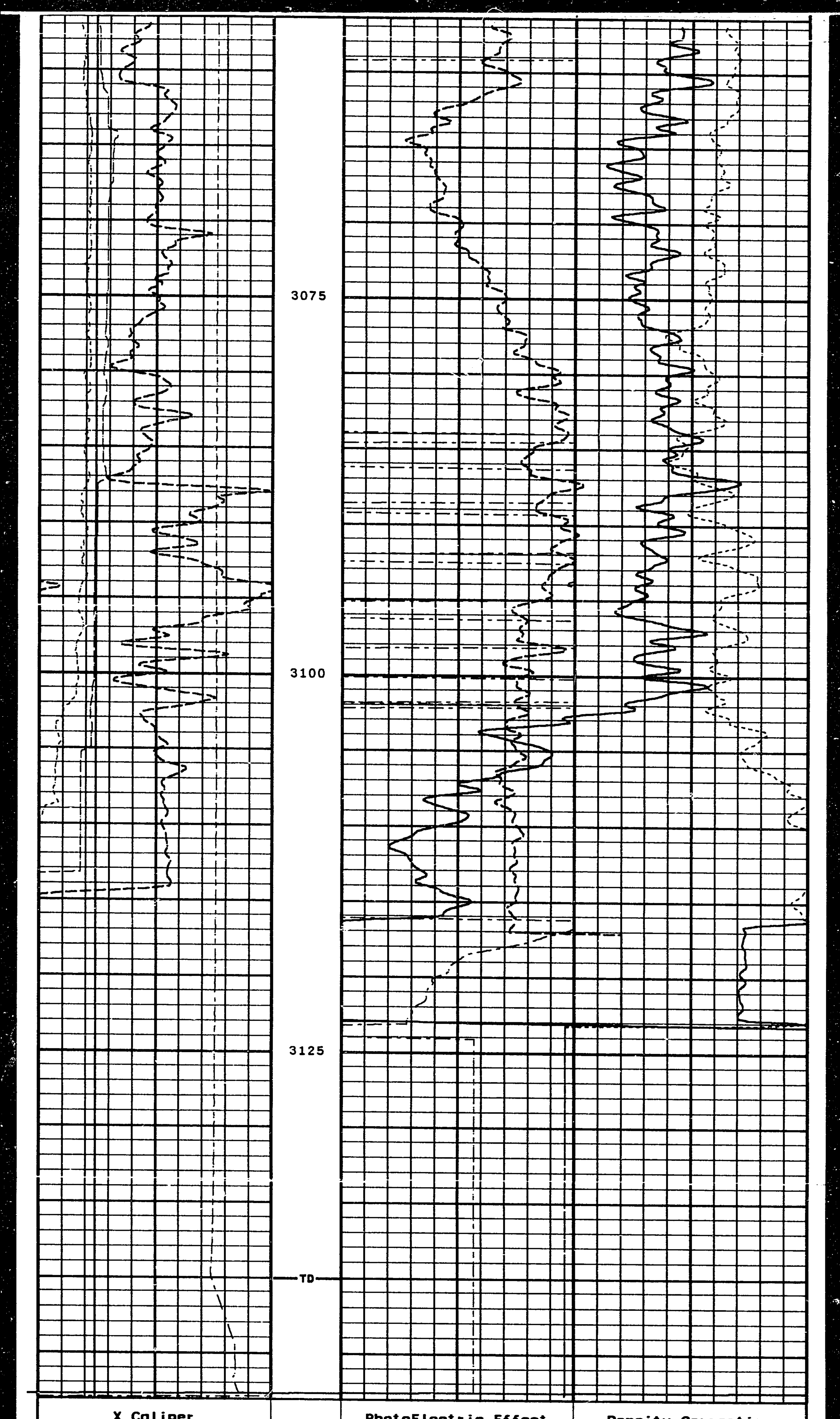
21059 STIRP1TVD

Tension	Y Caliper	Gamma Ray	X Caliper
20000 Pounds 0	250 Millimeters 500	0 API 150	250 Millimeters 500

Neut. Porosity (SS)
45.0 Percent -15.0

Den. Porosity (SS)
45.0 Percent -15.0

PhotoElectric Effect	Density Correction
0.0 10.0000 Kilograms/Cu. Meter -50	



X Caliper			PhotoElectric Effect		Density Correction		
250	Millimeters	500	0.0	10.0	450	Kilograms/Cu. Meter	-50
Gamma Ray			Den. Porosity (SS)				
0	API	150	45.0		Percent		-15.0
Y Caliper			Neut. Porosity (SS)				
250	Millimeters	500	45.0		Percent		-15.0
Tension							
20000	Pounds	0					

START DEPTH: 3148.0 DIRECTION: UP DATE: 08/24/1999 TIME:04:36 MODE: TRACE PLAYBACK

21059 STIRP1TVD

TVD REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAMF	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3146.9	Meters
BS	Bit Size	311.000	Millimeters
BHT	Bottom Hole Temp	114	Degrees Centigrade
SFT	Mean Annual Surf Temp	5	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	ON	
MW	Mud Weight	1635.00	Kilograms/Cu. Meter
MDEN	Matrix Density	2710.0000	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVS	SPeD Valve Status	IN	
NGAI	K Factor-NEU	1.004	
BHS	Open/Cased Hole	Open	
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
NTHS	Temp Source-CNT	Gradient	
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature
TVD DATA FILE : /mstr/cs400/8000/21059/20159tvd.tvdb

VERSION : 1.0

COMPANY : Canadian Forest Oil Ltd.
WELL : Cdn. Forest et al North Liard N-61
LOCATION : 300-N61-6040-12330-0
DATE : August 18, 1999

DRILLED DEPTH : 3147.00 m
TRUE VERTICAL DEPTH : 3140.18 m
BOTTOM HOLE DISPLACEMENT : N 76.89 m E 120.44 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.26	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.80	59.30	1625.47	59.62	83.13
12	1640.10	7.60	58.40	1634.99	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.80	59.70	1652.84	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.90	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.89	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3147.00	0.70	340.00	3140.18	76.89	120.44

08/17/99 19:05 0.0 M Ver 2.0b-2.0b Job 21059

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9090

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	3038.4	7383.7	mv	212.0	630.0	mm

08/17/99 18:57 0.0 M Ver 2.0b-2.0b Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 117
Calibrator No: RA-20S-681

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

Delta Counts Per Sec: 526.3 CPS/API = 3.760

Delta Counts Per Sec: 526.3 CPS/API = 3.760

03/15/99 14:19 0.0 M Ver 2.00-2.00 Job SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-S Serial No: 107
Verifier Id: VM-187 Source No: 8087-NE

	Low Porosity	Med Porosity	High Porosity	Units
Tank Ratio:	0.713	1.457	2.294	SS/LS
Tank Porosity:	-0.76	10.35	25.73	LM-PU
LS Detector:	1458.7	346.1	144.2	CPS
SS Detector:	998.9	503.3	332.3	CPS
Tool Ratio:	0.685	1.451	2.304	SS/LS
Tool Porosity:	-1.03	10.20	26.14	LM-PU

Tool Constant: 1.004
Surface Temperature: 34 DegC

SS Detector	LS Detector	Ratio	Porosity
314.8 CPS	186.7 CPS	1.686	14.40

08/17/99 18:54 0.0 M Ver 2.00-2.00 Job 21059

Compensated Neutron Before Survey Calibration

Tool Type: CNT-S Serial No: 107
Verifier No: MOV-187 Source No: 8087-NE

	Verifier Check	Units
LS Detector:	188.1	CPS
SS Detector:	316.7	CPS
Tool Ratio:	1.684	SS/LS
Tool Porosity:	14.35	LM-PU

Tool Constant: 1.004

08/23/99 12:39 0.0 M Ver 2.00-2.00 Job 21059

Compensated Neutron After Survey Calibration

Tool Type: CNT-S Serial No: 107
Verifier No: MOV-187 Source No: 8087-NE

	Verifier Check Before	After	Units
LS Detector:	188.1	190.6	CPS
SS Detector:	316.7	318.1	CPS
Tool Ratio:	1.684	1.669	SS/LS
Tool Porosity:	14.35	14.09	LM-PU

Tool Constant: 1.004

03/12/99 17:48 0.0 M Ver 2.00-2.00 Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-DH

	Bkg	Al	Al+Pe	Mg	Units
Cs Pk	108.99	108.92	108.66	111.48	Ch
Gain	0.164	0.164	0.164	0.160	Ch/Kev
Trg Pk	11.47				
Off	-0.037				
Res	9.95	9.43	9.29	9.80	%
LLPE	212	1582	1013	10371	cps
LSPE	115	1138	883	7212	cps
SSPE	673	1039	1000	2002	cps
LCMP	1359	4105	3830	24952	cps
Cs Pk	108.43	110.13	108.93	110.57	Ch
Gain	0.164	0.167	0.166	0.167	Ch/Kev
Trg Pk	11.27				
Off	-0.057				
Res	9.54	9.53	9.45	9.57	%
SLPE	223	2670	1793	4036	cps
SSPE	119	1563	1403	2851	cps
SCMP	837	4107	3546	8220	cps
SCMP	1359	11077	8646	18397	cps
Acc	103	103	103	103	Secs

Density Calibration

	Fresh	Barite
Spine Angle =	77.49	79.94
Spine Length =	199.77	197.70

Pe Calibration

	Fresh
LS Slope =	1.8476
LS Intercept =	-5.3823
SS Slope =	1.8000
SS Intercept =	-5.4472

08/18/99 20:48 0.0 M Ver 2.00-2.00 Job 21059

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-DH

	Shop	Before	Units
Cs Pk	108.99	107.80	Ch
Gain	0.164	0.163	Ch/Kev
Trg Pk	11.47	11.14	Ch
Off	0.198	-0.119	Ch
Res	9.95	9.72	%
LLPE	212	204	cps
LSPE	115	113	cps
SSPE	673	1359	cps
LCMP	1359	1359	cps
Cs Pk	108.43	109.83	Ch
Gain	0.164	0.165	Ch/Kev
Trg Pk	11.27	11.04	Ch
Off	-0.057	0.120	Ch
Res	9.54	9.45	%
SLPE	223	222	cps
SSPE	119	119	cps
SCMP	837	828	cps
SCMP	1359	1316	cps
Acc	103	103	Secs

08/23/99 12:37 0.0 M Ver 2.00-2.00 Job 21059

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-DH

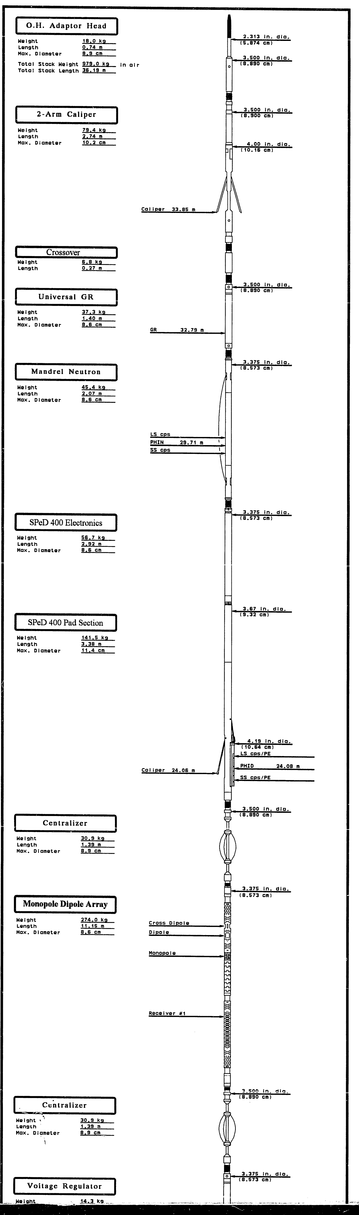
	Shop	Before	After	Units
Cs Pk	108.99	107.80	108.66	Ch
Gain	0.164	0.163	0.165	Ch/Kev
Trg Pk	11.47	11.14	11.20	Ch
Off	0.198	-0.119	0.162	Ch
Res	9.95	9.72	9.80	%
LLPE	212	204	209	cps
LSPE	115	113	114	cps
SSPE	673	1359	1359	cps
LCMP	1359	1359	1359	cps
Cs Pk	108.43	109.83	108.93	Ch
Gain	0.164	0.165	0.166	Ch/Kev
Trg Pk	11.27	11.04	11.13	Ch
Off	-0.057	0.120	0.150	Ch
Res	9.54	9.45	9.56	%
SLPE	223	222	223	cps
SSPE	119	119	120	cps
SCMP	837	828	830	cps
SCMP	1359	1316	1316	cps
Acc	103	103	103	Secs

08/18/99 20:46 0.0 M Ver 2.00-2.00 Job 21059

Caliper Before Survey Calibration

Tool Type: SPC-AB Serial No:110

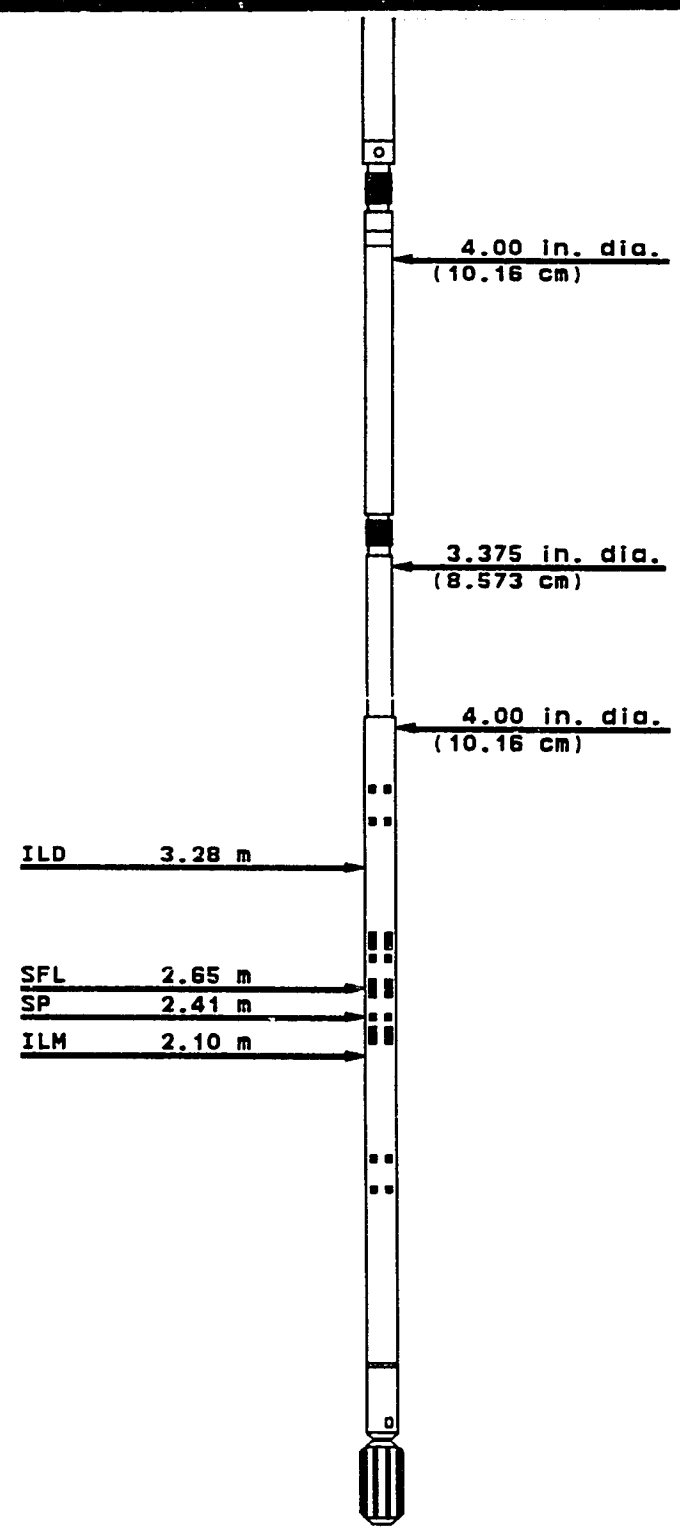
	Measured Small	Large	Units	Calibrated Small	Large	Units
CALX	1827.0	3791.5	mv	212.0	830.0	mv



Length 0.53 m
Max. Diameter 8.6 cm

Simultaneous Triple Induction

Weight 176.9 kg
Length 8.75 m
Max. Diameter 10.2 cm



Stand - Off

Weight 5.5 kg
Length 0.20 m

COMPANY CANADIAN FOREST OIL LTD.

CDN FOREST ET AL NORTH LIARD N-61

WELL N61-6040-12330

FIELD UNDEFINED PROVINCE N.W.T.

COMPUTALOG

COMPUTALOG

CS5300

SPECTRAL FE DENSITY
COMPENSATED NEUTRON
GAMMA RAY LOG

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-81-8040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LIARD N-81
FIELD	UNDEFINED
PROVINCE	NORTHWEST TERRITORIES

LOCATION: 200/N-81-8040-12330/0

Perm. Datum: GROUND LEVEL Elev: 684.0
Log Measured From: KB 15.0 Above Perm. Datum

Other Services: DIFL CNL / ZDL / AMS

Date: 09/12/1999
Run Number: ONE

Depth Driller	3349.0
Depth Logger	3348.4
Bottom Log Interval	3346.4
Top Log Interval	1515.0
Casing Driller	139.7@ 0
Casing Logger	139.7@ 0
Bit Size	127.0
Type Fluid in Hole	FRESH WATER
Density	1.18
Viscosity	0
Fluid Loss	0
Source of Sample	
Rm @ Meas. Temp.	0.91@ 22
Rmf @ Meas. Temp.	0.83@ 22
Rmc @ Meas. Temp.	1.5@ 22
Source Rmf / Rmc	MEASURED / CALCULATED
Rm @ BHT	0.91@ 22
Rmf @ BHT	0.83@ 22
Rmc @ BHT	1.5@ 22
Max. Recorded Temp.	22
Equipment Number	SGC-AA
Location	1515.5m
Recorded By	R.KELLY
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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21065

Drilling Stopped 1600./07 Circulation Stopped 1515./11 Tool on Bottom 0628./13 BHT 128 °C

STI-SP-MDA-SPD-CNS-UGR-DAC RAN IN COMBINATION.
PRESENTATION AND INTERVALS AS PER CUSTOMER REQUEST.
REPEAT PRESENTED FROM LOG OFF BRIDGE. Prints: 2
GAMMA RAY SPLICED IN FROM EMI LOG AT 3349 TO FIRST READ.

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date / Sample No.		
Depth - Driller		
Type Fluid in Hole		
Dens. / Visc.		
pH / Water Loss		
Source of Sample		
Rm @ Meas. Temp.	@	°C
Rmf @ Meas. Temp.	@	°C
Rmc @ Meas. Temp.	@	°C
Source Rmf / Rmc		
Rm @ BHT	@	°C
Rmf @ BHT	@	°C
Rmc @ BHT	@	°C

SCALE CHANGES		
Type Log	Interval	Scale

EQUIPMENT DATA			
Run No.	Tool Type	Tool No.	Other
ONE	SPD-AB	110110	2068-DH
ONE	CNT-SA	108	8097-HA
ONE	UGR-JA	117	RA-205-681
ONE	CAL-CC	5590	8DT OFFSET CALIPER

REMARKS

MAIN PASS
1:600 SCALE
BULK DENSITY PRESENTATION
HOLE HOLE VOLUME ON THE LEFT SIDE OF THE DEPTH TRACK.
ANNULAR CEMENT VOLUME. FOR 139.7mm CASING.ON THE RIGHT SIDE.

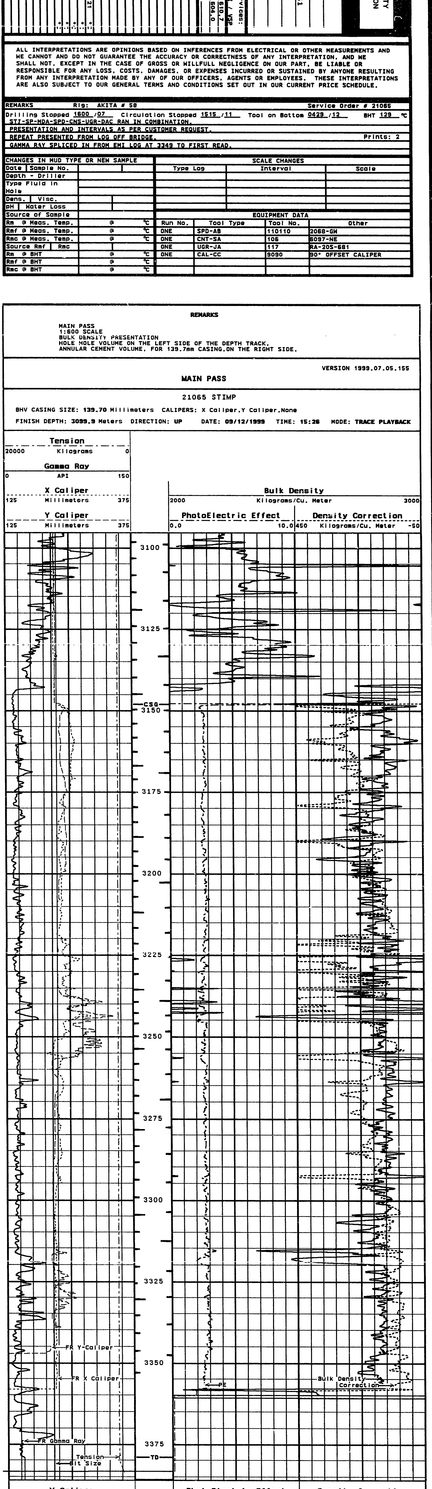
VERSION 1999.07.05.155

MAIN PASS

21065 STIMP

BHV CASING SIZE: 139.70 Millimeters CALIPERS: X Caliper,Y Caliper,None

FINISH DEPTH: 3099.9 Meters DIRECTION: UP DATE: 09/12/1999 TIME: 15:26 MODE: TRACE PLAYBACK



START DEPTH: 3395.9 DIRECTION: UP DATE: 09/12/1999 TIME: 15:26 MODE: TRACE PLAYBACK

BHV CASING SIZE: 139.70 Millimeters CALIPERS: X Caliper,Y Caliper,None

21065 STIMP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3379.0	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	125	Degrees Centigrade
SFT	Mean Annual Surf Temp	5	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BASI	Borite Correction	OFF	
MSFD	Mud Density	1040.000	Kilograms/Cu. Meter
FD	Fluid Density	1000.000	Kilograms/Cu. Meter
SPVS	SPWD Valve Status	ON	
NGAI	K Factor-NEU	1.028	
SHC	Open/Cased Hole	Open	
NRCS	Bitsize/Calp Sel-CNT	Caliper	
NTMS	Temp Source-CNT	Gradient	
NTMS	Temp Source-CNT	Gradient	
NCAL	LSS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	
BHC1	BHV Caliper Source 1	X Caliper	
BHC2	BHV Caliper Source 2	Y Caliper	
BHC3	BHV Caliper Source 3	None	
BHC4	BHV Casing Size	139.70	Millimeters

REMARKS

MAIN PASS
1:240 SCALE

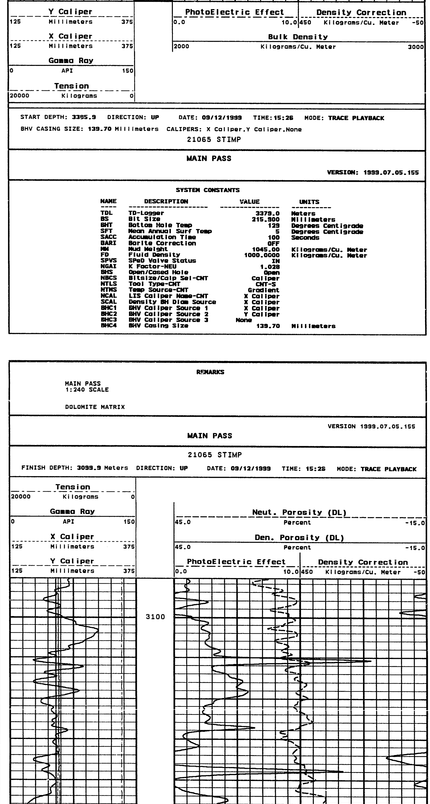
DOLOMITE MATRIX

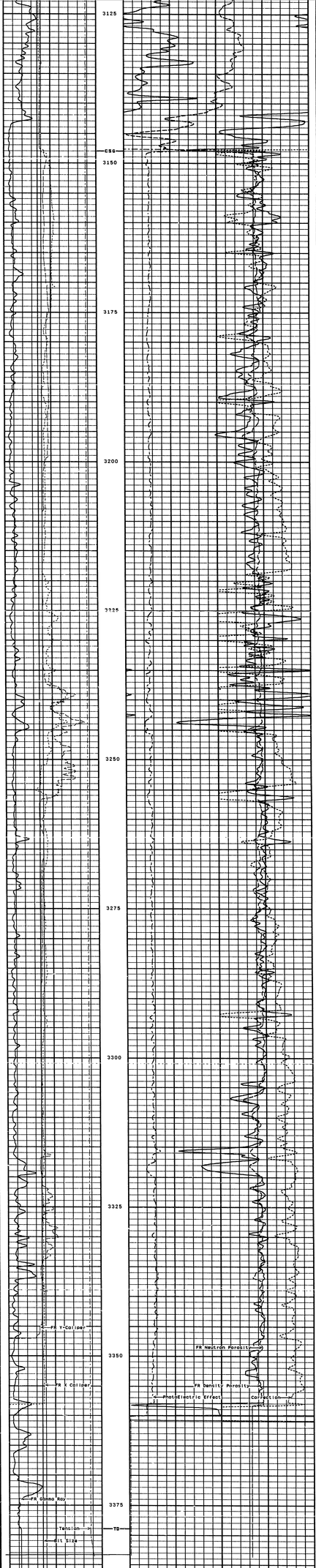
VERSION 1999.07.05.155

MAIN PASS

21065 STIMP

FINISH DEPTH: 3099.9 Meters DIRECTION: UP DATE: 09/12/1999 TIME: 15:26 MODE: TRACE PLAYBACK





Y Caliper	
125 Millimeters	375

X Caliper	
125 Millimeters	375

Gamma Ray	
0 API	150

Tension	
20000 Kilograms	0

PhotoElectric Effect		Density Correction	
0.0	10.0	0.450 Kilograms/Cu. Meter	-50

Den. Porosity (DL)	
45.0 Percent	-15.0

Neut. Porosity (DL)	
45.0 Percent	-15.0

START DEPTH: 3385.9 DIRECTION: UP DATE: 09/12/1999 TIME:15:26 MODE: TRACE PLAYBACK

21065 STIMP

MAIN PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3379.0	Meters
BS	Bit Size	215.900	Millimeters
BHT	Maximum Hole Temp	13	Degrees Centigrade
SFT	Mean Annual Surf Temp	13	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	1040.00	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
CPS	Cps Output Status	OFF	
NGAI	X Factor-NGS	1.028	
BHS	Open/Cased Hole	Open	
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
NTMS	Temp Source-CNT	Gradient	
NTCF	Temp Correction-CNT	0.0	Degrees Centigrade
NCAI	LSS Caliper Mode-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

REMARKS

REPEAT PASS
1:240 SCALE

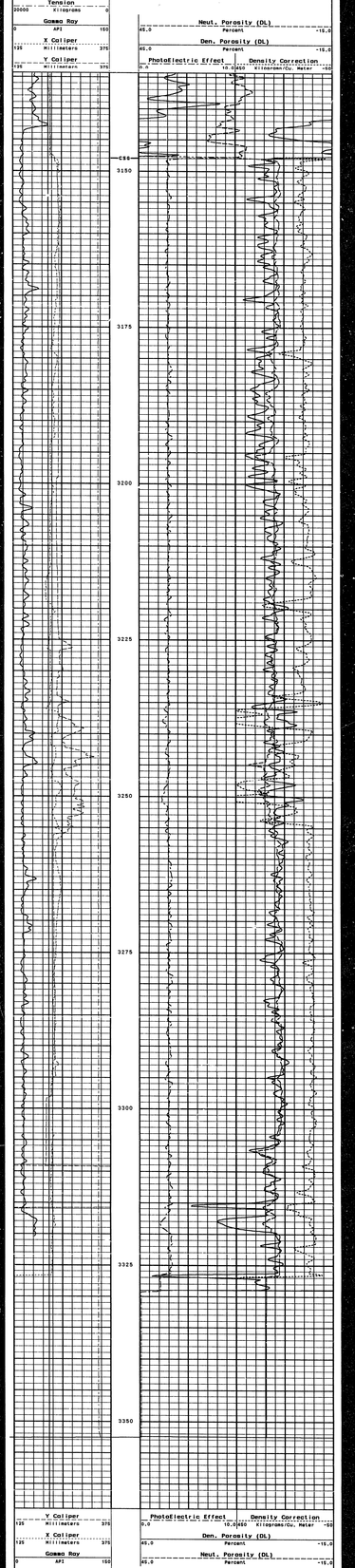
DOLOMITE MATRIX

VERSION 1999.07.05.155

REPEAT PASS

21065 STIMP

FINISH DEPTH: 3138.9 Meters DIRECTION: UP DATE: 09/12/1999 TIME: 15:13 MODE: TRACE PLAYBACK



Y Caliper
125 Millimeters 375
X Caliper
125 Millimeters 375
Gamma Ray
0 API 150
Tension
20000 Kilograms 0
PhotoElectric Effect
0.0 10.0450
Density Correction
Kilograms/Cu. Meter -50
Den. Porosity (DL)
45.0 Percent -15.0
Neut. Porosity (DL)
45.0 Percent -15.0

START DEPTH: 3363.0 DIRECTION: UP DATE: 09/12/1999 TIME: 15:13 MODE: TRACE PLAYBACK

21065 STIRP

REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TOC	Top Logged	3375.0	Meters
BD	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	125	Degrees Centigrade
SFTC	Mean Annual Surf Temp	5	Degrees Centigrade
DTC	Delay Time Cement	120	Seconds
BARI	Barite Correction	0	
MW	Mud Weight	1040.00	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
PEFL	Fluid Photoelectric	0.000	
HDAT	K Factor-HDT	1.438	
NDCL	Neutron Cal Mode	Open	
HTNS	Tool Type-CNT	CNT-S	
HTNS	Tool Type-CNT	CNT-S	
HTNS	Temp Source-CNT	Gradient	
HCAL	Cal Temp-CNT	20	Degrees Centigrade
HCAL	LS Caliper Mnem-CNT	X Caliper	
SCAL	Density BH Stem Source	X Caliper	

09/11/99	18:19	0.0 M	Ver 2.0b-2.0b	Job 21065

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:8080

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	2334.4	4630.0	mv	152.0	310.0	mm

08/17/99	18:57	0.0 M	Ver 2.0b-2.0b	Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-A Serial No: 117
Calibrator No: RA-202-681

	Background	Calibrator	Standard	Units
	129.4	655.7	140.0	API

Delta Counts Per Sec: 528.3 CPS/API = 3.760

03/15/99	14:30	0.0 M	Ver 2.0b-2.0b	Job SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-S Serial No: 106
Verifier No: NSV-187 Source No: 8097-NE

	Low Porosity	Med Porosity	High Porosity	Units
Tank Ratio:	0.885	1.417	2.368	SS/LS
Tank Porosity:	-15.00	10.00	35.00	LM-PU
LS Detector:	1430.9	355.0	164.8	CPS
SS Detector:	995.3	485.0	330.5	CPS
Tank Ratio:	0.885	1.417	2.368	SS/LS
Tank Porosity:	-0.88	10.00	36.90	LM-PU

Tool Constant: 1.025
Surface Temperature: 24 DegC

SS Detector	LS Detector	Ratio	Porosity
314.2 CPS	188.4 CPS	1.666	15.11

03/02/99	14:14	0.0 M	Ver 2.0b-2.0b	Job 23389

Compensated Neutron Before Survey Calibration

Tool Type: CNT-S Serial No: 106
Verifier No: NSV-187 Source No: 8097-NE

	Verifier Check 187.6	Units
LS Detector:		CPS
SS Detector:	315.2	CPS
Tool Ratio:	1.680	SS/LS
Tool Porosity:	14.47	LM-PU

Tool Constant: 1.028

09/12/99	07:13	0.0 M	Ver 2.0b-2.0b	Job 21065

Compensated Neutron After Survey Calibration

Tool Type: CNT-S Serial No: 106
Verifier No: NSV-187 Source No: 8097-NE

	Verifier Check Before	After	Units
LS Detector:	187.6	187.1	CPS
SS Detector:	315.2	315.2	CPS
Tool Ratio:	1.680	1.685	SS/LS
Tool Porosity:	14.47	15.00	LM-PU

Tool Constant: 1.028

03/12/99	17:48	0.0 M	Ver 2.0b-2.0b	Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB Serial No: 110110
Firmware Ver: 4.00 Source No: 2068-GM

	Whp	Al	Alrpm	Mg	Units
Cs Pk	108.99	108.92	108.06	111.49	Ch
Gain	0.164	0.164	0.164	0.168	Ch/Kev
Tng Pk	11.27				
Off	0.126				
Res	9.54	9.43	9.29	9.60	%
LLPE	812	1882	1013	10371	cps
LLSE	115	1159	880	7012	cps
LSPE	222	1225	1221	3982	cps
LSSE	1303	1225	3001	10287	cps
Cs Pk	108.43	110.02	109.93	110.37	Ch
Gain	0.164	0.167	0.166	0.167	Ch/Kev
Tng Pk	11.27				
Off	-0.037				
Res	9.54	9.70	9.42	9.57	%
SLPE	222	3870	1783	4038	cps
SLSE	115	2862	1402	2883	cps
SSPE	222	1322	1229	1229	cps
SSMP	1333	11077	9646	16397	cps
Acc	103	103	103	103	Secs

Density Calibration

	Fresh	Barite
Saline Anals =	1.0000	2.4000
Saline Length =	165.77	157.70

Pe Calibration

	Fresh
LS Slope =	1.6876
LS Intercept =	-0.2839
SS Slope =	1.6876
SS Intercept =	-0.4473

09/11/99 16:35 9.0 M Ver 2.0b-2.0b Job 21065

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB Serial No: 110110

Firmware Ver: 4.00 Source No: 2088-04

	Shop	Before	Units
Cs Pk	108.99	109.51	Ch
Gain	0.164	0.166	Ch/Kev
Tng Pk	11.27	11.31	Ch
Off	0.126	0.143	Ch
Res	9.60	9.43	%
LLPE	812	811	
LLSE	115	880	
LSPE	873	888	
LSSE	1303	1340	
Cs Pk	108.43	109.86	Ch
Gain	0.164	0.168	Ch/Kev
Tng Pk	11.27	11.37	Ch
Off	-0.037	0.139	Ch
Res	9.54	9.49	%
SLPE	222	221	
SLSE	115	119	
SSPE	837	830	
SSMP	1322	1322	
Acc	103	103	Secs

09/12/99 07:09 0.0 M Ver 2.0b-2.0b Job 21065

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB Serial No: 110110

Firmware Ver: 4.00 Source No: 2088-04

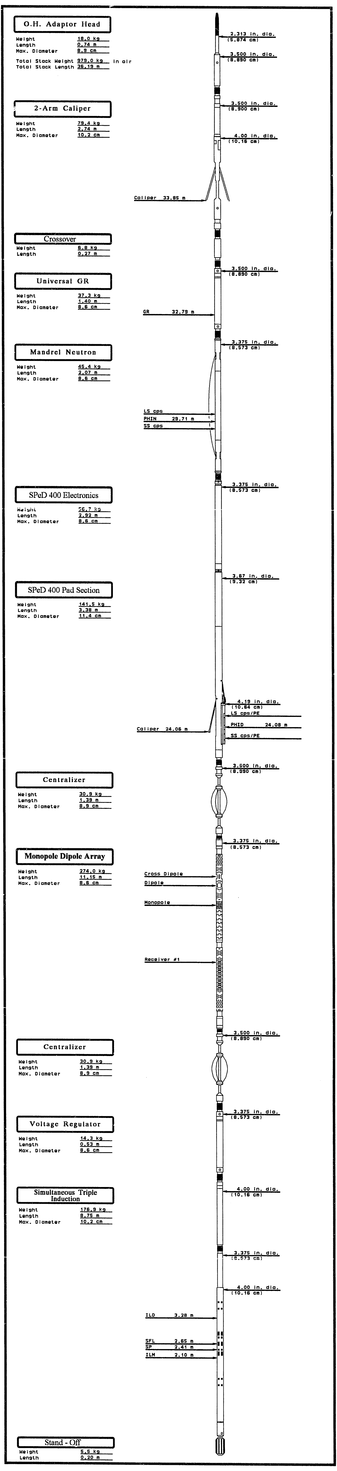
	Shop	Before	After	Units
Cs Pk	108.99	109.91	108.91	Ch
Gain	0.164	0.166	0.166	Ch/Kev
Tng Pk	11.27	11.31	11.31	Ch
Off	0.126	0.088	0.102	Ch
Res	9.60	9.43	9.39	%
LLPE	812	811	811	cps
LLSE	115	116	110	cps
LSSC	873	880	885	cps
LSMP	1303	1340	1355	cps
Cs Pk	108.43	109.86	110.02	Ch
Gain	0.164	0.168	0.167	Ch/Kev
Tng Pk	11.27	11.37	11.34	Ch
Off	-0.037	0.139	-0.169	Ch
Res	9.54	9.49	9.57	%
SLPE	222	221	220	cps
SSPE	115	118	119	cps
SSSC	837	830	830	cps
SSMP	1322	1322	1320	cps
Acc	103	103	103	Secs

09/11/99 16:29 9.0 M Ver 2.0b-2.0b Job 21065

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:110

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CALX	1907.5	3147.5	av	152.0	310.0	mm



COMPANY	CANADIAN FOREST OIL LTD.
	AUW-hqu-6U40-1230
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	N.W.T.

COMPUTALOG

N.E.B. COPY

COMPUTALOG

CS400

SPECTRAL PE DENSITY
COMPENSATED NEUTRON
GAMMA RAY LOG

TRUE VERTICAL DEPTH.

PROVINCE	NORTHWEST TERRITORIES
FIELD	UNDEFINED
WELL	CDN FOREST ET AL NORTH LIARD N-61-6040-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL NORTH LIARD N-61

FIELD UNDEFINED

PROVINCE NORTHWEST TERRITORIES

LOCATION
300/N-61-6040-12330 0

Other Services:
STI-SP
MDA / EMI / VSP

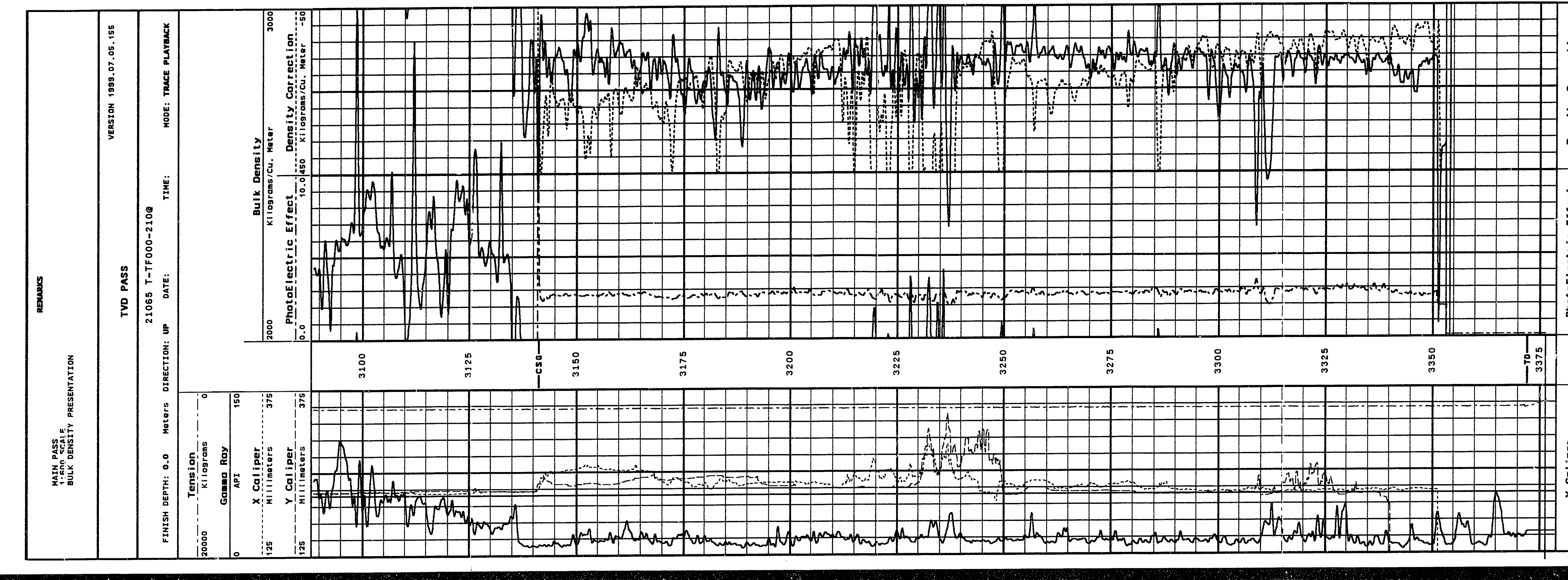
Perm. Datum Ground Level Elev. 604.0
Log measured from K.B. , 6.7 m above Permanent Datum.

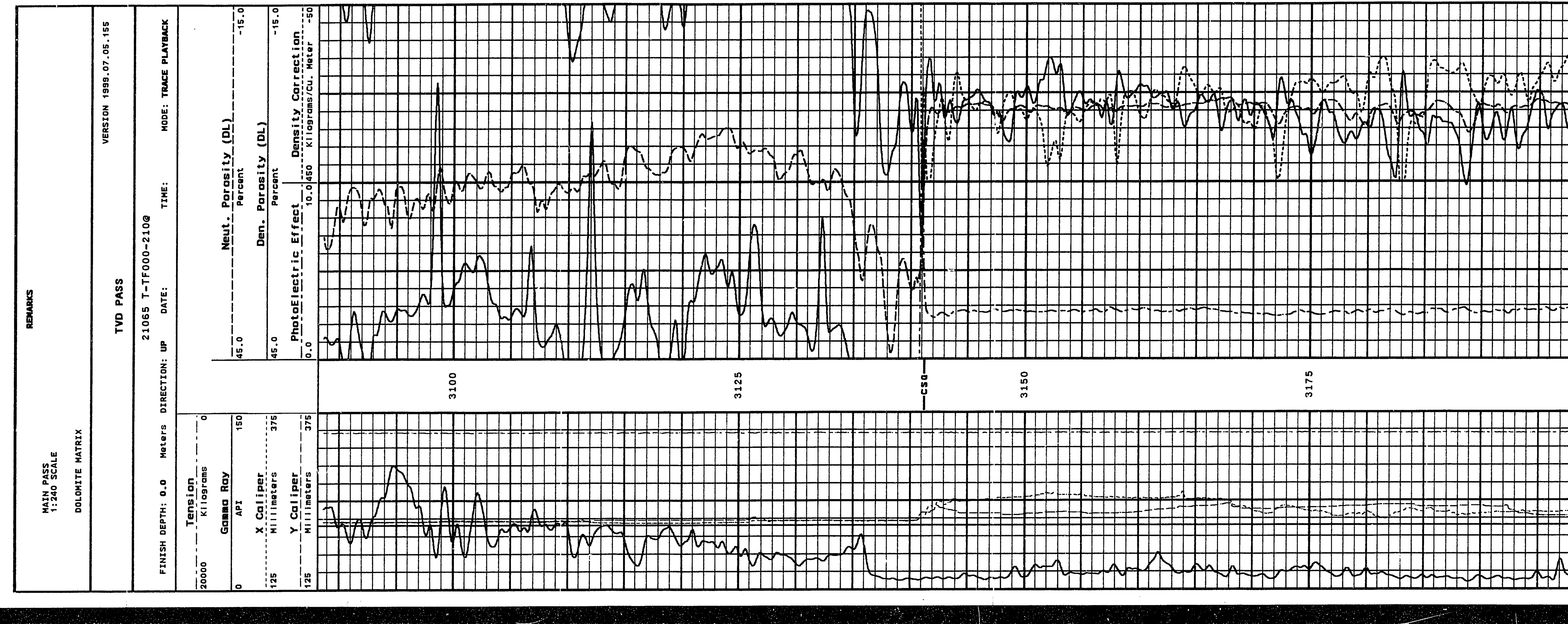
ELEV.K.B. 610.7
G.L. 604.0
CBF

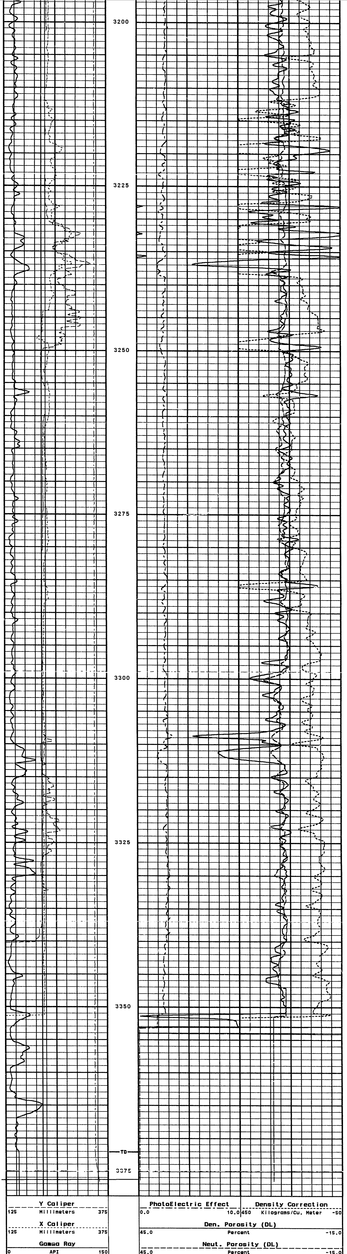
Date	SEPTEMBER 10, 1999		
Run No.	TWO		
First Reading	3347.7		
Last Reading	3141.2		
Meters Meas.	206.5		
Depth Reached	3372.1		
Bot. Driller	3377.1		
Csg. Logger	3141.2		
Csg. Driller	3140.2	244.5mm@79.62kg/m	
Fluid Type	POLYMER		
Dens. & Visc.	1045 / 49		
Mud pH	10.0		
Mud Water Loss	9.0		
Mud Res.	1.7 @ 21 °C	1.9 @ 21 °C	1.8 @ 21 °C
Mud Res. @ BHT	0.5 @ 129 °C	@ °C	@ °C
Rmc	1.7 @ 20 °C	@ °C	@ °C
Rmf	1.9 @ 21 °C	@ °C	@ °C
Rmf @ BHT	@ °C	@ °C	@ °C
Bit Size	215.9mm		
Spacing	N/A		
Operating Time	4.5 hrs.		
Unit #	348		
Location	GRANDE PRAIRIE		
Recorded By	C.MURRAY		
Witnessed By	R.KELLY		

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 INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21065







Y Caliper		PhotoElectric Effect		Density Correction	
125 Millimeters	375	0.0	10.0400	Kilograms/Cu. Meter	-50
X Caliper		Den. Porosity (DL)			
125 Millimeters	375	45.0 Percent			-15.0
Gamma Ray		Neut. Porosity (DL)			
0 API	150	45.0 Percent			-15.0
Tension					
20000 Kilograms	0				

START DEPTH: 3370.0 DIRECTION: UP DATE: 09/12/1999 TIME:10:45 MODE: TRACE PLAYBACK

21065 T-TF000-2100

TVD PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TD	Total Depth	3375.0	Meters
TBL	TD-Logger	3383.0	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	170	Degrees Centigrade
SFT	Surface Soil Temp	10	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BAR	Barite Correction	0.000	Percent
MRD	Mud Density	1000.00	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
MATR	Matrix Density Datum	2.71	
BGAS	% Background	1.00	
BHS	Open/Cased Hole	OPEN	
HTCS	Stretch/Caliper Mul-CNT	Caliper	
HTCO	Tension Const-CNT	1.0000	
HTNO	Tens Zero Off-CNT	Crosscut	
HCXT	Constant Temp-CNT	21	Degrees Centigrade
HCXS	Caliper Stretch-CNT	X Caliper	
SCAL	Density BH Stoo Source	X Caliper	

REMARKS

REPEAT PASS
1:340 SCALE

DOLOMITE MATRIX

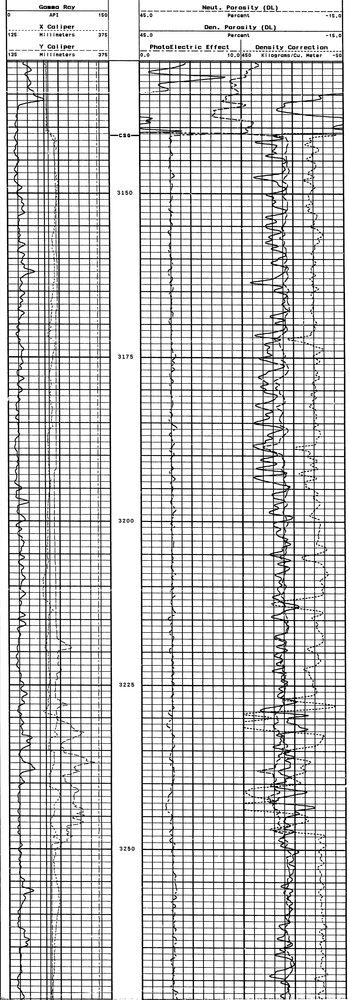
TVD REPEAT PASS

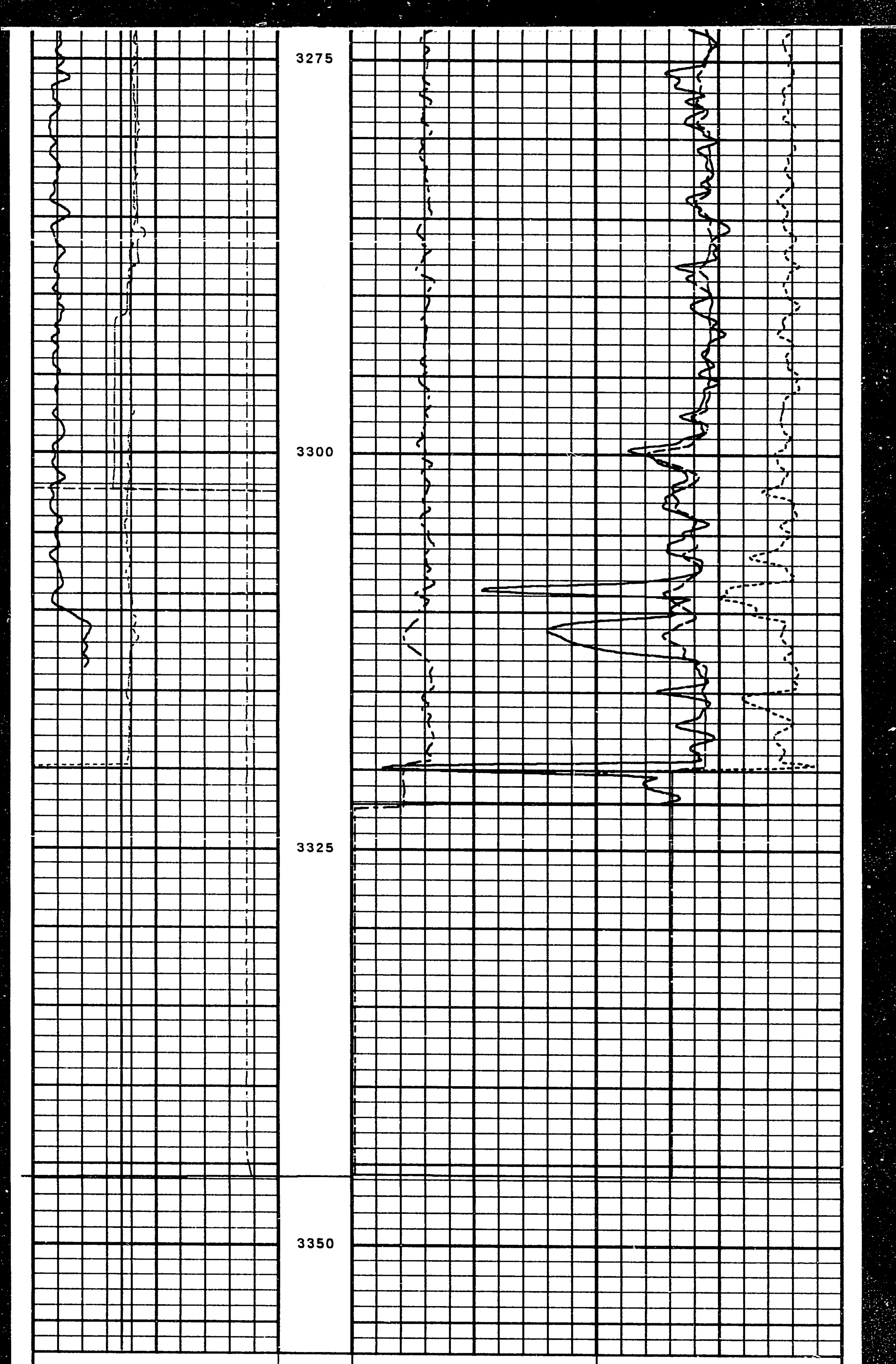
VERSION 1999.07.05.155

21065 T-TF000-2100

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension		Neut. Porosity (DL)			
20000 Kilograms	0	45.0 Percent			-15.0
Gamma Ray		Den. Porosity (DL)			
0 API	150	45.0 Percent			-15.0
X Caliper		PhotoElectric Effect		Density Correction	
125 Millimeters	375	0.0	10.0400	Kilograms/Cu. Meter	-50
Y Caliper					
125 Millimeters	375				





Y Caliper		
125	Millimeters	375
X Caliper		
125	Millimeters	375
Gamma Ray		
0	API	150
Tension		
20000	Kilograms	0

PhotoElectric Effect		Density Correction		
0.0	10.0	450	Kilograms/Cu. Meter	-50
Den. Porosity (DL)				
45.0		Percent		-15.0
Neut. Porosity (DL)				
45.0		Percent		-15.0

START DEPTH: 3356.9 DIRECTION: UP DATE: 09/12/1999 TIME: 10:46 MODE: TRACE PLAYBACK

21065 T-TF000-210@

TVD REPEAT PASS

VERSION: 1999.07.05.155

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-Logger	3350.8	Meters
BS	Bit Size	215.900	Millimeters
BHT	Bottom Hole Temp	129	Degrees Centigrade
SFT	Mean Annual Surf Temp	5	Degrees Centigrade
SACC	Accumulation Time	100	Seconds
BARI	Barite Correction	OFF	
MW	Mud Weight	1030.00	Kilograms/Cu. Meter
FD	Fluid Density	1000.0000	Kilograms/Cu. Meter
SPVS	SPeD Valve Status	IN	
NGAI	K Factor-NEU	1.028	
BHS	Open/Cased Hole	Open	
NBCS	Bitsize/Calp Sel-CNT	Caliper	
NTLS	Tool Type-CNT	CNT-S	
NTHS	Temp Source-CNT	Gradient	
NCOT	Constant Temp-CNT	21	Degrees Centigrade
NCAL	LIS Caliper Name-CNT	X Caliper	
SCAL	Density BH Diam Source	X Caliper	

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature
TVD DATA FILE : /mstr/cs400/8000/21065/21065tvd.tvdb

VERSION : 1.0

COMPANY : Canadian Forest Oil Ltd.
WELL : Cdn. Forest et al North Liard N-61
LOCATION : 300-N61-6040-12330-0
DATE : September 10, 1999

DRILLED DEPTH : 3384.00 m
TRUE VERTICAL DEPTH : 3377.12 m
BOTTOM HOLE DISPLACEMENT : N 79.15 m E 123.85 m
TARGET DISPLACEMENT : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.26	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.80	59.30	1625.47	59.62	83.13
12	1640.10	7.60	58.40	1634.99	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.80	59.70	1652.84	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.90	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.89	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	137.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	75.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.90	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.28
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.80	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3152.00	0.90	337.70	3145.18	76.99	120.41
170	3159.50	0.80	326.30	3152.68	77.09	120.36
171	3177.50	0.70	325.50	3170.68	77.29	120.23
172	3187.10	0.80	328.80	3180.28	77.39	120.16
173	3196.70	0.80	323.10	3189.88	77.50	120.09
174	3206.28	0.70	319.90	3199.46	77.60	120.01
175	3216.00	0.50	333.20	3209.18	77.68	119.95
176	3225.70	0.40	13.90	3218.88	77.76	119.94
177	3235.40	0.70	43.10	3228.58	77.83	119.99
178	3244.90	1.40	56.60	3238.08	77.94	120.13
179	3254.20	2.10	63.20	3247.37	78.08	120.37
180	3264.30	2.00	65.20	3257.47	78.23	120.70
181	3274.02	1.90	70.20	3267.18	78.36	121.00
182	3283.70	1.80	67.90	3276.85	78.47	121.30
183	3293.40	1.70	65.70	3286.55	78.59	121.57
184	3303.10	1.60	64.60	3296.25	78.71	121.82
185	3312.50	1.50	66.80	3305.64	78.81	122.05
186	3322.54	1.40	72.10	3315.68	78.90	122.29
187	3332.24	1.40	75.40	3325.38	78.97	122.52
188	3342.00	1.50	81.10	3335.13	79.02	122.76
189	3351.20	1.50	83.90	3344.33	79.05	123.00
190	3360.82	1.60	84.60	3353.95	79.07	123.26
191	3370.97	1.50	83.20	3364.09	79.10	123.53
192	3380.00	1.40	81.95	3373.12	79.13	123.76
193	3384.00	1.40	81.95	3377.12	79.15	123.85

09/11/99 16:19 0.0 M Ver 2.0b-2.0b Job 21065

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9090

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	2334.4	4620.0	mv	152.0	310.0	mm

08/17/99	18:57	0.0 M	Ver 2.00-2.0b	Job 21059

Gamma Ray Before Survey Calibration

Tool Type: UGR-AB
Calibrator Ra-226-881
Serial No: 117

Background	Calibrator	Standard	Units
129.4	655.7	140.0	API

Delta Counts Per Sec: 936.3 CPS/API = 3.760

03/15/99	14:30	0.0 M	Ver 2.00-2.0b	Job SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-G
Verifier No: NSV-187
Serial No: 108
Source No: 8097-NE

	Low Porosity	Med Porosity	High Porosity	Units
Tank Ratio:	0.713	1.427	2.269	SS/LS
Tank Porosity:	-0.76	10.25	35.73	LM-PU
LS Detector:	1435.9	385.0	164.0	CPS
SS Detector:	983.3	489.0	330.5	CPS
Tool Ratio:	0.685	1.417	2.289	SS/LS
Tool Porosity:	-0.86	10.25	36.50	LM-PU

Tool Constant: 1.028
Surface Temperature: 24 DegC

SS Detector	LS Detector	Ratio	Porosity
314.2 CPS	186.4 CPS	1.686	15.11

03/02/99	14:14	0.0 M	Ver 2.00-2.0b	Job 22389

Compensated Neutron Before Survey Calibration

Tool Type: CNT-G
Verifier No: NSV-187
Serial No: 108
Source No: 8097-NE

	Verifier Check	Units
LS Detector:	187.5	CPS
SS Detector:	315.2	CPS
Tool Ratio:	1.680	SS/LS
Tool Porosity:	14.47	LM-PU

Tool Constant: 1.028

09/12/99	07:13	0.0 M	Ver 2.00-2.0b	Job 21065

Compensated Neutron After Survey Calibration

Tool Type: CNT-G
Verifier No: NSV-187
Serial No: 108
Source No: 8097-NE

	Verifier Check Before	Verifier Check After	Units
LS Detector:	187.5	187.1	CPS
SS Detector:	315.2	315.3	CPS
Tool Ratio:	1.680	1.685	SS/LS
Tool Porosity:	14.47	15.09	LM-PU

Tool Constant: 1.028

03/12/99	17:48	0.0 M	Ver 2.00-2.0b	Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB
Serial No: 110110
Firmware Ver: 4.00
Source No: 2068-DH

	Blk	Al	Al+Pb	Mg	Units
Ca Pk	108.39	108.93	108.58	111.45	Ch
Gain	0.164	0.164	0.164	0.168	Ch/kev
Tmg Pk	11.47				Ch
Gain	0.164				
Res	9.86	9.43	9.28	9.90	%
LLPE	212	1582	1013	10371	cps
LUPE	115	1158	880	7517	cps
LLHP	1359	3346	2355	24197	cps
LUHP	1369	4106	3530	24197	cps
Ca Pk	108.43	110.13	109.83	115.57	Ch
Gain	0.164	0.167	0.168	0.167	Ch/kev
Tmg Pk	11.37				Ch
Gain	-0.037				
Res	9.54	9.53	9.45	9.57	%
SLPE	222	2870	1783	4036	cps
SUPE	117	2572	1622	3883	cps
SSHC	637	4979	4032	8483	cps
SCHP	1332	11077	8946	18397	cps
Acc	103	103	103	103	Secs

Density Calibration

	Fresh	Spoils
Spine Angle =	77.40	77.34
Spine Length =	158.77	157.72

Pe Calibration

	Fresh
LS Slope =	1.6476
LS Intercept =	-0.3833
SS Slope =	2.3494
SS Intercept =	-0.6473

09/11/99	16:35	9.0 M	Ver 2.00-2.0b	Job 21065

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB
Serial No: 110110
Firmware Ver: 4.00
Source No: 2068-DH

	Shop	Before	Units
Ca Pk	108.39	109.21	Ch
Gain	0.164	0.169	Ch/kev
Tmg Pk	11.47	11.64	Ch
Gain	0.164	0.164	Ch
Res	9.86	9.29	%
LLPE	212	211	
LUPE	112	111	
LLHC	673	660	
LUHP	1369	1340	
Ca Pk	108.43	109.98	Ch
Gain	0.164	0.168	Ch/kev
Tmg Pk	11.37	11.71	Ch
Gain	-0.037	0.139	Ch
Res	9.54	9.45	%
SLPE	222	211	
SUPE	117	111	
SSHC	637	630	
SCHP	1332	1323	
Acc	103	103	Secs

09/12/99	07:09	0.0 M	Ver 2.00-2.0b	Job 21065

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB
Serial No: 110110
Firmware Ver: 4.00
Source No: 2068-DH

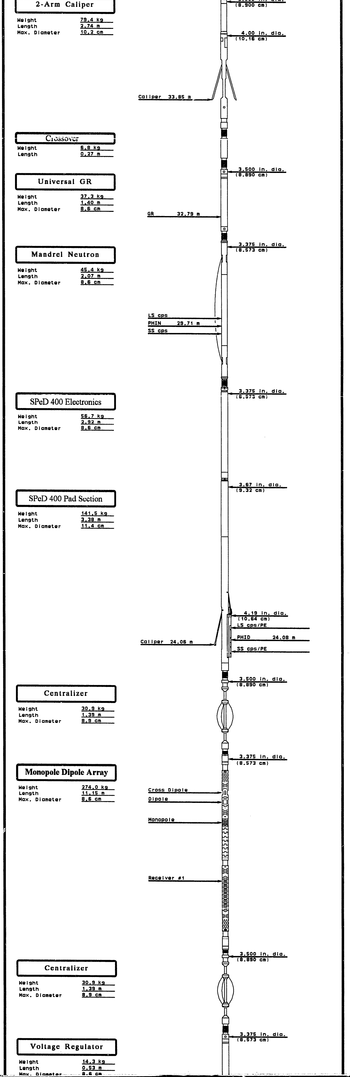
	Shop	Before	After	Units
Ca Pk	108.39	109.91	109.91	Ch
Gain	0.164	0.169	0.169	Ch/kev
Tmg Pk	11.47	11.71	11.44	Ch
Gain	0.164	0.164	0.164	Ch
Res	9.86	9.42	9.28	%
LLPE	212	211	203	cps
LUPE	112	111	108	cps
LLHC	673	660	660	cps
LLHP	1369	1340	1355	cps
Ca Pk	108.43	109.98	110.07	Ch
Gain	0.164	0.168	0.168	Ch/kev
Tmg Pk	11.37	11.57	11.34	Ch
Gain	-0.037	0.139	-0.139	Ch
Res	9.54	9.45	9.38	%
SLPE	222	211	202	cps
SUPE	117	111	113	cps
SSHC	637	630	633	cps
SCHP	1332	1323	1322	cps
Acc	103	103	103	Secs

09/11/99	16:29	9.0 M	Ver 2.00-2.0b	Job 21065

Caliper Before Survey Calibration

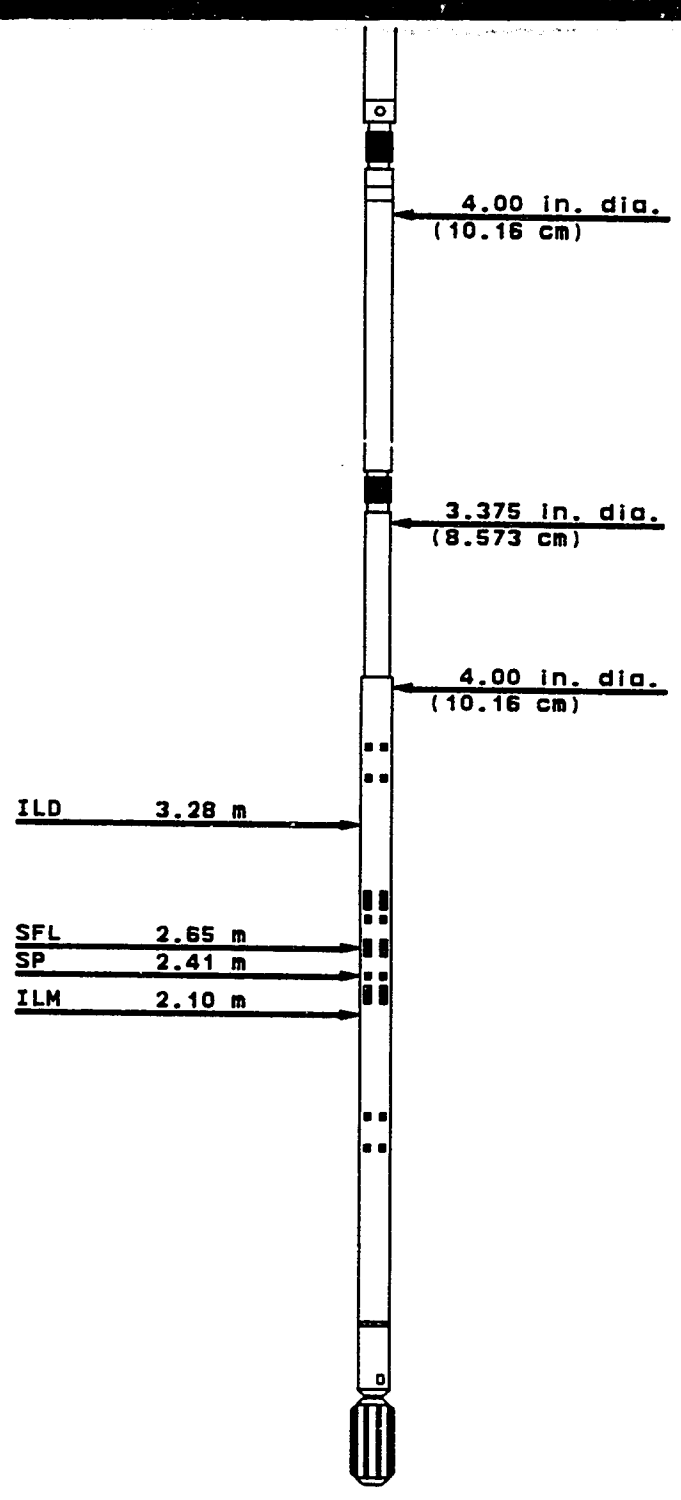
Tool Type: SPD-AB
Serial No:110

	Measured Large	Measured Small	Units	Calibrated Small	Calibrated Large	Units
CALX	1907.5	3147.5	mv	152.0	310.0	mm



Simultaneous Triple Induction

Weight	176.9 kg
Length	8.75 m
Max. Diameter	10.2 cm



Stand - Off

Weight	5.5 kg
Length	0.20 m

COMPANY	CANADIAN FOREST OIL LTD.
	300-N61-6040-12330
WELL	CDN FOREST ET AL NORTH LIARD N-61
FIELD	UNDEFINED
PROVINCE	N.W.T.

COMPUTALOG

DIPMETER/ CALIPER

REVISED OCT 14 1999

1863

N.E.B. COPY

INCLINE

COMPUTED DIPMETER RESULTS

COMPANY CANADIAN FOREST OIL LTD.
WELL CDN FOREST ET AL N. LIARD
FIELD UNDEFINED
PROVINCE NORTHWEST TERRITORIES COUNTRY CANADA

TAPE NUMBER

LOCATION: LAT: 60 30 46.690 N
LON: 123 42 [illegible] W

OTHER SERVICES

PERMANENT DATUM GROUND LEVEL ELEV. 604.0000
LOG MEASURED FROM KB, 6.700 M. ABOVE PERM DATUM
DRILLING MEASURED FROM KB

ELEV K.B. 610.[illegible]
D.F. --
G.L. 604.00

DATE	SEPT 09 1999
RUN NO.	TWO
DEPTH - DRILLER	3384.00
DEPTH - LOGGER	3380.00
BOTTOM LOGGED INTERVAL	3379.0
TOP LOGGED INTERVAL	3147.0
CASING - DRILLER	244.50 @ 3147.
CASING - LOGGER	3147.0000
BIT SIZE	216.00
TYPE FLUID IN HOLE	GEL CHEMICAL
SALINITY SIZE/WT.	--
DENSITY / VISCOSITY	49.000
PH / FLUID LOSS	10.000 / 9.00 ML
SOURCE OF SAMPLE	FLOW LINE
RM AT MEASURED TEMP.	1.700 @ 21.0 C
RMF AT MEASURED TEMP.	1.900 @ 21.0 C
RMC AT MEASURED TEMP.	1.700 @ 20.0 C
SOURCE RMF / RMC	M / M
RM AT BHT	1.700 @ 129.C
TIME SINCE CIRCULATION	15:15
MAX. REC. TEMP.	129.0C
LOGGING CONTRACTOR	COMPUTALOG
RECORDED BY	G. VARSEY
WITNESSED BY	R. KELLY

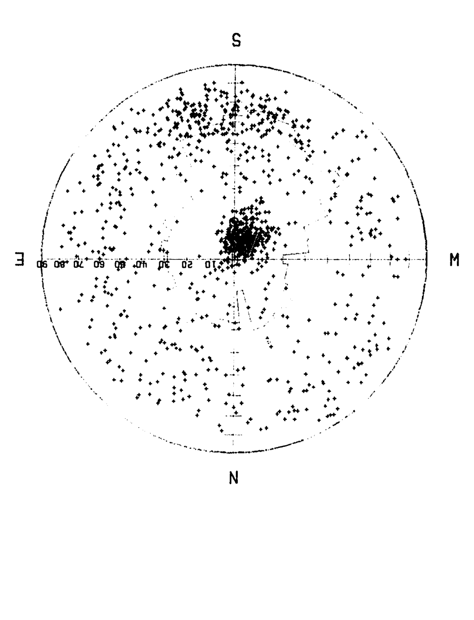
NATIONAL ENERGY BOARD
OCT 15 1999

COMPUTATION
LOGS USED: DIPMETER
CENTER:
REFERENCE:
LOG ANALYST: HEF3
INCLINE FILE: MAIN
PROGRAM: V1.10
DATE: - 99/10/13

COMPUTATION PARAMETERS

DEPTH INTERVAL FROM	DEPTH INTERVAL TO	DEPTH UNITS	CORLN. LENGTH	CORLN. STEP	SEARCH ANGLE	SEARCH REFERENCE	SEARCH MAXIMUM	MAGNETIC DECLN.	TIE DEP. MEAS.	TIE DEP. TRUE	SHRT TRM AVERAGE
3384.62	3119.75	METRES	1.22 M	0.30 M	75.00	BOREHOLE	80.00	27.2			5.00

REMARKS:
SEARCH ANGLE SPECIFIED IN DEGREES.
DEPTH OF INVESTIGATION 0.5 INCHES MEASURED RADIALLY.
CROSSES - CORRELATION COEFFICIENT ABOVE : 0.30
OPEN CIRCLES - CORRELATION COEFFICIENT BETWEEN: 0.30 AND 0.30
CORRELATIONS IGNORED IF COEFFICIENT IS BELOW : 0.30



EQUAL AREA (SCHMIDT) PLOT

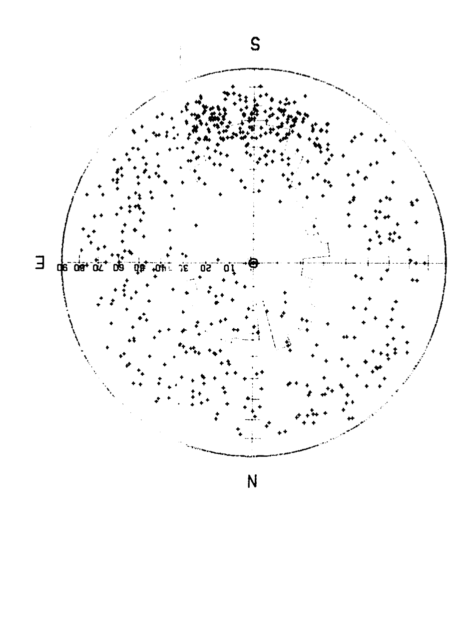
HEF PETROPHYSICAL

INCLINE

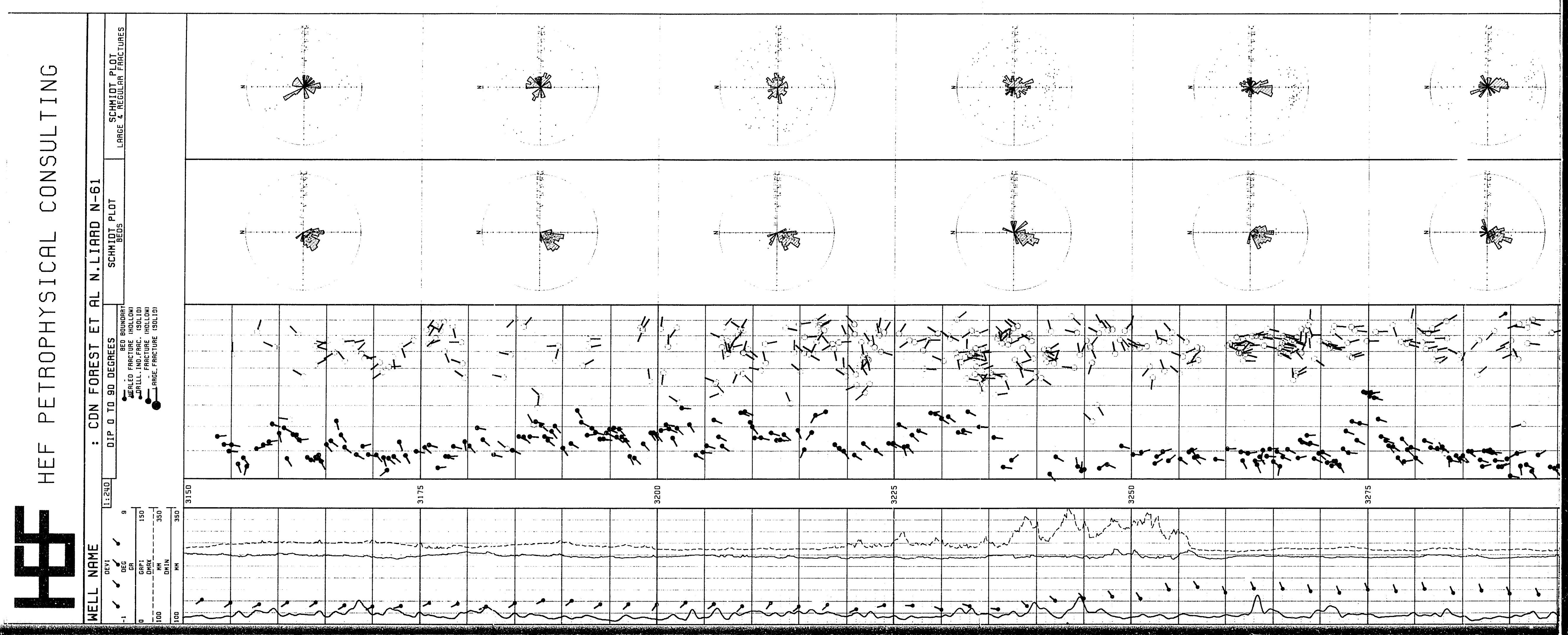
COMPUTED DIPMETER RESULTS

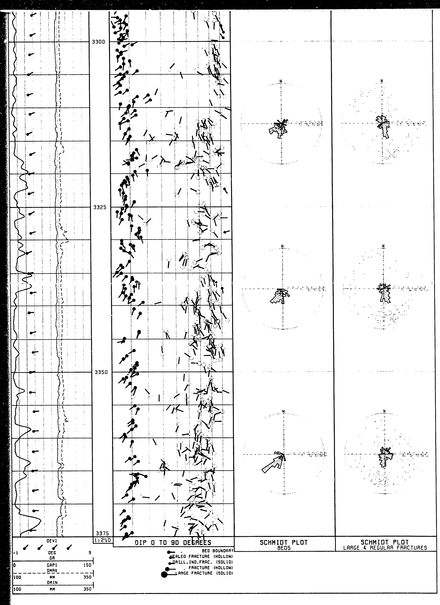
COMPANY : CANADIAN FOREST OIL LTD.
FIELD : UNDEFINED
WELL : CDN FOREST ET AL N. LIARD

CORRELATION INTERVAL : 1.22 METRES
CORRELATION STEP : 0.30 METRES
SEARCH ANGLE : 75.00 DEGREES
SEARCH REFERENCE : BOREHOLE
MAXIMUM SEARCH : 80.00 DEGREES
MAGNETIC DECLINATION : 27.2
SHORT TERM AVERAGE : 5.00
STACKING SURFACES : 2
LOG NAME : FRACTURES
DATE/TIME : 99/10/13 AT 14: 6:32
ANALYST : HEF3



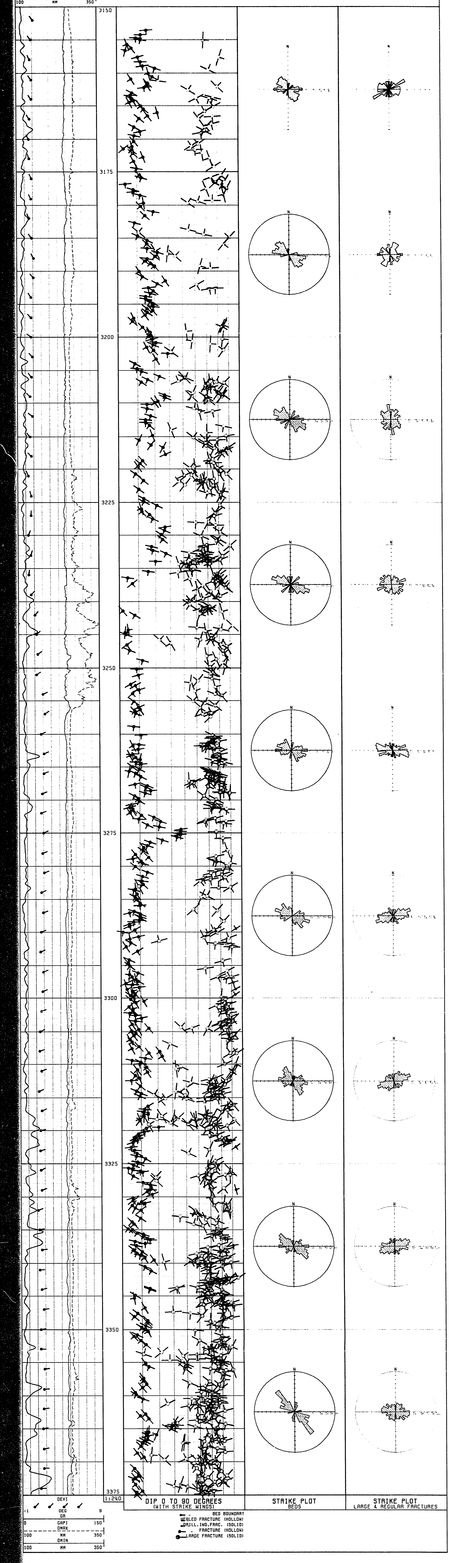
EQUAL AREA (SCHMIDT) PLOT





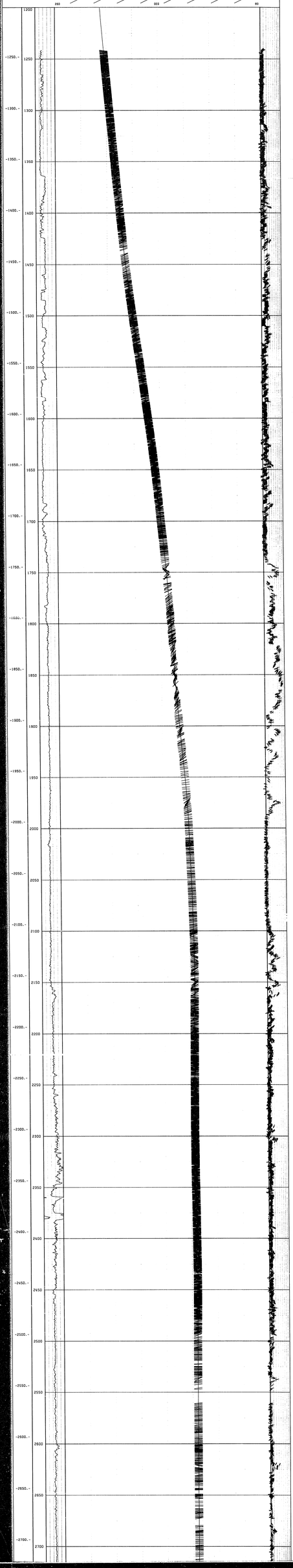
HEF PETROPHYSICAL CONSULTING

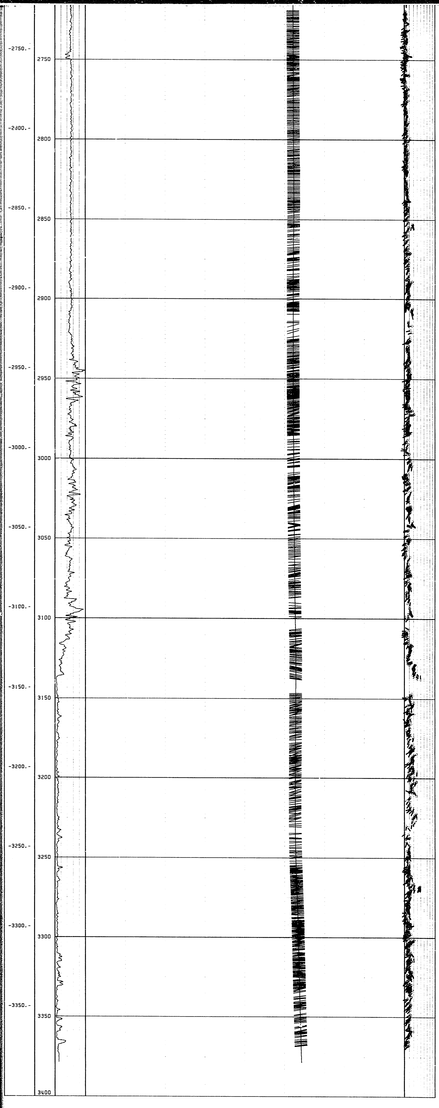
WELL NAME : CDN FOREST ET AL N.LIARD N-61



HEF PETROPHYSICAL CONSULTING

WELL NAME : CDN FOREST ET AL N.LIARD N-61

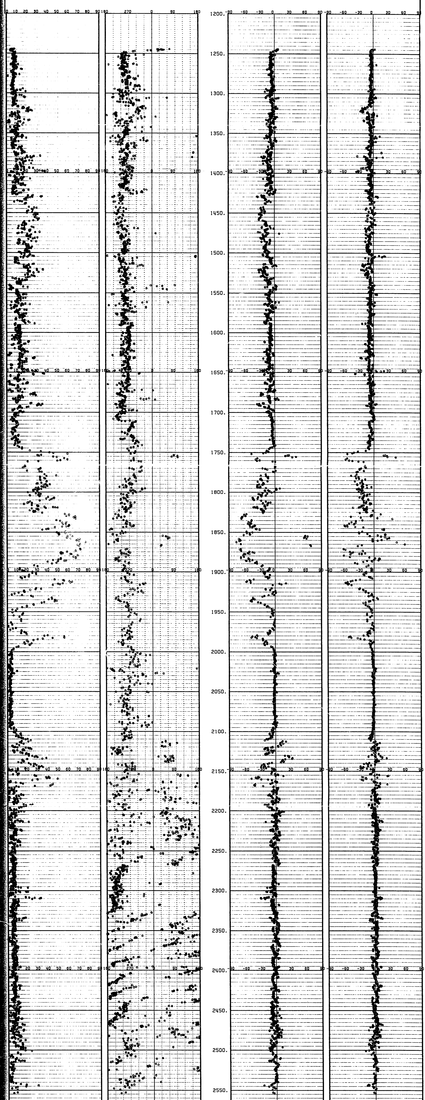


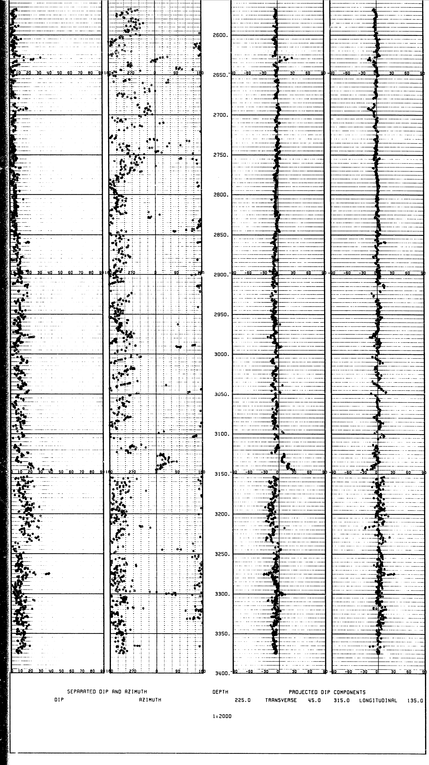


HEF PETROPHYSICAL
I N C L I N E

COMPUTED DIPMETER RESULTS

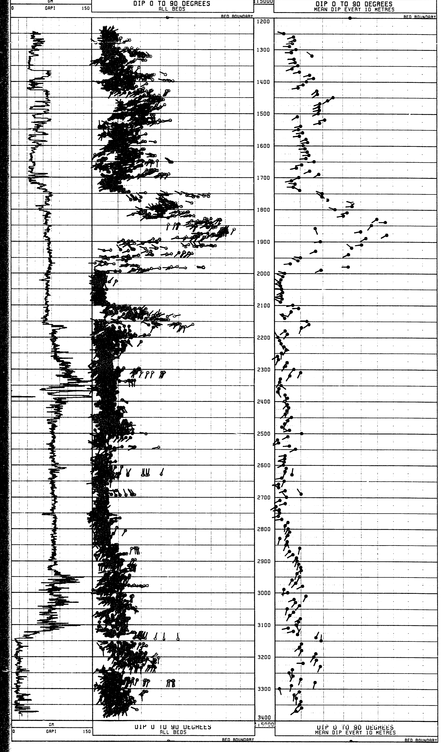
COMPANY	:	CANADIAN FOREST OIL LTD.
FIELD	:	UNDEFINED
WELL	:	CON FOREST ET AL N. LIARD
CORRELATION INTERVAL	:	1.22 METRES
CORRELATION STEP	:	0.30 METRES
SEARCH ANGLE	:	75.00 DEGREES
SEARCH REFERENCE	:	BOREHOLE
MAXIMUM SEARCH	:	85.00 DEGREES
MAGNETIC DECLINATION	:	27.2
SHORT TERM AVERAGE	:	6.00
STACKING SURFACES	:	1
LOG NAME	:	BEDS
DATE/TIME	:	89/10/13 AT 14: 7:17
ANALYST	:	HEF3





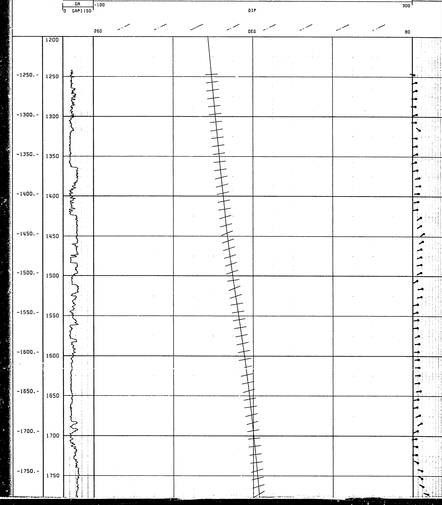
HEF PETROPHYSICAL CONSULTING

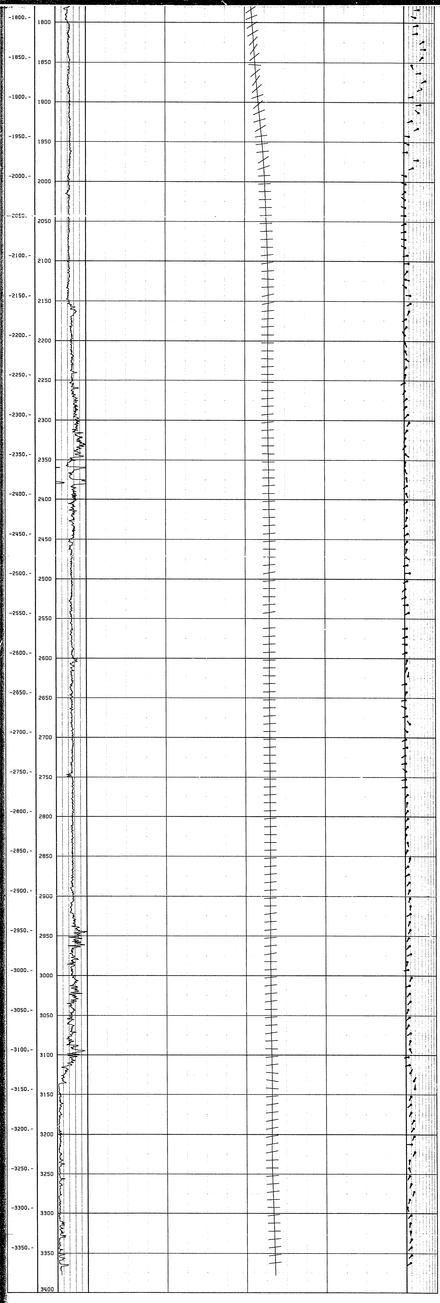
WELL NAME : CDN FOREST ET AL N.LIARD N-61



HEF PETROPHYSICAL CONSULTING

WELL NAME : CDN FOREST ET AL N.LIARD N-61

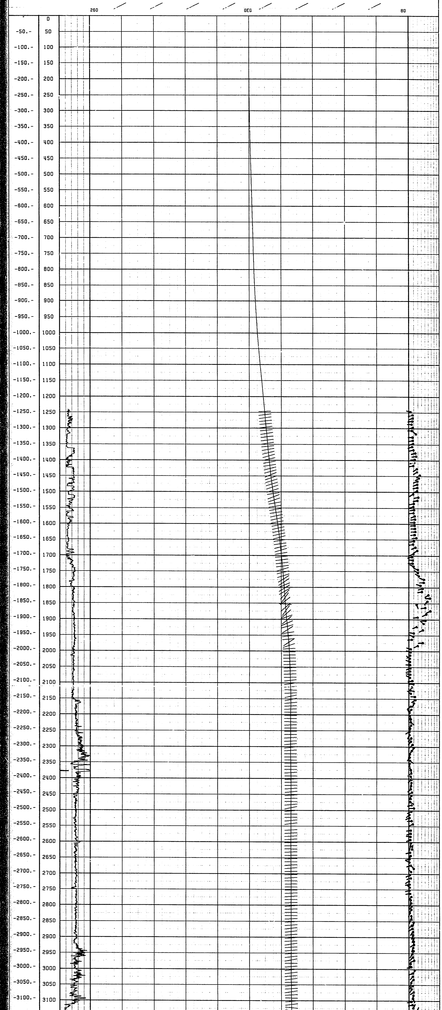


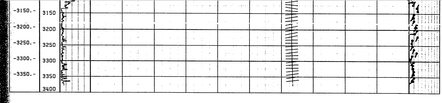


HEF PETROPHYSICAL CONSULTING

WELL NAME : CDN FOREST ET AL N.LIARD N-61

MESS DEPTH	TVD 1:5000	GAMMA RAY	CROSS SECTION PROJECT.FROM WELLHEAD(M)	DIP 0 TO 90
		0 GAPI 150	-500 DIP 500	

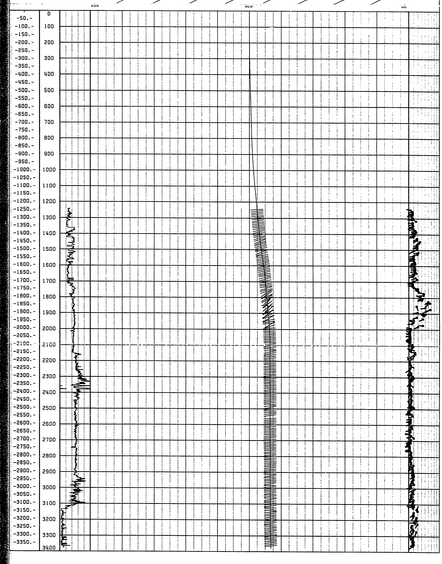




HEF PETROPHYSICAL CONSULTING

WELL NAME : CDN FOREST ET AL N.LIARD N-61

MEAS DEPTH | TVD | GAMMA RAY GR 0 GAPI 100 | CROSS SECTION PA:DIST:FROM WELLHEAD:NW 1000 1000 | DIP 0 TO 90



HEF PETROPHYSICAL CONSULTING INC

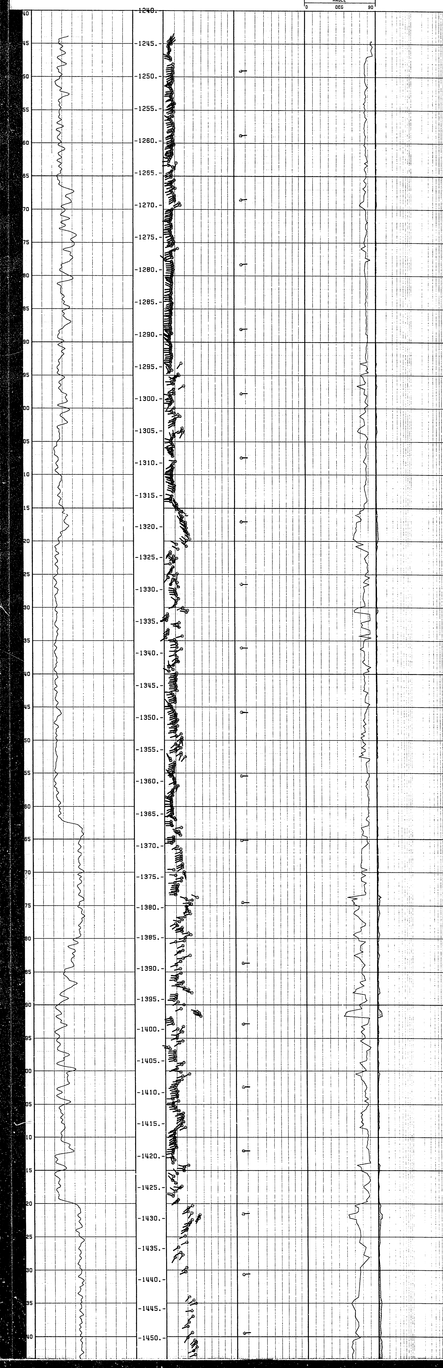
TRUE STRATIGRAPHIC THICKNESS

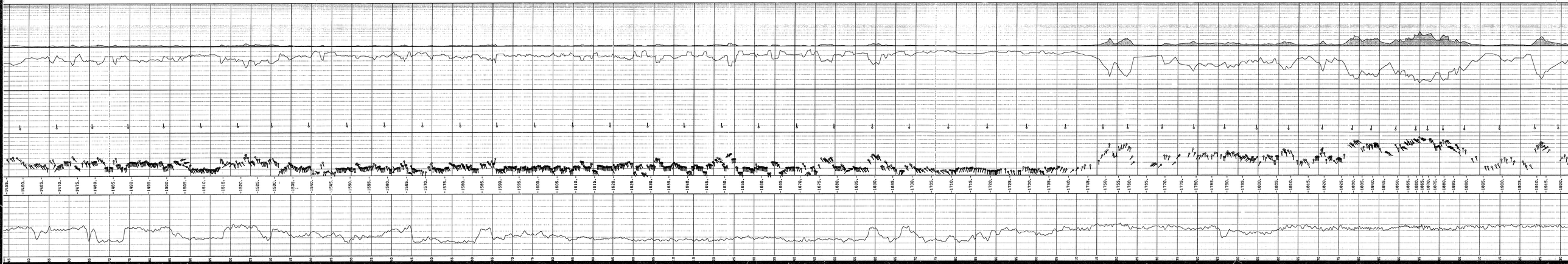
THE DATA IN THIS PLOT HAVE BEEN CORRECTED TO TRUE BED THICKNESS.

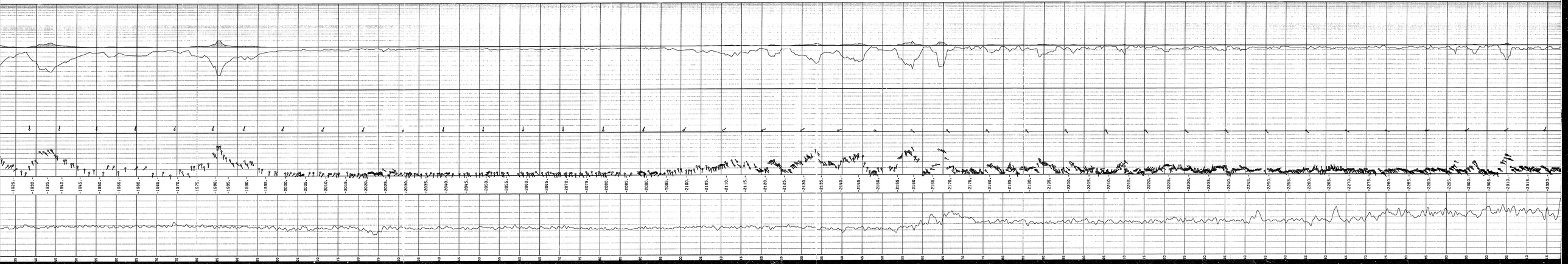
THIS CORRECTION IS ACHIEVED BY DETERMINING THE DIFFERENCE BETWEEN THE BEDDING AND HOLE DIRECTIONS AND COMPRESSING THE LOGS SO THAT THE UNIT THICKNESS IS THE SAME AS IF A VERTICAL WELL WAS DRILLED THROUGH HORIZONTAL BEDS.

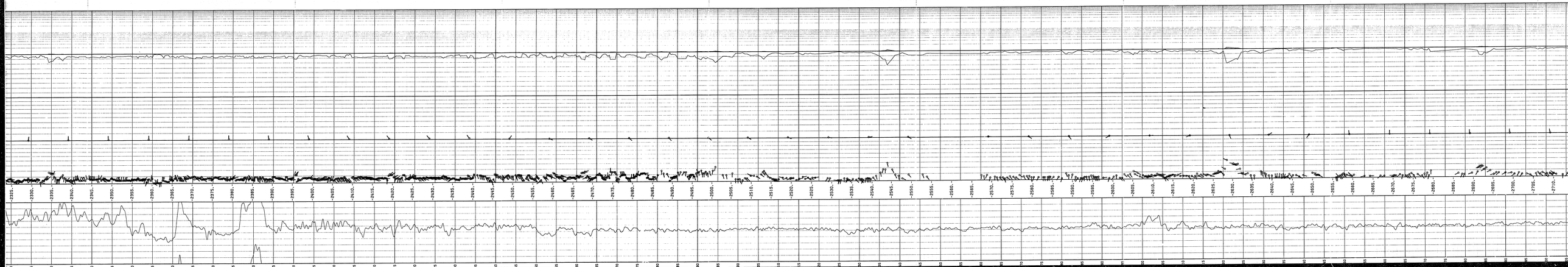
WELL NAME : CDN FOREST ET AL N.LIARD N-61

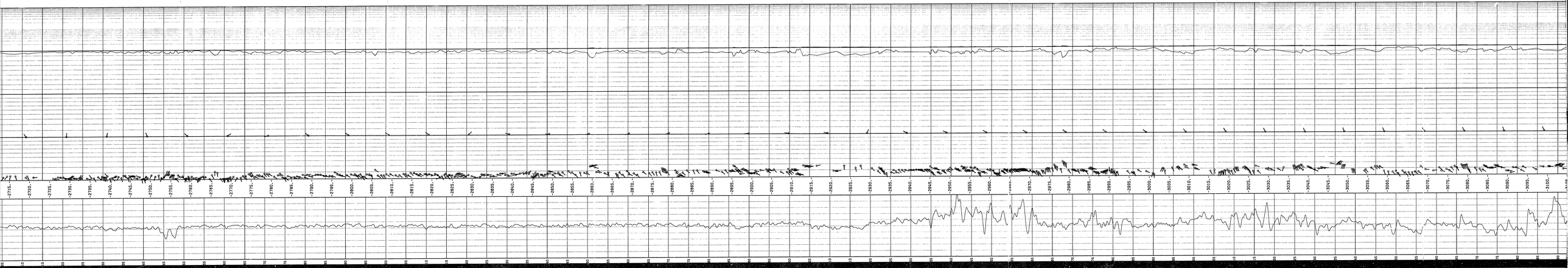
SCALE 1:1 1:240 | GR 0 GAPI 100 | MEASURED DEPTH | DIP 0 TO 90 DEGREES (WEST EQUADRANT) | HOLE DEVIATION DEVI | ANGLE BETWEEN HOLE AND BEDDING DIP DIRECTION 90 ANGLE 0 DEG 90 | COMPRESSION FACTOR 100

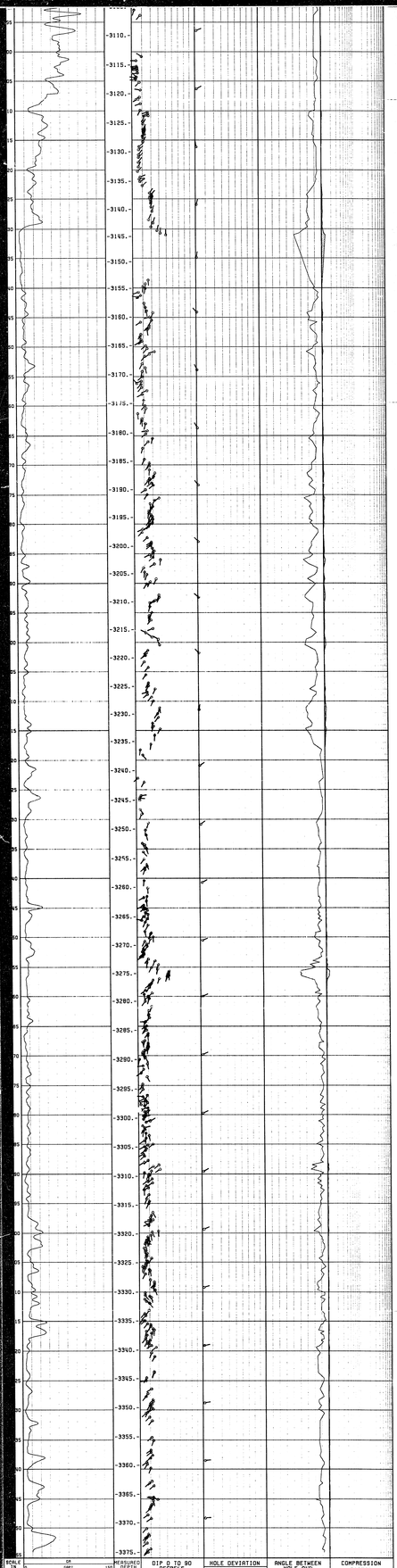












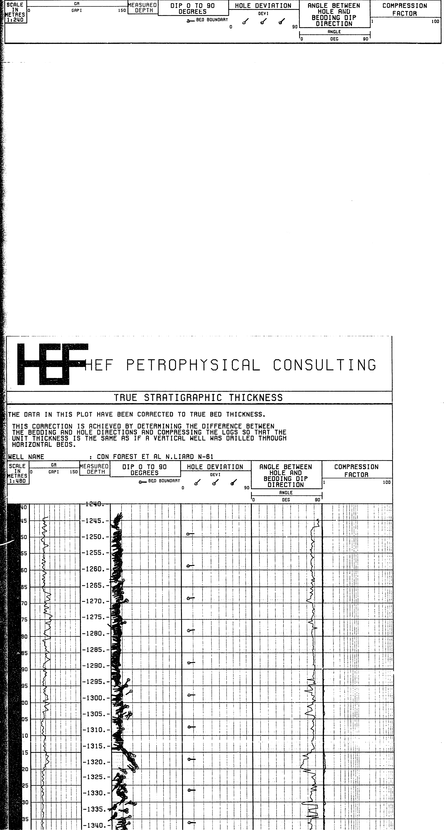
HEF PETROPHYSICAL CONSULTING

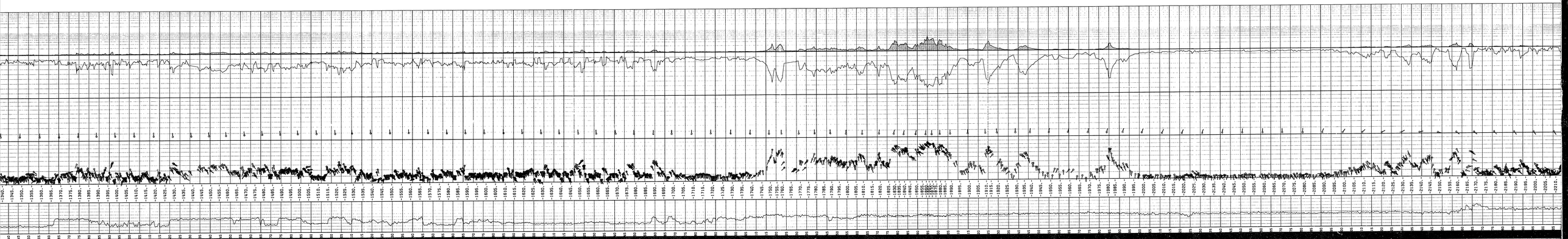
TRUE STRATIGRAPHIC THICKNESS

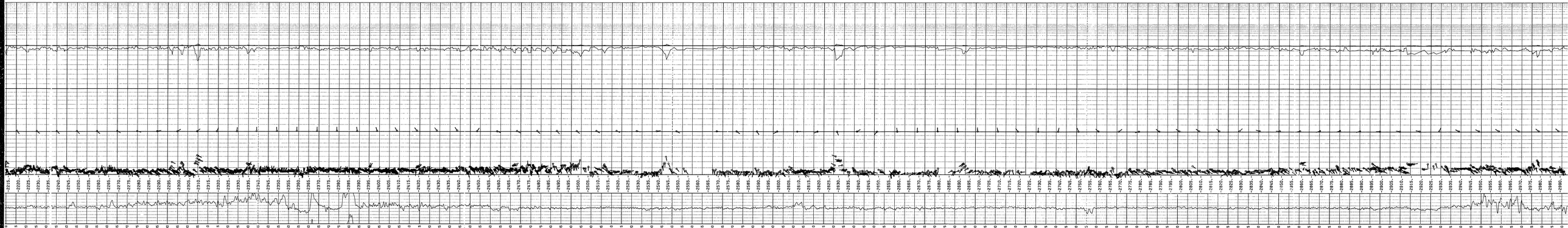
THE DATA IN THIS PLOT HAVE BEEN CORRECTED TO TRUE BED THICKNESS.

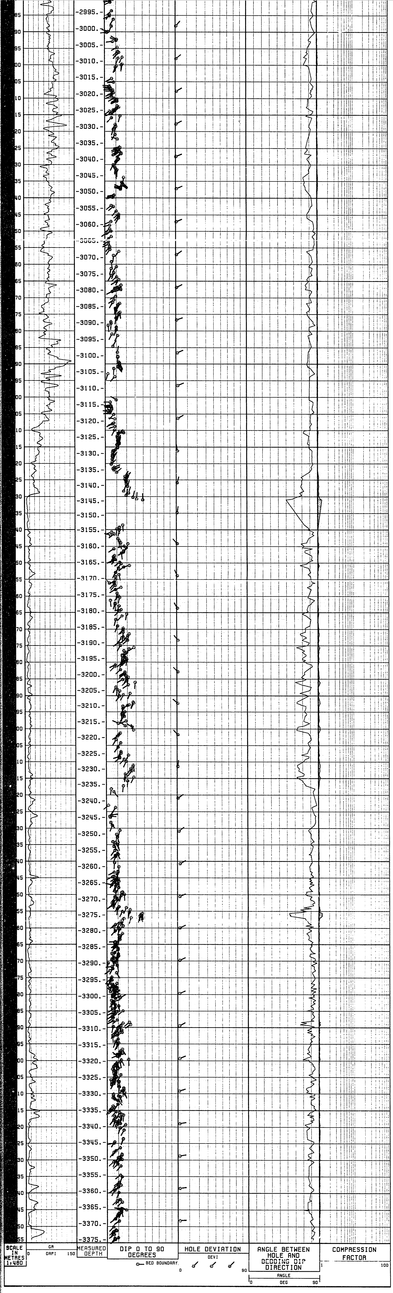
THIS CORRECTION IS ACHIEVED BY DETERMINING THE DIFFERENCE BETWEEN THE BEDDING AND HOLE DIRECTIONS AND COMPRESSING THE LOGS SO THAT THE UNIT THICKNESS IS THE SAME AS IF A VERTICAL WELL WAS DRILLED THROUGH HORIZONTAL BEDS.

WELL NAME : CON FOREST ET AL N.LIARO N-81









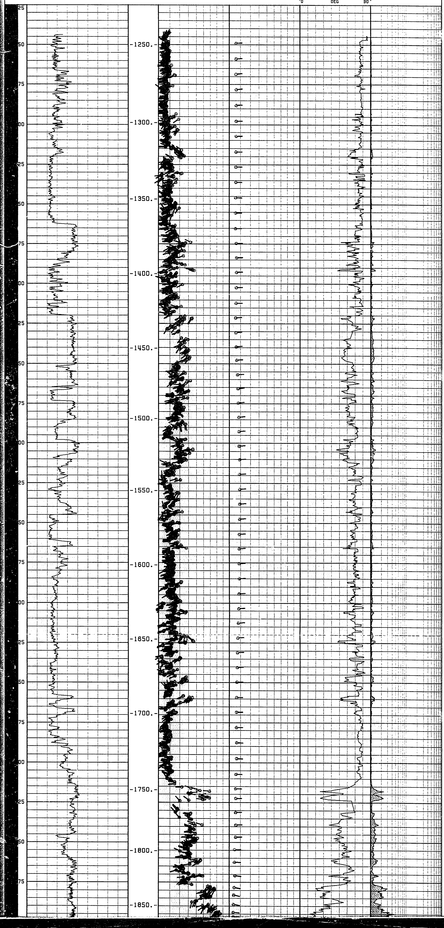
HEF PETROPHYSICAL CONSULTING INC

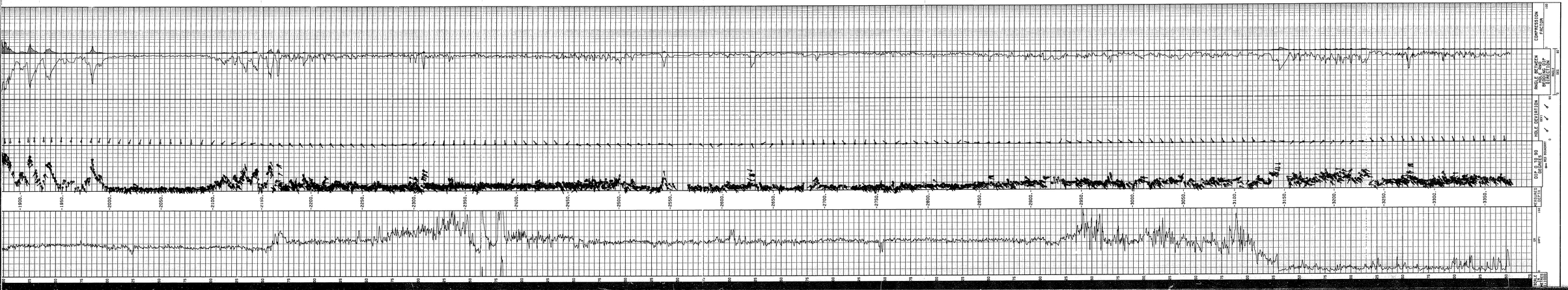
TRUE STRATIGRAPHIC THICKNESS

THE DATA IN THIS PLOT HAVE BEEN CORRECTED TO TRUE BED THICKNESS.

THIS CORRECTION IS ACHIEVED BY DETERMINING THE DIFFERENCE BETWEEN THE BEDDING AND HOLE DIRECTIONS AND COMPRESSING THE LOGS SO THAT THE UNIT THICKNESS IS THE SAME AS IF A VERTICAL WELL WAS DRILLED THROUGH HORIZONTAL BEDS.

WELL NAME : CON FOREST ET AL N.LIBRO N-81



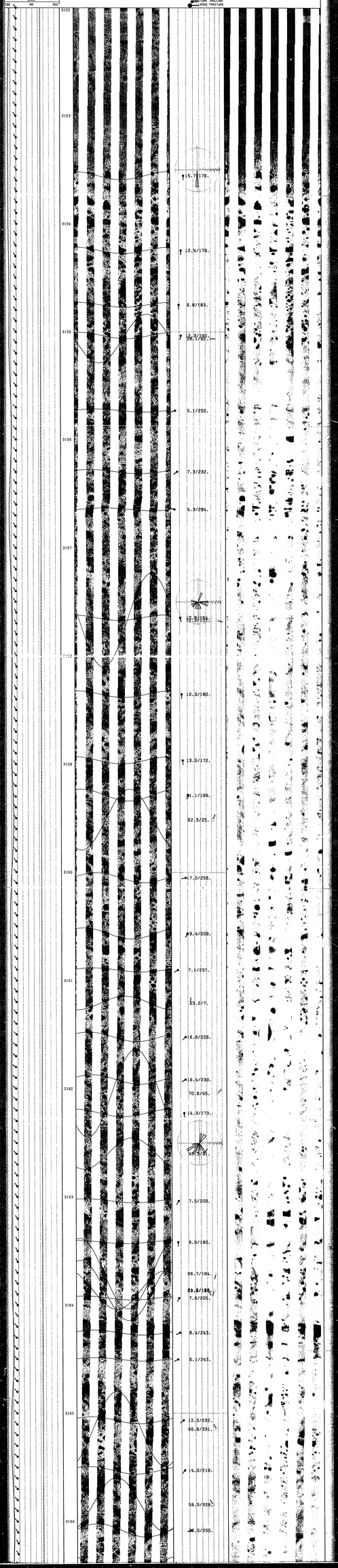

COMPRESSION FACTOR
ANGLE BEARING
BIT DIRECTION
BIT DIP
HOLE DEVIATION
DIP & TO SO
MEASURED DEPTH
GR
HOLE SIZE
1900.
1950.
2000.
2050.
2100.
2150.
2200.
2250.
2300.
2350.
2400.
2450.
2500.
2550.
2600.
2650.
2700.
2750.
2800.
2850.
2900.
2950.
3000.
3050.
3100.
3150.
3200.
3250.
3300.
3350.

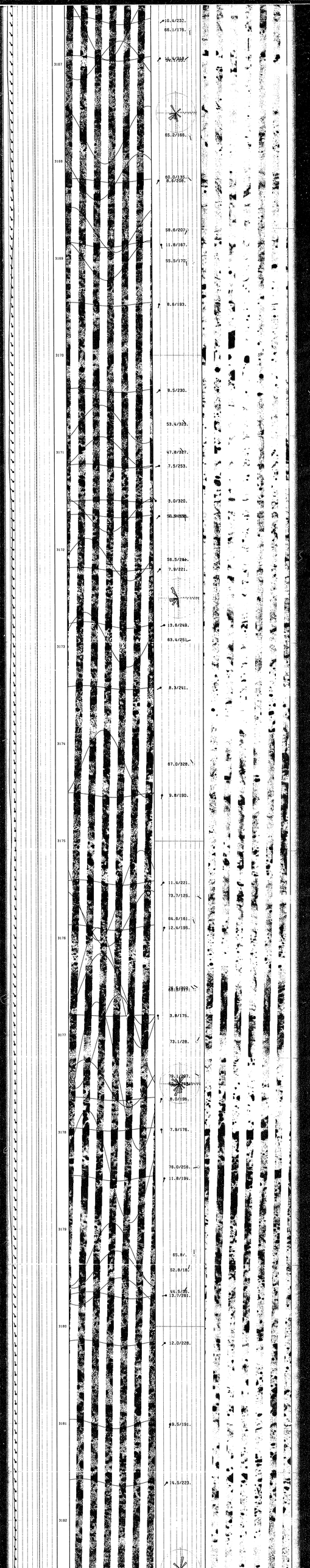
HEF PETROPHYSICAL CONSULTING INC.

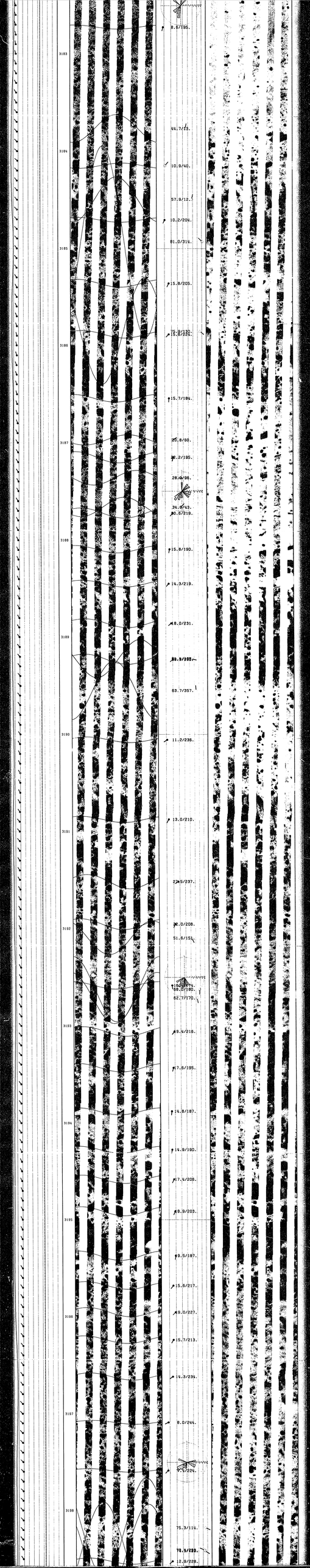
TAPE WELL NAME : CANADIAN FOREST ET AL NORTH LIARD N61

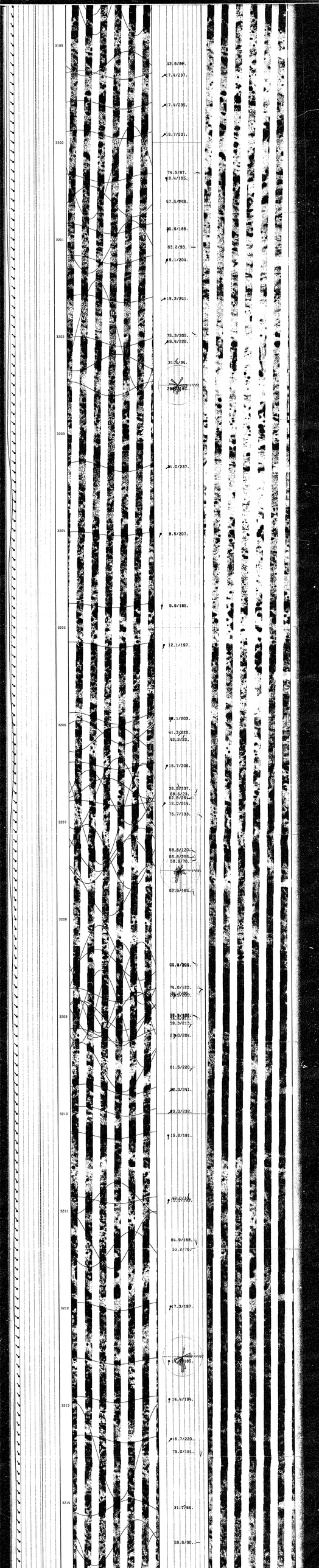
DEVI	EMI IMAGE	SCHMIDT PLOT	STATIC IMAGE
1 DEG 10	NORTH 0 AND 360 DEGREES	DIP 0 TO 90 DEGREES	NORTH 0 AND 360 DEGREES
2 DRIF 100	REFM 1 METER NORMALIZED 0 DEG 360	DIP/AZIM 0 90 0 360	
100 AZM 360			

DEG ROUNDING
HORIZ FRACTURE INCLINO
DRILL INTERC. INCLINO
FEATURE INCLINO
IMAGE FRACTURE




3167
3168
3169
3170
3171
3172
3173
3174
3175
3176
3177
3178
3179
3180
3181
3182
10.4/232.
65.1/176.
85.2/165.
60.0/135.
8.6/208.
58.6/207.
11.8/167.
55.5/170.
8.6/193.
8.5/230.
53.4/323.
47.8/327.
7.5/253.
3.0/320.
56.5/294.
7.9/221.
13.0/249.
63.4/251.
8.3/241.
87.0/328.
9.8/190.
11.4/221.
73.7/125.
64.8/161.
12.4/195.
3.8/175.
73.1/28.
8.0/198.
7.9/176.
76.0/256.
11.8/194.
65.8/.
52.8/18.
13.7/281.
12.0/228.
9.5/191.
14.5/223.


3183
8.8/195.
44.7/13.
3184
10.9/40.
57.9/12.
10.2/204.
3185
81.0/314.
15.8/205.
75.8/130.
3186
15.7/194.
3187
26.8/50.
28.2/195.
28.0/98.
34.6/43.
10.6/219.
3188
15.8/190.
14.3/219.
18.0/231.
3189
63.7/357.
3190
11.2/236.
13.0/210.
3191
24.5/237.
26.0/208.
51.8/151.
3192
68.0/180.
62.7/170.
3193
9.4/216.
17.8/195.
14.8/187.
3194
14.9/190.
17.4/208.
19.9/203.
3195
19.5/187.
15.6/217.
19.0/227.
3196
15.7/213.
14.3/234.
3197
8.0/244.
3198
75.3/114.
12.0/228.


3199
42.9/86.
17.4/237.
17.4/235.
3200
16.7/231.
74.5/97.
18.4/165.
47.5/208.
20.9/188.
3201
63.2/93.
19.1/204.
15.2/241.
3202
75.3/305.
19.4/228.
31.1/34.
3203
31.0/237.
3204
8.5/207.
9.6/185.
3205
12.1/197.
3206
41.3/225.
42.2/22.
15.7/208.
38.0/337.
89.1/23.
62.8/283.
12.0/214.
75.7/133.
3207
58.5/120.
66.6/255.
58.9/16.
62.5/165.
3208
74.0/120.
3209
59.3/213.
270.0/204.
61.5/220.
3210
80.0/232.
15.2/181.
3211
64.9/168.
33.2/16.
3212
17.3/197.
3213
14.4/184.
16.7/220.
75.0/191.
3214
31.1/66.
59.6/80.

3215

49.5/248.
77.5/171.

48.2/37.

59.3/41.
[illegible]

3216

58.4/210.

47.8/305.
59.2/32.

[illegible]
66.2/295.

3217

75.5/154.

76.9/155.
71.2/231.

[illegible]/30.
240/338.

3218

64.8/329.

61.8/258.

12.8/229.

3219

65.8/178.
11.1/222.

[illegible]

45.5/55.
69.6/67.

3220

77.5/45.
[illegible]

46.5/52.
40.6/337.

52.2/230.
66.0/260.

56.7/279.
13.0/219.
58.4/252.
36.7/321.

3222

55.8/258.

55.1/308.

41.3/308.
65.3/58.

82.8/79.

3223

10.3/215.

73.9/101.
70.5/77.

60.0/198.

72.3/121.

3224

13.1/208.

3225

13.2/207.

[illegible]
[illegible]

3226

11.7/253.

12.0/230.
67.1/324.

3227

16.5/223.

66.0/163.

[illegible]

3228

60.8/120.
49.9/169.

67.3/181.

[illegible]/170.

3229

[illegible]/204.

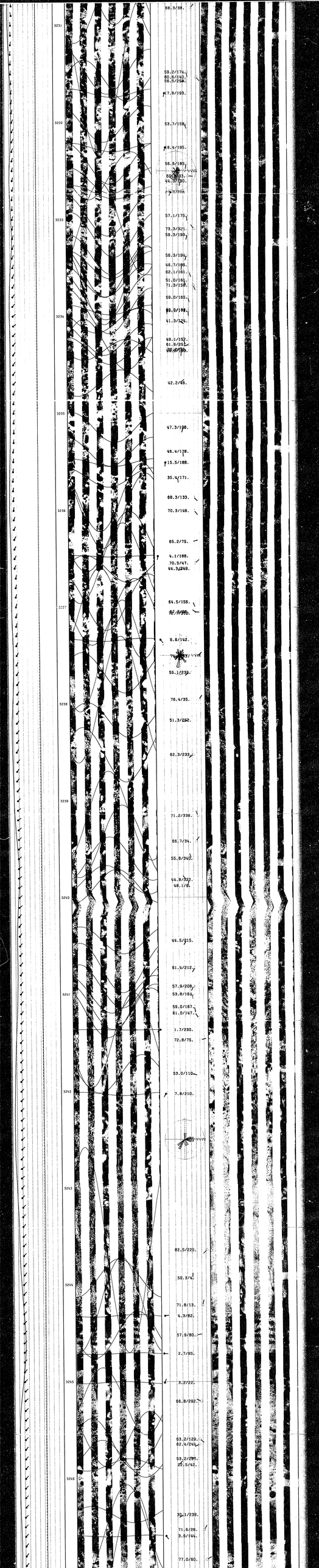
71.5/32.

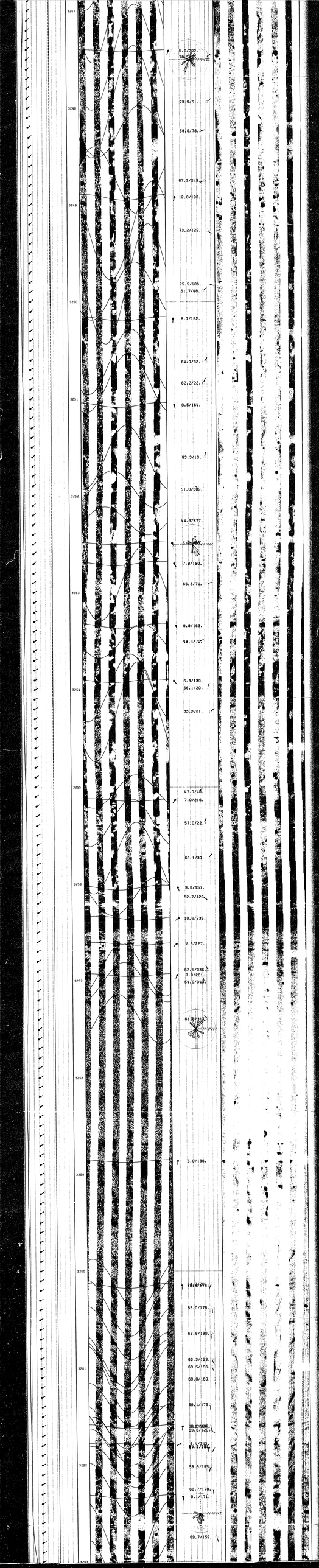
[illegible]/213.

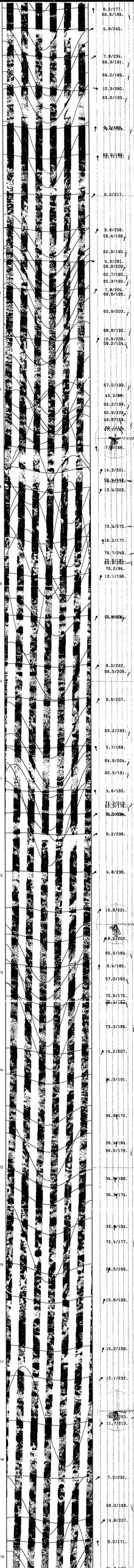
3230

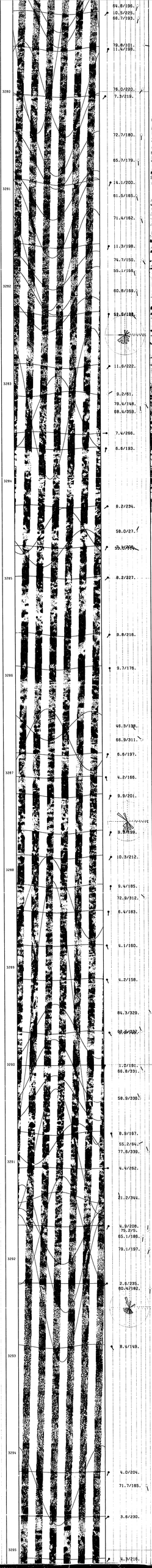
54.4/23.

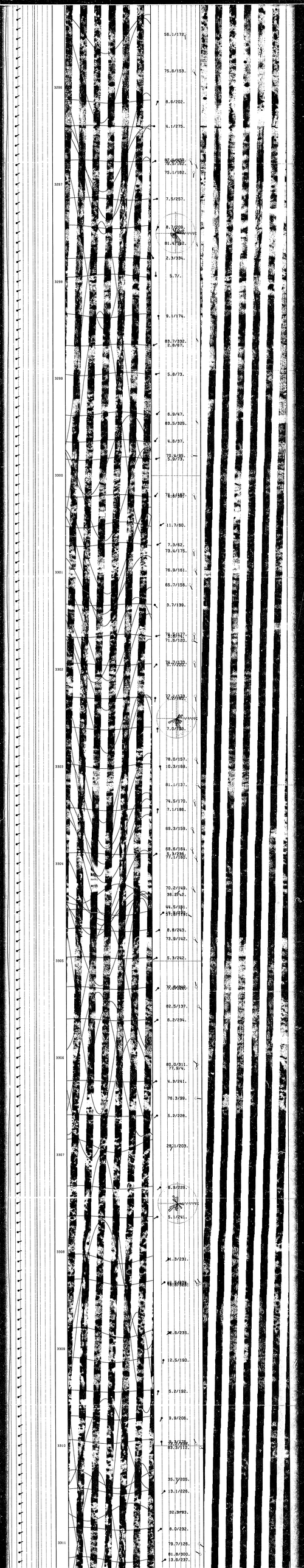
[illegible]/209.
[illegible]/210.


3231
3232
3233
3234
3235
3236
3237
3238
3239
3240
3241
3242
3243
3244
3245
3246
59.2/174.
80.6/140.
56.5/258.
17.6/193.
53.7/158.
48.4/195.
56.8/185.
57.1/175.
73.3/321.
59.3/199.
56.3/194.
46.7/186.
62.1/161.
51.0/161.
71.3/158.
59.0/165.
41.3/124.
49.1/157.
61.8/252.
42.2/46.
47.3/198.
46.4/178.
15.5/188.
35.4/171.
68.3/133.
70.3/146.
65.2/75.
4.1/188.
70.5/47.
64.5/156.
6.6/142.
55.1/233.
76.4/35.
51.3/252.
62.3/233.
71.2/338.
66.7/34.
55.8/340.
44.8/322.
48.1/9.
44.5/215.
61.4/212.
57.9/208.
53.8/163.
59.0/167.
61.0/147.
1.7/230.
72.8/75.
53.0/110.
7.8/210.
82.5/225.
50.3/4.
71.8/13.
4.3/82.
57.9/80.
2.7/95.
3.2/22.
66.8/292.
63.2/129.
62.4/244.
53.2/287.
22.5/42.
30.1/239.
71.8/28.
3.6/144.
77.0/60.


3247
5.0/202.
78.1/5.
3248
73.9/51.
58.6/78.
67.2/245.
12.0/198.
3249
73.2/129.
75.5/106.
61.7/48.
3250
8.7/182.
64.0/32.
62.2/22.
3251
9.5/164.
63.3/10.
51.0/309.
3252
44.8/277.
7.9/150.
66.3/74.
3253
9.8/163.
48.4/70.
6.3/139.
3254
66.1/20.
72.2/51.
3255
47.0/40.
7.0/218.
57.0/22.
66.1/39.
3256
9.6/157.
52.7/128.
10.4/235.
7.6/227.
62.5/330.
3257
7.9/201.
54.9/343.
61.9/315.
3258
6.9/186.
3259
3260
65.0/178.
63.0/180.
63.3/153.
3261
63.5/158.
69.0/189.
59.1/179.
59.6/129.
3262
58.3/195.
63.7/178.
9.1/171.
69.7/159.
3263

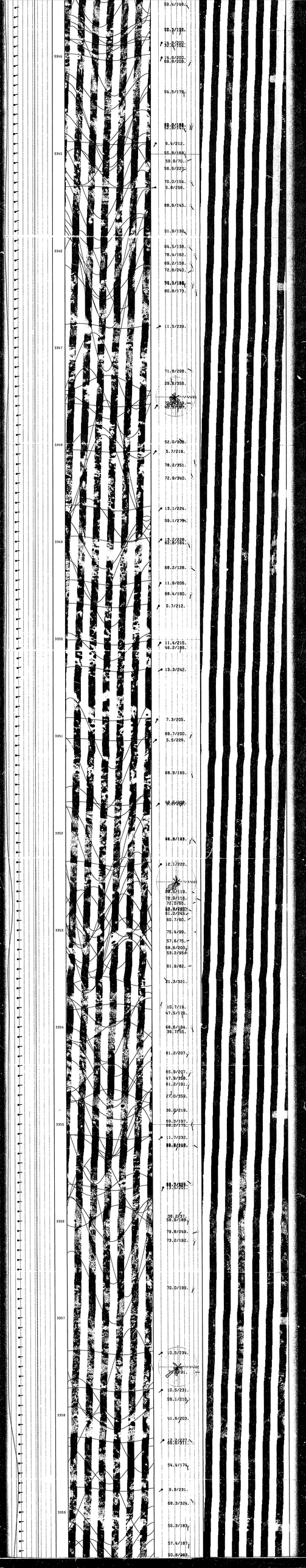

6.2/177.
69.8/169.
4.9/245.
7.8/234.
69.3/191.
69.2/189.
10.3/280.
63.6/193.
3264
5.0/217.
9.8/208.
59.4/199.
62.0/195.
4.3/201.
58.9/209.
62.7/185.
65.3/195.
7.8/201.
69.8/195.
3265
65.9/203.
68.8/190.
10.8/208.
58.2/154.
67.5/199.
43.3/84.
66.2/199.
60.9/229.
45.8/158.
7.8/166.
14.3/201.
3267
13.4/203.
73.4/270.
16.2/177.
76.7/249.
70.5/191.
70.2/94.
13.1/198.
3268
9.0/222.
66.5/209.
9.6/207.
65.2/193.
5.7/168.
64.6/204.
62.5/191.
4.6/165.
75.2/234.
6.2/238.
3271
4.8/238.
10.0/221.
15.2/202.
65.5/184.
9.4/185.
57.0/160.
75.6/175.
73.3/188.
14.2/207.
3273
36.8/172.
36.4/184.
66.5/179.
34.8/188.
36.3/174.
33.4/194.
72.4/177.
3274
28.5/198.
15.8/198.
14.2/199.
12.1/232.
76.2/250.
11.7/213.
3277
7.5/232.
66.0/188.
14.8/227.
6.0/171.
3278


64.8/198.
10.5/223.
68.7/193.
79.8/101.
11.4/198.
3280
78.0/220.
7.3/219.
72.7/180.
65.7/179.
14.1/200.
3281
61.5/165.
71.4/162.
11.3/198.
74.7/150.
55.1/169.
3282
60.8/169.
52.8/188.
11.8/222.
3283
9.2/61.
79.4/148.
68.4/359.
7.4/268.
6.6/193.
3284
8.2/234.
59.0/27.
3285
8.2/227.
9.8/216.
9.7/176.
3286
46.3/138.
66.9/311.
6.6/197.
3287
4.2/168.
9.9/201.
9.8/198.
10.3/212.
3288
9.4/185.
72.9/312.
6.4/183.
4.1/160.
3289
4.2/158.
84.3/329.
60.6/337.
3290
1.0/181.
88.8/331.
58.9/338.
8.9/167.
55.2/64.
77.8/339.
3291
4.4/262.
21.2/344.
4.9/208.
75.2/5.
65.1/186.
79.1/197.
3292
2.6/235.
60.4/182.
8.4/149.
3293
3294
4.0/204.
71.7/185.
3.6/230.
3295
4.3/216.


3298
3299
3300
3301
3302
3303
3304
3305
3306
3307
3308
3309
3310
3311

3312
3313
3314
3315
3316
3317
3318
3319
3320
3321
3322
3323
3324
3325
3326
3327
8.9/219.
59.0/157.
59.0/169.
4.9/178.
73.1/324.
9.6/219.
39.5/148.
70.1/167.
59.0/150.
81.9/152.
7.5/203.
66.3/150.
17.8/29.
9.2/205.
55.3/170.
64.0/9.
21.0/48.
55.1/358.
81.5/230.
77.0/171.
13.8/150.
74.7/124.
12.2/186.
76.0/89.
13.4/167.
56.0/13.
55.1/285.
30.4/97.
33.3/317.
47.2/182.
28.3/28.
60.7/148.
62.9/167.
40.3/177.
12.8/155.
56.6/21.
11.6/170.
8.3/152.
8.7/163.
7.5/170.
77.9/324.
74.2/337.
63.5/165.
59.0/292.
8.3/186.
7.3/194.
12.2/209.
64.1/155.
7.9/189.
5.8/203.
65.5/147.
5.3/198.
78.8/225.
64.0/129.
9.5/185.
10.5/169.
49.4/183.
5.6/212.
18.2/314.
54.8/124.

3328
3329
3330
3331
3332
3333
3334
3335
3336
3337
3338
3339
3340
3341
3342
3343


59.4/148.
3346
14.9/200.
68.8/208.
54.5/179.
5.9/212.
3345
55.8/168.
59.8/70.
58.9/223.
70.0/154.
5.8/258.
68.8/145.
51.9/138.
3348
64.5/139.
78.4/162.
69.2/158.
72.8/240.
60.8/179.
11.5/239.
3347
71.8/298.
29.8/358.
52.0/308.
5.7/219.
78.2/351.
72.9/340.
13.1/224.
59.1/275.
3349
68.2/128.
11.9/208.
68.4/190.
9.7/212.
3350
11.4/215.
46.2/195.
13.3/242.
7.3/205.
3351
69.7/200.
5.5/228.
68.9/165.
3352
12.1/222.
69.5/119.
78.9/115.
77.7/155.
61.2/245.
60.7/60.
3353
75.4/98.
57.6/75.
58.8/200.
59.2/95.
81.9/82.
21.3/321.
10.7/19.
47.3/19.
3354
68.8/184.
36.7/55.
61.2/207.
65.9/207.
47.9/358.
61.2/191.
27.0/359.
36.0/219.
3355
69.3/197.
68.2/175.
11.7/232.
3356
38.2/17.
56.9/189.
79.8/249.
73.2/192.
70.0/199.
3357
10.5/234.
10.5/231.
58.1/215.
3358
41.6/203.
54.4/174.
9.9/231.
68.3/324.
3359
55.3/183.
57.4/187.
60.8/262.

MISCELLANEOUS

N.E.B. COPY 1863
New Name * North Liard N-61

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT N-61

FIELD: FLETT

PROVINCE: NORTHWEST TERRITORIES

PROVINCE:NORTHWEST TERRITORIES
Field: FLETT
Location: LATITUDE: 60 DEGREES 30' 46.690" LONGITUDE: 123 DEGREES 42' 35.512"
Well: CDN FOREST ET AL FLETT N-61
Company: CANADIAN FOREST OIL LTD.
LOCATION

Schlumberger

ULTRASONIC CASING IMAGER LOG

LATITUDE: 60 DEGREES 30' 46.690"
LONGITUDE: 123 DEGREES 42' 35.512"

Elev.: K.B. 610.7 m
G.L. 604 m
D.F.

Permanent Datum: GROUND LEVEL Elev.: 604 m
Log Measured From: KELLY BUSHING 6.7 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	SECTION	TOWNSHIP	RANGE
1863			

Logging Date	19-SEP-1999
Run Number	ONE
Depth Driller	3383 m
Schlumberger Depth	3140 m
Bottom Log Interval	3140 m
Top Log Interval	4 m
Casing Fluid Type	WATER BASED MUD
Salinity	
Density	1045 kg/m3
Fluid Level	0 m
BIT/CASING/TUBING STRING	
Bit Size	
From	
To	
Casing/Tubing Size	244.500 mm
Weight	79.62 kg/m
Grade	
From	2784.54 m
To	3147 m
Maximum Recorded Temperatures	
Logger On Bottom Time	19-SEP-1999 20:00
Unit Number Location	2039 FORT ST. JOHN
Recorded By	C. HARKNESS
Witnessed By	W. PERIARD

SEP 29 1999

PVT DATA	Run 1	Run 2	Run 3	Run 4
Oil Density				
Water Salinity				
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze	Primary			
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Fluid Type				
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
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 OFFICER, AGENT OR EMPLOYEE OF THE COMPANY. INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET FORTH IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES1	
OS1:	USIT
OS2:	CBT
OS3:	JUNK BASKET/
OS4:	GUAGE RING
OS5:	
REMARKS: RUN NUMBER1	
DEPTH CORRELATED TO NEUTRON/DENSITY COMPUTALOG DATED 18-AUG-1999	
SLIM HOLE CASING: 177.8MM / 34.1KG/M, FROM 0 TO 2784.54 MKB // 244.5MM, 64.73KG/M	
INTERMEDIATE CASING: 244.5MM, 79.62KG/M, FROM 0 TO 283 MKB // 244.5MM, 64.73KG/M	
FROM 283-689 MKB // EXTERNAL CASING PACKER FROM 689-691 MKB // 244.5 MM,	
64.73KG/M, FROM 691-1568 MKB, 244.5MM STAGE TOOL, FROM 1568-1510 MKB // 244.5MM,	
64.73KG/M, FROM 1510-2784.54 MKB // 244.5MM, 89.34KG/M, FROM 1710-2784 MKB //	
244.5MM, 79.62KG/M, FROM 2784-3147 MKB	
CEMENT DATA: STAGE 1 CEMENTED WITH 33 TONNES THERMAL 40F + 0.7%CFR + 0.9% CFL-2	
+ 0.1% LTR + 8LIM3 FA-1	
STAGE 2 CEMENTED WITH 71 TONNES 0-1-0 G + 0.5% CFR + 0.4% CFL-1	
ABOVE RING 1300 LITERS OF 0.980 IMKG/L CEMENT, 35 MPA COMPRESSIVE STRENGTH IS 43MPA	
FROM 1300-1510 MKB EXPECTED COMPRESSIVE STRENGTH IS 50MPA	
FROM 1800-3147 MKB EXPECTED COMPRESSIVE STRENGTH 43 MPA	
CASING IN GOOD CONDITION	

	RUN 1			RUN 2		
SERVICE ORDER #:				6051480		
PROGRAM VERSION:				9C0-413		
FLUID LEVEL:				0.0 m		
LOGGED INTERVAL	START	STOP		LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

WDM-AB 496
CSN-C 225
SSN-A 127
WITM (CTS)-A

DOWNHOLE EQUIPMENT

PEH-A 20.64
PEH-A
AH-64 20.10
TCC-B 19.69
TCC-B 610
TCC-B 593
TelStatus 18.78
CTEM
CAL-Y 18.78
CAL-Y 1114
CCL
SGT-L 17.71
SGH-K 242
SGD-KA 1217
SGD-TAA-1697
Gamma Ray 17.43
AH-127 16.03
CBT-EB 15.72
CME-AF 8155
CBS-EB 74
CME-AU 26
CBS-EA 38
CME-AT 43
UTR1 10.04
UTR2 9.79
UTR3 9.64
UTR4 9.45
LTR1 9.10
LTR2 8.90
LTR3 8.75
DIAG 7.65
AH-119 6.54
USIT-A 6.23
ESI-A
BGT-KARA 3999
USIS-A 820
9US-B 381
0.08
0.00
Control
Ultrasonic
USI Transducer
TOOL ZERO
MAXIMUM STRING DIAMETER 170 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	USIT .006	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

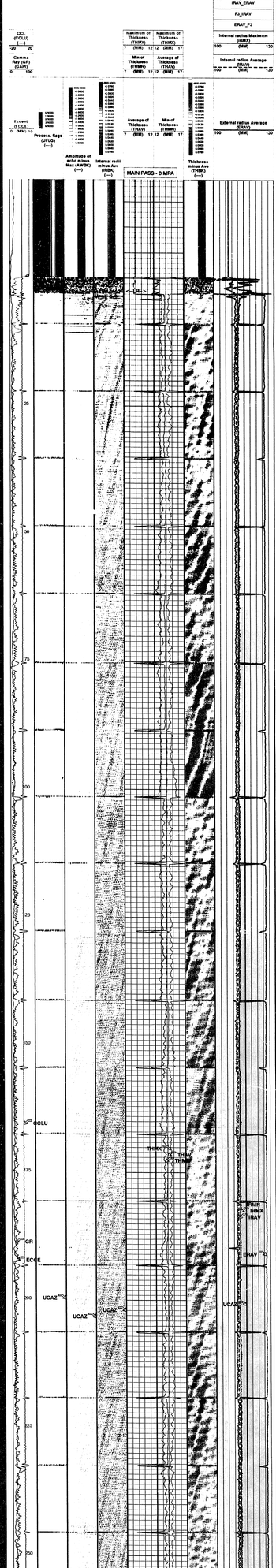
DEFAULT	USIT .007	FN:6	PRODUCER	20-Sep-1999 01:11	3140.4 M	-19.2 M

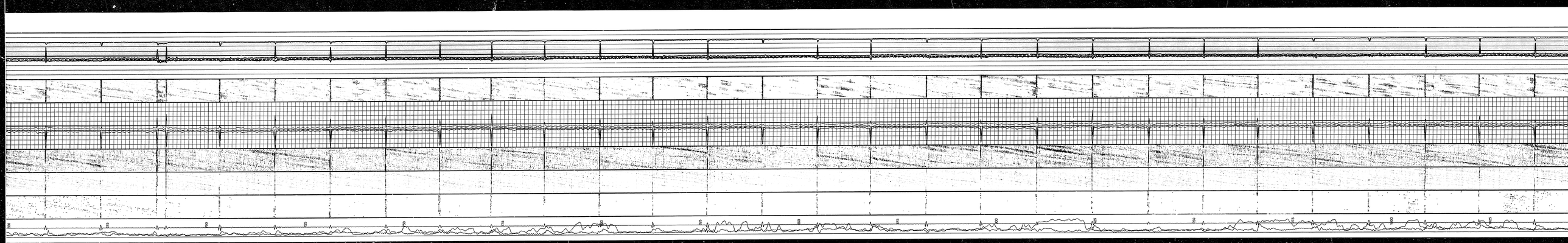
OP System Version: 9C0-413

USIT-A	OP9-KP2	CBT-E9	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

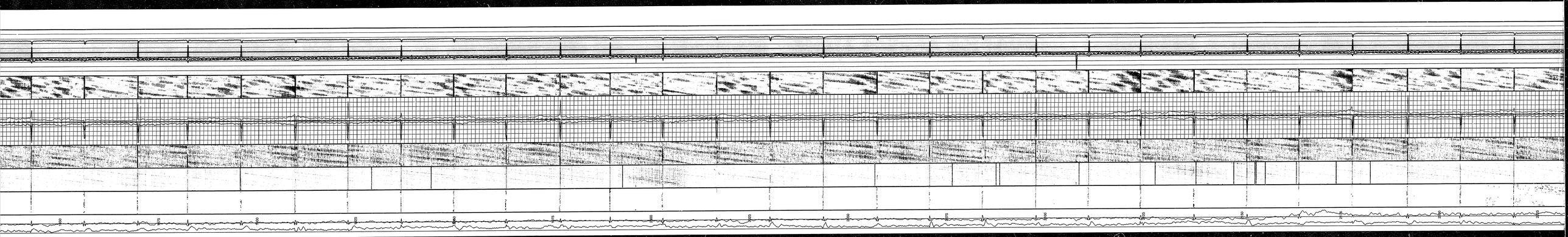
Changed Parameter Summary

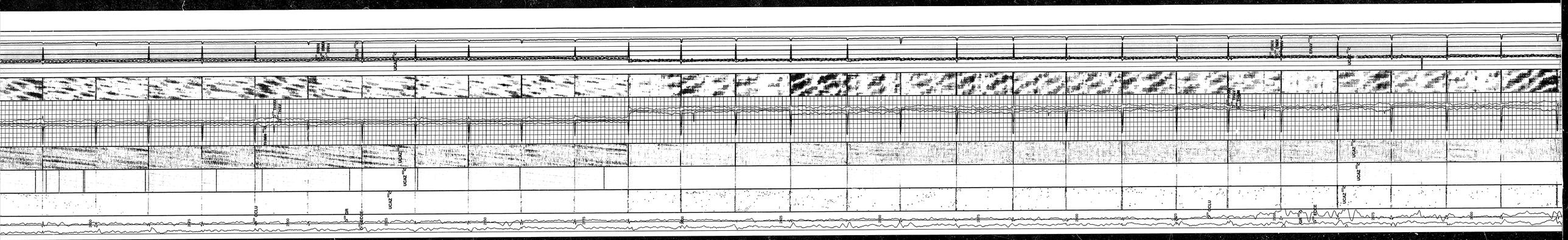
DLIS Name	New Value		Previous Value		Depth & Time
CWEI	69.94	KG/M	79.62	KG/M	2700.0 01:18:40
	64.72	KG/M	69.94	KG/M	1784.0 01:27:53
	79.62	KG/M	64.72	KG/M	350.0 01:53:35
DFVL	540	US/M	635	US/M	3140.3 01:59:37

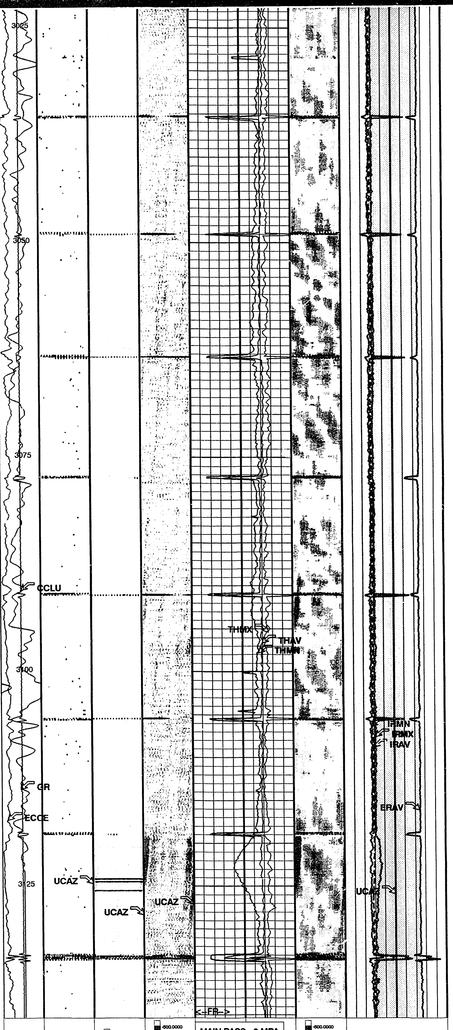




PRESSURE
TRANSIENT
START
PRESSURE
TRANSIENT
END
UPPER
"C"
LOWER
"C"
"C" GLU
"C" UR
"C" ACCD
"C"
LOZ







Format: USIT_DRILL_WEAR Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 01:11

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

Parameters

DLIS Name	Description	Value	
AGMN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	20	DB
ANGO	ANGULAR OFFSET	-10	DEG
BERJ	Bad Echo Rejection	ON	
CDIA	Casing outer diameter	244.5	MM
CSID	Casing internal diameter	216.868	MM
CWEI	Casing Weight	79.62	KG/M
DFVL	Default fluid velocity	630	US/M
DO	Depth Offset	0.1	M
DOT	Diameter of Transducer sensor	123.8	MM
EMXV	Value for EMEX voltage	30	V
FDIU	FFM Data interpolation interval	0	M
IMAR	Image Rotation	OFF	
MW	Mud weight	1040	K/M3
NPP	Playback Processing	NORMAL	
RCOD	Reference calibrator Outer diameter	177.8	MM
RCSO	Reference calibrator standoff	34.9999	MM
RCTH	Reference calibrator thickness	7.49998	MM
TCUS	T 3 Processing level	Vax_Level	
THDH	Maximum search thickness (percentage of nominal)	140	
THDL	Minimum search thickness (percentage of nominal)	60	
THNO	Nominal thickness of casing	13.816	MM
USTO	Ultrasonic Time Offset	-2	US
USUB	USIT Sub Identifier	Sub_9_58_inch	
UWKM	Current working mode	SDEC_eIN_LF	
VCAS	Velocity of sound in casing	168.635	US/M
WLEN	T 3 processing length	29	US
ZINI	Initial z value	-1	MRAY
ZMUD	Acoustical impedance of mud	1.75	MRAY
ZTCC	Impedance threshold for Contaminated Cement	2.1	MRAY
ZTCM	Acoustical Impedance threshold for Cement	2.6	MRAY
ZTGC	Acoustical Impedance threshold for Gaseous	0.3	MRAY
ZTGS	Acoustical Impedance threshold for Gas	0.3	MRAY

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .007	FN:6	PRODUCER	20-Sep-1999 01:11

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

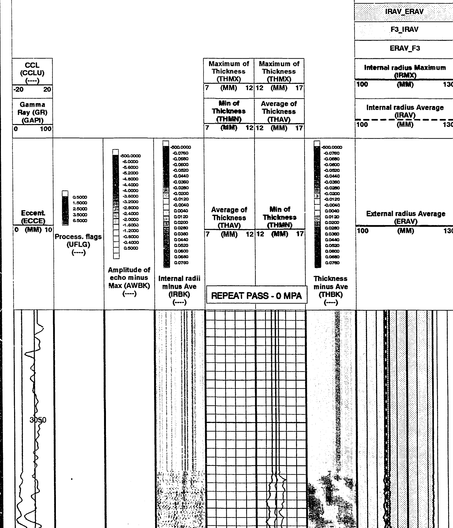
Output DLIS Files

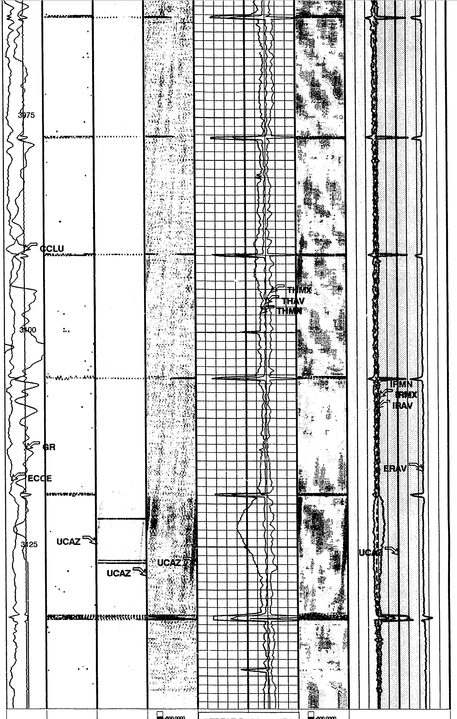
DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21	3143.9 M	3036.9 M

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		





Eccent. (ECCE) 0 (MM) 10

Process. flags (UFLG) (----) 0.5000 1.5000 2.5000 3.5000 4.5000

Amplitude of echo minus Max (AWBK) (----) 200.0000 -6.0000 -6.4000 -6.8000 -5.2000 -5.6000 -4.4000 -4.0000 -3.6000 -3.2000 -2.8000 -2.4000 -2.0000 -1.6000 -1.2000 -0.8000 -0.4000 0.0000

Internal radii minus Ave (IRBK) (----) -600.0000 -0.0760 -0.0880 -0.0800 -0.0880 -0.0840 -0.0800 -0.0880 -0.0840 -0.0820 -0.0800 -0.0780 -0.0760 -0.0740 -0.0720 -0.0700 -0.0680 -0.0660 -0.0640 -0.0620 -0.0600 -0.0580 -0.0560 -0.0540 -0.0520 -0.0500 -0.0480 -0.0460 -0.0440 -0.0420 -0.0400 -0.0380 -0.0360 -0.0340 -0.0320 -0.0300 -0.0280 -0.0260 -0.0240 -0.0220 -0.0200 -0.0180 -0.0160 -0.0140 -0.0120 -0.0100 -0.0080 -0.0060 -0.0040 -0.0020 -0.0000

REPEAT PASS - 0 MPA

Average of Thickness (THAV) 7 (MM) 12

Min of Thickness (THMN) 12 (MM) 17

Thickness minus Ave (THBK) (----) 200.0000 -0.0760 -0.0880 -0.0800 -0.0880 -0.0840 -0.0800 -0.0880 -0.0840 -0.0820 -0.0800 -0.0780 -0.0760 -0.0740 -0.0720 -0.0700 -0.0680 -0.0660 -0.0640 -0.0620 -0.0600 -0.0580 -0.0560 -0.0540 -0.0520 -0.0500 -0.0480 -0.0460 -0.0440 -0.0420 -0.0400 -0.0380 -0.0360 -0.0340 -0.0320 -0.0300 -0.0280 -0.0260 -0.0240 -0.0220 -0.0200 -0.0180 -0.0160 -0.0140 -0.0120 -0.0100 -0.0080 -0.0060 -0.0040 -0.0020 -0.0000

External radius Average (ERAV) 100 (MM) 130

Gamma Ray (GR) (GAPI) 0 100

CCL (CCLU) (----) -20 20

Min of Thickness (THMN) 7 (MM) 12

Average of Thickness (THAV) 12 (MM) 17

Maximum of Thickness (THMX) 7 (MM) 12

Maximum of Thickness (THMX) 12 (MM) 17

Internal radius Average (IRAV) 100 (MM) 130

Internal radius Maximum (IRMX) 100 (MM) 130

ERAV_F3

F3_IRAV

IRAV_ERAV

Min of Internal radius (IRMN) 100 (MM) 130

Format: USIT_DRILL_WEAR Vertical Scale: 1:240 Graphics File Created: 19-Sep-1999 21:21

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

Parameters

DLIS Name	Description	Value	
AGMN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	20	DB
ANGO	ANGULAR OFFSET	-10	DEG
BERJ	Bad Echo Rejection	ON	
CDIA	Casing outer diameter	244.5	MM
CSID	Casing internal diameter	216.868	MM
CWEI	Casing Weight	79.62	KG/M
DPVL	Default fluid velocity	634	US/M
DO	Depth Offset	0.0	M
DOTS	Diameter of Transducer sensor	123.8	MM
EMXV	Value for EMEX voltage	30	V
FDIU	FPM Data Interpolation Interval	0	M
IMAR	Image Rotation	OFF	
MW	Mud weight	1045	K/M3
PBM	Playback Processing	NORMAL	
RCOD	Reference calibrator Outer diameter	140	MM
RCSO	Reference calibrator standoff	50	MM
RCTH	Reference calibrator thickness	7.46808	MM
TCUB	T`3 Processing level	Vax_Loop	
THDH	Maximum search thickness (percentage of nominal)	140	
THDL	Minimum search thickness (percentage of nominal)	60	
THNO	Nominal thickness of casing	13.816	MM
USTO	Ultrasonic Time Offset	-2	US
USUB	USIT Sub Identifier	Sub_9_5/8_inch	
UWKM	Current working mode	SDEQ_sIN_LF	
VCAS	Velocity of sound in casing	168.835	US/M
WLEN	T`3 processing length	29	US
ZNII	Initial z value	-1	MRAY
ZMUD	Acoustical impedance of mud	1.75	MRAY
ZTCM	Impedance threshold for Contaminated Cement	2.1	MRAY
ZTGC	Acoustical impedance threshold for Cement	2.6	MRAY
ZTGG	Acoustical impedance threshold for Gaseous	0.3	MRAY
ZTGS	Acoustical impedance threshold for Gas	0.3	MRAY

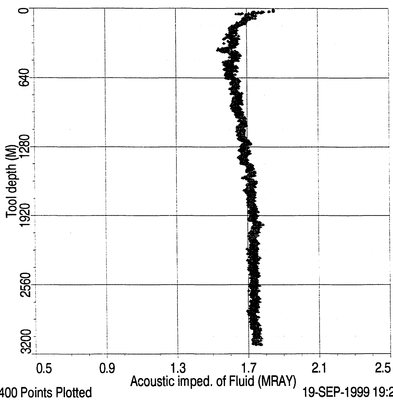
Input DLIS Files

DEFAULT	USIT .004	FN:3 PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

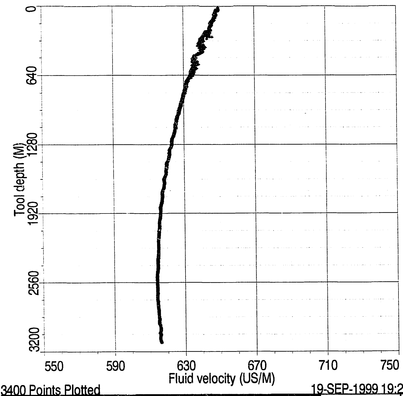
DEFAULT	USIT .005	FN:4 PRODUCER	19-Sep-1999 21:21

Index: 10.1 - 3118.1 M



3400 Points Plotted 19-SEP-1999 19:24

Index: 10.1 - 3118.1 M



3400 Points Plotted 19-SEP-1999 19:24

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	3140 m
		SCHLUMBERGER DEPTH	3140 m
WELL:	CDN FOREST ET AL FLETT N-61	DEPTH DRILLER	3363 m
FIELD:	FLETT	KELLY BUSHING	610.7 m
PROVINCE:	NORTHWEST TERRITORIES	DRILL FLOOR	
		GROUND LEVEL	604 m

Schlumberger

ULTRASONIC CASING IMAGER LOG

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

New name *North Liard N-61 1863 NEB

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT N-61

FIELD: FLETT

PROVINCE: NORTHWEST TERRITORIES

Province: NORTHWEST TERRITORIES
Field: FLETT
Location: LATITUDE: 60 DEGREES 30' 46
Well: CDN FOREST ET AL FLETT N-6
Company: CANADIAN FOREST OIL LTD.

Schlumberger

ULTRASONIC CEMENT IMAGER LOG

LOCATION			
LATITUDE: 60 DEGREES 30' 46.690"	Elev.:	K.B.	610.7 m
LONGITUDE: 123 DEGREES 42' 35.512"		G.L.	604 m
		D.F.	
Permanent Datum: GROUND LEVEL	Elev.:	604 m	
Log Measured From: KELLY BUSHING	6.7 m	above Perm. Datum	
Drilling Measured From: KELLY BUSHING			

API Serial No.	SECTION	TOWNSHIP	RANGE
1863			

Logging Date	19-SEP-1999	
Run Number	ONE	
Depth Driller	3383 m	
Schlumberger Depth	3140 m	
Bottom Log Interval	3140 m	
Top Log Interval	4 m	
Casing Fluid Type	WATER BASED MUD	
Salinity		
Density	1045 kg/m3	
Fluid Level	0 m	
BIT/CASING/TUBING STRING		
Bit Size		
From		
To		
Casing/Tubing Size	244.500 mm	
Weight	79.62 kg/m	
Grade		
From	2784.54 m	
To	3147 m	
Maximum Recorded Temperatures		
Logger On Bottom / Time	19-SEP-1999	20:00
Unit Number / Location	2039	FORT ST. JOHN
Recorded By	C. HARKNESS	
Witnessed By	W. PERIARD	

SEP 29 1999

	Run 1	Run 2	Run 3	Run 4
PVT DATA: Oil Density				
Water Salinity				
Gas Gravity				
Bo				
Bw				
1/Bg				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze	Primary			
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				

Logging Date		
Run Number		
Depth Driller		
Schlumberger Depth		
Bottom Log Interval		
Top Log Interval		
Casing Fluid Type		
Salinity		
Density		
Fluid Level		
BIT/CASING/TUBING STRING		
Bit Size		
From		
To		
Casing/Tubing Size		
Weight		
Grade		
From		
To		
Maximum Recorded Temperatures		
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	OTHER SERVICES2
OS1: USIT	OS1:
OS2: CBT	OS2:
OS3: JUNK BASKET/	OS3:
OS4: GUAGE RING	OS4:
OS5:	OS5:

REMARKS: RUN NUMBER 1 — REMARKS: RUN NUMBER 2

DEPTH CORRELATED TO NEUTRON/DENSITY (COMPUTALOG) DATED 18-AUG-1999
SURFACE CASING: 339.9 MM, 101.2 KG/M, LANDED AT 735.0 MKB
INTERMEDIATE CASING: 244.5MM, 79.62KG/M, FROM 0-283 MKB // 244.5MM, 64.73KG/M
FROM 283-689 MKB // EXTERNAL CASING PACKER, FROM 689-691 MKB // 244.5 MM,
64.73KG/M, FROM 691-1509 MKB, 244.5MM STAGE TOOL, FROM 1509-1510 MKB // 244.5MM,
64.73KG/M, FROM 1510-1712 MKB // 244.5MM, 69.94KG/M, FROM 1712-2784 MKB //
244.5MM, 79.62KG/M, FROM 2784-3147 MKB
CEMENT DATA: STAGE 1 CEMENTED WITH 33 TONNES THERMAL 40F + 0.7%CFR + 0.9% CFL-2
+ 0.15% LTR + 8L/M3 FA-1
STAGE 2 CEMENTED WITH 71 TONNES 0-1-0 G + 0.5% CFR + 0.4% CFL-1
ACCORDING TO SANJEL: FROM 0-680 MKB EXPECTED COMPRESSIVE STRENGTH IS 43MPA
FROM 680-1800 MKB EXPECTED COMPRESSIVE STRENGTH IS 29 MPA
FROM 1800-3147 MKB EXPECTED COMPRESSIVE STRENGTH 43 MPA
THE USIT INDICATES GOOD CEMENT OVER BOTTOM 300M OF THE WELL

RUN 1		RUN 2	
SERVICE ORDER #:	6051480	SERVICE ORDER #:	
PROGRAM VERSION:	9C0-413	PROGRAM VERSION:	
FLUID LEVEL:	0 m	FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

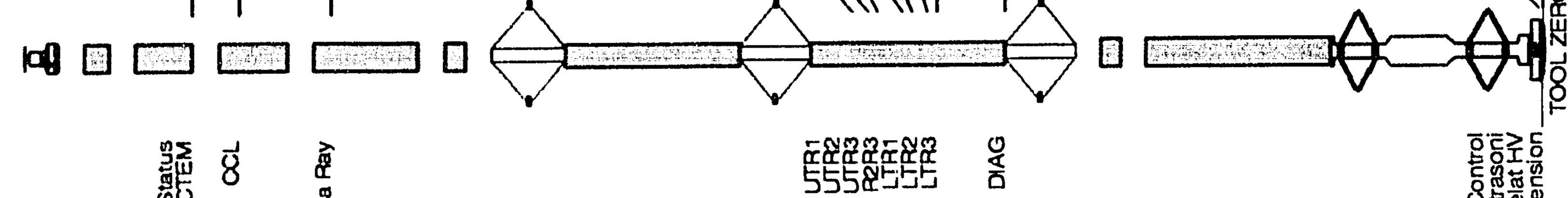
EQUIPMENT DESCRIPTION

RUN 1 — RUN 2

SURFACE EQUIPMENT

WDM-AB 496
STM-C 225
GSR-U/Y
WITM (CTS)-A

DOWNHOLE EQUIPMENT



MAXIMUM STRING DIAMETER 170 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8	PRODUCER	20-Sep-1999 02:38	1520.0 M	4.1 M

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

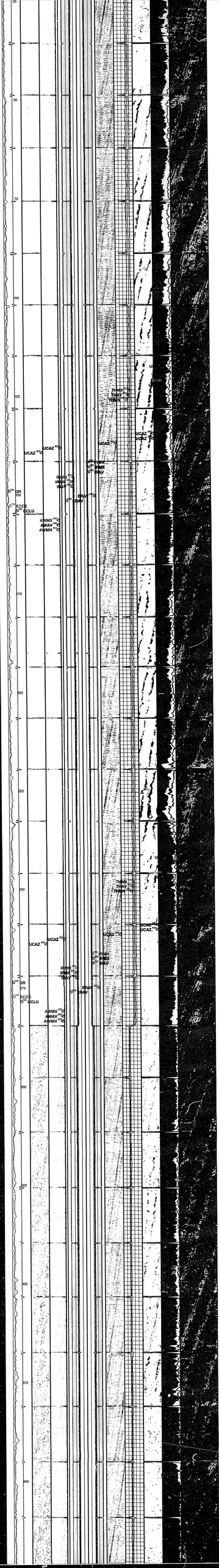
Changed Parameter Summary

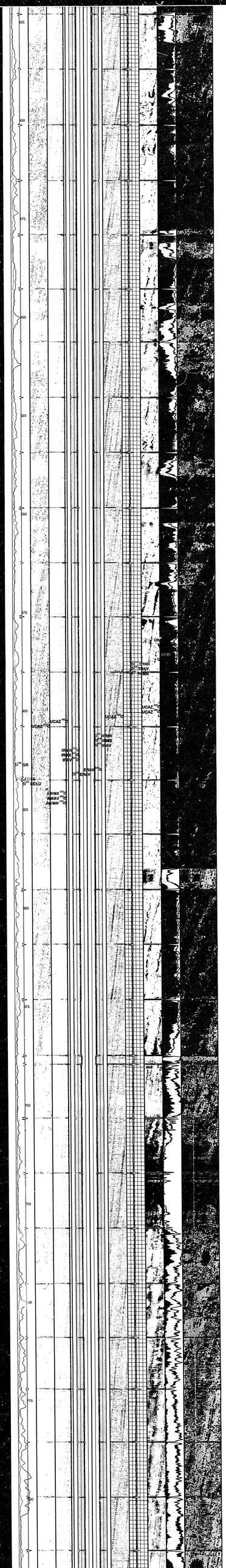
DLIS Name	New Value	Previous Value	Depth & Time
CWEI	64.73 KG/M	79.62 KG/M	0.0 02:38:30
	79.62 KG/M	64.73 KG/M	2[illegible]5.0 03:01:49
ZMUD	1.7 MRAY	1.75 MRAY	0.0 02:39:34
	1.65 MRAY	1.7 MRAY	6[illegible]5.0 02:54:27

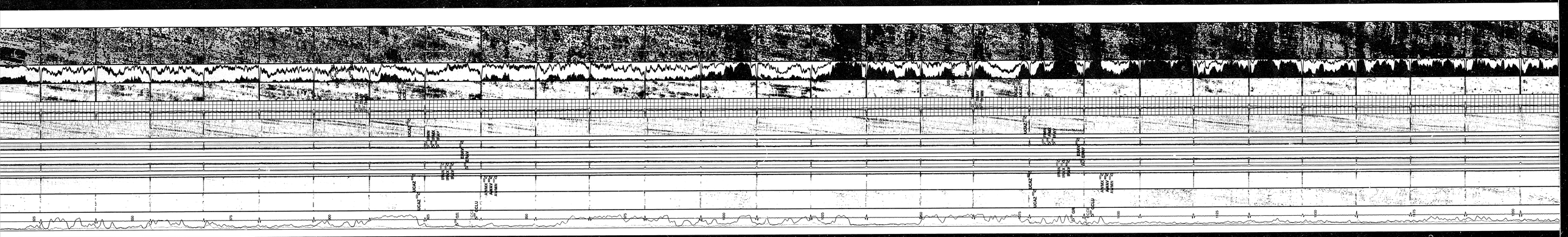
Contaminated From UCCI to USBI
Bonded From USBI to USI_Comp_8
Gas From USI_Comp_8 to USGI
Liquid From USLI to UCCI

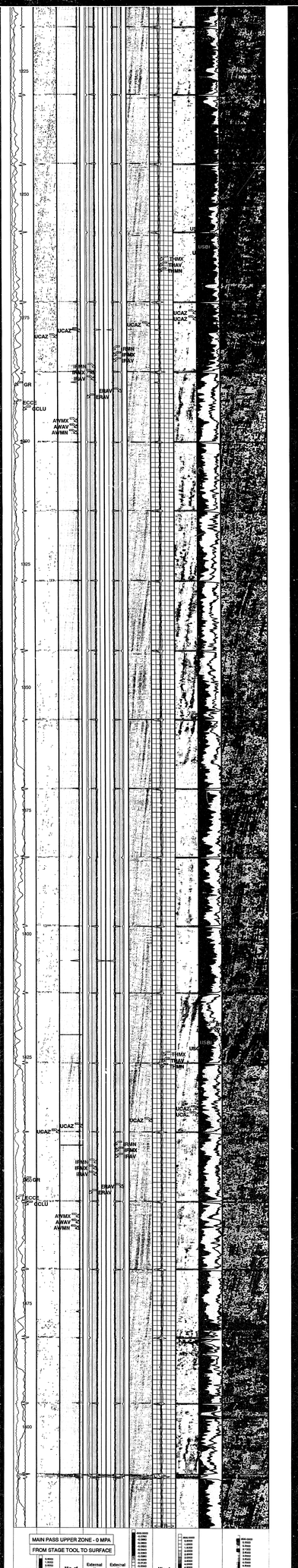
Amplitude of echo minus Max (AWBK) (----): -500.0000, -6.0000, -5.6000, -5.2000, -4.8000, -4.4000, -4.0000, -3.6000, -3.2000, -2.8000, -2.4000, -2.0000, -1.6000, -1.2000, -0.8000, -0.4000, 0.5000
Min of Internal radius (IRMN) (MM) 130 100
Min of Internal radius (IRMN) (MM) 100 130
Liquid index (USLI) 0 (----) 1
Gamma Ray (GR) (GAPI) 0 100
Maximum of Amplitude (AWMX) 0 (DB) 75
Internal radius Maximum (IRMX) (MM) 130 100
Internal radius Maximum (IRMX) (MM) 100 130
Maximum of Thickness (THMX) 7 (MM) 17
Contaminated Cement index (UCCI) 0 (----) 1
CCL (CCLU) (----) -20 20
Average of Amplitude (AWAV) 0 (DB) 75
Internal radius Average (IRAV) (MM) 130 100
Internal radius Average (IRAV) (MM) 100 130
Average of Thickness (THAV) 7 (MM) 17
Eccent. (ECCE) 0 (MM) 15
Process. flags (UFLG) (----): 0.5000, 1.5000, 2.5000, 3.5000, 6.5000
Min. of Amplitude (AWMN) 0 (DB) 75
External radius Average (ERAV) (MM) 130 100
External radius Average (ERAV) (MM) 100 130
Internal radii minus Ave (IRBK) (----): -500.0000, -0.0760, -0.0680, -0.0600, -0.0520, -0.0440, -0.0360, -0.0280, -0.0200, -0.0120, -0.0040, 0.0040, 0.0120, 0.0200, 0.0280, 0.0360, 0.0440, 0.0520, 0.0600, 0.0680, 0.0760
Min of Thickness (THMN) 7 (MM) 17
Raw Acoustic Imped. (AIBK) (----): -500.0000, 0.5000, 1.0000, 1.5000, 2.0000, 2.5000, 3.0000, 3.5000, 4.0000, 4.5000, 5.0000, 5.5000, 6.0000, 6.5000, 7.0000, 7.5000, 8.0000
Gas index (USGI) 0 (----) 1
Acoustic imped. with thresholds (AIBK) (----): -500.0000, 0.3000, 0.3000, 2.1000, 2.6000, 3.0000, 3.5000, 4.0000, 4.5000, 5.0000, 5.5000, 6.0000, 6.5000, 7.0000, 7.5000, 8.0000, 8.1000, 8.2000, 8.3000, 9999.9902

MAIN PASS UPPER ZONE - 0 MPA
FROM STAGE TOOL TO SURFACE


25
50
75
100
125
150
175
200
225
250
275
300
325
350
375
400
UCAZ
UCAZ
UCAZ
TIMK
TIMV
TIMN
UCAZ
UCAZ
IFRM
IFRN
IFRV
ERAN
RAV
DR
ECCE
CCLU
AWMX
AWAV
AWMN
UCAZ
UCAZ
UCAZ
UCAZ
TIMK
TIMV
TIMN
UCAZ
UCAZ
IFRM
IFRN
IFRV
ERAN
RAV
DR
ECCE
CCLU
AWMX
AWAV
AWMN


UCAZ
UCAZ
UCAZ
UCAZ
UCAZ
IRMX
IRAV
IRMN
IRMX
IRMN
IRAV
IRAV
IRAV
IRAV
SR
CCLU
AWMX
AWAV
AWMN
IRMX
IRAV
IRMN





Format: USI_CompositeLarge Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 02:38

OP System Version: 9C0-413

BC36

USIF-A	OPS-KP2	CBT-EB	OPS-KP2
5G7-L	OPS-KP2	CAL-Y	OPS-KP2
TOC-B	OPS-KP2		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error	
(1.5 - 2.5)	UFLG 2	Pulse origin not detected	
(2.5 - 3.5)	UFLG 3	UTIM error	

(2.5 - 3.5)	UFLG 3	WINLEN	error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS	error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING	error

USI : LOW Frequency Compression Mode Used For Logging.
Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value	
AGMN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	20	DB
ANGO	ANGULAR OFFSET	-10	DEG
DEN	Bed Echo Rejection	ON	
CSID	Casing outer diameter	244.5	MM
CWEI	Casing Weight/ diameter	216.00	KG/M
CWTI	Casing Weight	79.62	KG/M
DFVL	Default fluid velocity	640	US/F
DFWT	Default Mud	1.0	G/C3
DOT	Diameter of Transducer sensor	133.3	MM
EMXV	Value for EMEX voltage	30	V
EMXI	Value for EMEX modulation interval	2	M
IMAN	Image Rotation	-0	
MW	Mud weight	1000	K/M 3
PP	Playback Processing	NORMAL	
RCOD	Reference calibrator Outer diameter	177.8	MM
RCID	Reference calibrator diameter	34.0	MM
RCTO	Reference calibrator thickness	7.94999	MM
TCUS	T 3 Processing level	Var_5.000	
TMIN	Minimum search thickness (percentage of nominal)	140	
THGL	Minimum search thickness (percentage of nominal)	140	
THNO	Nominal thickness of casing	13.810	MM
USTO	Ultrasonic Time Offset	-2	US
USWS	USIT Sub identifier	Sub_5_68_Inch	
USWM	USIT Measurement mode	SCAN_ONLY	
VCAS	Velocity of sound in casing	169.620	US/F
WLEN	T 3 processing length	29	US
ZMIN	Minimum Z	0	M LV
ZMAX	Acoustical impedance of mud	1.75	MR LV
ZTCO	Impedance Threshold for Contaminated Cement	2.1	MR LV
ZTCE	Acoustical impedance threshold for Cement	2.6	MR LV
ZTGO	Acoustical impedance threshold for Gaseous	0.3	MR LV
ZTGS	Acoustical impedance threshold for Gas	0.3	MR LV

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8	PRODUCER	20-Sep-1999 02:38		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3140.2 M	-19.4 M

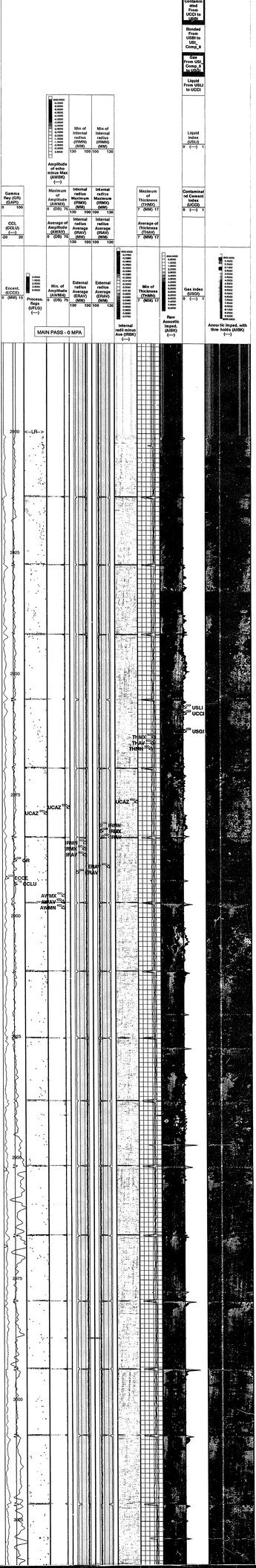
Output DLIS Files

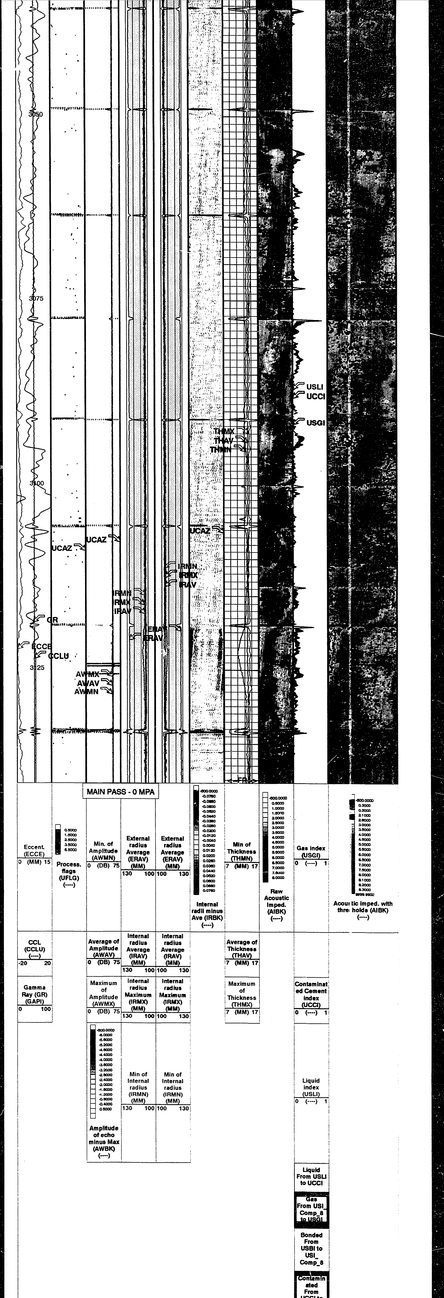
DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36	3140.4 M	3781.3 M

OP System Version: 9C0-413

MCM

USIT-A	OPB-KP2	CBT-E8	OPB-KP2
9071-L	OPB-KP2	CAL-Y	OPB-KP2
TCC-B	OPB-KP2		





MAIN PASS - 0 MPA

Eccent. (ECCE) 0 (MM) 15 | Process. flags (UFLG) (----) | Min. of Amplitude (AWMN) 0 (DB) 75 | External radius Average (ERAV) (MM) 130 100 100 130 | External radius Average (ERAV) (MM) 130 100 100 130 | Internal radii minus Ave (IRBK) (----) | Min of Thickness (THMN) 7 (MM) 17 | Raw Acoustic Imped. (AIBK) (----) | Gas index (USGI) 0 (----) 1 | Acoustic Imped. with thre holds (AIBK) (----)

CCL (CCLU) (----) -20 20 | Average of Amplitude (AWAV) 0 (DB) 75 | Internal radius Average (IRAV) (MM) 130 100 100 130 | Internal radius Average (IRAV) (MM) 130 100 100 130 | Average of Thickness (THAV) 7 (MM) 17

Gamma Ray (GR) (GAPI) 0 100 | Maximum of Amplitude (AWMX) 0 (DB) 75 | Internal radius Maximum (IRMX) (MM) 130 100 100 130 | Internal radius Maximum (IRMX) (MM) 130 100 100 130 | Maximum of Thickness (THMX) 7 (MM) 17 | Contaminated Cement index (UCCI) 0 (----) 1

Amplitude of echo minus Max (AWBK) (----) | Min of Internal radius (IRMN) (MM) 130 100 100 130 | Min of Internal radius (IRMN) (MM) 130 100 100 130 | Liquid index (USLI) 0 (----) 1

Liquid From USLI to UCCI

Gas From USI_Comp_8 to USGI

Bonded From USBI to USI_Comp_8

Contaminated From UCCI to USBI

Format: USI_CompositeLarge Vertical Scale: 1:240 Graphics File Created: 20-Se >1999 01:36

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBIT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

USI : LOW Frequency Compression Mode Used For Logging.
Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

DLIS Name	Description	Value
AGMN	Minimum gain of cartridge	-4 DB
AGMX	Maximum gain of cartridge	40 DB
AMGO	ANGULAR OFFSET	10 DEGI
BERJ	Bad Echo Rejection	ON
CDIA	Casing outer diameter	244.5 MM
CSID	Casing internal diameter	216.868 MM
CWGT	Casing Weight	79.62 KG M
DFVL	Fluid sound velocity	635 US/F
DO	Depth Offset	0 M
DOT	Diameter of Transducer sensor	123.5 MM
EMXV	Valve for EMEX voltage	40 V
FDII	FFM Data Interpolation Interval	0 M
IMAR	Image Rotation	OFF
PFM	Pulse Firing	K/N 3
PP	Playback Processing	NORMAL
RCOD	Reference calibrator Outer diameter	177.8 MM
RCSO	Reference calibrator standoff	24.9999 MM
RCTH	Reference calibrator thickness	7.69808 MM
TCOD	T 2 Processing level	Vaz_Loop
THDL	Minimum search thickness (percentage of nominal)	140
THDU	Maximum search thickness (percentage of nominal)	60
THNO	Nominal thickness of casing	13.816 MM
USTO	Ultrasonic Time Offset	-2 US
USUB	USIT Sub identifier	Sub_9_58_inch
UWKM	Current working mode	SDEG_sIN_LF
WCAS	Nominal weight of casing	168.839 US/F
WLEN	T 2 processing length	13 US
ZINI	Initial z value	-3 MR LY
ZMUD	Acoustical impedance of mud	1.75 MR LY
ZTCC	Impedance threshold for Contaminated Cement	3.1 MR LY
ZTCM	Acoustical impedance threshold for Cement	2.6 MR LY
ZTGC	Acoustical impedance threshold for Gaseous	0.3 MR LY
ZTGS	Acoustical impedance threshold for Gas	0.3 MR LY

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3160.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36	

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21	3143.9 M	3036.9 M

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBIT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Contaminated From UCCI to USBI

Bonded From USBI to USI_Comp_8

Gas From USI_Comp_8 to USGI

Liquid From USLI to UCCI

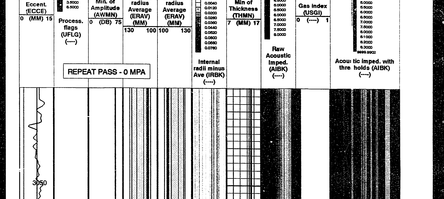
Amplitude of echo minus Max (AWBK) (----) | Min of Internal radius (IRMN) (MM) 130 100 100 130 | Min of Internal radius (IRMN) (MM) 130 100 100 130 | Liquid index (USLI) 0 (----) 1

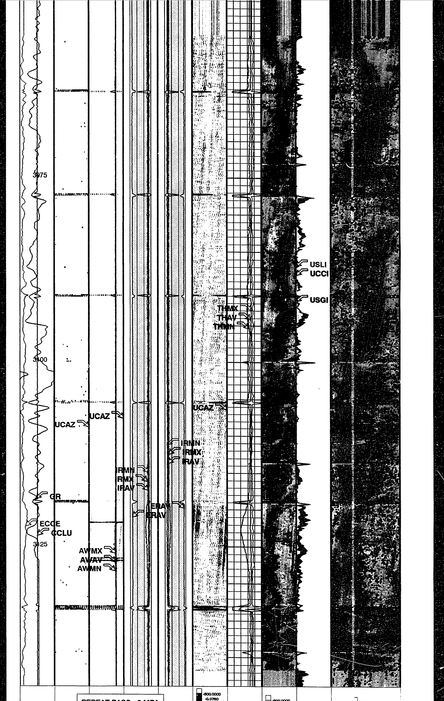
Gamma Ray (GR) (GAPI) 0 100 | Maximum of Amplitude (AWMX) 0 (DB) 75 | Internal radius Maximum (IRMX) (MM) 130 100 100 130 | Internal radius Maximum (IRMX) (MM) 130 100 100 130 | Maximum of Thickness (THMX) 7 (MM) 17 | Contaminated Cement index (UCCI) 0 (----) 1

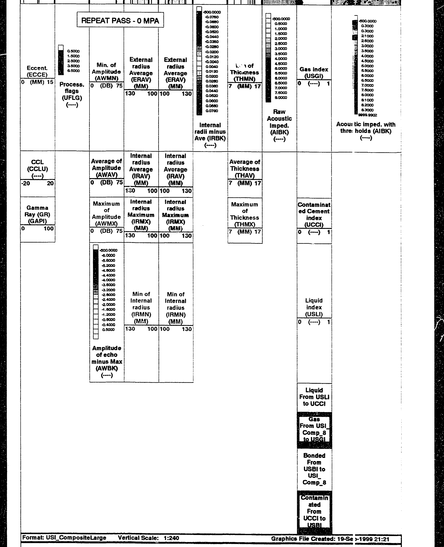
CCL (CCLU) (----) -20 20 | Average of Amplitude (AWAV) 0 (DB) 75 | Internal radius Average (IRAV) (MM) 130 100 100 130 | Internal radius Average (IRAV) (MM) 130 100 100 130 | Average of Thickness (THAV) 7 (MM) 17

Eccent. (ECCE) 0 (MM) 15 | Process. flags (UFLG) (----) | Min. of Amplitude (AWMN) 0 (DB) 75 | External radius Average (ERAV) (MM) 130 100 100 130 | External radius Average (ERAV) (MM) 130 100 100 130 | Internal radii minus Ave (IRBK) (----) | Min of Thickness (THMN) 7 (MM) 17 | Raw Acoustic Imped. (AIBK) (----) | Gas index (USGI) 0 (----) 1 | Acoustic Imped. with thre holds (AIBK) (----)

REPEAT PASS - 0 MPA







Format: USI_CompositeLarge Vertical Scale: 1:240 Graphics File Created: 19-Se >1999 21:21

OP System Version: 9C0-413

USIT-A	OPs-KP2	CBT-EB	OPs-KP2
SGT-L	OPs-KP2	CAL-Y	OPs-KP2
TCC-B	OPs-KP2		

MCM

COMPUTATION FLAGS LABELLING

(0 - 1.5)	UFLG 1	UTIM error
(1.5 - 2.5)	UFLG 2	Pulse origin not detected
(2.5 - 3.5)	UFLG 3	WINLEN error
(3.5 - 6.5)	UFLG 4 UFLG 5 UFLG 6	CASING THICKNESS error
(6.5 - 10)	UFLG 7 UFLG 8 UFLG 9	LOOP PROCESSING error

USI : LOW Frequency Compression Mode Used For Logging.
Recommended casing thickness range for optimum cement impedance measurement : 0.27 to 0.6 IN.

Parameters

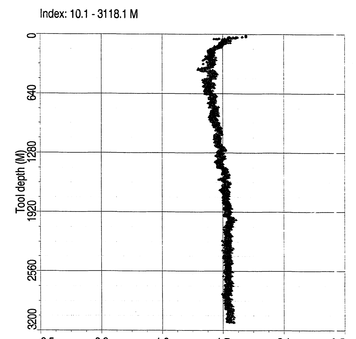
DLIS Name	Description	Value
AGMN	Minimum gain of cartridge	-6 DB
AGMX	Maximum gain of cartridge	40 DB
ANGO	ANGULAR OFFSET	-10 DEG
BERJ	Bad Echo Rejection	ON
CDIA	Casing outer diameter	244.5 MM
CSID	Casing internal diameter	216.668 MM
DFVL	Default fluid velocity	79.52 IG M
DFVL	Default fluid velocity	1.5 US/F
DO	Depth Offset	0.0 M
DOT	Diameter of Transducer sensor	123.8 MM
EMXV	Value for EMEX voltage	30 V
FIM	FPM Data Interpolation Interval	0 M
IMAR	Image Rotation	OFF
PF	Pulse Freq	120 K/s 3
PP	Playback Processing	NORMAL
RCOD	Reference calibrator Outer diameter	177.8 MM
RCSO	Reference calibrator standoff	34.9999 MM
RCTH	Reference calibrator thickness	7.49808 MM
THDL	Max thickness search	Vas_Loop
THDH	Max thickness search thickness (percentage of nominal)	120
THDL	Minimum search thickness (percentage of nominal)	60
THNO	Nominal thickness of casing	13.816 MM
USTO	Ultrasonic Time Offset	-2 US
USUB	USIT Sub Identifier	Sub_9_58_inch
VCAM	Current working mode	SDEG_sIN_LF
VLEN	Velocity length of casing	168.530 US/F
WLEN	T 2 processing length	1 US
ZIN0	Initial z value	-1 MR LV
ZMUD	Acoustical impedance of mud	1.75 MR LV
ZTCC	Impedance threshold for Contaminated Cement	2.1 MR LV
ZTCE	Acoustical impedance threshold for Cement	2.6 MR LV
ZTGC	Acoustical impedance threshold for Gaseous	0.3 MR LV
ZTGS	Acoustical impedance threshold for Gas	0.3 MR LV

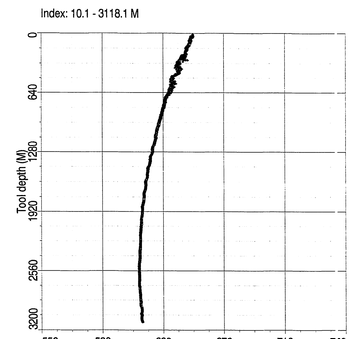
Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	X036.9 M

Output DLIS Files

DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21





COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	3140 m
WELL:	CDN FOREST ET AL FLETT N-61	SCHLUMBERGER DEPT 1	3140 m
FIELD:	FLETT	DEPTH DRILLER	3383 m
PROVINCE:	NORTHWEST TERRITORIES	KELLY BUSHING	610.7 m
		DRILL FLOOR	
		GROUND LEVEL	604 m

Schlumberger

ULTRASONIC CEMENT IMAGER LOG

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

1863 NEB

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT N-61

FIELD: FLETT

PROVINCE: NORTHWEST TERRITORIES

New Home # North Liard N-61

Schlumberger **COMPENSATED CEMENT BOND LOG**

Latitude: 60 DEGREES 30' 46.080"		Elev.: K.B. 610.7 m	
Longitude: 123 DEGREES 42' 35.912"		G.L. 604 m	
		D.F.	
Permanent Datum: GROUND LEVEL	Elev.: 604 m		
Log Measured From: KELLY BUSHING	6.7 m above Perm. Datum		
Drilling Measured From: KELLY BUSHING			

API Serial No. 1863	SECTION	TOWNSHIP	RANGE

Logging Date	16-SEP-1999
Run Number	ONE
Depth Driller	3092 m
Schlumberger Depth	3140 m
Bottom Log Interval	3138 m
Top Log Interval	4 m
Casing Fluid Type	WATER BASED MUD
Salinity	- -
Density	1045 kg/m3
Fluid Level	0 m
BIT/CASING/TUBING STRING	
Bit Size	
From	
To	
Casing/Tubing Size	244.500 mm
Weight	79.62 kg/m
Grade	
From	2784.54 m
To	3140 m
Maximum Recorded Temperatures	
Logger On Bottom Time	16-SEP-1999 20:00
Unit Number Location	2026 FORT ST. JOHN
Recorded By	C. HARDNESS
Witnessed By	W. TERRARD

NATIONAL ENERGY BOARD
SEP 29 1999
FILE

	Run 1	Run 2	Run 3	Run 4
Oil Density				
Water Salinity				
Gas Gravity				
Gas Type				
Bit				
Mud Type				
Bubble Point Pressure				
Bubble Point Temperature				
Solution GOR				
Maximum Deviation				
CEMENTING DATA				
Primary/Squeeze	Primary			
Casing String No				
Lead Cement Type				
Volume				
Density				
Water Loss				
Additives				
Tail Cement Type				
Volume				
Density				
Water Loss				
Additives				
Expected Cement Top				
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Fluid Type				
Salinity				
Density				
Fluid Level				
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size				
Weight				
Grade				
From				
To				
Maximum Recorded Temperatures				
Logger On Bottom Time				
Unit Number Location				
Recorded By				
Witnessed By				

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WILL, ACCORDING TO CONDITIONS, BE ACCEPTED OR REJECTED AT THE OPTION OF SCHLUMBERGER ENTERPRISES LIMITED AND THEIR OFFICERS AND AGENTS. THE FOREGOING CONSTITUTES THE EXCLUSIVE REMEDY OF ANY AND ALL PERSONS AND ORGANIZATIONS FOR ANY LOSS, DAMAGE OR EXPENSE ARISING FROM ANY INTERPRETATION MADE BY SCHLUMBERGER ENTERPRISES LIMITED, ITS OFFICERS, AGENTS OR EMPLOYEES. THIS INTERPRETATION IS BASED ON CONDITIONS PREVAILING AT THE TIME AND DATE OF THE RECORDING OF THE INTERPRETED INFORMATION. THIS INTERPRETATION CONTAINS THE OPINIONS OF SCHLUMBERGER ENTERPRISES LIMITED, ITS OFFICERS, AGENTS OR EMPLOYEES PRINCIPALLY BASED UPON THE RECORDS PROVIDED BY THE CLIENT FOR WHOM THIS INTERPRETATION IS MADE. THE CLIENT FOR WHOM THIS INTERPRETATION IS MADE HAS BEEN FULLY INFORMED THAT PRUDENT OPERATIONS BASED ON INTERPRETATIONS ARE A MATTER OF JUDGEMENT AND THAT SCHLUMBERGER ENTERPRISES LIMITED, ITS OFFICERS, AGENTS OR EMPLOYEES CANNOT, AND DO NOT, GUARANTEE THE ACCURACY, CORRECTNESS OR PROFITABLENESS OF ANY INTERPRETATION MADE BY THEM.

OPEN HOLE EQUIPMENT
CS1 GST
CS2 GST
CS3 GST
CS4 GST
CS5 GST
CS6 GST
CS7 GST
CS8 GST
CS9 GST
CS10 GST
CS11 GST
CS12 GST
CS13 GST
CS14 GST
CS15 GST
CS16 GST
CS17 GST
CS18 GST
CS19 GST
CS20 GST
CS21 GST
CS22 GST
CS23 GST
CS24 GST
CS25 GST
CS26 GST
CS27 GST
CS28 GST
CS29 GST
CS30 GST
CS31 GST
CS32 GST
CS33 GST
CS34 GST
CS35 GST
CS36 GST
CS37 GST
CS38 GST
CS39 GST
CS40 GST
CS41 GST
CS42 GST
CS43 GST
CS44 GST
CS45 GST
CS46 GST
CS47 GST
CS48 GST
CS49 GST
CS50 GST
CS51 GST
CS52 GST
CS53 GST
CS54 GST
CS55 GST
CS56 GST
CS57 GST
CS58 GST
CS59 GST
CS60 GST
CS61 GST
CS62 GST
CS63 GST
CS64 GST
CS65 GST
CS66 GST
CS67 GST
CS68 GST
CS69 GST
CS70 GST
CS71 GST
CS72 GST
CS73 GST
CS74 GST
CS75 GST
CS76 GST
CS77 GST
CS78 GST
CS79 GST
CS80 GST
CS81 GST
CS82 GST
CS83 GST
CS84 GST
CS85 GST
CS86 GST
CS87 GST
CS88 GST
CS89 GST
CS90 GST
CS91 GST
CS92 GST
CS93 GST
CS94 GST
CS95 GST
CS96 GST
CS97 GST
CS98 GST
CS99 GST
CS100 GST

RUN 1

RECORD OPEN HOLE
LOGS ON FILE
LOGGING INTERVAL

	START	STOP

RUN 2

RECORD OPEN HOLE
LOGS ON FILE
LOGGING INTERVAL

	START	STOP

RUN 3

RECORD OPEN HOLE
LOGS ON FILE
LOGGING INTERVAL

	START	STOP

RUN 4

RECORD OPEN HOLE
LOGS ON FILE
LOGGING INTERVAL

	START	STOP

EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

XOU-13-246
CSU-A 1-246
WRU-2 CTU-A

DOWNHOLE EQUIPMENT

RBH-A
AH-A
AH-A
TCC-B
TCC-B
CCL-A
CALY-A
CCL

SGT-L
SGT-L
SGT-L
SGT-L

Gamma Ray

AH-127
CNF-D 41-134
CNF-D 41-134
TCC-B 21-13
TCC-B 21-13

AH-119
LSRT-A
LSRT-A
LSRT-A
LSRT-A

20.64
20.10
19.69
19.78
19.78
19.47
17.41
17.71
16.03
15.72
7.65
6.54
6.23
0.08
0.00

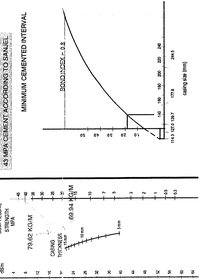
Cutrite
UBI Sensor
UBI Sensor

MAXIMUM RECORDED TEMPERATURE
XOU-AH-RBH-19.3DEG-LSRT-19.3DEG-ZERO
ALL DIALS TO 0 AND ZERO

RUN 2

FIELD INTERPRETATION

244.5 MM - 79.62 KG/M & 88.94 KG/M
43 MPA CEMENT ACCORDING TO SANJEL



BOND INDEX = ATTENUATION IN ZONE OF INTEREST (dB/m) / ATTENUATION IN WELL CEMENTED ZONE (dB/m)

1.0 BOND INDEX ==== 32.5 / 32.5 dB/m
0.8 BOND INDEX ==== 32 / 39.8 dB/m

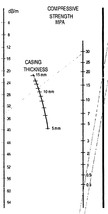
HYDRAULIC ISOLATION IN 244.5 mm CASING

REQUIRES ~4.0 ~ MS THICKNESS 0.8 BOND INDEX

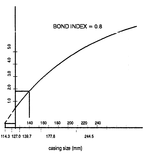
FIELD INTERPRETATION

244.5 MM - 64.73 KG/M

29 MPA CEMENT ACCORDING TO SANJEL



MINIMUM CEMENTED INTERVAL



$$\text{BOND INDEX} = \frac{\text{ATTENUATION IN ZONE OF INTEREST (dB/m)}}{\text{ATTENUATION IN WELL CEMENTED ZONE (dB/m)}}$$

1.0 BOND INDEX ⟹ 34 dB/m

0.8 BOND INDEX ⟹ 27 dB/m

HYDRAULIC ISOLATION IN : 244.5 mm CASING

REQUIRES: 4.5 METERS OF 0.8 BOND INDEX

Input DLIS Files

DEFAULT	USIT .008	FN:7 PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8 PRODUCER	20-Sep-1999 02:38	1520.0 M	4.1 M

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
CWEI	64.73 KG/M	79.62 KG/M	0.0 02:38:30
	79.62 KG/M	64.73 KG/M	285.0 02:01:48
MATS	37.95 DB/M	35.75 DB/M	0.0 02:38:46
MATT	34.5 DB/M	35.5 DB/M	0.0 02:38:46
ZMUD	1.7 MRAY	1.75 MRAY	0.0 02:39:34
	1.65 MRAY	1.7 MRAY	825.0 02:54:27

PIP SUMMARY

Time Mark Every 60 S

Cable Tension (TENS)
25000 (N) 0

USIT CCL (IRMX)
50 (MM) 65

CCL (CCLU)
-36 (---) 4

Transit Time 2 (TT2C)
350 (US) 150

Gamma Ray (GR)
0 (GAPI) 100

Transit Time 6 (TT6C)
250 (US) 50

DBI > 80% BOND

SBI > 80% BOND

MAIN PASS UPPER ZONE - 0 MPA

FROM STAGE TOOL TO SURFACE

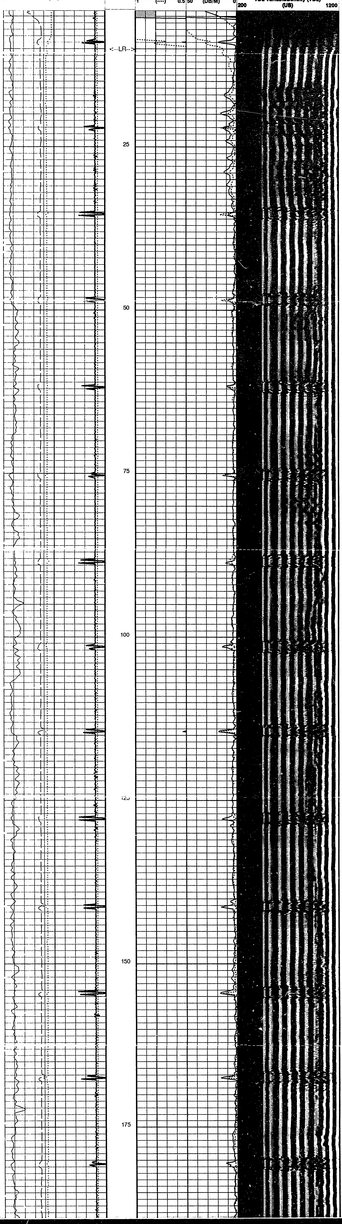
Short Bond Index (SBI)
1 (---) 0.5

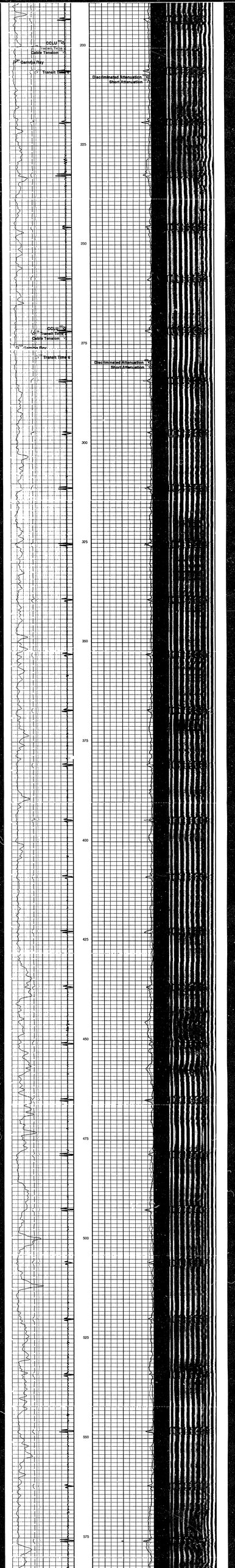
Discriminated Attenuation (DATN)
50 (DB/M) 0

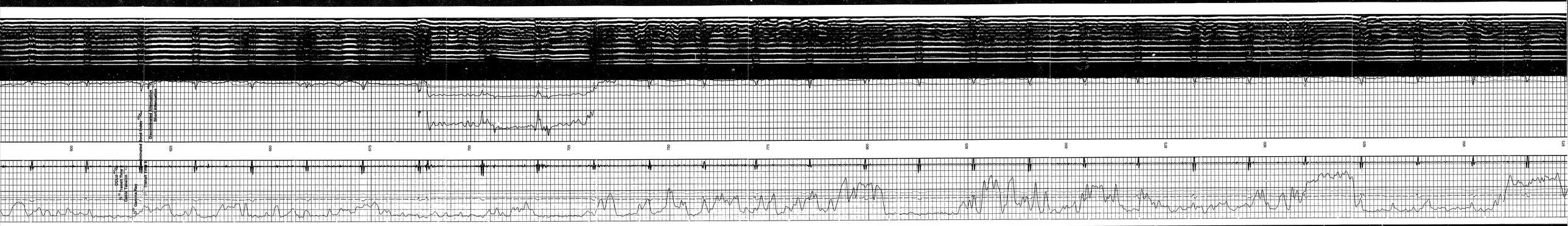
Discriminated Bond Index (DBI)
1 (---) 0.5

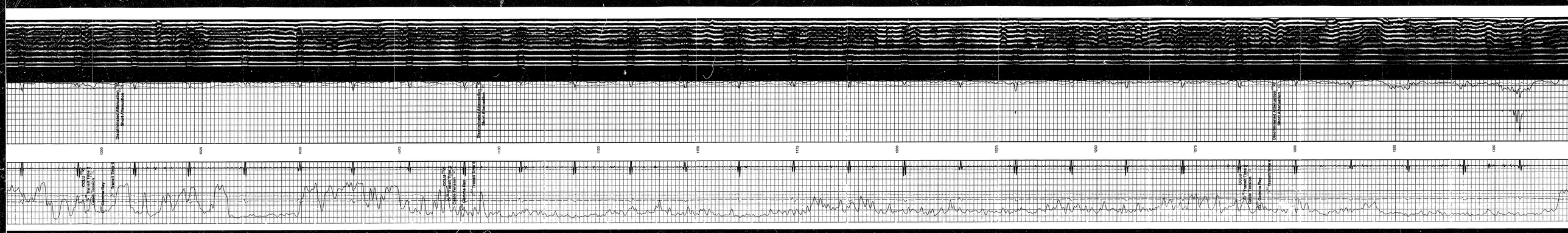
Short Attenuation (SATN)
50 (DB/M) 0

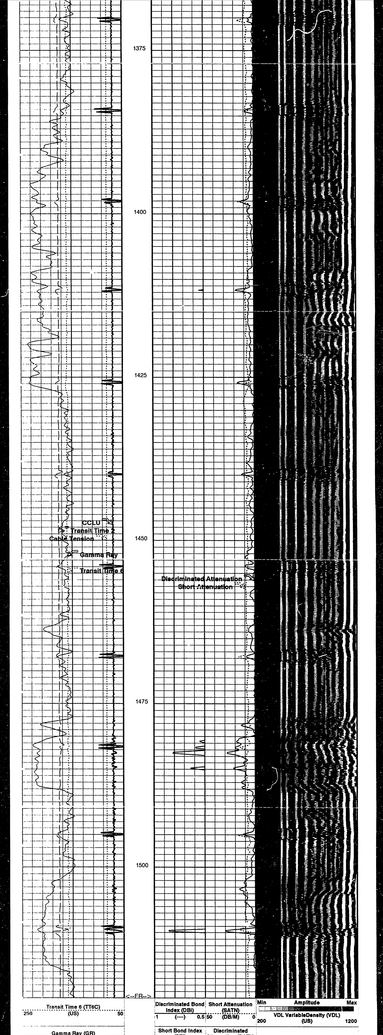
Min Amplitude Max
VDL VariableDensity (VDL)
200 (US) 1200




CCLU
Transit Time 1
Cable Tension
Gamma Ray
Transit Time 2
Discriminated Attenuation
Short Attenuation
CCLU
Transit Time 1
Cable Tension
Gamma Ray
Transit Time 2
Discriminated Attenuation
Short Attenuation
200
225
250
275
300
325
350
375
400
425
450
475
500
525
550
575


Discriminated Input (mV) 50
Discriminated Transition
Short Attenuation
600
625
650
675
700
725
750
775
800
825
850
875
900
925
950
975
Gamma Ray
Transit Time
Short Attenuation


Discriminated Attenuation
Shot / Detonation
Discriminated Attenuation
Shot / Detonation
Discriminated Attenuation
Shot / Detonation
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275
1300
1325
1350
Gamma Ray
Transit Time
Gamma Ray
Transit Time
Gamma Ray
Transit Time
Gamma Ray
Transit Time



PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	Correxion range maximum	1.9304	MM
	T-2 processing length for FPM	26.040	US
	Correxion range minimum	-1.9304	MM
AGC	Automatic gain control	ON	
AGMIN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	30	DB
ALTCH	Alternate channel number	0	
ALTDPCHN	Alternate depth channel name	TVDS	
ANGO	ANGULAR OFFSET	-10	DEG
BELL	Bell Filter Selected	ON	
BI1	Bond Index Level of Zone Isolation	0.3	
B9	B9 Size	203.200	MM
BSAL	Borehole Salinity	-500*,200	PPM
CCLD	CCL reset delay	305	MM
CCLO	CCL offset	0.0	V
CDLT	CDL detection level	0.3	
CDIA	Casing outer diameter	244.5	MM
CDIN	Casing Index	1	
CMPM	Computation Mode	ALL	
CSID	Casing internal diameter	216.888	MM
CSIZ	Current Casing Size	244.500	MM
CWEI	Cycle Skip Recovery Logic Algorithm	OFF	
CWSI	Casing Weight	76.42	KG/M
CYST	Casing Yield Strength	551	KPA
DHOL	Digitizing Delay	0.00	S
DPAV	Delta-T Average Velocity	1040.000	M/S
DPVL	Default fluid velocity	840	US/M
DO	Depth Offset	0.1	M
DOFF	Delta-T Sonic Transducer sensor	123.8	MM
DPRM	Density Periodicity Processing Mode	STAN	
DSIN	Digitizer Sample interval	2	US
DTMO	Delta-T Mud	650	US/M
DWCO	Digitizer Word Count	250	
EDIA	Effective Diameter	0.0	M
EMIV	Value for EMIX voltage	30	V
FDI	FPM Data interpretation Interval	0	M
FDSG	Digitizer Sampling Gate	314	US
FTIM	For Transit Time Minimum	324.000	US
GAI	Manual Gain	25	
GOBO	Good Bond	-2	MV
HAIR	Image Rotation	OFF	
HBSI	Header Attenuation Short	0.0	DB/M
HATT	Maximum Attenuation	32.0	DB/M
MCSL	Mean Casing Slowness	187.008	US/M
MDEP	Measured Depth	2800.0	M
MODE	Firing Mode	511	
MST	Mud Sample Temperature	-50000.00	DEGC
MUXI	Multiplexer input	ROVR	
NPV	Near Peak Value	1045	KOHM
NPAS	Near Phase Sonic Amplitude	0.0	MV
NRSG	Near Minimum Sliding Gate	257	US
NTIM	Near Transit Time Minimum	267.001	US
PBACKP	Playback Processing playback enabled	ON	
PP	Playback Processing	NORMAL	
RSIR	R3 to R2 Sensitivity Ratio	0	DB/M
RSTA	Firing Rate	70	
RCSI	Reference calibrator Inner diameter	177.8	MM
RCSO	Reference calibrator standoff	34.9999	MM
RCTH	Reference calibrator thickness	7.68888	MM
RMFS	Resistivity of Mud Filtrate Sample	-50000.0000	OHMM
RMS	Resistivity of Mud Sample	-50000.0000	OHMM
SALL	Sonic Amplitude Lower Limit	0.00	MV
SFIL	Short Free Pipe Sonic Amplitude	150	MV
SFIN	Short Index	0.3	
SLEV	Signal Level for ASC	0.0	MV
SMSG	Short Minimum Sliding Gate	245	US
SVBT	UBIT Sub type	Sub_9_58_Inch_S	
SWW	Sonic Window Width	13	MS
TCAL	Temp Calibration	ON	
TDUB	T-3 Processing level	Vav_Lower	
TD	Total Depth	-30000	M
TDD	Total Depth - Driller	3048.00	M
TL	Total Depth - Logger	3140.00	M
THDH	Maximum search thickness (percentage of nominal)	140	
THDL	Minimum search thickness (percentage of nominal)	60	
THNC	Nominal thickness of casing	13.816	MM
TMOD	Tool Mode	PRIM	
TRAN	Transmitter	ON	
TVEF	Transit Time Correction Factor	15	US
TWCF	Transit Time Correction Algorithm	OFF	
TWS	Temperature of Cylinder Water Sample	37.79	DEGC
UGAI	Uphole Gain	0.0	
UPAT	Uphole Pattern	Pattern_200K	
UPTO	Ultrasonic Time Offset	0.0	US
USUB	UBIT Sub identifier	Sub_9_58_Inch_S	
UWKW	Current working mode	SDEC_KN_LF	
VCAS	Velocity of sound in casing	199.835	US/M
VDLI	VDL Interval	0.1	
VDLM	VDL Firing Mode	LTRI	
VMSG	Very Far Minimum Sliding Gate	400	US
WCAL	Waveform Correction Algorithm	ON	
WLEN	T-2 processing length	26	US
ZIN	Initial z value	-1	MRAY
ZMUD	Acoustical impedance of mud	1.73	MRAY
ZTCC	Impedance threshold for Contaminated Cement	2.1	MRAY
ZTGC	Acoustical Impedance threshold for Gas Cut	0.3	MRAY
ZTGC	Acoustical Impedance threshold for Gassy	0.3	MRAY
ZTGS	Acoustical Impedance threshold for Gas	0.3	MRAY

Format: CST_VDL Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 02:38

OP System Version: 9C0-413

MCM

USIT-A	OPX-KP2	CBT-EB	OPX-KP2
SGT-L	OPX-KP2	CAL-Y	OPX-KP2
TCC-B	OPX-KP2		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M -19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8	PRODUCER	20-Sep-1999 02:38	

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3140.2 M -19.4 M

Output DLIS Files

DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36	3140.4 M 2781.3 M

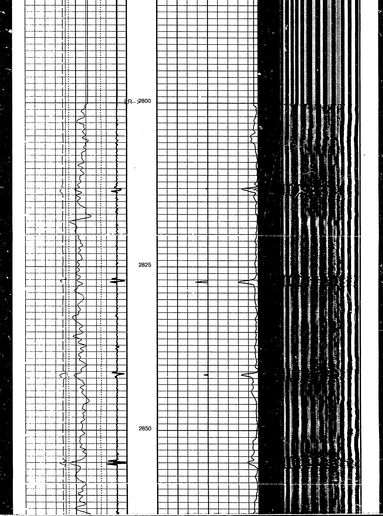
OP System Version: 9C0-413

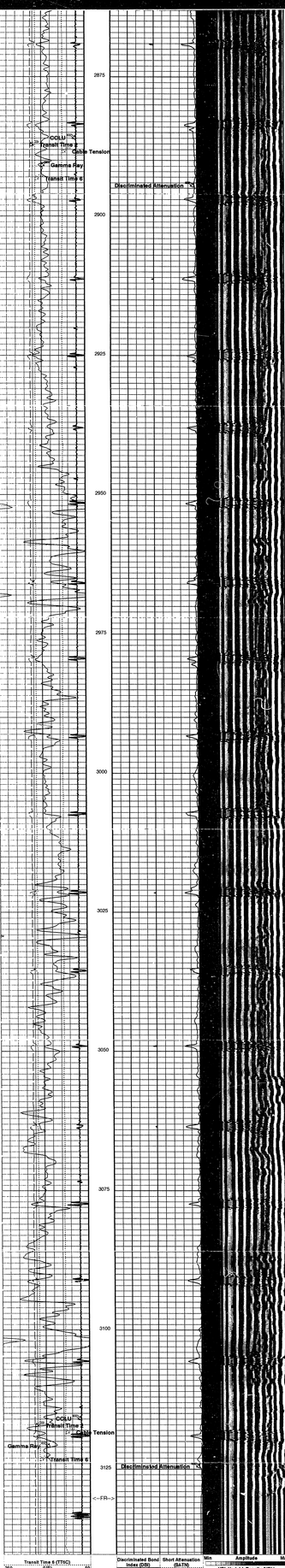
MCM

USIT-A	OPX-KP2	CBT-EB	OPX-KP2
SGT-L	OPX-KP2	CAL-Y	OPX-KP2
TCC-B	OPX-KP2		

PIP SUMMARY

Time Mark Every 60 S





PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
	Corrosion range minimum	-1.6304 MM
	Corrosion range maximum	1.9304 MM
	Minimum gain of cartridge for PPM	28.00 US
AGC	Automatic Gain Control	ON
AGMN	Minimum gain of cartridge	-4 DB
AGMX	Maximum gain of cartridge	20 DB
AMPD	Amplitude Gate Peak Detection	58 US
ANGCHAN	Angular channel short name	TVDU
ANGO	ANGULAR OFFSET	10 DEG
BERJ	Bad Echo Rejection	ON
BI	Borehole Index	0
BS	Bit Size	-50000.00 MM
BSAL	Borehole Salinity	-50000.00 PPM
CCLD	CCL Delay Time	30 MM
CCLG	CSG CCL Gain	10
CCLT	CCL detection level	0.3 V
CDIA	Casing outer diameter	244.5 MM
CDUN	Drill Units	IN
CEMM	Cementation Mode	FAST
CBID	Casing Internal diameter	216.985 MM
CBIZ	Current Casing Size	244.500 MM
CWD	Casing Weight Recovery Logic Algorithm	0
CWG	Casing Weight	70.42 KG/M
CYST	Casing Yield Strength	5 KPA
DDEL	Digitizing Delay	200 US
DFDL	Default Fluid Density	1046.00 KG/M3
DFVL	Default Fluid Velocity	1524.0 M/S
DO	Depth Offset	51 M
DOT	Diameter of Transducer sensor	12.8 MM
DPMM	Digitizer Data Processing Mode	97445
DSIN	Digitizer Sample Interval	4 US
DTMD	Delta-T Mud	630 US/M
DWCO	Digitizer Word Count	200
EMCV	Value for EMEX mode	0
EMXV	Value for EMEX voltage	90 V
FDI	FPM Data Interpolation interval	0 M
FMSG	Far Minimum Sliding Gate	918 US
FMSL	Far Gate Sliding Minimum	326.00 US
GAI	Manual Gain	75
GOBO	Good Bond	2 MV
GRC	Gain Correction	LOW
MATS	Maximum Attenuation Short	35.70 DB/M
MATT	Maximum Attenuation	32.5 DB/M
MCS	Mean Casing Slowness	197.268 US/M
MGAI	Maximum Gain	4000
MGSL	Minimum Gain	0.00
MST	Mud Sample Temperature	-5000.00 DEGC
MUXI	Multiplexer Input	7ICVR
NFD	Near Field	1000 KHZ
NFP	Near Free Pipe Sonic Amplitude	75 MV
NMSG	Near Minimum Sliding Gate	269 US
NTW	Near Transit Time Window	266.032 US
PDVSADP	Amplitude Threshold playback enabled	ON
PIM	Playback Processing	NORMAL
RDR	R0 to R2 Sensitivity Ratio	0 DB/M
RATE	Firing Rate	77.5
RCCD	Reference calibrator Outer diameter	244.500 MM
RCSO	Reference calibrator standoff	34.0000 MM
RCTH	Reference calibrator thickness	7.49800 MM
RMFS	Resistivity of Mud Filtrate Sample	-50000.00 OHMM
RMW	Resistivity of Connate Water	1.0000 OHMM
SALL	Sonic Amplitude Lower Limit	0.5 MV
SAU	Short Free Pipe Sonic Amplitude	150 MV
SGAD	Sliding Gate	0.00
SGAI	Sliding Gain for AGC	0.00 MV
SMUC	Short Minimum Sliding Gate	147 US
SUST	USIT Sub type	Sub_9_58_Inch_B
TCWI	Casing Thickness Width	0.5 MS
TICA	Tt Correction	ON
TCUB	T 3 Processing level	Vax_Lo00
TD	Total Depth	30000 M
TDC	Total Depth - Driller	3333.00 M
TDL	Total Depth - Logger	-50000.00
THSH	Maximum search thickness (percentage of nominal)	10
THDL	minimum search thickness (percentage of nominal)	40
TMCW	Mud Thicknesss of casing	13.8 MM
TMUC	Mud Type	WBM
TRAN	Transducer	ON
TTCF	Transit Time Correction Factor	0.0 US
TVCA	Transmitter Voltage Correction Algorithm	ON
TWS	Temperature of Connate Water Sample	37.78 DEGC
UGAI	Uphole Gain	33
UPAT	Emission pattern	Pattern_250K
UTOF	USIT Transducer Offset	0.0 US
USUD	USIT Sub Identifier	Sub_9_58_Inch
UWKM	Current working mode	SDEG_ON_LP
VCSI	Velocity correction in casing	Vax 8 Inch
VDLG	VDL Manual Gain	75
VDLM	VDL Firing mode	LTR1
VMSG	Very Far Minimum Sliding Gate	407 US
WBSR	Strong Echo Rejection Algorithm	ON
WLEN	Wave Train Length	24 US
ZINI	Initial value	-1 MPAY
ZMUD	Acoustical Impedance of	1.79 MPAY
ZNEW	Acoustical Impedance of Contaminated Cement	2.4 MPAY
ZTCM	Acoustical Impedance threshold for Cement	2.6 MPAY
ZTGC	Acoustical Impedance threshold for Gaseous	0.3 MPAY
ZTGS	Acoustical Impedance threshold for Gas	0.3 MPAY

Format: CBT, VDL Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 01:36

OP System Version: 9C0-413

	MCM		
USIT-A	OPX-KP2	CST-EB	OPX-KP2
SGTL	OPX-KP2	CAL-1*	OPX-KP2
TCC-B	OPX-KP2		

Input DLIS Files

DEFAULT	USIT .006	FN:7 PRODUCER	19-Sep-1999 19:50	31450.2 M	-19.4 M

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36		

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

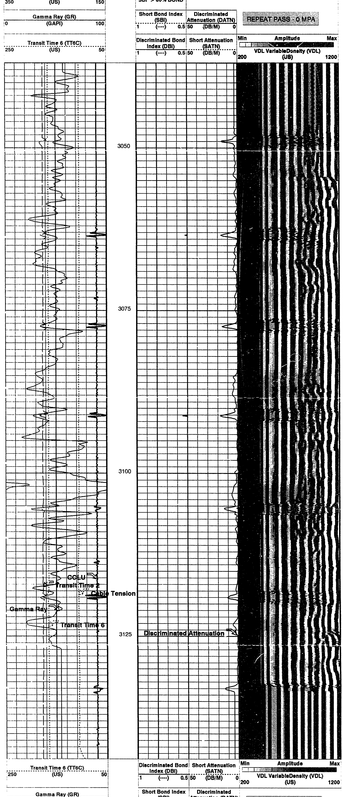
DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21	3143.9 M	3036.9 M

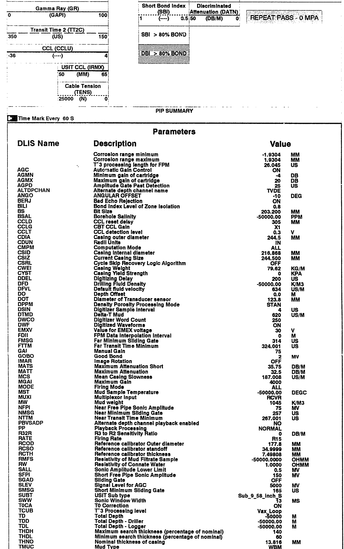
OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

PIP SUMMARY





PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
	Correction range minimum	-1.9304	MM
	Correction range maximum	1.9304	MM
	T 3 processing length for FPM	26.040	US
AGC	Automatic Gain Control	ON	
AGMIN	Minimum gain of cartridge	-4	DB
AGMX	Maximum gain of cartridge	29	DB
ANGOF	Angular Offset Of Tool Deviation	0.0	US
ANOD	Alternate depth channel name	TVDE	
ANOO	ANGULAR OFFSET	-10	DEG
BEFN	Bad Echo Rejection	ON	
BLI	Bond Index Level of Zone Isolation	0.8	
BMA	Bit Size	203.200	MM
BMAL	Borehole Salinity	-00000.00	PPM
CCLD	CCL reset delay	305	MM
CCLE	CCL Enable	ON	
CCLT	CCL detection level	0.3	V
CDIA	Casing outer diameter	244.5	MM
CDIAM	Casing Diameter	10	
CMPM	Computation Mode	ALL	
CBID	Casing internal diameter	218.868	MM
CBZ	Current Casing Size	244.500	MM
CIRL	Cycle Blip Recovery Logic Algorithm	OFF	
CSGW	Casing Weight	10.36	KG/M
CYSP	Casing Yield Strength	5	KPA
DDEL	Digitizing Delay	200	US
DFAV	Default fluid density	1000.0	KG/M3
DFVL	Default fluid velocity	1524	US/M
DO	Depth Offset	0.0	M
DOF	Diameter of Transducer sensor	103.8	MM
DPRM	Density Porosity Processing Mode	STAN	
DRHO	Default fluid density	1000	KG/M3
DTFL	Default fluid velocity	1524	US/M
DO	Depth Offset	0.0	M
DOT	Diameter of Transducer sensor	103.8	MM
DPRM	Density Porosity Processing Mode	STAN	
DTMD	Default fluid velocity	1524	US/M
DWOD	Delta T Mud	600	US/M
EAV	Digitizer Word Count	250	
EDTC	Error Detection Code	32767	
EMXV	Value for EMXV voltage	30	V
FDI	FPM Data Interpolation Interval	3	M
FMIN	Far Minimum Sliding Gate	214	US
FTRG	Fire Threshold Minimum	324.001	US
GAI	Manual Gain	0	
GOOD	Good Bond	-2	MV
IMAR	Image Rotation	OFF	
MATF	Minimum Attenuation Short	30.0	DB/M
MATP	Maximum Attenuation	32.5	DB/M
MCS	Mean Casing Slowness	187.008	US/M
MDIS	Mud Density	1000.0	
MDIT	Firing Mode	ALL	
MST	Mud Sample Temperature	-00000.00	DEGC
MUXI	Multiplexer Index	RCVR	
NBS	Noise Level	1040	KHZ
NFPI	Near Pipe Sonic Amplitude	0.0	MV
NMDG	Near Minimum Sliding Gate	257	US
NTIN	Near Transit Time Minimum	267.001	US
NTRADP	Near transit time amplitude playback enabled	OFF	
PF	Playback Processing	NORMAL	
R3JR	R3 to R2 Sensitivity Ratio	5	DB/M
RCCD	Rotation Code	0	
RCOD	Reference calliperer Outer diameter	177.8	MM
RCSO	Reference calliperer standoff	34.9999	MM
RCTH	Reference calliperer thickness	7.49999	MM
RMFS	Resistivity of Mud Filtrate Sample	-00000.0000	OHMM
RMF	Resistivity of Mud Filtrate	-00000.0000	OHMM
SALL	Sonic Amplitude Lower Limit	0.0	MV
SFPI	Short Free Pipe Sonic Amplitude	150	MV
SGRD	Sample Grid Delay	0	US
SLEV	Signal Level for AGC	5000	MV
SMSG	Short Minimum Sliding Gate	163	US
SUBT	USIT Sub type	Sub_9_58_inch_S	
SWOV	Sonic Window Width	100	MS
TCAV	Tool Centered	ON	
TCOB	T 3 Processing level	Vax_Loop	
TD	Total Depth	30000	M
TDD	Total Depth - Driller	-00000.00	M
TDL	Total Depth - Logger	-00000.00	M
THDH	Maximum search thickness (percentage of nominal)	140	
THDL	Minimum search thickness (percentage of nominal)	60	
THNO	Nominal thickness of casing	13.816	MM
TMUC	Mud Type	Water	
TRAN	Transmitter	126	
TTF3	Transit Time Correction Factor	15	US
TTFA	Transit Time Filtering Algorithm	Off	
TWS	Temperature of Cerrada Water Sample	37.78	DEGC
USAI	Uphole Gain	03	
USAV	Uphole Gain Pattern	Pattern_2000	
USFO	Ultrasonic Time Offset	0.0	US
USUI	USIT Sub identifier	Sub_9_58_inch	
UWCM	Current working mode	9DEC_0R_LP	
VCAS	Velocity of sound in casing	164.835	US/M
VDLE	VDL Enable	ON	
VDLM	VDL Firing Mode	LTRI	
VMSG	Very Far Minimum Sliding Gate	400	US
WFAM	Waveform Amplitude Algorithm	0.0	
WLEN	T 2 processing length	39	US
ZINI	Initial z value	-1	MRAY
ZMUD	Acoustic impedance of mud	1.75	MRAY
ZTCM	Acoustic impedance threshold for Contaminated Cement	2.1	MRAY
ZTGC	Acoustic impedance threshold for Cement	3.5	MRAY
ZTGG	Acoustic impedance threshold for Gaseous	0.3	MRAY
ZTGL	Acoustic impedance threshold for Gas	0.3	MRAY

Format: CBT_VDL Vertical Scale: 1:240 Graphics File Created: 19-Sep-1999 21:21

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8	PRODUCER	20-Sep-1999 02:38	1520.0 M	4.1 M

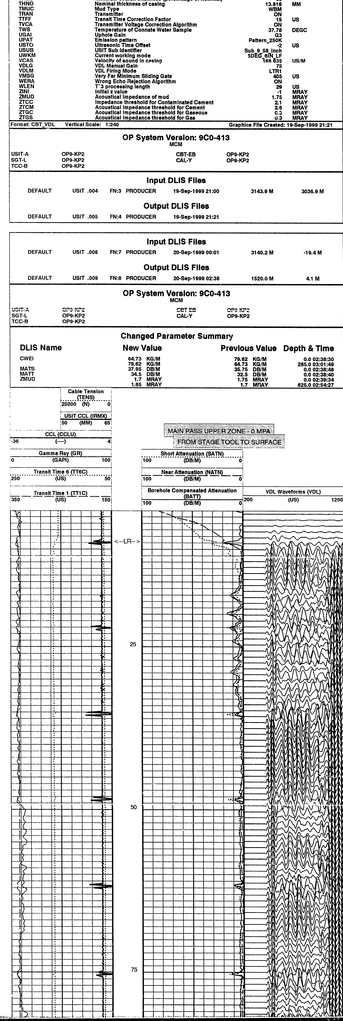
OP System Version: 9C0-413

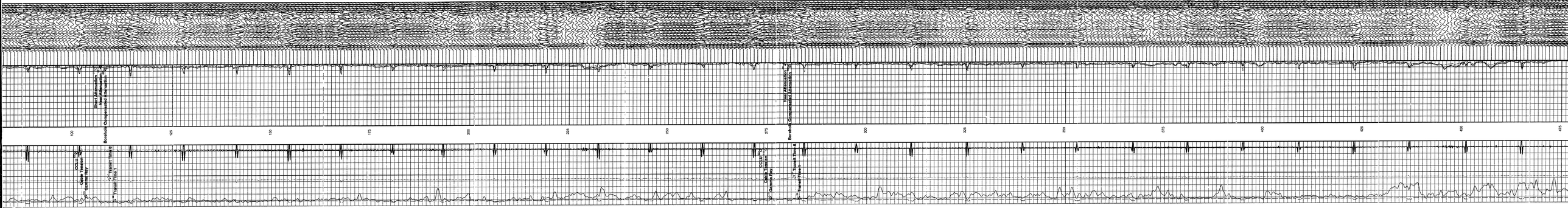
MCM

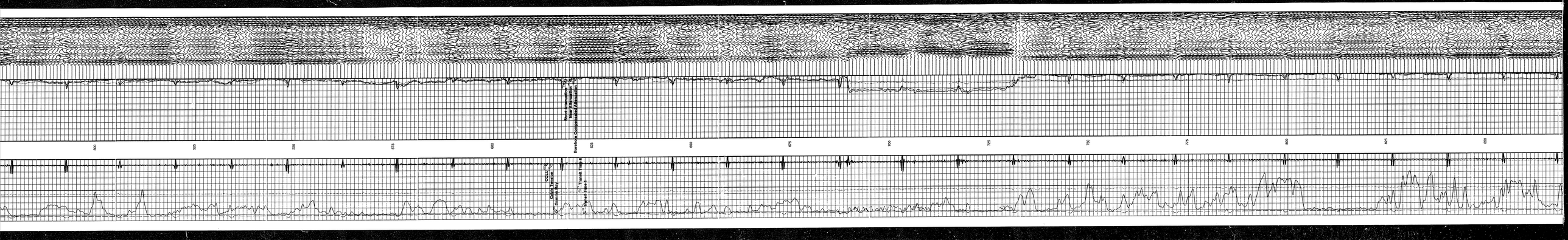
USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

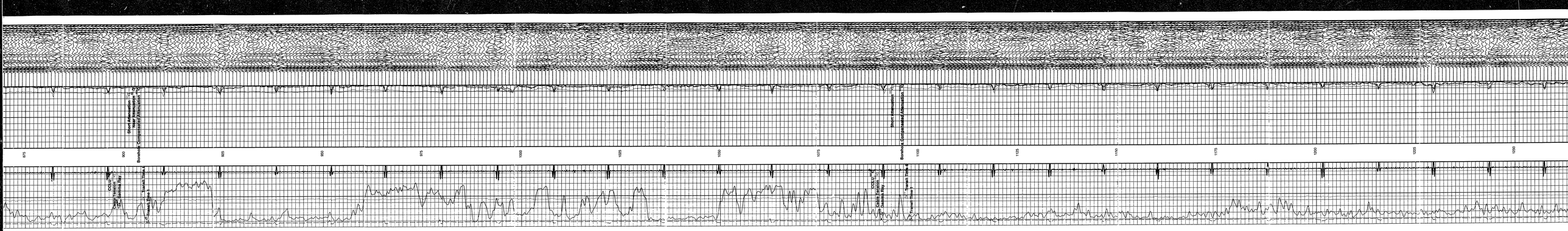
Changed Parameter Summary

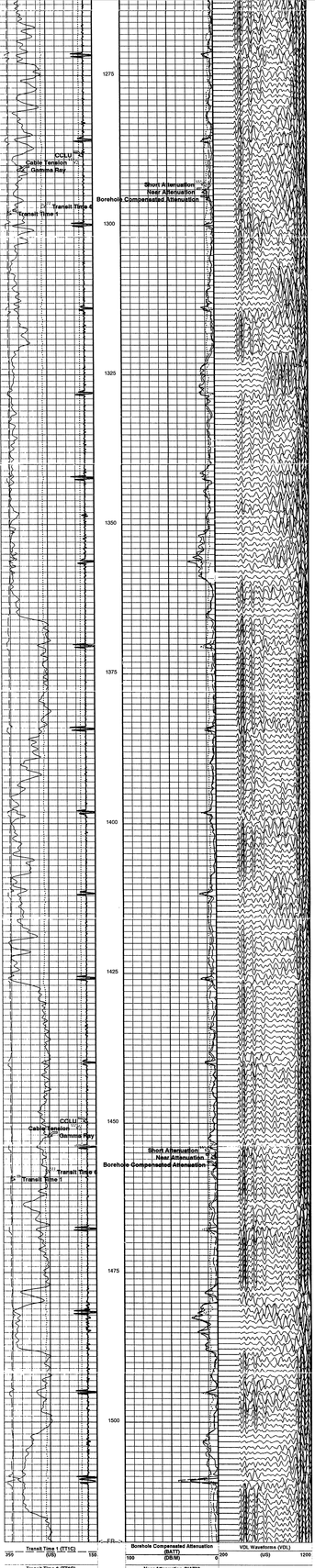
DLIS Name	New Value		Previous Value	Depth & Time
CWEI	64.73	KG/M	79.62 KG/M	0.0 02:38:30
	79.62	KG/M	64.73 KG/M	385.0 03:01:49
MATF	37.05	DB/M	35.75 DB/M	0.0 02:38:48
MATP	39.5	DB/M	37.95 DB/M	0.0 02:38:48
ZMUD	1.7	MRAY	1.76 MRAY	0.0 02:38:24
	1.65	MRAY	1.7 MRAY	625.0 02:54:27




Near Attenuation
Borehole Compensated Attenuation
Far Attenuation
Borehole Compensated Attenuation
100
125
150
175
200
225
250
275
300
325
350
375
400
425
450
475
CCL
Gate Transmitter
Current Pay
Transmit Time A
Transmit Time B
CCL
Gate Transmitter
Current Pay
Transmit Time C
Transmit Time D


Tension Increased
Tow Speed Increased
Borehole Conditions Improved
500
525
550
575
600
625
650
675
700
725
750
775
800
825
850
Cable Tension
Cable Tension, %
Current Trace 6
Current Trace 7
Current Trace 8


Short Normalized Borehole Compensated Attenuation
Borehole Compensated Attenuation
CCL1 Matrix Density Ray
Trans1 Trans
Trans1 Trans 2
Trans1 Trans 1
875
900
925
950
975
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250



Format: CBT_WAVE Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 02:38

OP System Version: 9C0-413

MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SDT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	20-Sep-1999 00:01	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .009	FN:8	PRODUCER	20-Sep-1999 02:38		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3140.2 M	-19.4 M

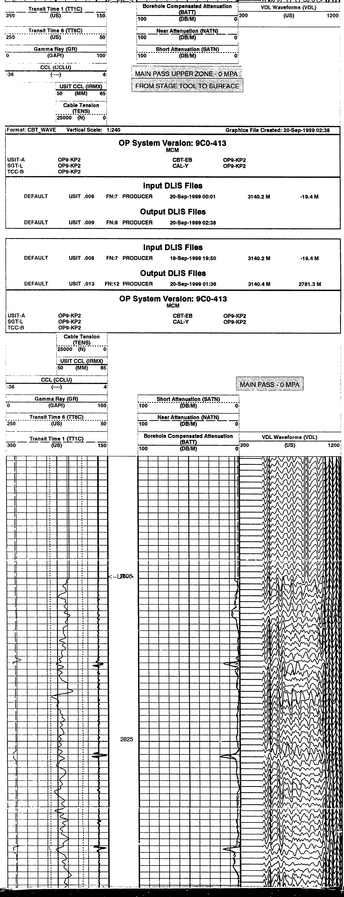
Output DLIS Files

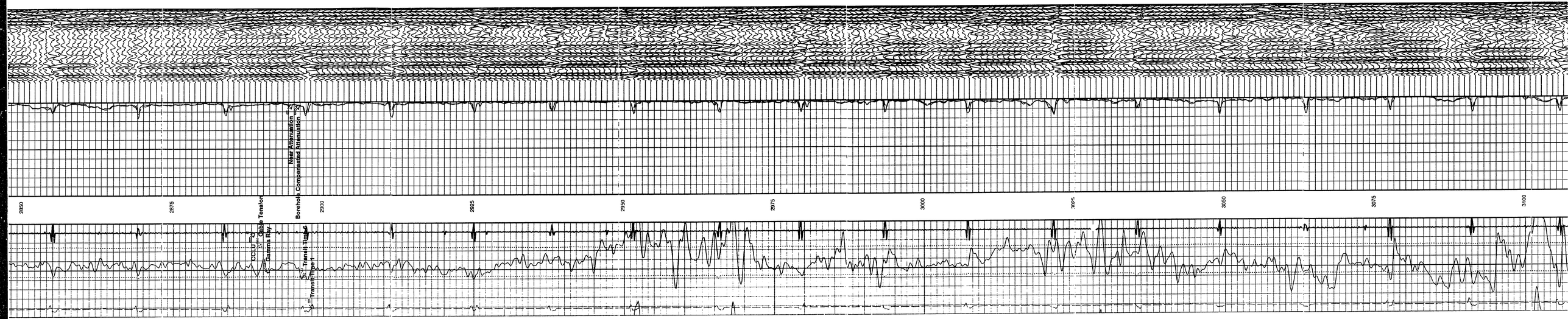
DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36	3140.4 M	2781.3 M

OP System Version: 9C0-413

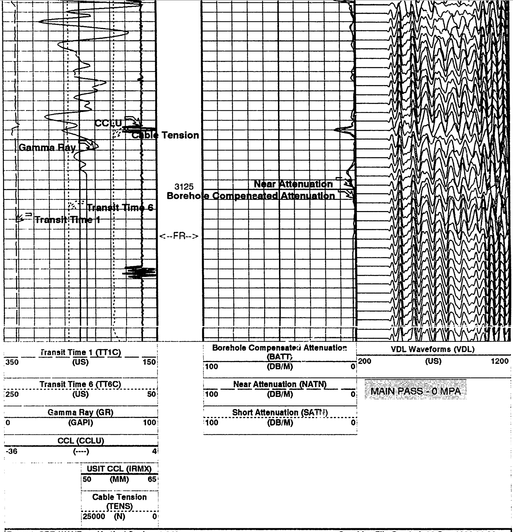
MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SDT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		





Near Attenuation
Borehole Compensated Attenuation
Cable Tension
Gamma Ray
CCLU
Transit Time 6
Transit Time 1
2850
2875
2900
2925
2950
2975
3000
3025
3050
3075
3100



Transit Time 1 (TT1C) 350 (US) 150

Transit Time 6 (TT6C) 250 (US) 50

Gamma Ray (GR) 0 (GAPI) 100

CCL (CCLU) -36 (----) 4

USIT CCL (IRMX) 50 (MM) 65

Cable Tension (TENS) 25000 (N) 0

Borehole Compensated Attenuation (BATT) 100 (DB/M) 0

Near Attenuation (NATN) 100 (DB/M) 0

Short Attenuation (SATN) 100 (DB/M) 0

VDL Waveforms (VDL) 200 (US) 1200

MAIN PASS - 0 MPA

Format: CBT_WAVE Vertical Scale: 1:240 Graphics File Created: 20-Sep-1999 01:36

OP System Version: 9C0-413
MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Input DLIS Files

DEFAULT	USIT .008	FN:7	PRODUCER	19-Sep-1999 19:50	3140.2 M	-19.4 M

Output DLIS Files

DEFAULT	USIT .013	FN:12	PRODUCER	20-Sep-1999 01:36

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21	3143.9 M	3036.9 M

OP System Version: 9C0-413
MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Cable Tension (TENS) 25000 (N) 0

USIT CCL (IRMX) 50 (MM) 65

CCL (CCLU) -36 (----) 4

Gamma Ray (GR) 0 (GAPI) 100

Transit Time 6 (TT6C) 250 (US) 50

Transit Time 1 (TT1C) 350 (US) 150

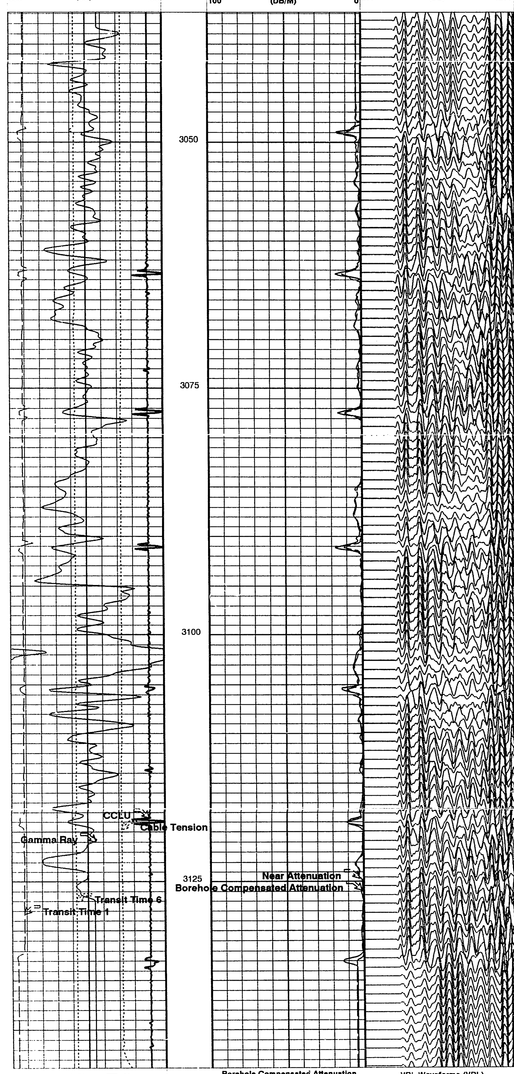
Short Attenuation (SATN) 100 (DB/M) 0

Near Attenuation (NATN) 100 (DB/M) 0

Borehole Compensated Attenuation (BATT) 100 (DB/M) 0

VDL Waveforms (VDL) 200 (US) 1200

REPEAT PASS - 0 MPA



Transit Time 1 (TT1C) 350 (US) 150

Transit Time 6 (TT6C) 250 (US) 50

Gamma Ray (GR) 0 (GAPI) 100

CCL (CCLU) -36 (----) 4

USIT CCL (IRMX) 50 (MM) 65

Cable Tension (TENS) 25000 (N) 0

Borehole Compensated Attenuation (BATT) 100 (DB/M) 0

Near Attenuation (NATN) 100 (DB/M) 0

Short Attenuation (SATN) 100 (DB/M) 0

VDL Waveforms (VDL) 200 (US) 1200

REPEAT PASS - 0 MPA

Format: CBT_WAVE Vertical Scale: 1:240 Graphics File Created: 19-Sep-1999 21:21

OP System Version: 9C0-413
MCM

USIT-A	OP9-KP2	CBT-EB	OP9-KP2
SGT-L	OP9-KP2	CAL-Y	OP9-KP2
TCC-B	OP9-KP2		

Input DLIS Files

DEFAULT	USIT .004	FN:3	PRODUCER	19-Sep-1999 21:00	3143.9 M	3036.9 M

Output DLIS Files

DEFAULT	USIT .005	FN:4	PRODUCER	19-Sep-1999 21:21

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	3130 m
		SCHLUMBERGER DEPTH	3140 m
WELL:	CDN FOREST ET AL FLETT N-61	DEPTH DRILLER	3383 m
FIELD:	FLETT	KELLY BUSHING	510.7 m
PROVINCE:	NORTHWEST TERRITORIES	DRILL FLOOR	
		GROUND LEVEL	504 m

Schlumberger

COMPENSATED CEMENT BOND LOG

N.E.B. COPY

DATALOG

HYDROCARBON WELL LOG

LEGEND

---DRILLING DATA---
BC bit condition
BS bit size
CB core bit
CBR core bit rerun
CR core
CSG casing
DC depth correction
DIR directional survey
DS deviation survey
DST drill stem test
FOB force on bit
LC lost circulation
LCM lost circ material
MM mud motor
NB new bit
PO pump output
PP pump pressure
RPM rotary speed
RR rerun bit
SPM pump strokes
TVD true vertical depth
WLL wireline log
-----MUD DATA-----
CG connection gas
CL clorides
FC filter cake
LAT logged after trip
MD mud density
NR no reading
PG produced gas
pH mud pH
SG survey gas
TG trip gas
VIS viscosity
WL water loss

SYMBOLS
Casing | Core | Drill Stem Test

Operator: Canadian Forest
Well: CDN FOREST et al FLETT NG1
Location: N61-60-30-123-42
Country: NWT, CANADA
Elevation GL: 0.0
KB: 0.0
Drilling Rig:
Spud Date:

Logging Commenced:
Depth:
Logging Completed:
Depth:
Personnel:

Scale Meters 1:240 (MD)

Comments: 1. Hydrocarbon Ratio Analysis
2. 1. Wetness Ratio
3. 2. Balance Ratio
4. 3. Character Ratio

Mud Data:
1.
2.
3.
4.
5.

Casing Data:
1.
2.
3.
4.
5.

Hole Data:
1.
2.
3.
4.
5.

Sandstone | Siltstone | Shale | Chert | Conglomerate | Limestone | Dolomite | Anhydrite | Gypsum | Marlstone | Salt | Coal | Metamorphic | Granite | Breccia | Tuff | Claystone | Serpentinite

Minerals

Chert Light
Chert Dark
Dolomitic
Feldspar
Ferruginous
Glauconite
Anhydrite
Gypsiferous
Kaolinite
Marly
Nodules
Mica
Mineral Crystals

Particles
Phosphate Pellets
Pyrite
Sulphur
Silty
Siliceous
Sandy
Salt
Bentonite
Bituminous
Calcareous
Carbonaceous
Coal Thin Beds
Dolomitic Stringers
Ferrug Stringers

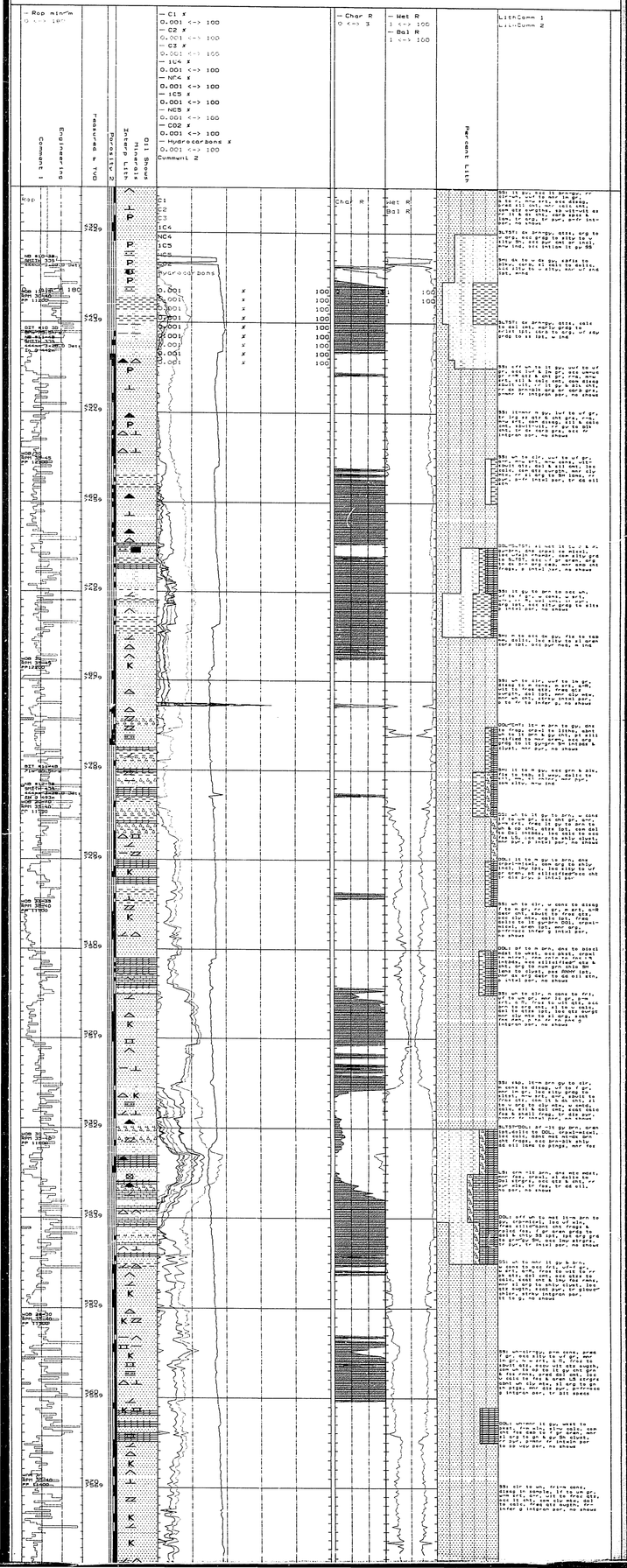
Anhy Stringers
Gypsum Stringers
Limestone Stringers
Marl Stringers
Sandstone Stringers
Argillaceous
Shale Laminae
Siltstone Stringers

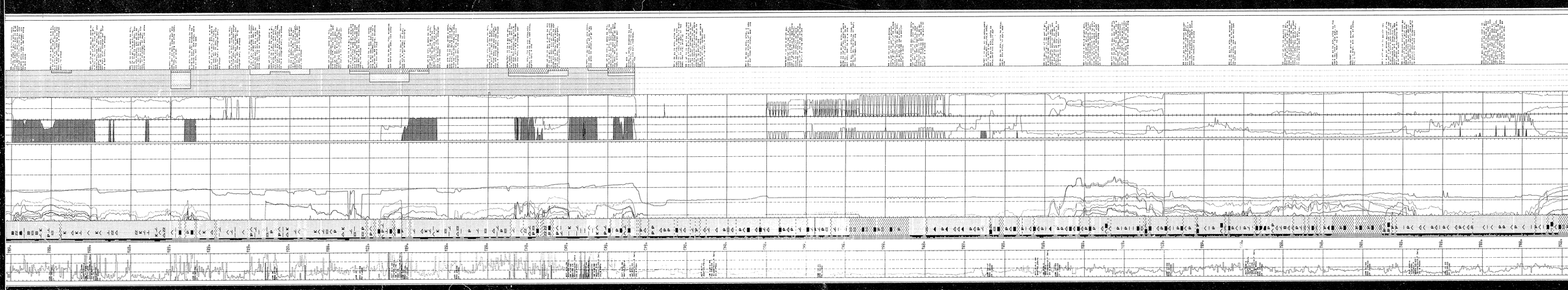
Oil Shows

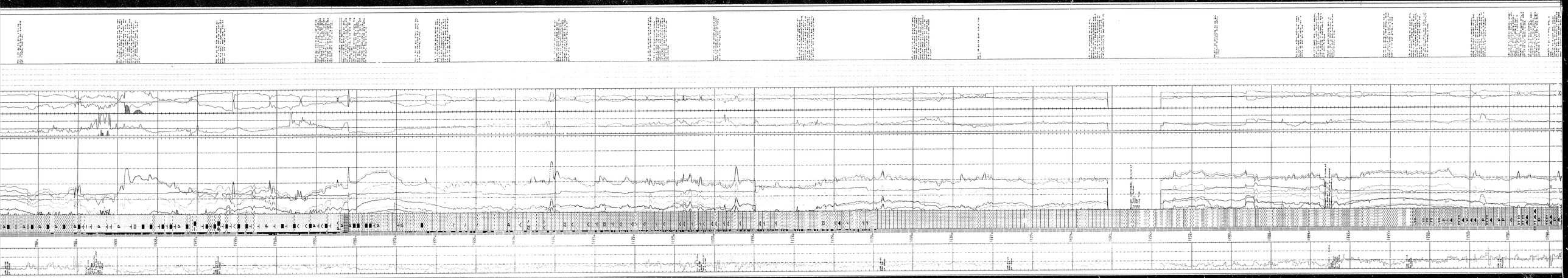
Dead OIL
Excellent
Good
Poor

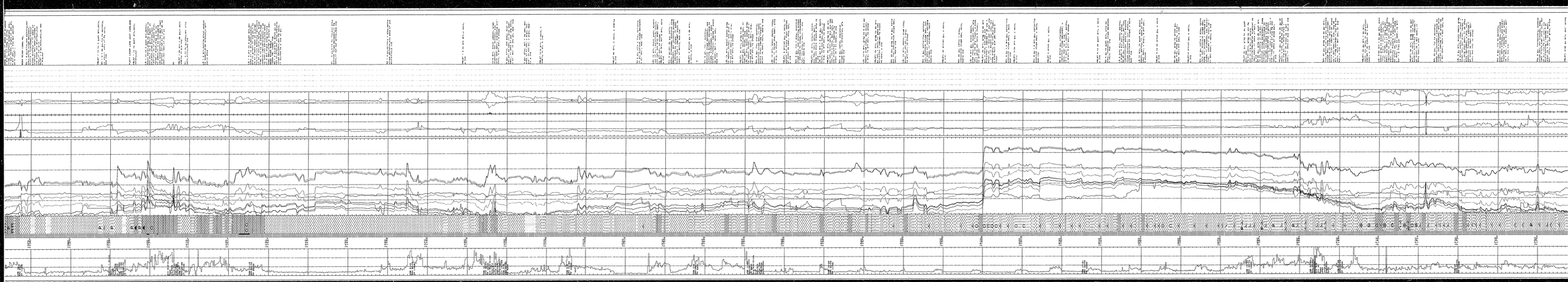
Engineering

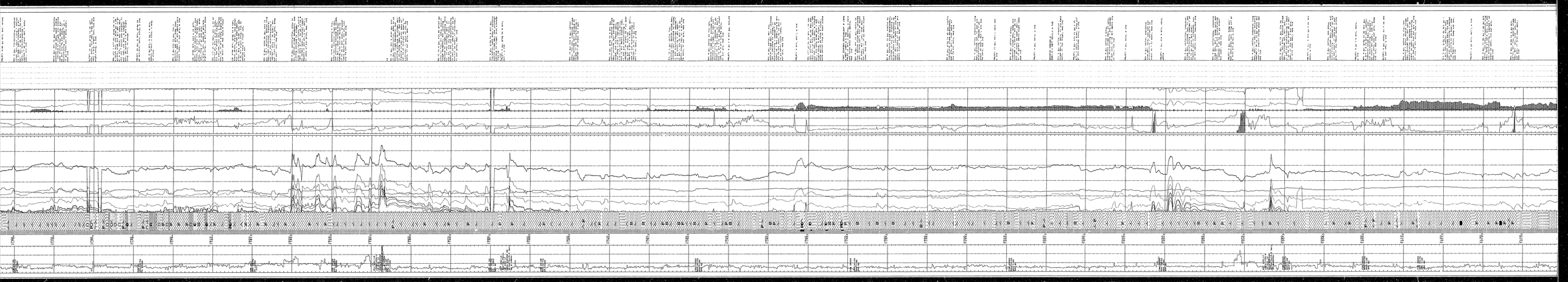
Bit Trip
Dummy Trip
Mud Loss
Wireline Log
Casing
Directional Drill
Side Wall Core
Plug Back
Perforated Interval

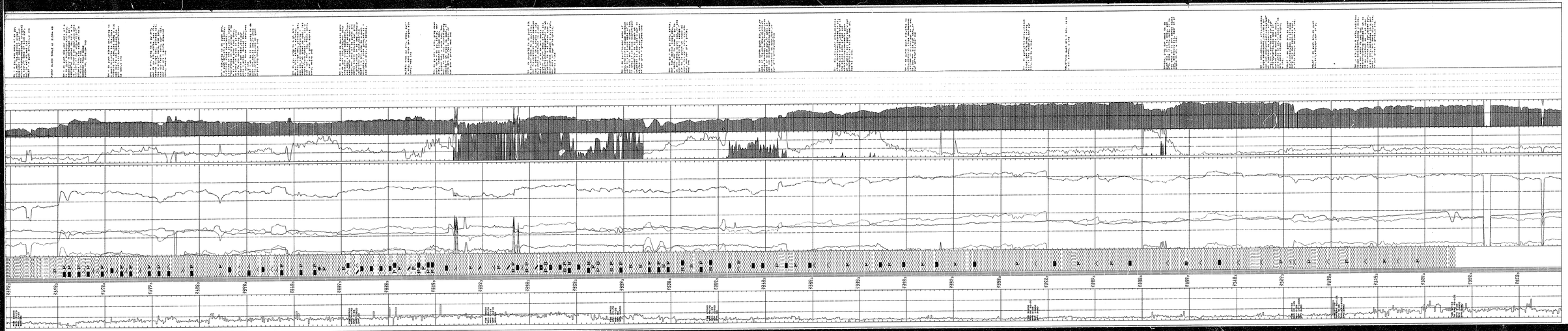












NATIONAL ... ENGINEERING ... JUL 2 2 1999

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

DIPMETER/

CALIPER

PROVINCE	
FIELD	
WELL	CDN FOREST ET AL NORTH LAND N-61-B(04)-12330
COMPANY	CANADIAN FOREST OIL LTD.

COMPUTALOG

CS300

Checkshot Calibration Report

TRUE VERTICAL DEPTH

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL NORTH LAND N-61
FIELD	
PROVINCE	NORTHWEST TERRITORIES

Date Recorded: 03-17-2000
Date Processed: 03-17-2000
Log Number: 1
Depth Reference: KB
Elevation: 0.0 m
Permanent Datum: KB
Log Measured From: KB
Drilling Measured From: KB

Perm. Datum: GROUND LEVEL Elev: 0.0 m
API Well Number: 00-00-000-00000-0000-00
Location: 00-00-00-00 Lsd. 0 Sec. 0 Twp. 0 Rge. 0 W4M

Depth Scale	Log Type	Date	Run No.	Depth Driller	Depth Logger	Bottom Logged Interval	Top Logged Interval	Casing Driller	Casing Logger	Bit Size	Type Fluid in Hole	Dens.	Visc.	Max. Rec. Temp.	Estimated Surface Temp.	Equipment / Location
1:200	CHECKSHOT	03-17-2000	ONE	0.0	0.0	0.0	0.0	0.0	0.0	0.0						

Operating Rig Time: Logging Rig Time:
Recorded By: D. WEEKS C. CHARLES
Witnessed By: [illegible]

THIS INTERPRETATION AND OPINION BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS ONLY, WE CANNOT AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFULL 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS Rig: AKITA # 58 Service Order # 21059

Drilling Stopped 21:30/18 Circulation Stopped 1115 /22 Tool on Bottom 0815 /23 BHT 114 °C

MSA LOGGED IN COMBINATION WITH STI/SPWD-CNS

BRIDGED AT 2500 m - LOGGED UP OFF THE BRIDGE AND RAN IN AGAIN AFTER CLEANING OUT THE HOLE AND CONDITIONING THE MUD SYSTEM.

Prints: 2

CHANGES IN MUD TYPE ON NEW SAMPLE		
Date	Sample No.	
Depth - Driller		
Type Fluid in Hole		
Dens.	Visc.	
BHT	Motor Loss	
Source of Sample		
Rm @ Meas. Temp.	@ °C	
Rmf @ Meas. Temp.	@ °C	
Rmc @ Meas. Temp.	@ °C	
Source Rmf Rmc		
Rm @ BHT	@ °C	
Rmf @ BHT	@ °C	
Rmc @ BHT	@ °C	

SCALE CHANGES		
Type Log	Interval	Scale

EQUIPMENT DATA			
Run No.	Tool Type	Tool No.	Other
ONE	HDA	1	CENTRALIZED
ONE	UGR-J	117	MA-205-681
ONE	CAL-CC	8050	20" OFFSET CALIPER

REMARKS

COMBINED RUN 1 AND RUN 2
1:240 SCALE

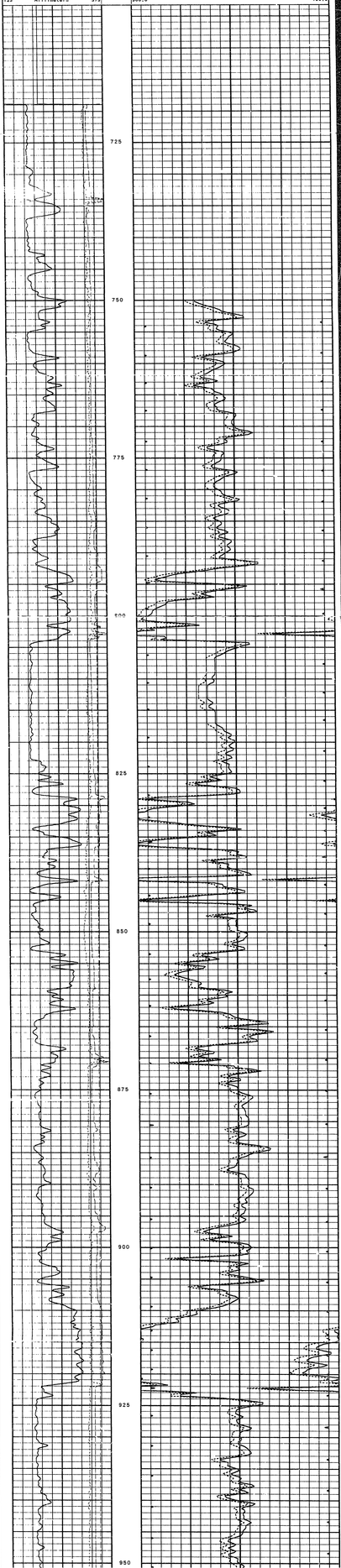
VERSION 2000.03.08.14

21065 final

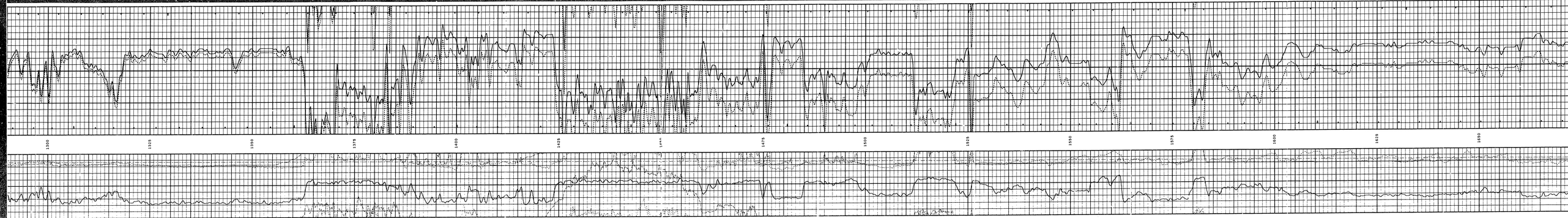
FINISH DEPTH: 715.9 Meters DIRECTION: UP DATE: 03/17/2000 TIME: 14:54 MODE: TRACE PLAYBACK

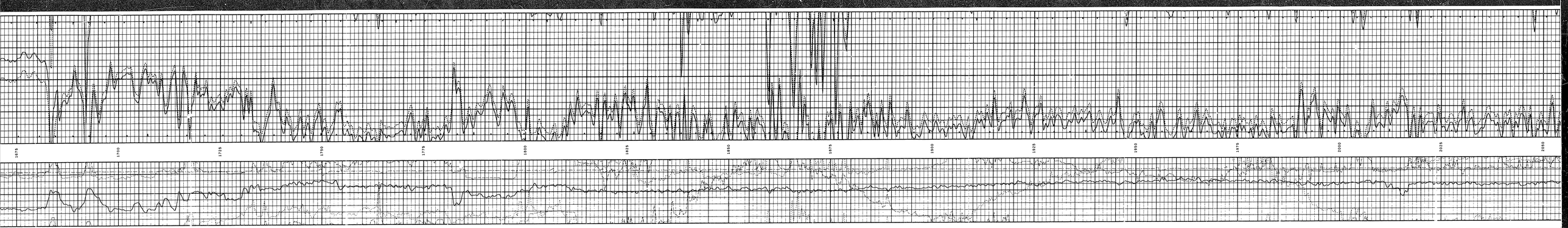
Tension		
10000	Kilograms	0
Gamma Ray		
0	API	150
X Caliper		
125	Millimeters	375
Y Caliper		
125	Millimeters	375

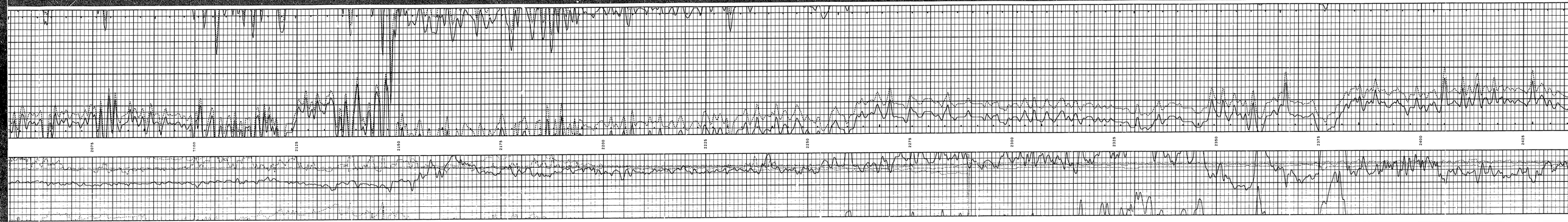
DTP	
300.0	100.0
DTCAL	
300.0	100.0

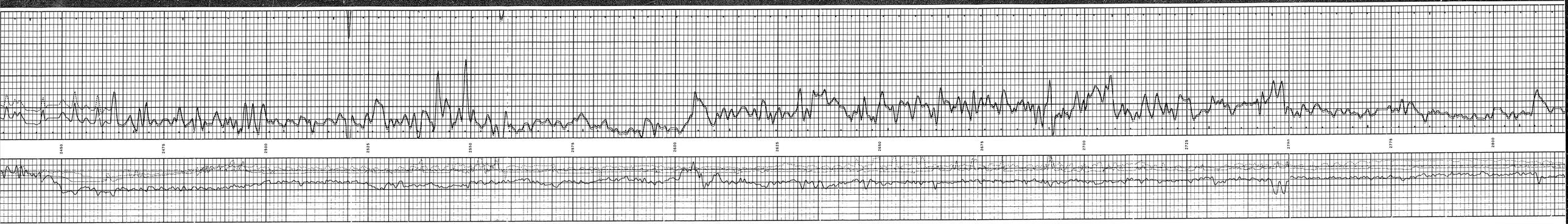


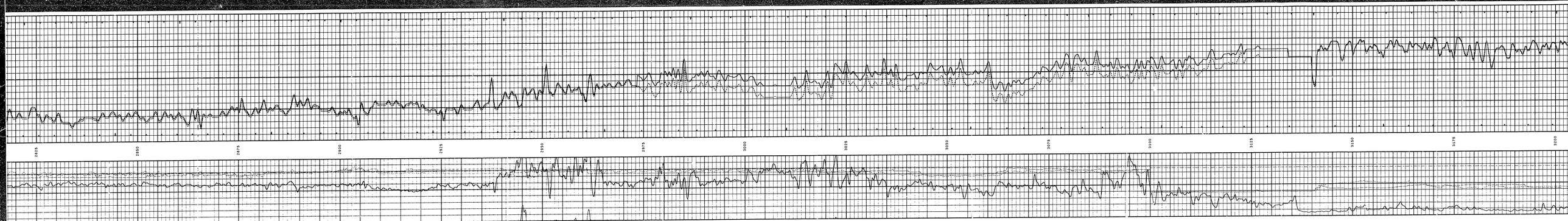
950
975
1000
1025
1050
1075
1100
1125
1150
1175
1200
1225
1250
1275

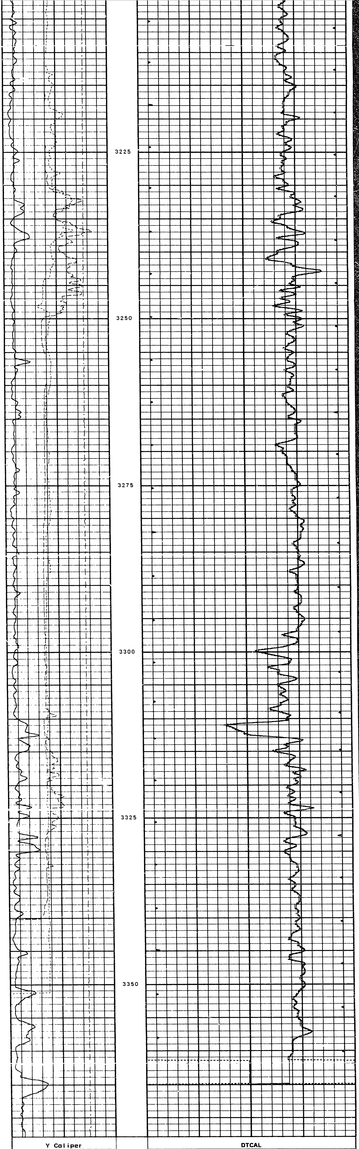

1300
1325
1350
1375
1400
1425
1450
1475
1500
1525
1550
1575
1600
1625
1650


1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975
2000
2025
2050


2075
2100
2125
2150
2175
2200
2225
2250
2275
2300
2325
2350
2375
2400
2425


2450
2475
2500
2525
2550
2575
2600
2625
2650
2675
2700
2725
2750
2775
2800


2825
2850
2875
2900
2925
2950
2975
3000
3025
3050
3075
3100
3125
3150
3175
3200

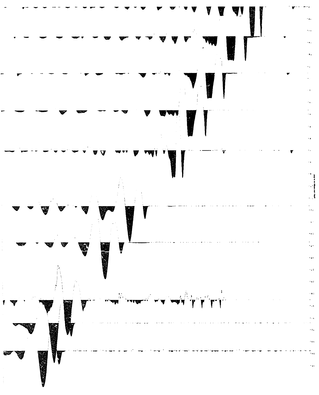


Y Caliper Millimeters 125 – 375	DTCAL 300.0 – 100.0	
X Caliper Millimeters 125 – 375	DTP 200.0 – 100.0	
Gamma Ray 0 API 150		
Tension 10000 Kilograms 0		

START DEPTH: 3372.9 DIRECTION: UP DATE: 03/17/2000 TIME:14:53 MODE: TRACE PLAYBACK

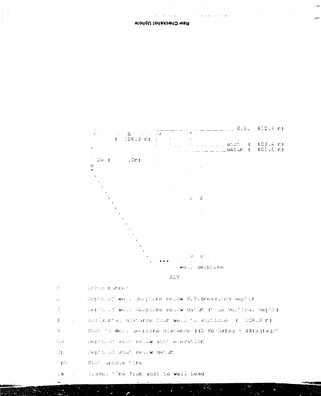
21065 final

VERSION: 2000.03.08.14

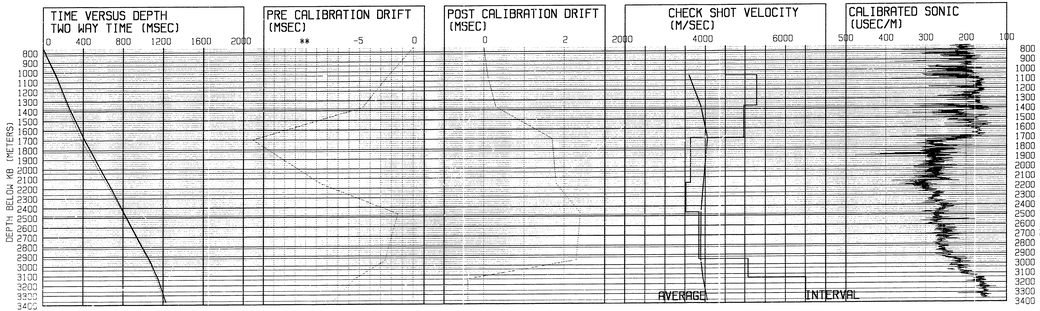


Raw Checkshot

Raw Checkshot (Linear)



[illegible]	
[illegible]	Depth of well, projected onto KB/Drilling elev (meters)
[illegible]	Depth of well, projected onto DATUM (Elev Vertical (meters))
[illegible]	Horizontal Shift of the first well, relative to [illegible] (: 1054.0 ft)
[illegible]	Shift of well, projected onto DATUM (KB/DF/Ground) - KB(ft/meg)
[illegible]	Depth of shot below well elevation
[illegible]	Depth of shot below DATUM
[illegible]	Shot validation flag
[illegible]	Travel time from shot to well head



PRE-CALIBRATION DRIFT MEASUREMENTS

All Times in Seconds and Depths in Meters

VERTICAL INTERVAL TIME: DEPTH	GEOPHONE	SONIC	2WAY TIME: INTERVAL	CUMULATIVE
750				
1054	0.0574	0.2271	0.00000	0.00000
1051	0.0707	0.0956	-0.00249	-0.00249
1354	0.0928	0.0533	-0.0225	-0.0474
1695	0.0968	0.0764	-0.0127	-0.0601
2157	0.1204	0.1236	0.00048	-0.00553
2463	0.0692	0.0783	0.00709	-0.00143
2945	0.1237	0.1264	-0.00117	-0.00260
3138	0.0796	0.0688	-0.0293	-0.0553
3360	0.0552	0.0757	-0.0205	-0.0758

POST-CALIBRATION DRIFT MEASUREMENTS

All Times in Seconds and Depths in Meters

VERTICAL INTERVAL TIME: DEPTH	GEOPHONE	SONIC	2WAY TIME: INTERVAL	CUMULATIVE
750				
1051	0.0574	0.0000	0.00000	0.00000
1354	0.0707	0.2868	0.00011	0.00011
1695	0.0928	0.0903	0.00425	0.00436
2157	0.0968	0.0645	0.00144	0.00579
2463	0.1204	0.1295	0.00009	0.00588
2945	0.0692	0.0835	0.00587	0.01245
3138	0.1237	0.1251	-0.00013	0.01232
3360	0.0796	0.0472	-0.0227	-0.00045

CALIBRATION SUMMARY INFORMATION

Calibration interval from 749.700 to 1363.009 meters
Interval drift time is: -4.7355957 msecs
NEGATIVE drift interval
Integrated log time over interval: 1.3109160e-001 secs
Required time over interval: 1.2635600e-001 secs
Log values over interval decreased by: -3.747820%

Calibration interval from 1363.009 to 1692.015 meters
Interval drift time is: -10.2713013 msecs
NEGATIVE drift interval
Integrated log time over interval: 7.6356293e-002 secs
Required time over interval: 6.6084991e-002 secs
Log values over interval decreased by: -15.542562%

Calibration interval from 1692.015 to 2140.022 meters
Interval drift time is: 6.4815063 msecs
POSITIVE drift interval
Integrated log time over interval: 1.2155548e-001 secs
Required time over interval: 1.2803699e-001 secs
Log values over interval increased by: 5.062214%

Calibration interval from 2140.022 to 2469.028 meters
Interval drift time is: 7.0944824 msecs
POSITIVE drift interval
Integrated log time over interval: 7.9825562e-002 secs
Required time over interval: 8.6920044e-002 secs
Log values over interval increased by: 8.162079%

Calibration interval from 2469.028 to 2959.034 meters
Interval drift time is: -1.1693115 msecs
NEGATIVE drift interval
Integrated log time over interval: 1.2654126e-001 secs
Required time over interval: 1.2537195e-001 secs
Log values over interval decreased by: -0.932674%

Calibration interval from 2959.034 to 3372.038 meters
Interval drift time is: 2.6002197 msecs
POSITIVE drift interval
Integrated log time over interval: -7.5808319e-001 secs
Required time over interval: -7.5548297e-001 secs
Log values over interval increased by: -0.344180%

TIME - DEPTH LISTING

All units in meters, seconds and us/m

ONE-WAY TIME	TWO-WAY TIME	VERTICAL DEPTH	AVERAGE VELOCITY	INTERVAL VELOCITY	INTERVAL TRANSIT TIME
0.2226	0.4451	749.00	3365	3365	297.15
0.2246	0.4491	758.37	3377	4551	219.73
0.2266	0.4531	767.47	3387	4819	207.52
0.2286	0.4571	777.11	3400	4724	211.67
0.2306	0.4611	786.56	3411	4604	217.20
0.2326	0.4651	795.77	3422	3709	269.60
0.2346	0.4691	803.19	3424	4488	222.79
0.2366	0.4731	812.16	3433	4607	217.06
0.2386	0.4771	821.38	3443	4504	222.04
0.2406	0.4811	830.38	3452	3901	256.37
0.2426	0.4851	838.19	3456	4522	221.12
0.2446	0.4891	847.23	3464	4688	213.33
0.2466	0.4931	856.61	3474	4470	223.72
0.2486	0.4971	865.55	3482	4820	207.45
0.2506	0.5011	875.19	3493	5227	191.30
0.2526	0.5051	885.64	3507	5127	195.03
0.2546	0.5091	895.90	3519	4819	207.53
0.2566	0.5131	905.53	3529	4149	241.04
0.2586	0.5171	913.83	3534	3150	317.49
0.2606	0.5211	920.13	3531	4137	241.70
0.2626	0.5251	928.40	3536	5004	199.84
0.2646	0.5291	938.41	3547	5007	199.72
0.2666	0.5331	948.43	3558	5060	197.63
0.2686	0.5371	958.55	3569	3927	254.63
0.2706	0.5411	966.40	3572	3531	283.23
0.2726	0.5451	973.16	3572	4197	238.25
0.2746	0.5491	981.86	3576	4550	219.78
0.2766	0.5531	990.96	3583	4746	210.73
0.2786	0.5571	1000.45	3591	4064	246.06
0.2806	0.5611	1008.58	3595	4697	212.89
0.2826	0.5651	1017.97	3603	4345	230.13
0.2846	0.5691	1026.66	3608	4256	234.96
0.2866	0.5731	1035.17	3612	5429	184.18
0.2886	0.5771	1046.03	3625	4106	243.54
0.2906	0.5811	1054.24	3628	3722	268.65
0.2926	0.5851	1061.69	3629	3908	255.87
0.2946	0.5891	1069.51	3631	4130	242.16
0.2966	0.5931	1077.77	3634	4832	206.94
0.2986	0.5971	1087.43	3642	5006	199.76
0.3006	0.6011	1097.44	3651	5822	171.76
0.3026	0.6051	1109.09	3666	6249	160.03
0.3046	0.6091	1121.58	3683	5807	172.20
0.3066	0.6131	1133.20	3696	5840	171.23
0.3086	0.6171	1144.88	3710	5895	169.64
0.3106	0.6211	1156.67	3724	5907	169.30
0.3126	0.6251	1168.48	3738	5358	186.63
0.3146	0.6291	1179.20	3749	4975	201.02
0.3166	0.6331	1189.15	3756	5602	178.51
0.3186	0.6371	1200.35	3768	6001	166.63
0.3206	0.6411	1212.35	3782	6126	163.25
0.3226	0.6451	1224.60	3796	5785	172.87
0.3246	0.6491	1236.17	3809	5276	189.55
0.3266	0.6531	1246.73	3818	5533	180.74
0.3286	0.6571	1257.79	3828	5056	197.77
0.3306	0.6611	1267.90	3836	4627	216.13
0.3326	0.6651	1277.16	3840	4959	201.66
0.3346	0.6691	1287.08	3847	5292	188.98
0.3366	0.6731	1297.66	3856	5283	189.30
0.3386	0.6771	1308.22	3864	4843	206.49
0.3406	0.6811	1317.91	3870	5669	176.41
0.3426	0.6851	1329.25	3880	5856	170.77
0.3446	0.6891	1340.96	3892	5770	173.31
0.3466	0.6931	1352.50	3903	5558	179.92
0.3486	0.6971	1363.61	3912	3985	250.92
0.3506	0.7011	1371.58	3913	4184	239.00
0.3526	0.7051	1379.95	3914	4421	226.20
0.3546	0.7091	1388.79	3917	6157	162.42
0.3566	0.7131	1401.11	3929	5882	170.00
0.3586	0.7171	1412.87	3940	6191	161.53
0.3606	0.7211	1425.25	3953	3967	252.05
0.3626	0.7251	1433.19	3953	4168	239.94
0.3646	0.7291	1441.52	3954	4078	245.20
0.3666	0.7331	1449.68	3955	3985	250.93
0.3686	0.7371	1457.65	3955	4835	206.84
0.3706	0.7411	1467.32	3960	4648	215.14
0.3726	0.7451	1476.62	3963	5583	179.13
0.3746	0.7491	1487.78	3972	4568	218.92
0.3766	0.7531	1496.92	3975	5328	187.68
0.3786	0.7571	1507.57	3982	4726	211.58
0.3806	0.7611	1517.03	3986	4568	218.92
0.3826	0.7651	1526.16	3989	4908	203.75
0.3846	0.7691	1535.98	3994	5215	191.77
0.3866	0.7731	1546.41	4000	5191	192.62
0.3886	0.7771	1556.79	4007	5082	196.76
0.3906	0.7811	1566.96	4012	6312	158.43
0.3926	0.7851	1579.58	4024	4894	204.35
0.3946	0.7891	1589.37	4028	4903	203.95
0.3966	0.7931	1599.17	4033	5517	181.26
0.3986	0.7971	1610.21	4040	5782	172.94
0.4006	0.8011	1621.77	4049	5950	168.07
0.4026	0.8051	1633.67	4058	6030	165.83
0.4046	0.8091	1645.73	4068	5674	176.24
0.4066	0.8131	1657.08	4076	6073	164.67
0.4086	0.8171	1669.23	4086	6002	166.61
0.4106	0.8211	1681.23	4095	5039	198.47
0.4126	0.8251	1691.31	4100	4012	249.26
0.4146	0.8291	1699.33	4099	4906	203.83
0.4166	0.8331	1709.14	4103	4395	227.54
0.4186	0.8371	1717.93	4104	4279	233.72
0.4206	0.8411	1726.49	4105	4123	242.54
0.4226	0.8451	1734.74	4105	3782	264.43
0.4246	0.8491	1742.30	4104	3567	280.38
0.4266	0.8531	1749.43	4101	3623	275.99
0.4286	0.8571	1756.68	4099	3390	294.97
0.4306	0.8611	1763.46	4096	3422	292.20
0.4326	0.8651	1770.31	4093	3558	281.04
0.4346	0.8691	1777.42	4090	3793	263.65
0.4366	0.8731	1785.01	4089	3922	254.95
0.4386	0.8771	1792.85	4088	3799	263.22
0.4406	0.8811	1800.45	4087	3431	291.47
0.4426	0.8851	1807.31	4084	3644	274.46
0.4446	0.8891	1814.60	4082	3817	261.98
0.4466	0.8931	1822.23	4081	3924	254.87
0.4486	0.8971	1830.08	4080	3685	271.37
0.4506	0.9011	1837.45	4078	3401	293.99
0.4526	0.9051	1844.25	4075	3417	292.66
0.4546	0.9091	1851.09	4072	3607	277.27
0.4566	0.9131	1858.30	4070	3384	295.52
0.4586	0.9171	1865.07	4067	3120	320.48
0.4606	0.9211	1871.31	4063	3041	328.79
0.4626	0.9251	1877.39	4059	3527	283.50
0.4646	0.9291	1884.45	4056	3640	274.70
0.4666	0.9331	1891.73	4055	3537	282.76
0.4686	0.9371	1898.80	4052	3530	283.32
0.4706	0.9411	1905.86	4050	3528	283.42
0.4726	0.9451	1912.92	4048	3737	267.63
0.4746	0.9491	1920.39	4047	3781	264.46
0.4766	0.9531	1927.95	4046	3670	272.45
0.4786	0.9571	1935.29	4044	3652	273.85
0.4806	0.9611	1942.60	4042	3559	281.01
0.4826	0.9651	1949.71	4040	3556	281.22
0.4846	0.9691	1956.83	4038	3433	291.29
0.4866	0.9731	1963.69	4036	3570	280.14
0.4886	0.9771	1970.83	4034	3453	289.57
0.4906	0.9811	1977.74	4032	3457	289.30
0.4926	0.9851	1984.65	4029	3585	278.97
0.4946	0.9891	1991.82	4027	3753	266.48
0.4966	0.9931	1999.33	4026	3476	287.72
0.4986	0.9971	2006.28	4024	3624	275.95
0.5006	1.0011	2013.52	4023	3691	270.94
0.5026	1.0051	2020.91	4021	3583	279.11
0.5046	1.0091	2028.07	4019	3567	280.35
0.5066	1.0131	2035.21	4018	3595	278.15
0.5086	1.0171	2042.40	4016	3506	285.21
0.5106	1.0211	2049.41	4014	3552	281.51
0.5126	1.0251	2056.51	4012	3551	281.62
0.5146	1.0291	2063.61	4010	3557	281.14
0.5166	1.0331	2070.73	4009	3614	276.70
0.5186	1.0371	2077.96	4007	3618	276.38
0.5206	1.0411	2085.19	4006	3604	277.50
0.5226	1.0451	2092.40	4004	3582	279.15
0.5246	1.0491	2099.56	4002	3370	296.69
0.5266	1.0531	2106.31	4000	3401	294.06
0.5286	1.0571	2113.11	3998	3451	289.80
0.5306	1.0611	2120.01	3996	3439	290.75
0.5326	1.0651	2126.89	3994	3907	255.92
0.5346	1.0691	2134.70	3993	3565	280.48
0.5366	1.0731	2141.83	3992	3398	294.33
0.5386	1.0771	2148.63	3990	3177	314.75
0.5406	1.0811	2154.98	3987	3103	322.30
0.5426	1.0851	2161.19	3983	3129	319.59
0.5446	1.0891	2167.44	3980	3120	320.51
0.5466	1.0931	2173.68	3977	3165	315.98
0.5486	1.0971	2180.01	3974	3163	316.15
0.5506	1.1011	2186.34	3971	3162	316.24
0.5526	1.1051	2192.66	3968	3248	307.89
0.5546	1.1091	2199.16	3966	3283	304.58
0.5566	1.1131	2205.73	3963	3282	304.72
0.5586	1.1171	2212.29	3961	3286	304.31
0.5606	1.1211	2218.86	3958	3294	303.56
0.5626	1.1251	2225.45	3956	3295	303.47
0.5646	1.1291	2232.04	3954	3415	292.80
0.5666	1.1331	2238.87	3952	3434	291.21
0.5686	1.1371	2245.74	3950	3398	294.26
0.5706	1.1411	2252.54	3948	3356	297.97
0.5726	1.1451	2259.25	3946	3574	279.78
0.5746	1.1491	2266.40	3945	3729	268.15
0.5766	1.1531	2273.86	3944	3709	269.58
0.5786	1.1571	2281.27	3943	3665	272.86
0.5806	1.1611	2288.60	3942	3646	274.28
0.5826	1.1651	2295.90	3941	3590	278.55
0.5846	1.1691	2303.08	3940	3618	276.39
0.5866	1.1731	2310.31	3939	3616	276.55
0.5886	1.1771	2317.54	3938	3577	279.57
0.5906	1.1811	2324.70	3936	3496	286.03
0.5926	1.1851	2331.69	3935	3499	285.82
0.5946	1.1891	2338.69	3933	3541	282.43
0.5966	1.1931	2345.77	3932	3662	273.09
0.5986	1.1971	2353.09	3931	3620	276.24
0.6006	1.2011	2360.33	3930	3698	270.44
0.6026	1.2051	2367.73	3929	3614	276.70
0.6046	1.2091	2374.96	3928	3465	288.63
0.6066	1.2131	2381.88	3927	3943	253.65
0.6086	1.2171	2389.77	3927	3853	259.52
0.6106	1.2211	2397.48	3927	3826	261.36
0.6126	1.2251	2405.13	3926	3979	251.31
0.6146	1.2291	2413.09	3927	4010	249.35
0.6166	1.2331	2421.11	3927	3968	252.02
0.6186	1.2371	2429.04	3927	3871	258.30
0.6206	1.2411	2436.79	3927	3739	267.49
0.6226	1.2451	2444.26	3926	3771	265.22
0.6246	1.2491	2451.80	3926	3752	266.50
0.6266	1.2531	2459.31	3925	3554	281.41
0.6286	1.2571	2466.42	3924	3588	278.71
0.6306	1.2611	2473.59	3923	3709	269.63
0.6326	1.2651	2481.01	3922	3692	270.88
0.6346	1.2691	2488.39	3921	3675	272.09
0.6366	1.2731	2495.74	3921	3726	268.40
0.6386	1.2771	2503.20	3920	3662	273.08
0.6406	1.2811	2510.52	3919	3647	274.22
0.6426	1.2851	2517.81	3918	3593	278.33
0.6446	1.2891	2525.00	3917	3785	264.19
0.6466	1.2931	2532.57	3917	3679	271.83
0.6486	1.2971	2539.93	3916	3896	256.67

0.6506	1.3011	2547.72	3916	3836	260.70
0.6526	1.3051	2555.39	3916	3495	286.14
0.6546	1.3091	2562.38	3915	3618	276.43
0.6566	1.3131	2569.61	3914	3632	275.35
0.6586	1.3171	2576.88	3913	3620	276.25
0.6606	1.3211	2584.12	3912	3464	288.64
0.6626	1.3251	2591.05	3911	3534	282.97
0.6646	1.3291	2598.11	3910	3629	275.58
0.6666	1.3331	2605.37	3909	3843	260.21
0.6686	1.3371	2613.06	3908	3842	260.30
0.6706	1.3411	2620.74	3908	3833	260.90
0.6726	1.3451	2628.41	3908	4050	246.94
0.6746	1.3491	2636.51	3908	3976	251.54
0.6766	1.3531	2644.46	3909	3905	256.06
0.6786	1.3571	2652.27	3909	3946	253.44
0.6806	1.3611	2660.16	3909	3973	251.73
0.6826	1.3651	2668.10	3909	3994	250.38
0.6846	1.3691	2676.09	3909	4025	248.43
0.6866	1.3731	2684.14	3910	3943	253.64
0.6886	1.3771	2692.03	3910	3827	261.29
0.6906	1.3811	2699.68	3909	4246	235.49
0.6926	1.3851	2708.18	3910	3848	259.91
0.6946	1.3891	2715.87	3910	3895	256.71
0.6966	1.3931	2723.66	3910	3894	256.83
0.6986	1.3971	2731.45	3910	3958	252.68
0.7006	1.4011	2739.36	3910	4100	243.88
0.7026	1.4051	2747.56	3911	3907	255.98
0.7046	1.4091	2755.38	3911	3825	261.42
0.7066	1.4131	2763.03	3911	3753	266.44
0.7086	1.4171	2770.53	3910	3848	259.90
0.7106	1.4211	2778.23	3910	3787	264.07
0.7126	1.4251	2785.80	3910	3706	269.85
0.7146	1.4291	2793.21	3909	3654	273.68
0.7166	1.4331	2800.52	3908	3734	267.79
0.7186	1.4371	2807.99	3908	3899	256.48
0.7206	1.4411	2815.79	3908	3869	258.49
0.7226	1.4451	2823.53	3908	3893	256.89
0.7246	1.4491	2831.31	3908	3759	266.05
0.7266	1.4531	2838.83	3907	3864	258.83
0.7286	1.4571	2846.56	3907	3844	260.16
0.7306	1.4611	2854.24	3907	3855	259.41
0.7326	1.4651	2861.95	3907	3827	261.29
0.7346	1.4691	2869.61	3907	3978	251.38
0.7366	1.4731	2877.56	3907	4011	249.32
0.7386	1.4771	2885.59	3907	4101	243.87
0.7406	1.4811	2893.79	3908	3965	252.19
0.7426	1.4851	2901.72	3908	3935	254.13
0.7446	1.4891	2909.59	3908	4114	243.10
0.7466	1.4931	2917.81	3908	3984	250.99
0.7486	1.4971	2925.78	3909	3972	251.74
0.7506	1.5011	2933.73	3909	4178	239.35
0.7526	1.5051	2942.08	3909	4349	229.91
0.7546	1.5091	2950.78	3911	4547	219.95
0.7566	1.5131	2959.88	3912	4538	220.36
0.7586	1.5171	2968.95	3914	4565	219.05
0.7606	1.5211	2978.08	3916	4601	217.35
0.7626	1.5251	2987.28	3917	4578	218.46
0.7646	1.5291	2996.44	3919	4419	226.29
0.7666	1.5331	3005.28	3920	4245	235.55
0.7686	1.5371	3013.77	3921	4375	228.56
0.7706	1.5411	3022.52	3922	4668	214.24
0.7726	1.5451	3031.85	3924	4613	216.79
0.7746	1.5491	3041.08	3926	4669	214.20
0.7766	1.5531	3050.42	3928	4680	213.70
0.7786	1.5571	3059.78	3930	4294	232.88
0.7806	1.5611	3068.36	3931	4599	217.42
0.7826	1.5651	3077.56	3933	5052	197.96
0.7846	1.5691	3087.67	3936	4839	206.68
0.7866	1.5731	3097.34	3938	4941	202.39
0.7886	1.5771	3107.22	3940	5081	196.80
0.7906	1.5811	3117.39	3943	5459	183.18
0.7926	1.5851	3128.31	3947	5571	179.51
0.7946	1.5891	3139.45	3951	5832	171.47
0.7966	1.5931	3151.11	3956	6089	164.24
0.7986	1.5971	3163.29	3961	6042	165.50
0.8006	1.6011	3175.37	3966	5845	171.07
0.8026	1.6051	3187.06	3971	5917	169.02
0.8046	1.6091	3198.90	3976	6176	161.93
0.8066	1.6131	3211.25	3981	6344	157.63
0.8086	1.6171	3223.94	3987	6319	158.24
0.8106	1.6211	3236.57	3993	6452	154.99
0.8126	1.6251	3249.48	3999	6455	154.92
0.8146	1.6291	3262.39	4005	6442	155.23
0.8166	1.6331	3275.27	4011	6639	150.62
0.8186	1.6371	3288.55	4017	6463	154.73
0.8206	1.6411	3301.48	4023	5759	173.64
0.8226	1.6451	3313.00	4028	6373	156.92
0.8246	1.6491	3325.74	4033	6417	155.84
0.8266	1.6531	3338.57	4039	6539	152.92
0.8286	1.6571	3351.65	4045	6363	157.15

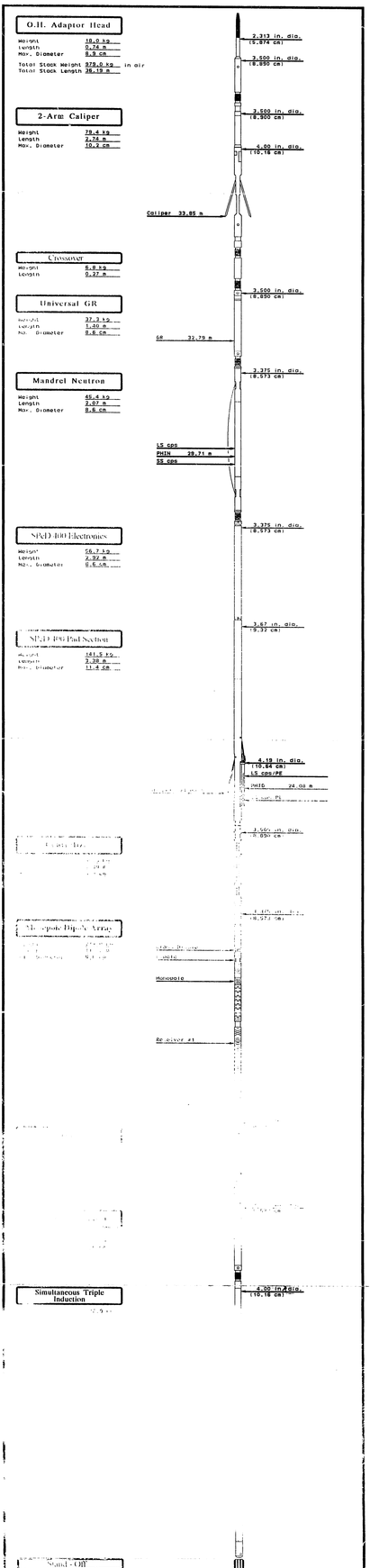
TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature **VERSION** : 1.0
TVD DATA FILE : /mstr/cs400/8000/21059/20159tvd.tvdb

COMPANY : Canadian Forest Oil Ltd. **DRILLED DEPTH** : 3147.00 m
WELL : Cdn. Forest et al North Liard N-61 **TRUE VERTICAL DEPTH** : 3140.18 m
LOCATION : 300-N61-6040-12330-0 **BOTTOM HOLE DISPLACEMENT** : N 76.89 m E 120.44 m
DATE : August 18, 1999 **TARGET DISPLACEMENT** : N 0.00 m E 0.00 m

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
TIE	1530.00	9.10	58.00	1526.11	51.76	70.28
1	1535.00	9.20	57.40	1531.05	52.18	70.95
2	1544.20	9.10	57.40	1540.13	52.97	72.18
3	1554.20	9.00	58.00	1550.00	53.81	73.51
4	1563.60	9.00	58.20	1559.29	54.59	74.76
5	1572.70	8.60	58.80	1568.28	55.32	75.95
6	1582.90	8.40	58.00	1578.37	56.11	77.23
7	1592.60	8.40	59.30	1587.97	56.85	78.44
8	1601.60	8.40	59.80	1596.87	57.51	79.58
9	1612.10	8.40	59.50	1607.26	58.29	80.90
10	1621.90	8.10	58.70	1616.96	59.01	82.11
11	1630.50	7.80	59.30	1625.47	59.62	83.13
12	1640.10	7.60	58.40	1634.99	60.29	84.23
13	1649.40	7.20	58.70	1644.21	60.91	85.25
14	1658.10	6.80	59.70	1652.84	61.45	86.16
15	1668.09	6.60	59.20	1662.77	62.05	87.16
16	1678.30	6.30	61.10	1672.91	62.62	88.16
17	1687.60	5.90	63.20	1682.16	63.08	89.03
18	1696.90	5.90	62.90	1691.41	63.51	89.88
19	1706.90	6.20	65.00	1701.35	63.98	90.83
20	1716.60	6.20	66.00	1711.00	64.41	91.78
21	1725.90	6.00	65.80	1720.24	64.81	92.69
22	1736.10	5.60	66.70	1730.39	65.23	93.63
23	1745.40	5.30	65.60	1739.65	65.59	94.44
24	1755.00	5.10	64.10	1749.21	65.96	95.22
25	1764.80	5.10	63.70	1758.97	66.34	96.01
26	1774.20	5.10	60.20	1768.33	66.73	96.74
27	1783.70	5.00	61.30	1777.80	67.14	97.47
28	1793.20	4.90	61.60	1787.26	67.53	98.19
29	1802.80	4.50	64.80	1796.83	67.89	98.90
30	1812.60	4.30	67.00	1806.60	68.19	99.58
31	1822.20	4.00	72.30	1816.18	68.44	100.23
32	1831.70	3.60	75.10	1825.65	68.61	100.84
33	1841.20	3.40	74.90	1835.14	68.76	101.40
34	1850.30	3.60	72.50	1844.22	68.92	101.93
35	1860.00	4.10	68.30	1853.90	69.14	102.54
36	1869.80	4.70	65.20	1863.67	69.44	103.23
37	1879.40	5.20	63.60	1873.23	69.80	103.98
38	1889.10	5.50	62.50	1882.89	70.21	104.78
39	1898.80	5.60	61.90	1892.55	70.64	105.61
40	1908.50	5.60	59.50	1902.20	71.11	106.44
41	1918.20	5.60	59.90	1911.85	71.59	107.26
42	1927.70	5.40	63.60	1921.31	72.02	108.06
43	1937.10	5.60	69.30	1930.67	72.38	108.88
44	1946.60	5.70	72.90	1940.12	72.68	109.77
45	1956.20	5.40	75.30	1949.67	72.93	110.66
46	1965.80	4.70	76.90	1959.24	73.14	111.48
47	1976.00	3.90	77.90	1969.41	73.30	112.23
48	1985.30	3.40	76.70	1978.69	73.43	112.80
49	1994.50	3.10	81.80	1987.88	73.53	113.32
50	2004.00	2.50	85.60	1997.36	73.58	113.78
51	2013.60	2.00	87.30	2006.96	73.61	114.15
52	2022.40	2.10	84.80	2015.75	73.63	114.47
53	2032.70	2.40	80.50	2026.04	73.68	114.87
54	2041.70	2.40	73.70	2035.03	73.77	115.23
55	2052.00	2.60	67.60	2045.32	73.92	115.66
56	2060.70	2.60	65.40	2054.02	74.07	116.02
57	2072.60	2.30	60.70	2065.91	74.30	116.47
58	2082.10	1.80	69.40	2075.40	74.45	116.78
59	2091.60	1.70	87.50	2084.89	74.51	117.06
60	2101.00	1.70	105.20	2094.29	74.48	117.33
61	2110.70	1.90	110.90	2103.99	74.38	117.62
62	2120.00	1.60	129.60	2113.28	74.24	117.87
63	2129.20	1.70	122.80	2122.48	74.09	118.08
64	2138.60	1.70	136.60	2131.87	73.91	118.29
65	2148.00	1.50	165.60	2141.27	73.69	118.42
66	2157.60	1.60	186.90	2150.87	73.44	118.43
67	2167.30	1.70	193.80	2160.56	73.16	118.38
68	2176.90	1.60	197.90	2170.16	72.90	118.31
69	2186.60	1.20	203.20	2179.86	72.67	118.23
70	2196.30	0.80	206.30	2189.55	72.52	118.16
71	2205.80	0.60	206.60	2199.05	72.42	118.10
72	2215.40	0.50	208.00	2208.65	72.33	118.06
73	2225.10	0.50	192.70	2218.35	72.26	118.03
74	2234.80	0.50	191.90	2228.05	72.17	118.02
75	2244.60	0.50	201.70	2237.85	72.09	117.99
76	2254.10	0.50	194.50	2247.35	72.01	117.97
77	2263.80	0.40	195.40	2257.05	71.94	117.95
78	2273.40	0.40	169.50	2266.65	71.87	117.94
79	2282.90	0.40	168.50	2276.15	71.81	117.96
80	2292.60	0.30	126.00	2285.85	71.76	117.98
81	2302.20	0.40	117.00	2295.45	71.73	118.03
82	2311.50	0.50	112.90	2304.75	71.70	118.10
83	2321.10	0.40	83.10	2314.35	71.69	118.17
84	2330.50	0.50	68.70	2323.75	71.71	118.24
85	2339.90	0.70	62.90	2333.15	71.75	118.33
86	2349.30	1.00	58.60	2342.55	71.82	118.45
87	2358.90	0.80	65.40	2352.15	71.89	118.58
88	2368.10	1.00	67.00	2361.35	71.95	118.72
89	2377.70	0.80	61.20	2370.94	72.01	118.85
90	2387.30	0.70	55.10	2380.54	72.08	118.96
91	2396.70	0.80	52.00	2389.94	72.15	119.06
92	2406.30	0.90	33.70	2399.54	72.25	119.15
93	2415.30	1.00	27.10	2408.54	72.38	119.23
94	2424.90	1.20	23.10	2418.14	72.55	119.31
95	2434.30	1.10	24.90	2427.54	72.72	119.38
96	2444.00	0.40	31.80	2437.24	72.84	119.44
97	2453.70	0.40	156.40	2446.94	72.83	119.47
98	2463.00	0.80	185.10	2456.24	72.74	119.48
99	2472.60	0.90	182.60	2465.83	72.60	119.47
100	2482.30	1.00	198.50	2475.53	72.44	119.44
101	2491.90	0.90	202.80	2485.13	72.29	119.38
102	2501.60	0.80	188.90	2494.83	72.15	119.34
103	2511.30	0.60	180.30	2504.53	72.04	119.33
104	2520.40	0.40	171.60	2513.63	71.96	119.34
105	2529.80	0.50	162.80	2523.03	71.89	119.35
106	2539.40	0.40	146.50	2532.63	71.82	119.38
107	2548.90	0.30	186.50	2542.13	71.77	119.40
108	2558.00	0.30	143.00	2551.23	71.72	119.41
109	2569.30	0.10	157.60	2562.53	71.69	119.43
110	2578.70	0.30	187.80	2571.93	71.66	119.43
111	2588.10	0.20	195.00	2581.33	71.62	119.43
112	2597.80	0.20	332.10	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41

112	2607.00	0.10	332.20	2591.03	71.62	119.41
113	2607.30	0.10	120.00	2600.53	71.63	119.41
114	2616.90	0.20	310.00	2610.13	71.63	119.41
115	2626.50	0.10	313.70	2619.73	71.65	119.39
116	2636.10	0.30	9.60	2629.33	71.68	119.39
117	2645.60	0.10	346.40	2638.83	71.71	119.39
118	2655.20	0.30	52.20	2648.43	71.74	119.41
119	2664.80	0.30	58.70	2658.03	71.77	119.45
120	2674.50	0.30	79.90	2667.73	71.78	119.49
121	2683.50	0.40	42.90	2676.73	71.81	119.54
122	2693.00	0.10	73.90	2686.23	71.84	119.57
123	2702.60	0.40	46.60	2695.83	71.86	119.60
124	2711.70	0.10	53.80	2704.93	71.89	119.63
125	2721.30	0.20	18.70	2714.53	71.91	119.64
126	2730.90	0.10	80.80	2724.13	71.93	119.66
127	2740.20	0.30	78.20	2733.43	71.93	119.69
128	2749.80	0.40	39.80	2743.03	71.97	119.73
129	2759.40	0.40	15.90	2752.63	72.02	119.76
130	2767.30	0.50	23.40	2761.13	72.09	119.79
131	2778.20	0.40	7.80	2771.43	72.16	119.81
132	2787.80	0.60	9.70	2781.03	72.25	119.82
133	2797.40	0.80	9.20	2790.63	72.36	119.84
134	2807.00	0.80	7.90	2800.22	72.49	119.86
135	2816.60	1.00	14.70	2809.82	72.64	119.89
136	2826.30	1.10	7.90	2819.52	72.82	119.93
137	2836.00	1.10	353.80	2829.22	73.00	119.93
138	2845.50	1.10	340.70	2838.72	73.18	119.89
139	2855.00	1.20	324.80	2848.22	73.35	119.80
140	2864.60	1.20	317.00	2857.81	73.50	119.68
141	2876.10	1.00	315.40	2869.31	73.66	119.52
142	2883.70	0.70	316.80	2876.91	73.74	119.44
143	2893.50	0.50	321.20	2886.71	73.82	119.38
144	2901.40	0.50	335.50	2894.61	73.88	119.34
145	2912.50	0.50	346.00	2905.71	73.97	119.31
146	2922.20	0.70	344.00	2915.41	74.07	119.25
147	2931.60	0.70	2.10	2924.81	74.18	119.27
148	2941.30	0.80	1.20	2934.51	74.31	119.27
149	2950.90	0.70	0.80	2944.11	74.43	119.27
150	2960.70	0.70	6.40	2953.91	74.55	119.28
151	2970.20	0.80	7.20	2963.41	74.67	119.30
152	2979.70	0.80	13.80	2972.90	74.80	119.32
153	2989.40	0.80	13.70	2982.60	74.94	119.35
154	2999.00	0.70	14.10	2992.20	75.06	119.38
155	3008.70	0.60	23.30	3001.90	75.16	119.42
156	3018.30	0.50	32.60	3011.50	75.24	119.46
157	3027.90	0.60	35.50	3021.10	75.32	119.51
158	3037.40	0.60	40.40	3030.60	75.40	119.57
159	3047.00	0.70	38.10	3040.20	75.48	119.64
160	3056.20	0.70	46.10	3049.40	75.57	119.72
161	3065.80	0.80	25.80	3059.00	75.67	119.79
162	3075.40	0.80	30.10	3068.60	75.78	119.85
163	3085.00	0.90	47.50	3078.20	75.89	119.94
164	3094.50	1.10	37.10	3087.70	76.02	120.05
165	3104.00	1.40	40.40	3097.19	76.18	120.18
166	3113.50	1.40	40.90	3106.69	76.35	120.33
167	3123.10	1.10	28.60	3116.29	76.52	120.45
168	3130.00	1.00	358.50	3123.19	76.64	120.48
169	3147.00	0.70	340.00	3140.18	76.89	120.44



BEST

COPY

ON FILE