AUTHORITY TO DRILL A WELL

CANADA

Exploratory ☒ Development ☐ Delineation ☐ Service ☐

AUTHORITY TO DRILL A WELL

APPLICATION

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

Well Name in Full: CDN. FOREST. ET. AL. FLETT. RAPIDS. I-61

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

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

Drilling Rig or Unit: #16TD Estimated Well Cost: $5,750,000.00

Location-Unit: I Section: 61 Grid Area: 60°50'N-123°15'W

Coordinates: Lat.: 60° 40' 41" N (Est.) Long.: 123° 26' 34" W (Est.)

Area: FLETT RAPIDS Field/Pool: WILDCAT

Elevation-RT/KB: 254.99m/260m/262.49m (ASL) Seafloor: NA (BRT)

Approx. Spud Date: SEPTEMBER 1, 1998 Estimated Days on Location: 110 DAYS

Anticipated Total Depth: 3200m Target Horizon(s) ARNICA

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

O.D.	Weight:	Grade:	Setting Depth Below Seafloor:	Cementing Program (Volumes):
762mm	CONDUCTOR PIPE		27.5mKB	GROUT TO SURFACE
508mm	198.67 kg/m	J-55	147.5mKB	30.8m³
339.7mm	101.2 kg/m	K-55	550.0mKB	62.0m³
244.5mm	59.53 kg/m	L-80	1600.0mKB	41.1m³
244.5mm	64.74 kg/m	L-80	2020.0mKB	20.0m³
177.8mm	43.16 kg/m	L-80	1870-3200mKB	20.1m³

B.O.P. Equipment: AS PER CANADA OIL AND GAS DRILLING REGULATIONS, SECTION 60. 1 HYDRIL GK ANNULAR BOP. 1 SHAFFER MODEL SL POSILOCK BOP RAM. 1 SHAFFER MODEL LWS POSILOCK BOP RAM, 1 SHAFFER MODEL SL POSILOCK BOP RAM AND 1 HCR VALVE. SEE ATTACHED RIG INVENTORY SHEET.

Other Information:

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

Date: JULY 31, 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: Jan 6/98

File: 9211-C131-1-1, WID 1851

UWI 300I616050123150

Canada

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 FLETT RAPIDS L-61 Area: FLETT RAPIDS

Grid Area: 60° 50' N, 123° 15' W Field/Pool: WILDCAT

Interest Identifier ..... Final Coordinates: Lat: 60° 40' 40.944" Long: 123° 26' 33.963"
Bottom Hole 60° 40' 49.465" 123° 26' 36.031"

Drilling Unit: NABORS 24E Elevations-KB/RT KB = 262.5m (ASL) GL/Seafloor GL = 255.0m

Spud Date: NOVEMBER 13, 1998 R.R. JANUARY 18, 1999 Total Depth: 2660m/PBTD 2640.5m

O.D. (mm)	Weight (kg/m)	Grade	Depth Set (m KB)	Cement (m³)
762mm	CONDUCTOR PIPE		20.0mKB	7.4m³
508mm	139.7 kg/m	K-55	150.8mKB	34.2m³
339.7mm	101.19 kg/m	K-55	569.6mKB	65.0m³
244.5mm	64.74 kg/m	L-80	2067.8mKB	64.5m³
177.8mm	43.16 kg/m	L-80	1899-2659mKB	22.6m³

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 (m³)
See attached diagram			

Lost Circulation/Overpressure Zones: NO LOST CIRCULATION ZONES NO OVERPRESSURE ZONES

Equipment left on Seafloor (Describe): SEE ATTACHED WELLHEAD SCHEMATIC

Provision for Re-entry (Describe and attach sketch): WELL IS CURRENTLY SUSPENDED

Cores: Type: NONE Intervals: N/A

Other Downhole Completion/Suspension Equipment: SEE ATTACHED DOWN HOLE 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: APRIL 27, 1999

Company: PAJAK ENGINEERING LTD.
FOR: CANADIAN FOREST OIL LTD.

Acknowledged by: [signature]
Chief Conservation Officer

Well Status

Suspended ☒

Completed ☐

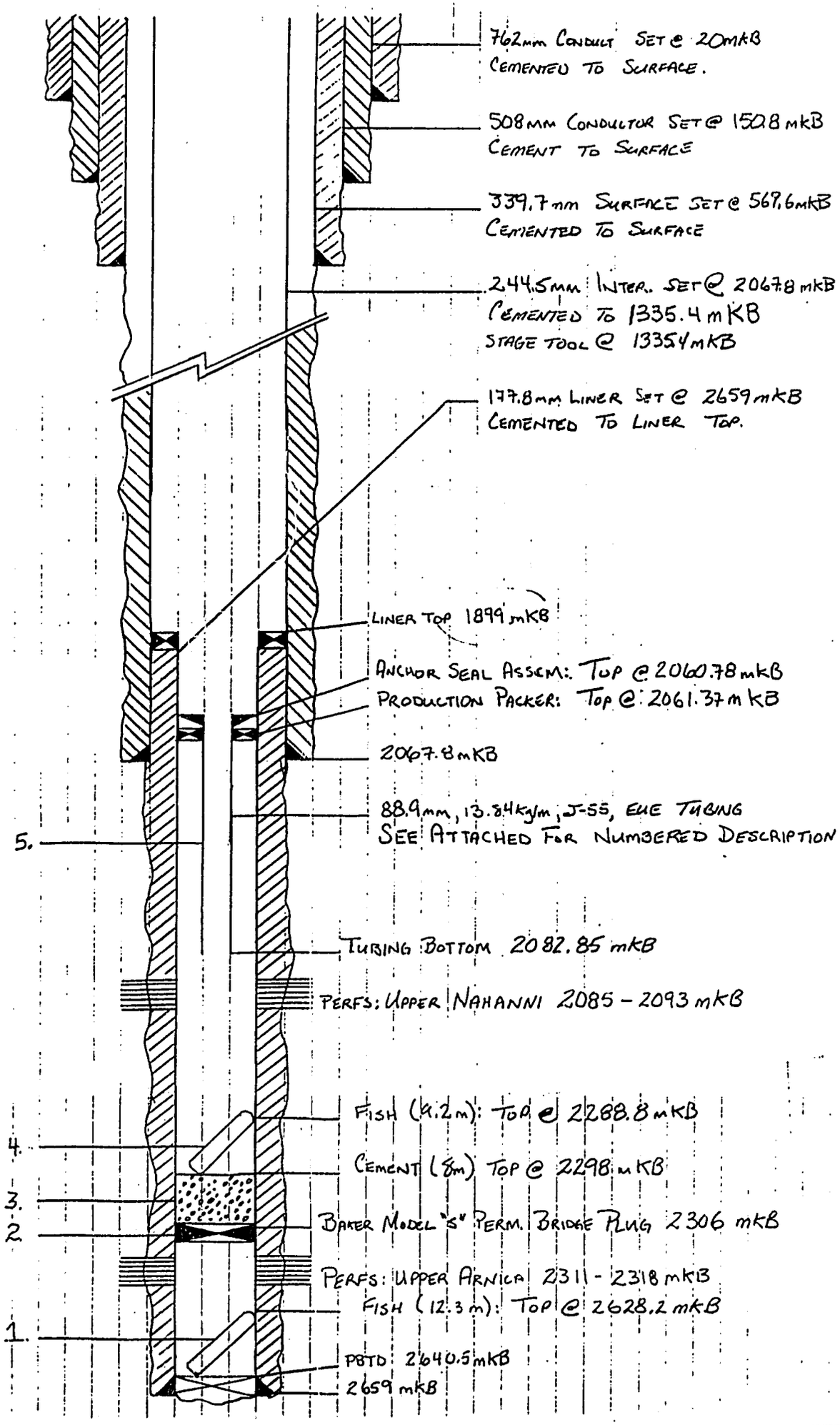
Abandoned ☐

Date: May 26/99

File: 9211-C131-1-1

UWI: 300I61605012315O WID. 1851

97.05.15


762mm Conduit Set @ 20mKB
Cemented to Surface.
508mm Conductor Set @ 150.8 mKB
Cement to Surface
339.7mm Surface Set @ 567.6mKB
Cemented to Surface
244.5mm Inter. Set @ 2067.8 mKB
Cemented to 1335.4 mKB
Stage Tool @ 1335.4mKB
177.8mm Liner Set @ 2659 mKB
Cemented to Liner Top.
Liner Top 1899 mKB
Anchor Seal Assem: Top @ 2060.78 mKB
Production Packer: Top @ 2061.37 mKB
2067.8 mKB
88.9mm, 13.84kg/m, J-55, EUE Tubing
See Attached for Numbered Description
5.
Tubing Bottom 2082.85 mKB
Perfs: Upper Nahanni 2085 - 2093 mKB
Fish (4.2m): Top @ 2288.8 mKB
4.
Cement (8m) Top @ 2298 mKB
3.
Baker Model "S" Perm. Bridge Plug 2306 mKB
2
Perfs: Upper Arnica 2311 - 2318 mKB
Fish (12.3 m): Top @ 2628.2 mKB
1.
PBTD 2640.5 mKB
2659 mKB

CDN FOREST ET AL FLETT RAPIDS I-61

DOWNHOLE SUSPENSION DIAGRAM
AS PER DIAGRAM - FROM BOTTOM UP

1. FISH. TOP AT 2628.2mKB.
   FISH CONSISTS OF:
   7 METRES OF GUN
   FIRING HEAD
   PUP JOINT WITH DROP BAR
   CROSSOVER SUB
   FLOW SUB
   BOTTOM HALF OF SEPARATION TOOL
   TOTAL LENGTH OF FISH - 12.3 METRES

2. BAKER MODEL "S" PERMANENT BRIDGE PLUG
   BRIDGE PLUG SET AT 2306.0mKB

3. CEMENT - 8 LINEAR METRES
   TOP OF CEMENT AT 2298.0mKB

4. FISH. TOP AT 2288.8mKB
   FISH CONSISTS OF:
   4 METRES OF GUN
   FIRING HEAD
   PUP JOINT WITH DROP BAR
   CROSSOVER SUB
   FLOW SUB
   BOTTOM HALF OF SEPARATION TOOL
   TOTAL LENGTH OF FISH - 9.2 METRES

5. TUBING STRING
   BOTTOM OF TUBING AT 2082.5mKB
   TUBING STRING FROM BOTTOM UP:

   1 - 88.9mm SEPARATION TOOL (0.52m). TOP AT 2082.33mKB.
   1 - 88.9mm, 13.84 kg/m, J-55, EUE PUP JOINT (1.26m). TOP AT 2081.07mKB.
   1 - 88.9mm, OTIS "XN" NIPPLE WITH 69.85mm PROFILE AND 66.93mm NO-GO (0.41m). TOP AT 2080.66mKB.
   2 - 88.9mm, 13.84 kg/m, J-55, EUE PUP JOINTS (6.16m). TOP AT 2074.50mKB.
   1 - 88.9mm, 13.84 kg/m, J-55, EUE PERFORATED PUP JOINT (3.09m). TOP AT 2071.41mKB.
   1 - 88.9mm NSCT BOX x EUE PIN OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.34m). TOP AT 2071.07mKB. NOTE: 69.85mm OD "PX" PLUG SET IN "X" NIPPLE.
   1 - 88.9mm, 13.84 kg/m, L-80, NSCT PUP JOINT (3.10m). TOP AT 2067.97mKB.
   1 - 88.9mm INCOLONY NSCT OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.32m). TOP AT 2067.65mKB.
   1 - 88.9mm, 13.84 kg/m, L-80, NSCT PUP JOINT (3.10m). TOP AT 2064.55mKB.
   1 - 88.9mm CROSSOVER SUB FROM SEAL BORE TO 88.9mm NSCT (0.17m). TOP AT 2064.38mKB.

DOWNHOLE SUSPENSION DIAGRAM - Cont'd
AS PER DIAGRAM - FROM BOTTOM UP

1 - 101.6mm ID SEAL BORE EXTENSION (2.84m). TOP AT 2061.54mKB.
1 - CROSSOVER SUB FROM PACKER TO SEAL BORE (0.17m). TOP AT 2061.37mKB.
1 - 177.8mm x 149.23mm BAKER "FB-1" RETRIEVABLE PRODUCTION PACKER (0.59m). TOP AT 2060.78mKB.
1 - 177.8mm x 149.23mm BAKER "E-22" ANCHOR SEAL ASSEMBLY. TOP AT 2060.78mKB.
1 - JOINT 88.9mm, 13.84 kg/m, J-55, EUE TUBING (9.20m). TOP AT 2051.58mKB.
1 - 88.9mm, J-55, EUE OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.37m). TOP AT 2051.21mKB.
215 - JOINTS, 88.9mm, 13.84 kg/m, J-55, EUE TUBING (2037.53m). TOP AT 13.68mKB.
2 - 88.9mm, J-55, EUE NIPPLES (0.42m). TOP AT 13.26mKB.
1 - JOINT, 88.9mm, 13.84 kg/m, J-55, EUE TUBING (9.23m). TOP AT 4.03mKB.
1 - 88.9mm, J-55, EUE NIPPLE PIN x PIN (0.17m). TOP AT 3.86mKB.
1 - ABB "WP-1" EUE TUBING HANGER WITH 76.2mm BPVT (0.24m). TOP AT 3.62mKB.

Well Termination Record
Canadian Forest Oil Ltd.
CDN Forest et al Flett Rapids I-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	Cum	3	PE	98.11.05	20.0		10.00	7.40	Glacial Mix
508.0	139.87	K-55	USS	12	BT&C	98.11.18	150.8		45.00	34.20	0:1:0 "G" + 2.0% CaCl2
339.7	101.19	K-55	Tamsa	44	BT&C	98.11.25	569.6		73.68	56.00	0:1:0 "G" + 0.5% CFR + 0.3% LTR
									12.00	9.00	0:1:0 "G" + 1.0% CaCl2
244.5	64.74	L-80	Algoma	150	BT&C	98.12.25	2067.8	Stage #1:	87.52	64.54	Thermal 40 + 0.7% CFR + 0.7% CFL-2 + 0.3% LTR
177.8	43.16	L-80	Nippon	10	BT&C						
177.8	43.16	L-80	Nippon	50	NSCC	99.01.14	2659.0		31.00	22.62	Thermal 40 + 0.7% CFR + 0.7% CFL-2 + 10 l/m3 FA-1 + 0.1% LTR

FINAL WELL REPORT

N.E.B. COPY

PAJAK

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 FLETT RAPIDS I-61

60° 40' 40.944" N
123° 26' 33.963" W

March, 1999

Prepared for

CANADIAN FOREST OIL LTD.

By

Mickey Sutherland, Manager of Projects

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

NATIONAL ENERGY BOARD
ENGINEERING
JUL 29 1999

FINAL WELL REPORT
CDN FOREST et al FLETT RAPIDS I-61

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(A) INTRODUCTION:

(i) SUMMARY:

Canadian Forest Oil Ltd., contracted Nabor's Drilling Rig 24E to drill a 3200m test. The main objectives were to find gas in the Nahanni and Amica dolomites. However, these formations were penetrated at 2069.5mKB and 2310mKB respectively, and the well was terminated after reaching a depth of 2660mKB.

After drilling 445mm surface hole to 569.6mKB and setting 339.7mm casing, 311mm intermediate hole was drilled to 2067.7mKB and 244.5mm intermediate casing was set. The wellbore was directionally drilled from 1385mKB to 2067mKB before intermediate casing was set. Directional tools were released and a stabilized BHA was utilized to drill 215.9mm hole to 2660mKB. A 177.8mm liner was set.

No major drilling problems were encountered and the drilling rig was released 66 days after spud.

Subsequently one Amica and one Nahanni interval were completed. The results were disappointing as gas rates were insufficient for testing. The well is currently suspended pending a review of additional completion intervals.

(ii) LOCALITY MAP:

The Cdn Forest et al Flett Rapids I-61 location is located by road 60 kilometres north from the Fort Liard Junction on Highway NWT-7, then 300 metres east to cleared campsite, then 505 metres north to the wellsite.

See Attachment #1 and Attachment #2.

(B) GENERAL DATA:

(i) WELL NAME: CDN FOREST ET AL FLETT RAPIDS

WELL NUMBER: I-61
SURFACE LOCATION: 60° 40' 40.944" NORTH
123° 26' 33.963" WEST

BOTTOM HOLE LOCATION: 60° 40' 49.465" NORTH
123° 26' 36.031" WEST

EXPLORATION AGREEMENT NUMBER: EL-365

(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: 300I6160501235-0

(iv) OPERATOR AND DRILLING CONTRACTOR:

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

DRILLING CONTRACTOR:
Nabors Drilling Limited
805, 505 - Third Street S. W.
Calgary, Alberta
T2P 3E6

(v) DRILLING UNIT:

NAME: NABORS RIG #24ETD
TYPE: EMSCO ELECTROHOIST 11C
REGISTRY: Not Applicable
YEAR BUILT: 1979
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:

Problem:	Rig settled
Day:	22
Date:	1999.12.05
Depth:	1275mKB
Solution:	Jacked rig
Time:	0.5 hours

(ix) TOTAL WELL COST:

Drilling:	$4,988,052.00
Completion:	$1,205,000.00
Clean-Up:	$ 26,199.00
Total:	$6,219,251.00

(C) SUMMARY OF DRILLING OPERATIONS:

(i) ELEVATIONS:

Kelly Bushing:	262.5m
Casing Flange:	255.6m
Ground:	255.0m

(ii) TOTAL DEPTH:

Drilled Depth:	2660mKB
Logged Depth:	2660mKB
Plugged-Back Depth:	2640.65mKB

(iii) SPUD DATE:

1998.11.13 @ 12:15 hours.

(iv) COMPLETED DRILLING DATE:

1999.01.08 @ 12:15 hours.

(v) RIG RELEASE DATE:

1999.01.18 @ 12:00 hours.

(vi) WELL STATUS:

Suspended.

(vii) HOLES SIZES & DEPTHS:

	Hole Size (mm)	Hole Depth (mKB)
Conductor:	914.4	20.0
Conductor:	660.4	151.0
Surface:	444.5	569.9
Intermediate:	311.2	2073.0
Production:	215.9	2660.0

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:

None.

(xii) WELL KICKS AND WELL CONTROL OPERATIONS:

Day	Depth	Progress	Remarks:
50	2093	10	1998.12.28 @ 00:00 Hours: Continued to inspect BHA. Made up new BHA and tripped in with Bit #2B. Broke circulation. Washed 14m to bottom with no fill. Drilled 215.9mm hole from 2083mKB to 2093mKB. A 3m drilling break was encountered from 2089mKB to 2092mKB. Picked up. Flow checked and surveyed at 2080mKB. Normal flow rate in drilling mode is 20. Circulation was regained after surveying, flow rate increased to 50. Pump pressure in drilling mode was 7300 kPa at 80 strokes/minute. After circulation was regained, pump was at 5000 kPa at 80 strokes/minute. Shut well in. SIDPP: 0 SICP: 0 Sequence of events: 11:30 hours: Circulated through open choke at 80 strokes/minute. Density 1040 kg/m^3. Mud went through choke manifold, back through degasser. 11:45-12:00 hours: 6-8 foot flare. 12:00-12:15 hours: 15-18 foot flare, start to mix barite at 1 sack/minute. 12:30 hours: 5-8 foot flare. 12:45 hours: 2-6 foot flare. 12:55 hours: 0.2 foot flare. 13:00 hours: flare out. 14:10 hours: First circulation around with a density 1065 kg/m^3. 14:10-16:20 hours: Complete circulation through manifold. Density in 1075 kg/m^3, out 1070 kg/m^3. Stopped pump. Closed HCR and opened annular. Flow checked. Well static. Hoisted 2 stands to lower mud height in annulus. Blew out manifold and degasser lines with air. Circulated hole with bit at 2065mKB and waited on a load of barite to arrive before drilling ahead. At 19:00 hours we were notified the truck hauling barite had broken one of it's duals on one B-train trailer somewhere around Ft. Liard. Truck arrived on location 22:30 hours. Mixed barite to get weighted mud to bit to 23:59 hours 1998.12.28. Note: Held daily meeting with both crews. Topics: (a) SOS H_2S meeting. (b) Handling BHA.

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

Two Formation Leak-off tests were conducted. The first was conducted on drill out of surface casing on November 27, 1998. The second was conducted on drill out of intermediate casing on December 27, 1998.

See Attachment #6 and Attachment #7 for test results.

(xiv) TIME DISTRIBUTION:

See Attachment #8.

(xv) DEVIATION SURVEY:

See Attachment #9, Subsurface Directional Survey Report.

(xvi) ABANDONMENT PLUGS:

None.

(xvii) COMPOSITE WELL RECORD:

See Attachment #10, Lithology Strip Log, and Attachment #11, Final Mud Logger's Report.

(D) GEOLOGY:

(i) DRILL CUTTINGS:

(a) Sample frequency: 5m samples from 30m to 2660mKB.

(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 Wintershall Canada Ltd., 700, 333 - Fifth Avenue S. W., Calgary, Alberta T2P 3B6. Telephone 403-263-2500.

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 #12, Lithology Strip Log, Attachment #13, report by DAX Consulting Ltd., and previous Attachment #10, Lithology Strip Log.

PLEASE NOTE:

There are two lithologic strip log scales. Attachment #10 with a 1:240 scale matches Attachment #11, Final Mud Logger's report and Attachment #12 with a 1:1200 scale.

The 1:1200 scale lithologic log was used to plot the Gamma-Ray MWD log and to correlate with commercially available sample description logs plotted on the same scale from wells near the Flett Rapids area.

(iv) STRATAGRAPHIC COLUMN:

Formation Name	Formation Age	General Lithology	KB Depth (Measured)	KB Depth (TVD)	Elevation (Subsea)	Thickness (TVD)
KB			0	0	+262.49	
Ground			7.5		+254.99	
Mississippian	Miss.	Carbonate and Shale	Samples caught from 30m	30	+251.99	398
Claussen (Besa River)	Miss.	Shale	428 sample	428	-165.5	387
Banff	Miss.	Shale	815	815	-552.5	
Exshaw	Miss.	Black Shale	842	842	-580	20
Kotcho	Upper Devonian	Shale and Siltstone	862	862	-600	430
Tetcho	Upper Devonian	Shale and Siltstone	1292	1292	-1030	205
Fort Simpson	Upper Devonian	Shale	1498	1497	-1235	414
Horn River	Upper Devonian	Black Radioactive Shale	1936	1911	-1649	126
Nahanni Limestone	Mid Devonian	Limestone	2069.5	2037	-1773	135
Nahanni Dolomite	Mid Devonian	Dolomite	2208.6	2172	-1910	30
Headless	Mid Devonian	Shaley Carbonate	2239	2202	-1940	51
Landry	Mid Devonian	Limestone	2290.7	2253	-1991	19
Arnica	Lower Devonian	Dolomite	2310	2272	-2010	137
Sombre	Lower Devonian	Dolomite	2448	2409	-2147	38
Camsell	Lower Devonian	Dolomite	2486	2447	-2209	
TD	Lower Devonian		2860			

(v) BIOSTRATAGRAPHIC DATA:

Not Applicable.

(E) WELL EVALUATION:

(i) OPEN HOLE LOGS:

Date	Run Number	Log Type	Interval (mKB)	Service Company
1998-12-22	One *	Induction	1663-569.8	Computalog
		Sonic	1611.2-569.8	
		Density Neutron	1656-569.8	
1999-01-02	Two	Dual Laterolog	2394-2066.7 **	Computalog
		Sonic	2386.2-2066.7 **	
		Density Neutron	2386.2-2066.7 **	
		Image Log (EMI)	2395.7-2068	
1999-01-09	Three	Dual Laterolog	2660-2067	Schlumberger ***
		Dipole Sonic	2660-2067	
		Density Neutron	2660-2067	
		Gamma-Ray Spectroscopy	2660-2067	
		Image Log (EMI)	2660-2300	
		Formation tester (MDF)	2565.79 (A single station)	

** These logs were run into the casing shoe and kept on over a portion of the cased hole in order to have a log over a zone which was not logged on run number one because of poor hole conditions (could not reach bottom) and operational safety concerns. This was a requirement of the National Energy Board.

* A Gamma-Ray MWD tool was run while drilling in the interval 1555-2055.

*** Run three by Schlumberger overlaps some of the run two Computalog logs.

(ii) OTHER LOGS:

Not Applicable.

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

See Attachment #14.

(iv) FORMATION STIMULATION:

See Attachment #15.

Date	Intervals	Stimulation	Method	Contractor	Agent	Amount	Result
99.02.14	2311-2318m	Acid Wash	Coiled Tubing	Nowsco	15% HCL	$11m^3$	None
99.02.15	2311-2318m	Acid Wash & Squeeze	Coiled Tubing	Nowsco	28% HCL	$5.0m^3$	None
99.02.16	2311-2318m	Acid Wash & Squeeze	Coiled Tubing	Nowsco	15% HCL	$5.0m^3$	None
99.02.16	2311-2318m	Acid Wash & Squeeze	Coiled Tubing	Nowsco	15% HCL	$10m^3$	None
99.02.19	2087-2091m	Acid Wash & Squeeze	Coiled Tubing	Nowsco	28% HCL	$5.8m^3$	None
99.02.20	2087-2091m	"EDTA" Injection	Down Tubing	Nowsco	"EDTA"	$2.0m^3$	None
99.02.23	2085-2093m	CO_2 Injection (Liquid)	Down Tubing	Nowsco	CO_2	$16.6m^3$	None
						($9026m^3$ Gas)	
99.02.26	2085-2093m	Acid Frac	Down Tubing	Nowsco	28% HCL	$32.0m^3$	None
					HT04000	$45.4m^3$	None

(v) FORMATION AND PRODUCTION TEST RESULTS:

See Attachment #16 and #17 for clean up and test data.

(vi) DETAILED TEST PRESSURE DATA READINGS:

Not Applicable.

(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. Also note the appropriate wellhead marking/sign has been completed and installed as required by the Canada Oil & Gas Drilling Regulations.

(G) APPENDIXES TO WELL HISTORY REPORT:

(i) OIL, GAS AND WATER ANALYSIS:

See Attachment #18, for gas and water analysis.

Note: Gas analysis shows a high percentage of CO_2. It should be clarified that the gas analysis was performed directly following a CO_2 fracture program.

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

See Attachment #19, 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 #16 and Attachment #17.

(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 #11, Final Mud Logger's Report.

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

See Attachment #20 for perforated intervals, downhole equipment and tubing information.

See Section (E) (iv), Attachment #15, Formation Stimulation Records.

(xiv) COMPOSITE WELL RECORDS:

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

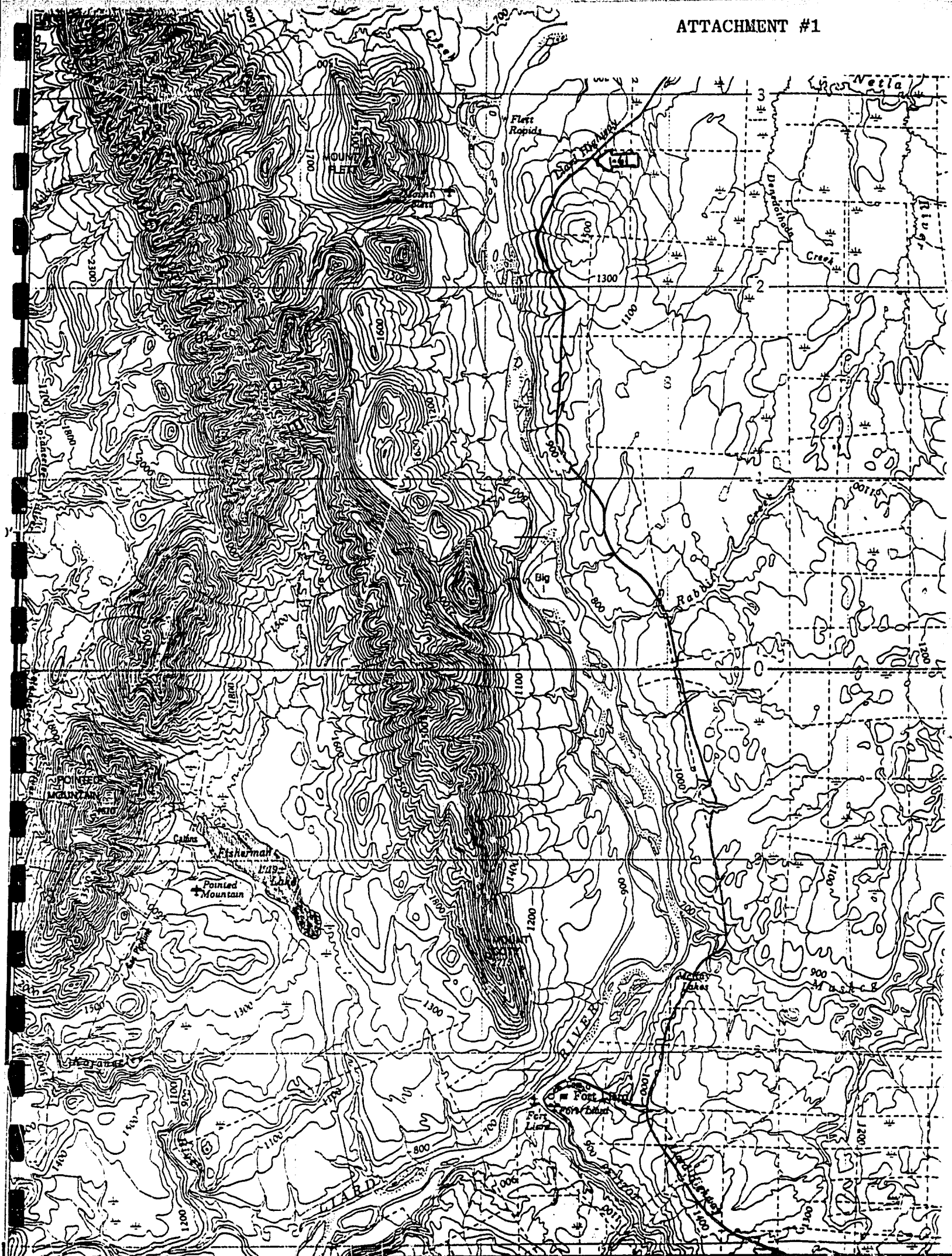
(xv) FINAL SURVEY PLAN:

See Attachment #21 for Registered Final Survey plan.

(xvi) MUD DATA LOGGER'S REPORT:

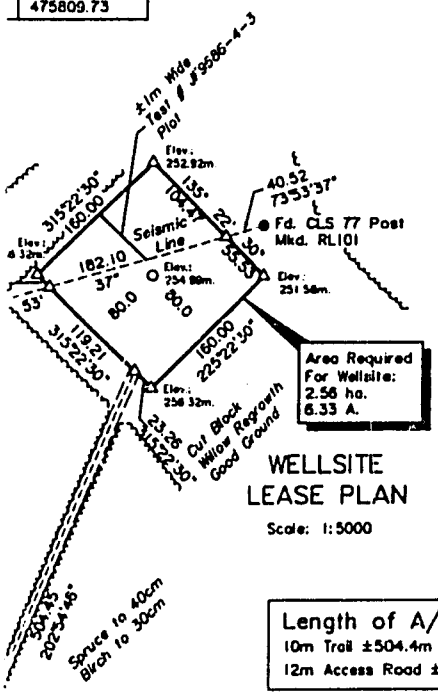
See Section (C) (xvii), Attachment #11, Final Mud Logger's Report

ATTACHMENT #1



ATTACHMENT #2

1927 NAD) Eastings
475588.48
475922.74
475809.73



WELLSITE LEASE PLAN

Scale: 1:5000

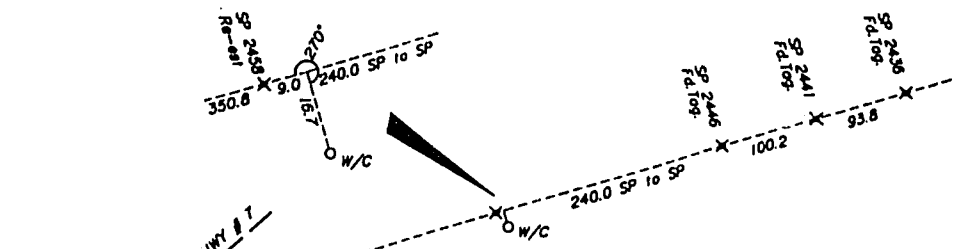
Area Required For Wellsite: 2.56 ha. 6.33 A.

Length of A/R
10m Trail ±504.4m
12m Access Road ±468.0m

Elevations:
LEASE: 254.99 Well Center
Corners:
N.: 252.92 E.: 251.58
S.: 256.32 W.: 256.32

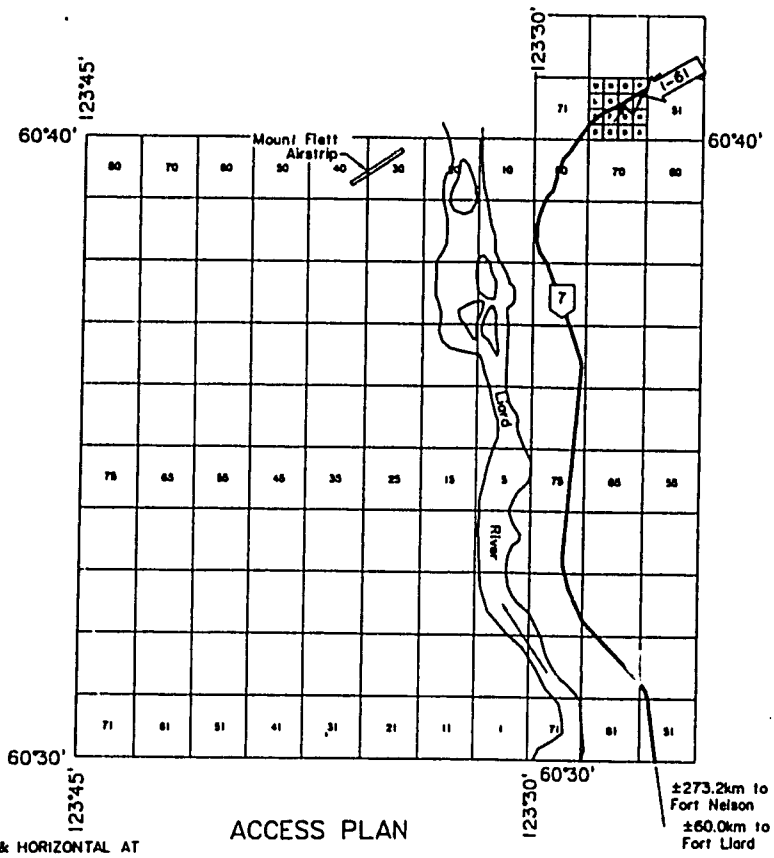
CAMPSITE:
N.W: 278.30m. N.E.: 277.14m
S.W: 279.56m. S.W.: 278.83m.

Datum GPS Tie from 83T391, Geodetic
Ground Elevation = 295.08m



SEISMIC DETAIL LINE FLJ-3

Scale: 1:5000



ACCESS PLAN

Scale: 1:150,000

NOTE:
DISTANCES ARE IN METERS & HORIZONTAL AT GENERAL GROUND LEVEL
BEARINGS ARE GRID

I CURTIS E. HENRIE, CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAN IS CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND WAS COMPLETED ON THE 9th DAY OF JULY, 1998.

CANADA LANDS SURVEYOR

16 July, 1998

CDN FOREST et al FLETT RAPIDS I-61
IN UNIT I, SECTION 61
GRID AREA 60°50', 123°15'

SESL

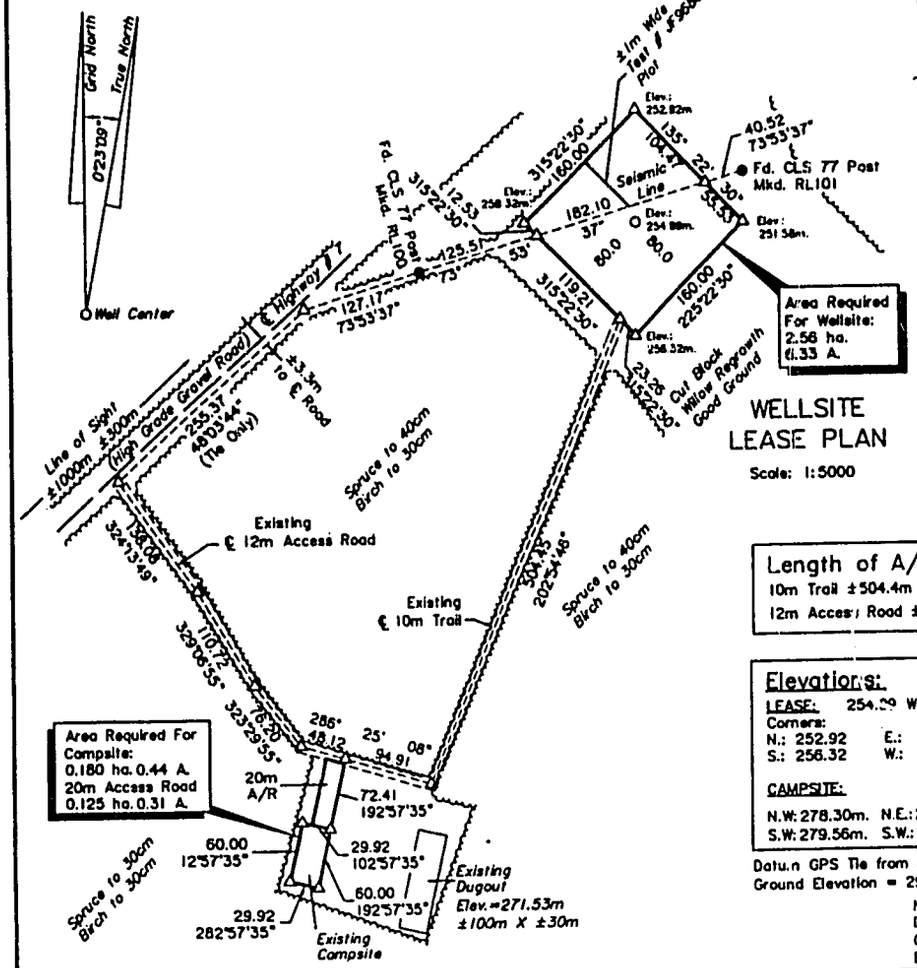
Surveyor: JT Calculator: MK
Draftsperson: DB

Job No.: 98N009A

No	Revision	Date

STUART ENGINEERING & SURVEYING LTD. 200, 517 - 10TH AVENUE S.W. CALGARY, ALBERTA, CANADA T2R 0A8 (403) 234-9018 FAX. (403) 266-2919

GEODETIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude	Northings	Eastings
TRAVERSE STATIONS				
RL100	60°40'39.391"	123°26'48.524"	6726756.81	475588.48
RL101	60°40'42.584"	123°26'26.539"	6726853.33	475922.74
PROPOSED WELL CENTER				
Surface	60°40'40.944"	123°26'33.963"	6726803.33	475809.73



WELLSITE LEASE PLAN

Scale: 1:5000

Length of A/R
10m Trail ±504.4m
12m Access Road ±468.0m

Elevations:

LEASE: 254.09 Well Center

Corners:

N.: 252.92 E.: 25[illegible].58

S.: 256.32 W.: 256.[illegible]2

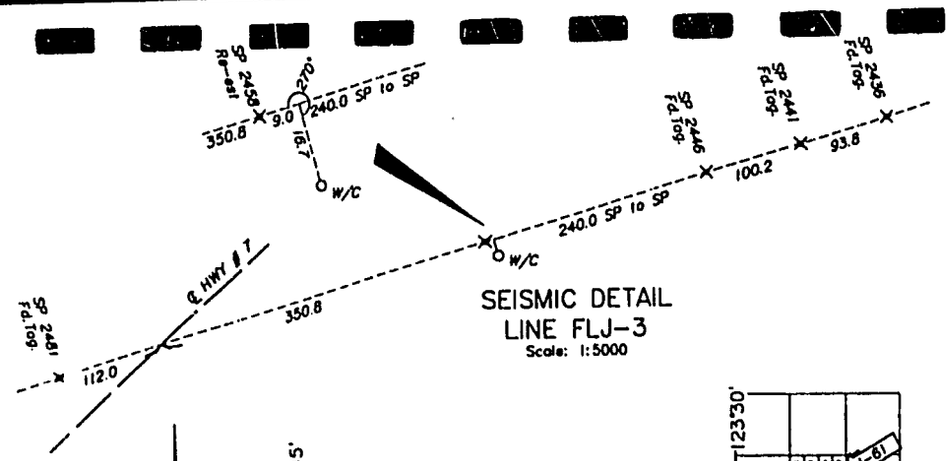
CAMPSITE:

N.W: 278.30m. N.E.: 277.14m

S.W: 279.56m. S.W.: 278.83m.

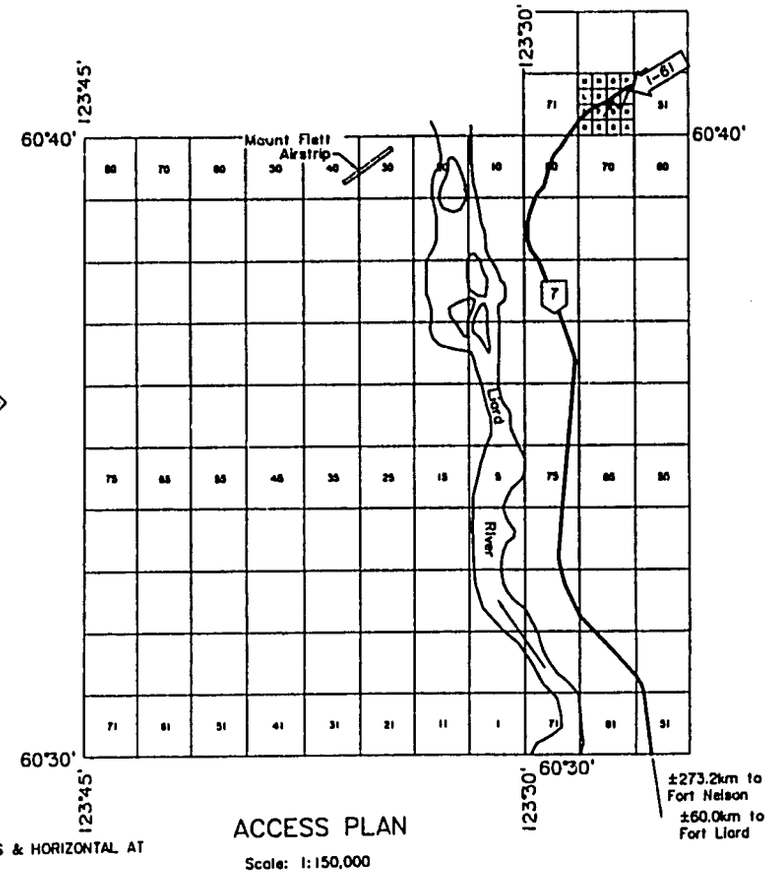
Datum GPS Tie from 83T391, Geodetic Ground Elevation = 295.08m

NOTE:
DISTANCES ARE IN METERS & HORIZONTAL AT GENERAL GROUND LEVEL
BEARINGS ARE GRID



SEISMIC DETAIL LINE FLJ-3

Scale: 1:5000



ACCESS PLAN

Scale: 1:150,000

OPERATOR:
CANADIAN FOREST OIL LTD.

I CURTIS E. HENRIE, CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAN IS CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND WAS COMPLETED ON THE 9th DAY OF JULY , 1998.

CDN FOREST et al FLETT RAPIDS I-61
IN UNIT I, SECTION 61
GRID AREA 60°50' , 123°15'

B I T R E C O R D

WELL NAME: CDN. FOREST et al FLETT RAPIDS I-61 AFE: A983002 SPUD DATE: 98/11/13

LOCATION: 300-I61-6050-12315-0 CONTRACTOR: Nabors Drlg. RIG: 24E

Wed Feb 10 08:52:27 1999

RUN	BIT#	SIZE (mm)	TYPE	MAKE	SERIAL NUMBER	NOZZLE SIZE(mm) #1/4	#2/5	#3/6	--DEPTH-- IN	OUT	ON BIT DRILL (m)	+CORE (hr)	REAMING (m)	(hr)	I-O-G-L	B-G-O-R	ROP MIN (m/hr)	MAX (m/hr)	AVG (m/hr)	WOB MIN daN	MAX daN	AVG daN	RPM MIN	MAX	AVG	AVG MUD DEN
1	1A	444.5	MS13GJ	Reed	RO2671	15.9	15.9	15.9	0	151	140	33.50	0	0.00	4-4-HT-A	E-I -NO-TD	4.2	6.4	5.3	1000	3000	2000	110	120	115	1037
2	2A	660.4	S4	Sec	RC665	15.9 19.0	19.0	19.0	27	151	0	0.00	109	20.75	5-4-WT-A	E-I -NO-TD	5.0	5.2	5.1	1000	3000	2000	50	60	55	1042
3	1B	444.5	XG3	HW	D77BU	19.0 17.5	19.0 17.5	19.0 17.5	151	440	289	61.25	0	0.00	4-4-WT-A	E-I -NO-PR	4.7	6.6	5.7	3000	12000	7500	48	110	79	1066
4	2BRR	444.5	MS13GJ	REED	RO2671	15.9	15.9	15.9	440	569	129	43.25	0	0.00	5-5-WT-A	E-I -NO-PR	2.2	3.0	2.6	3000	7000	5000	100	110	105	1074
5	1	311.0	F 1	SMITH	LK0668	15.9 11.9	11.9	11.9	569	592	23	6.75	0	0.00	1-1-NO-A	E-I -NO-BHA	3.4	3.6	3.5	5000	7000	6000	75	80	77	1053
6	2RR1	311.0	F 1	SMITH	LK0668	11.9	11.9	11.9	592	892	300	56.25	0	0.00	3-5-BT-G	4-I -NO-PR	5.3	7.1	6.2	7000	12000	9500	70	90	80	1054
7	3	311.0	C 2	RBI	LH1521	11.9	11.9	11.9	892	1385	383	89.00	0	0.00	2-2-WT-A	E-I -NO-BHA	4.3	6.2	5.2	9000	15000	12000	70	85	77	1079
8	4	311.0	C2	RBI	LH1400	14.3	15.9	15.9	1385	1418	33	10.50	0	0.00	2-2-WT-A	E-I -NO-BHA	3.1	3.3	3.2	10000	15000	12500	75	75	75	1083
9	5RR4	311.0	C2	RBI	LH1400	14.3	15.9	15.9	1418	1573	155	48.50	0	0.00	3-3-WT-A	E-3 -No-BHA	3.2	3.3	3.2	10000	19000	14500	75	95	85	1089
10	6	311.0	ATM22G	HW	H10BT	14.3	14.3	15.9	1573	1872	299	85.75	0	0.00	3-3-WT-A	E-2 -No-BHA	3.1	3.5	3.3	10000	16000	13000	70	110	90	1107
11	7	311.0	EHP51H	REED	BW1481	14.3	14.3	15.9	1872	2073	201	67.50	0	0.00	4-8-BT-G	F-2 -BT-TD	3.0	3.6	3.3	14000	18000	16000	70	110	90	1128
12	8RR	311.0	C2	RBI	LH1400	15.9	15.9	15.9	2073	2073	0	0.00	15	0.75	4-4-WT-A	E-3 -NO-BHA	0.0	0.0	0.0	1000	3000	2000	0	0	0	
13	9RR	311.0	C2	RBI	LH1400	15.9	15.9	15.9	2073	2073	0	0.00	0	0.00	4-4-WT-A	E-3 -WT-LOG	0.0	0.0	0.0	1000	3000	2000	0	0	0	
14	1B	215.9	HP-11	REED	TC1097	7.9	7.9	7.9	2073	2083	10	2.50	0	0.00	2-2-WT-A	E-1 -NO-BHA	4.0	4.0	4.0	6000	10000	8000	60	75	67	1068
15	2B	215.9	GS84F	SEC	680230	7.9	7.9	7.9	2083	2395	312	77.25	0	0.00	7-8-BT-A	F-7 -RG-Log	3.4	4.4	3.9	12000	16000	14000	60	70	65	1100
16	3B	215.9	F3P	Smith	LS0830	8.7	8.7	8.7	2395	2571	176	57.75	18	2.50	8-8-BT-A	E-I -LT-PR	3.0	4.6	3.8	16000	17000	16500	60	65	62	1148
17	4B	215.9	C45LRG	RBI	BP753B	8.7	8.7	8.7	2571	2660	89	29.75	0	0.00	4-4-BT-A	E-I -NO-LOG	3.0	3.2	3.1	16000	17000	16500	55	60	57	1152
18	5BRR	215.9	HP11	Reed	TC1097	9.5	9.5	9.5	2660		0	0.00	0	0.00	2-2-WT-A	- - -	0.0	0.0	0.0	0	0	0	0	0	0	
19	1L	156.0	EHP43H	Reed	LJ4381	0.0	0.0	0.0	1899		0	0.00	41	2.50	2-2-NO-A	- - -	7.8	7.8	7.8	1000	2000	1500	50	60	55	

ATTACHMENT #3

Attachment #4

End Well Report
Canadian Forest Oil Ltd.
CDN Forest et al Flett Rapids I-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	98.11.05	20.0		10.00	7.40	Glacial Mix
508.0	139.87	K-55	USS	12	BT&C	98.11.18	150.8		45.00	34.20	0:1:0 "G" + 2.0% CaCl2
339.7	101.19	K-55	Tamsa	44	BT&C	98.11.25	569.6		73.68	56.00	0:1:0 "G" + 0.5% CFR + 0.3% LTR
									12.00	9.00	0:1:0 "G" + 1.0% CaCl2
244.5	64.74	L-80	Algoma	150	BT&C	98.12.25	2067.8	Stage #1:	87.52	64.54	Thermal 40 + 0.7% CFR + 0.7% CFL-2 + 0.3% LTR
177.8	43.16	L-80	Nippon	10	BT&C						
177.8	43.16	L-80	Nippon	50	NSCC		2659.0		31.00	22.62	Thermal 40 + 0.7% CFR + 0.7% CFL-2 + 10 l/m3 FA-1 + 0.1% LTR

ATTACHMENT #5

DRILLING MUD PROPERTIES RECORD

WELL NAME: CDN FOREST et al FLETT RAPIDS I-61 AFE: A983002 SPUD DATE: 98/11/13

LOCATION: 300-I61-6050-12315-0 CONTRACTOR: Nabors Drlg. RIG: 24E

Thu Apr 29 14:53:40 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	64	K Minus	1010/1020	40	5.0/ 0.0	10.0	0/ 0	4	7	0.0	0.0	0/ 0	0.000	0.00	0.00	0.000	0	0	10	0	60	0	0.0	0.0
2	140	K Minus	1045/1050	60	30.0/35.0	10.0	0/ 0	10	32	44.0	2.0	0/ 0	0.000	0.00	0.00	0.000	0	0	80	0	360	200	0.0	0.0
3	151	K Minus	1045/1050	60	18.0/20.0	8.5	0/ 0	8	21	50.0	3.0	0/ 0	0.003	0.00	0.03	0.000	0	0	70	0	400	300	0.0	0.0
4	136	K Minus	1050/1055	66	16.0/18.0	9.5	0/ 0	10	18	70.0	5.0	19/ 19	0.030	1.43	0.03	0.000	0	0	80	0	400	300	0.0	0.0
5	151	K Minus	1060/1065	72	26.0/28.0	9.5	0/ 0	8	32	55.0	5.0	0/ 49	0.001	106.00	0.04	0.000	0	0	80	0	540	320	0.0	0.0
6	151	K Minus	1060/1065	72	26.0/28.0	9.5	0/ 0	8	32	55.0	5.0	0/ 49	0.030	29.40	0.04	0.000	0	0	80	0	540	320	0.0	0.0
7	240	K Minus	1045/1055	50	20.0/21.0	11.5	0/ 0	8	27	65.0	6.0	0/ 43	0.001	4.00	0.03	0.000	0	0	69	0	740	900	0.0	0.0
8	353	K Minus	1070/1075	46	15.0/16.0	10.0	0/ 0	5	16	41.0	5.0	57/ 60	0.002	44.50	0.04	0.000	0	0	69	0	720	820	0.1	0.2
9	437	K Minus	1070/1075	58	20.0/22.0	9.0	0/ 0	8	22	26.0	3.0	63/ 61	0.002	50.00	0.04	0.000	0	0	64	0	800	850	0.1	0.2
10	472	K Minus	1075/ 0	46	14.0/16.0	9.6	0/ 0	7	18	28.0	4.0	60/ 59	0.002	59.00	0.05	0.000	0	0	62	0	800	780	0.1	0.3
11	544	K Minus	1075/ 0	58	17.0/18.0	9.5	0/ 0	8	20	21.0	3.0	64/ 66	0.002	55.00	0.05	0.000	0	0	67	0	780	800	0.1	0.2
12	570	K Minus	1075/ 0	80	26.0/28.0	10.0	0/ 0	8	31	23.6	4.0	65/ 66	0.002	54.00	0.05	0.000	0	0	68	0	800	740	0.2	0.3
13	570	K Minus	1070/ 0	45	8.0/10.0	9.5	0/ 0	8	8	25.0	4.0	62/ 65	0.002	50.00	0.04	0.000	0	0	64	0	780	700	0.2	0.4
14	570	K Minus	1070/ 0	45	8.0/10.0	9.5	0/ 0	8	8	25.0	4.0	62/ 65	0.002	50.00	0.04	0.000	0	0	64	0	780	700	0.2	0.4
15	587	K Minus	1050/1055	43	5.0/ 6.0	8.5	0/ 0	4	8	32.0	3.0	42/ 0	0.001	47.00	0.03	0.000	0	0	34	0	740	700	0.1	0.1
16	636	K Minus	1050/1055	40	5.0/ 6.0	11.1	0/ 0	8	9	10.0	0.5	33/ 33	0.005	41.00	0.03	0.000	0	0	40	0	800	800	0.4	0.6
17	782	K Minus	1050/1055	43	6.0/ 9.0	10.5	0/ 0	8	9	16.0	1.0	49/ 50	0.002	36.00	0.03	0.000	0	0	45	0	800	780	0.2	0.4
18	860	K Minus	1055/1060	48	12.0/14.0	10.5	0/ 0	9	14	15.5	2.0	49/ 49	0.001	34.00	0.03	21000.000	0	0	55	0	750	730	0.2	0.4
19	921	K Minus	1055/1060	48	13.0/14.0	10.6	0/ 0	9	15	16.4	2.0	42/ 43	0.001	40.00	0.03	22000.000	0	0	49	0	760	730	0.2	0.4
20	985	K Minus	1065/1080	52	8.0/10.0	10.7	0/ 0	14	12	12.0	1.0	52/ 53	0.001	60.00	47.00	22000.000	0	0	62	0	520	900	0.2	0.7
21	1100	K Minus	1080/1080	54	10.0/15.0	9.7	0/ 0	14	14	14.6	1.5	60/ 61	15.000	75.00	50.00	20000.000	0	0	55	0	460	750	0.2	0.6
22	1200	K Minus	1080/1080	48	10.0/12.0	10.1	0/ 0	14	12	14.0	2.0	57/ 61	10.000	69.00	50.00	20000.000	0	0	61	0	400	700	0.2	0.7
23	1365	K Minus	1080/1090	50	15.0/17.0	10.3	0/ 0	10	20	14.0	2.0	57/ 61	10.000	81.00	56.00	24000.000	0	0	65	0	400	750	0.2	0.8
24	1400	K Minus	1080/1080	50	10.0/14.0	9.5	0/ 0	10	13	14.6	2.0	57/ 57	10.000	69.00	50.00	22000.000	0	0	70	0	400	800	0.1	0.6
25	1430	K Minus	1080/1090	57	11.0/14.0	10.1	0/ 0	13	16	14.6	2.0	58/ 58	10.000	76.00	56.00	22000.000	0	0	80	0	400	760	0.2	0.7
26	1470	K Minus	1090/1090	53	12.0/17.0	10.1	0/ 0	13	15	14.2	2.0	58/ 61	10.000	87.00	56.00	22000.000	0	0	70	0	400	750	0.2	0.8
27	1540	K Minus	1090/1090	55	12.0/16.0	10.3	0/ 0	14	15	14.6	2.0	58/ 61	10.000	82.00	56.00	22000.000	0	0	75	0	380	850	0.2	0.9
28	1580	K Minus	1085/1085	51	12.0/15.0	9.5	0/ 0	13	13	15.0	2.0	55/ 61	20.000	78.00	53.00	22000.000	0	0	70	0	300	800	0.2	0.8
29	1645	K Minus	1085/1085	46	10.0/12.0	9.7	0/ 0	12	12	19.0	3.0	62/ 65	10.000	78.00	53.00	21000.000	0	0	70	0	400	800	0.1	0.9
29	1660	K Minus	1085/1085	55	12.0/15.0	10.5	0/ 0	11	16	14.5	2.0	62/ 65	10.000	67.00	53.00	24000.000	0	0	80	0	440	800	0.2	0.9
30	1716	K Minus	1100/1100	48	10.0/14.0	10.0	0/ 0	12	18	13.1	2.0	67/ 69	10.000	79.00	63.00	23000.000	0	0	90	0	360	800	0.2	1.0
31	1830	K Minus	1120/1120	50	12.0/14.0	10.0	0/ 0	12	14	14.5	2.0	68/ 70	10.000	120.00	75.00	22000.000	0	0	90	0	480	850	0.2	1.0
32	1866	K Minus	1120/1120	51	12.0/16.0	9.7	0/ 0	13	13	16.0	2.0	67/ 70	10.000	120.00	75.00	24000.000	0	0	90	0	480	850	0.2	1.0
33	1883	K Minus	1160/1160	56	12.0/15.0	10.0	0/ 0	12	16	17.0	3.0	60/ 60	10.000	0.00	100.00	24000.000	0	0	90	0	400	850	0.2	1.2
34	1970	K Minus	1185/1200	52	14.0/20.0	10.5	0/ 0	15	18	11.6	3.0	60/ 58	10.000	0.00	115.00	25000.000	0	0	90	0	360	850	0.2	1.2

35	2026	K Minus	1200/1200	52	12.0/18.0	10.0	0/	0	18	16	11.8	3.0	68/	63	10.000	0.00	125.00	21000.000	0	0	100	0	480	950	0.3	1.4
36	2073	K Minus	1200/1220	61	18.0/24.0	10.4	0/	0	17	22	9.6	2.0	64/	66	10.000	0.00	125.00	23000.000	0	0	100	0	360	1000	0.3	1.3
37	2061	K Minus	1220/1230	61	18.0/24.0	10.4	0/	0	17	22	9.6	2.0	64/	66	10.000	0.00	125.00	23000.000	0	0	100	0	360	1000	0.3	1.3
38	2039	K Minus	1250/1265	86	22.0/28.0	10.4	0/	0	26	24	11.4	2.0	61/	63	0.007	0.00	125.00	22000.000	0	0	90	0	400	1000	0.2	1.2
39	2073	K Minus	1260/1270	100	28.0/36.0	10.4	0/	0	25	30	7.7	2.0	60/	60	0.002	0.00	140.00	22000.000	0	0	100	0	400	1000	0.3	1.2
40	2073	K Minus	1270/1275	96	26.0/32.0	10.3	0/	0	25	30	8.0	2.0	61/	63	0.003	0.00	145.00	22000.000	0	0	100	0	360	1000	0.3	1.3
41	2073	K Minus	1295/1300	140	32.0/40.0	10.1	0/	0	29	35	8.0	2.0	60/	60	0.001	0.00	145.00	21000.000	0	0	120	0	440	1000	0.3	1.3
42	2073	K Minus	1300/1290	76	16.0/24.0	9.4	0/	0	28	18	8.6	2.0	60/	60	0.001	0.00	145.00	21000.000	0	0	110	0	360	1000	0.2	1.3
43	2073	K Minus	1300/1290	76	16.0/24.0	9.4	0/	0	28	18	8.6	2.0	60/	60	0.001	0.00	145.00	21000.000	0	0	110	0	360	1000	0.2	1.3
45	2083	Gel chem	1065/1070	41	2.0/ 3.0	10.8	0/	0	14	5	8.0	0.1	0/	41	0.001	29.00	0.03	14000.000	0	0	40	0	320	900	0.3	0.8
46	2093	Gel chem	1045/1065	41	1.0/ 3.0	9.9	0/	0	12	4	7.5	0.5	0/	43	0.001	38.00	73.00	17000.000	0	0	35	0	360	1000	0.2	0.7
47	2161	Gel chem	1085/1095	47	4.0/ 7.0	10.5	0/	0	17	10	8.0	0.5	0/	49	0.002	38.00	73.00	12000.000	0	0	55	0	120	750	0.4	1.3
48	2170	Pot.Sul.Pol.	1105/1105	46	3.0/ 7.0	10.7	0/	0	16	10	7.6	0.5	50/	51	0.000	0.00	60.00	10000.000	0	0	60	0	80	800	0.4	1.3
49	22750	Pot.Sul.Pol.	1100/1100	45	4.0/ 7.0	10.7	0/	0	15	8	8.2	0.5	52/	55	10.000	0.00	60.00	8000.000	0	0	60	0	60	1000	0.6	1.4
50	2372	Pot.Sul.Pol.	1105/1105	45	3.0/ 4.0	10.5	0/	0	15	6	7.0	0.5	50/	55	20.000	127.00	60.00	8000.000	0	0	60	0	40	1000	0.5	1.3
51	2395	Pot.Sul.Pol.	1110/1110	55	5.0/12.0	10.0	0/	0	17	14	7.2	0.5	50/	53	10.000	79.00	70.00	16000.000	0	0	70	0	40	1000	0.3	1.2
51	2395		1140/ 0	60	0.0/ 0.0	10.0	0/	0	0	0	7.8	0.0	0/	0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
52	2396	Pot.Sul.Pol.	1150/1150	63	5.0/12.0	9.3	0/	0	25	16	6.0	0.5	47/	49	10.000	0.00	80.00	10000.000	0	0	70	0	60	1000	0.2	1.3
53	2489	Pot.Sul.Pol.	1150/1150	52	3.0/ 7.0	10.0	0/	0	19	12	7.2	0.5	54/	57	10.000	0.00	80.00	6000.000	0	0	55	0	40	1200	0.5	1.5
54	2520	Pot.Sul.Pol.	1145/1145	51	4.0/ 8.0	10.0	0/	0	20	11	7.6	0.5	57/	60	20.000	0.00	80.00	11000.000	0	0	50	0	40	1200	0.5	1.6
55	2570	Pot.Sul.Pol.	1145/1145	63	5.0/ 0.0	9.7	0/	0	22	15	8.0	0.5	61/	63	30.000	90.00	100.00	6000.000	0	0	80	0	40	1200	0.4	1.6
56	2625		1140/1140	58	0.0/ 0.0	10.0	0/	0	0	0	7.6	0.5	0/	0	0.000	0.00	0.00	0.000	0	0	0	0	0	0	0.0	0.0
56	2570	Pot.Sul.Pol.	1145/1145	63	5.0/ 0.0	9.7	0/	0	22	15	8.0	0.5	61/	63	30.000	90.00	100.00	6000.000	0	0	80	0	40	1200	0.4	1.6
57	2660	Pot.Sul.Pol.	1160/1160	62	5.0/12.0	10.2	0/	0	25	14	8.0	0.5	61/	63	20.000	0.00	100.00	8000.000	0	0	90	0	40	1400	0.9	2.0

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 RAPIDS I-61 AFE: A983002 SPUD DATE: 98/11/13

LOCATION: 300-I61-6050-12315-0 CONTRACTOR: Nabors Drlg. RIG: 24E

Thu Apr 29 14:53:42 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	2660	Pot.Sul.Pol.	1160/1160	85	6.0/14.0	10.0	0/ 0	28	16	7.4	0.5	52/ 52	10.000	0.00	100.00	8000.000	0	0	90	0	40	1250	0.8	2.0
59	2660	Pot.Sul.Pol.	1160/1160	85	6.0/14.0	10.0	0/ 0	28	16	7.4	0.5	52/ 52	10.000	0.00	100.00	8000.000	0	0	90	0	40	1250	0.8	2.0
60	2660	Pot.Sul.Pol.	1170/1170	85	12.0/15.0	10.0	0/ 0	29	18	7.4	0.5	48/ 51	10.000	0.00	100.00	8000.000	0	0	100	0	60	1400	0.6	2.2
61	2660	Pot.Sul.Pol.	1180/1180	75	6.0/12.0	9.5	0/ 0	26	16	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	90	0	40	1300	0.4	2.0
62	2660	Pot.Sul.Pol.	1180/1180	75	6.0/12.0	9.5	0/ 0	26	16	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	90	0	40	1300	0.4	2.0
63	2660	Pot.Sul.Pol.	1180/1160	60	3.0/ 6.0	9.5	0/ 0	21	8	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	100	0	40	1300	0.4	2.0
64	1899	Pot.Sul.Pol.	1180/1160	60	3.0/ 6.0	9.5	0/ 0	21	8	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	100	0	40	1300	0.4	2.0
65	1899	Pot.Sul.Pol.	1180/1160	60	3.0/ 6.0	9.5	0/ 0	21	8	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	100	0	40	1300	0.4	2.0
66	1899	Pot.Sul.Pol.	1180/1160	60	3.0/ 6.0	9.5	0/ 0	21	8	8.4	0.5	58/ 59	10.000	0.00	100.00	6000.000	0	0	100	0	40	1300	0.4	2.0

ATTACHMENT #6

FORMATION PRESSURE TEST

I-61

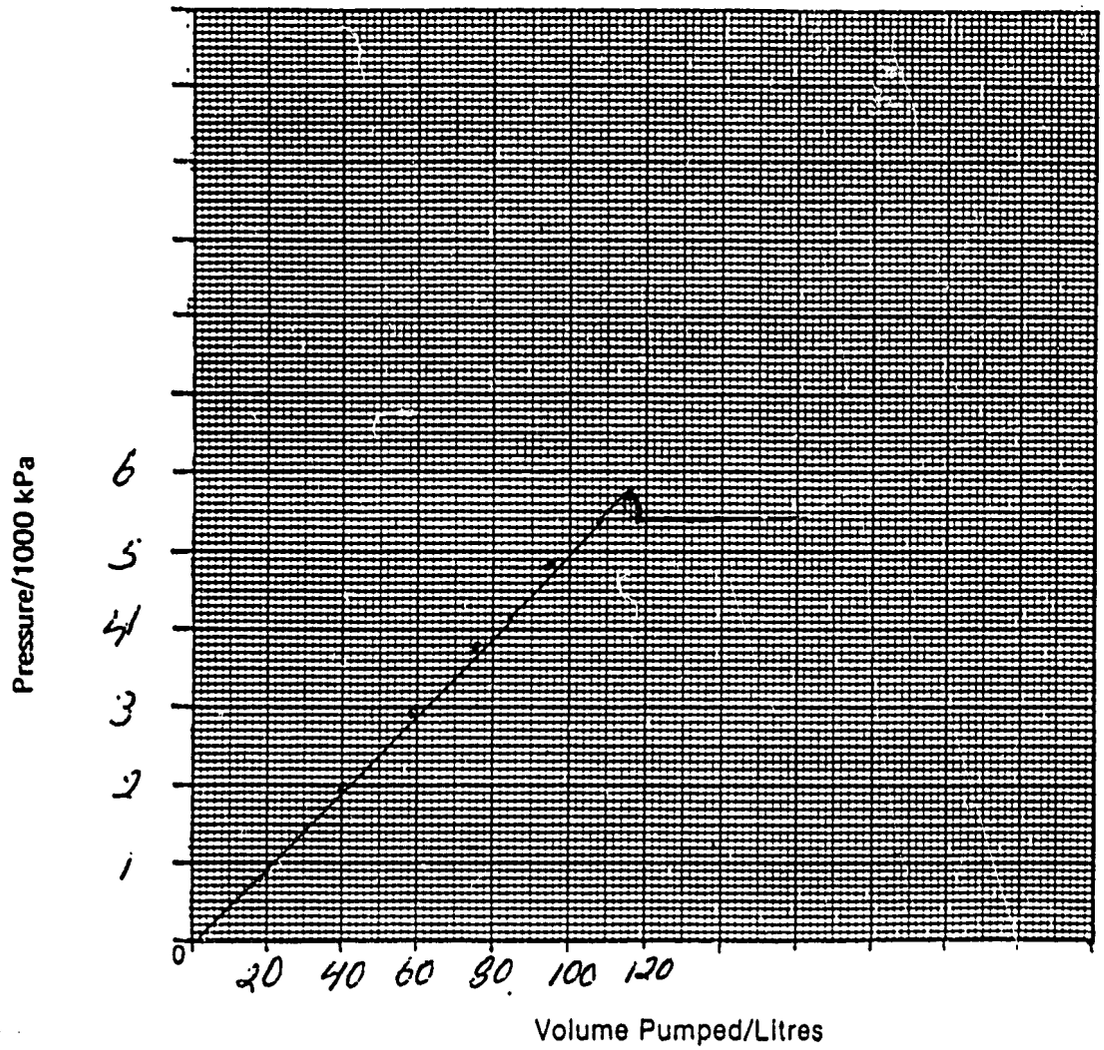
WELL: CNO FOREST ETAL FIRST RAPIDS DATE: (y-m-d) 1998-11-27

MAXIMUM TEST PRESSURE – LESSER OF

(1) B.O.P. Rating _____ 35000 kPa (1)

(2) Weakest Casing: 337.7 mm 101.4 kg/m K-55 Grade

Burst Rating (kPa) _____ x 0.75 = _____ kPa (2)



VOL PUMPED Litres	PRESSURE kPa
0	0
20	800
40	2000
60	3000
80	3900
100	4800
120	5700

Depth of casing	a)		569.6	m
Mud gradient	b)	(mud density x 0.00981)	10.50	kPa/m
Hydrostatic pressure	c)	(a x b)	5980.8	kPa
Leak-off pressure	d)	(see note below)	5411.2	kPa
Total pressure (at shoe)	e)	(c + d)	11392	kPa
Formation gradient	f)	(e÷a)	20	kPa/m
Maximum allowable mud density with no annulus pressure	g)	(f÷ 0.00981)	2039.74	kg/m^3

Note: The last point ON the straight line plotted above is the leak-off pressure that you enter in line (d)

FORMATION PRESSURE TEST

I-61

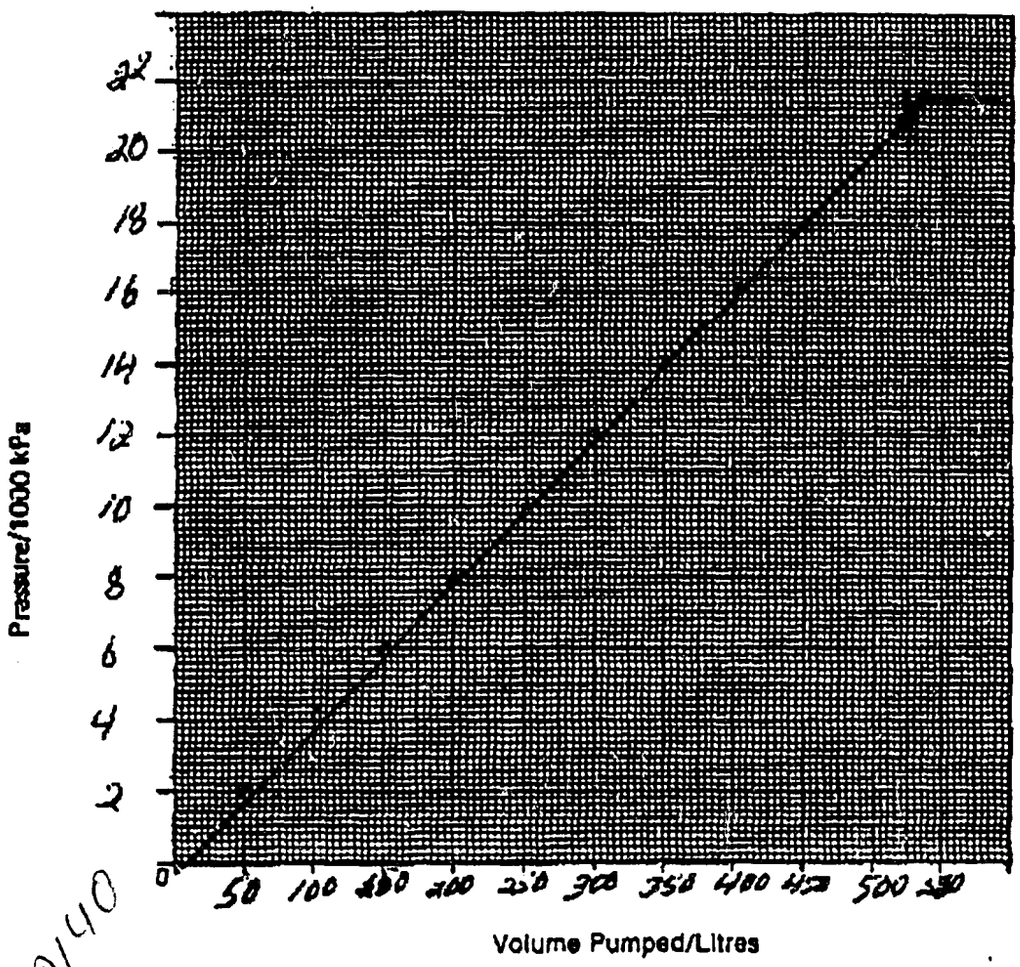
WELL: CON FOREST ETAL FLETT RAPIDS DATE: (y-m-d) 1998-12-27

MAXIMUM TEST PRESSURE – LESSER OF

(1) B.O.P. Rating 35000 kPa (1)

(2) Weakest Casing: 244.5 mm 69.74 kg/m L-80 Grade

Burst Rating (kPa) _____ x 0.75 = _____ kPa (2)



VOL PUMPED Litres	PRESSURE kPa
0	0
50	1500
100	4000
150	5900
200	7800
250	9200
300	11400
350	13000
400	15200
450	17000
500	19000
580	21800

21400

Depth of casing	a)		2067.0	m
Mud gradient	b)	(mud density x 0.00981)	10.65	kPa/m
Hydrostatic pressure	c)	(a x b)	22013.5	kPa
Leak-off pressure	d)	(see note below)	21395.5	kPa
Total pressure (at shoe)	e)	(c + d)	43407	kPa
Formation gradient	f)	(e÷a)	21	kPa/m
Maximum allowable mud density with no annulus pressure	g)	(f÷ 0.00981)	21408	kg/m³

Note: The last point ON the straight line plotted above is the leak-off pressure that you enter in line (d)

Attachment #8

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

Time Distribution

Operation Type	Hours	Percentage
BOP Drill	0.75	0.04%
Cementing	12.00	0.70%
Change Liners	4.00	0.23%
Circulate	127.50	7.39%
Clean To Bottom	1.25	0.07%
Casing Bowl	9.00	0.52%
Drilling	665.75	38.61%
Drilling Out	17.50	1.01%
Flow Line	2.75	0.16%
Handle Tools	47.00	2.73%
Inspection/BHA	7.25	0.42%
Logging	69.75	4.04%
Pressure Testing	22.50	1.30%
Reaming	50.50	2.93%
Repairs	15.25	0.88%
Rig Service	168.00	9.74%
Run Casing	47.75	2.77%
Safety Meetings	31.50	1.83%
Set Slips	1.00	0.06%
Slip & Cut Line	2.25	0.13%
Surveying	51.25	2.97%
Tight Hole	3.25	0.19%
Tripping	283.25	16.43%
Wait On Barite	6.00	0.35%
Wait On Cement	13.75	0.80%
Wait On Slips	3.50	0.20%
Wait On Welder	2.25	0.13%
Weld & Nipple Up BOP	44.75	2.59%
Weld Conductor	7.50	0.43%
Weld Surface	5.75	0.33%
Total Hours	1724.50	100.00%

ATTACHMENT #9

SUB-SURFACE DIRECTIONAL SURVEY REPORT

CANADIAN FOREST OIL LTD.

CDN FOREST et al FLETT RAPIDS I - 61

GRID AREA 60°50′, 123°15′

1999 January 18

WHIPSTOCK
SYSTEMS INC.

WHIPSTOCK

1999 JANUARY 18

WELL NAME: CDN FOREST et al FLETT RAPIDS I-61

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SURVEY PARAMETERS:

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

MAGNETIC VARIATION	E(+)/W(-) (deg) ..... =	27.28
TIE-IN CO-ORDINATE	N(+)/S(-) (m) ..... =	.00
TIE-IN CO-ORDINATE	E(+)/W(-) (m) ..... =	.00
TIE-IN DEPTH	TVD (m) ..... =	569.60
SURFACE CO-ORDINATE	N(+)/S(-) (m) ..... =	.00
SURFACE CO-ORDINATE	E(+)/W(-) (m) ..... =	.00
LAST SURVEY CO-ORDINATE ..	N(+)/S(-) (m) ..... =	263.85
LAST SURVEY CO-ORDINATE ..	E(+)/W(-) (m) ..... =	-29.60

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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)
569.60	.00	.0	569.60	.00	.00	.00	.00
588.00	.75	355.0	588.00	.12 N	.01 W	.12	1.22
599.00	.50	7.0	599.00	.24 N	.01 W	.24	.76
618.00	.25	2.0	618.00	.36 N	.00 E	.36	.40
667.00	.25	39.0	667.00	.55 N	.07 E	.54	.10
714.00	1.00	32.0	713.99	.98 N	.35 E	.93	.48
724.00	1.00	322.0	723.99	1.12 N	.35 E	1.08	3.44
743.00	1.00	17.0	742.99	1.41 N	.29 E	1.37	1.46
764.00	1.25	347.0	763.99	1.81 N	.29 E	1.77	.90
783.00	1.25	335.0	782.98	2.20 N	.16 E	2.17	.41
792.00	1.25	7.0	791.98	2.39 N	.13 E	2.36	2.30
802.00	1.25	352.0	801.98	2.60 N	.13 E	2.57	.98
821.00	1.50	337.0	820.97	3.04 N	.00 E	3.02	.69
839.00	1.50	7.0	838.97	3.49 N	.06 W	3.47	1.29
866.00	1.25	4.0	865.96	4.13 N	.00 E	4.11	.29
893.00	1.00	.0	892.95	4.66 N	.02 E	4.63	.29
940.00	1.00	37.0	939.95	5.40 N	.27 E	5.34	.40
992.00	1.00	339.0	991.94	6.19 N	.38 E	6.10	.56
1049.00	3.00	17.0	1048.90	8.08 N	.64 E	7.96	1.21
1067.00	3.25	15.0	1066.88	9.02 N	.91 E	8.86	.45
1087.00	3.13	21.0	1086.85	10.08 N	1.25 E	9.88	.53
1102.00	3.25	29.0	1101.82	10.83 N	1.60 E	10.59	.92
1126.00	3.00	37.0	1125.79	11.93 N	2.31 E	11.60	.63

WHIPSTOCK

WELL NAME: CDN FOREST et al FLETT RAPIDS I-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
1146.00	2.75	39.0	1145.76	12.72 N	2.93 E	12.31	.40
1175.00	2.10	35.0	1174.74	13.69 N	3.67 E	13.20	.69
1211.00	1.60	49.0	1210.72	14.57 N	4.43 E	13.98	.56
1233.00	1.50	59.0	1232.71	14.91 N	4.91 E	14.27	.39
1281.00	1.50	132.0	1280.70	14.82 N	5.91 E	14.07	1.12
1367.80	1.50	131.8	1367.47	13.30 N	7.60 E	12.37	.00
1380.90	1.30	122.6	1380.56	13.11 N	7.86 E	12.15	.69
1390.70	1.00	119.1	1390.36	13.00 N	8.03 E	12.03	.94
1400.30	.90	120.5	1399.96	12.93 N	8.16 E	11.94	.32
1409.90	.80	103.8	1409.56	12.87 N	8.29 E	11.87	.83
1419.70	1.20	48.2	1419.36	12.92 N	8.44 E	11.90	3.05
1429.50	2.10	18.0	1429.15	13.16 N	8.57 E	12.13	3.74
1439.10	3.50	3.9	1438.74	13.62 N	8.64 E	12.57	4.84
1448.80	5.10	357.9	1448.42	14.35 N	8.65 E	13.30	5.13
1458.40	6.60	355.3	1457.96	15.33 N	8.59 E	14.27	4.76
1468.10	7.80	354.5	1467.59	16.54 N	8.48 E	15.49	3.72
1477.90	8.70	354.3	1477.29	17.94 N	8.34 E	16.89	2.76
1487.70	9.60	354.0	1486.96	19.49 N	8.18 E	18.45	2.76
1497.40	10.40	353.1	1496.51	21.16 N	7.99 E	20.14	2.52
1507.00	11.30	351.0	1505.94	22.95 N	7.74 E	21.94	3.07
1516.80	12.00	350.8	1515.54	24.90 N	7.43 E	23.92	2.15
1526.60	12.50	350.5	1525.12	26.95 N	7.09 E	26.00	1.54
1536.20	13.10	350.8	1534.48	29.05 N	6.74 E	28.12	1.89
1546.00	13.40	351.2	1544.02	31.27 N	6.39 E	30.36	.96
1555.60	14.20	350.3	1553.34	33.53 N	6.02 E	32.65	2.59
1568.40	15.30	349.7	1565.72	36.74 N	5.46 E	35.90	2.60
1578.20	16.20	349.3	1575.15	39.36 N	4.97 E	38.56	2.78
1587.90	17.00	349.2	1584.45	42.08 N	4.46 E	41.32	2.48
1597.50	17.60	349.6	1593.61	44.88 N	3.93 E	44.17	1.91
1607.20	18.10	348.7	1602.85	47.80 N	3.37 E	47.13	1.77
1616.90	18.50	348.9	1612.05	50.79 N	2.78 E	50.17	1.25
1626.60	19.00	348.5	1621.24	53.85 N	2.17 E	53.27	1.60
1636.40	19.50	348.7	1630.49	57.02 N	1.53 E	56.49	1.54
1646.00	20.00	349.1	1639.53	60.20 N	.91 E	59.72	1.62
1655.60	20.60	349.3	1648.53	63.47 N	.28 E	63.04	1.89
1665.20	21.20	349.4	1657.50	66.84 N	.35 W	66.46	1.88
1674.80	21.20	349.8	1666.45	70.25 N	.98 W	69.92	.45
1684.50	21.10	350.3	1675.50	73.70 N	1.58 W	73.42	.64
1694.20	21.00	350.4	1684.55	77.13 N	2.17 W	76.89	.33

WHIPSTOCK

WELL NAME: CDN FOREST et al FLETT RAPIDS I-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
1703.80	21.10	349.8	1693.51	80.53 N	2.76 W	80.34	.74
1713.00	21.30	349.1	1702.09	83.80 N	3.37 W	83.65	1.05
1722.80	21.40	348.7	1711.21	87.30 N	4.06 W	87.21	.54
1732.50	21.30	348.9	1720.25	90.77 N	4.74 W	90.73	.38
1751.90	21.10	348.1	1738.33	97.64 N	6.14 W	97.72	.54
1761.60	21.00	347.7	1747.39	101.05 N	6.87 W	101.18	.54
1771.30	20.90	348.1	1756.45	104.44 N	7.60 W	104.64	.54
1780.90	20.70	348.5	1765.42	107.78 N	8.29 W	108.03	.76
1790.60	20.50	348.2	1774.50	111.12 N	8.98 W	111.43	.70
1800.10	20.40	347.8	1783.40	114.37 N	9.67 W	114.73	.54
1809.90	20.20	347.2	1792.59	117.69 N	10.40 W	118.11	.89
1819.60	20.30	347.4	1801.69	120.96 N	11.14 W	121.45	.38
1829.30	20.20	346.9	1810.79	124.23 N	11.89 W	124.79	.62
1839.00	20.00	346.9	1819.90	127.48 N	12.64 W	128.10	.62
1848.70	19.90	348.0	1829.02	130.71 N	13.36 W	131.39	1.20
1858.30	20.20	348.0	1838.04	133.93 N	14.05 W	134.66	.94
1868.30	20.40	348.7	1847.42	137.33 N	14.75 W	138.12	.95
1877.30	20.10	348.9	1855.86	140.38 N	15.35 W	141.22	1.03
1887.10	20.00	347.7	1865.07	143.67 N	16.03 W	144.57	1.30
1896.60	20.00	345.5	1873.99	146.83 N	16.79 W	147.79	2.38
1906.30	19.80	344.5	1883.12	150.02 N	17.64 W	151.05	1.22
1916.00	19.80	343.6	1892.24	153.18 N	18.55 W	154.30	.94
1925.70	19.80	342.8	1901.37	156.33 N	19.49 W	157.53	.84
1935.40	19.90	342.8	1910.49	159.47 N	20.47 W	160.76	.31
1945.20	19.80	342.5	1919.71	162.65 N	21.46 W	164.03	.44
1954.80	19.90	342.3	1928.74	165.76 N	22.45 W	167.23	.38
1964.50	19.90	341.7	1937.86	168.90 N	23.47 W	170.46	.63
1974.30	19.90	340.9	1947.08	172.06 N	24.54 W	173.72	.83
1983.90	19.90	340.6	1956.10	175.14 N	25.61 W	176.91	.32
1993.70	19.60	341.2	1965.33	178.27 N	26.70 W	180.14	1.11
2003.50	19.30	341.2	1974.57	181.36 N	27.75 W	183.32	.92
2013.20	19.30	341.2	1983.72	184.40 N	28.78 W	186.45	.00
2022.90	18.90	341.1	1992.89	187.40 N	29.81 W	189.55	1.24
2032.50	18.50	341.4	2001.98	190.31 N	30.80 W	192.56	1.29
2042.20	18.30	341.2	2011.18	193.21 N	31.78 W	195.55	.65
2051.30	18.10	341.4	2019.83	195.91 N	32.69 W	198.33	.69
2055.60	18.00	341.9	2023.92	197.17 N	33.11 W	199.63	1.28
*2067.00	17.49	342.9	2034.78	200.48 N	34.16 W	203.04	1.56
2073.60	17.20	343.5	2041.07	202.37 N	34.73 W	204.98	1.55

WHIPSTOCK

WELL NAME: CDN FOREST et al FLETT RAPIDS I-61

MEAS'D DEPTH	DEV. ANGLE (DEG)	TRUE AZIM-UTH	TRUE VERTICAL DEPTH	CO-ORDINATES LATITUDE	CO-ORDINATES DEPARTURE	VERTICAL SECTION	DOG LEG (°/30m)
2080.00	16.50	343.0	2047.20	204.14 N	35.26 W	206.80	3.35
2091.00	15.50	343.0	2057.77	207.04 N	36.15 W	209.78	2.73
2130.00	13.10	347.0	2095.56	216.33 N	38.67 W	219.30	2.00
2160.00	12.00	349.0	2124.85	222.71 N	40.03 W	225.78	1.18
2207.00	9.75	353.0	2171.00	231.46 N	41.45 W	234.63	1.51
2246.00	7.88	357.0	2209.54	237.40 N	41.99 W	240.60	1.51
2284.00	6.75	359.0	2247.23	242.24 N	42.16 W	245.43	.91
2320.00	5.25	6.0	2283.03	245.99 N	42.03 W	249.14	1.39
2359.00	5.25	20.0	2321.87	249.44 N	41.23 W	252.48	.98
2399.00	5.00	41.0	2361.71	252.48 N	39.46 W	255.30	1.41
2436.00	4.50	40.0	2398.58	254.81 N	37.47 W	257.40	.41
2522.00	3.50	47.0	2484.38	259.18 N	33.38 W	261.29	.39
2561.00	2.75	46.0	2523.32	260.64 N	31.84 W	262.57	.58
2600.00	2.75	26.0	2562.27	262.13 N	30.76 W	263.93	.73
2648.00	1.50	44.0	2610.24	263.62 N	29.81 W	265.30	.88
2660.00	1.50	44.0	2622.24	263.85 N	29.60 W	265.50	.00

==========

TOTAL CALCULATED HORIZONTAL DISPLACEMENT IS : 265.50 m.
ON A AZIMUTH OF: 353.5998° , FROM THE SURFACE LOCATION.

VERTICAL SECTION WAS CALCULATED USING THE LAST SURVEY COORDINATES:
N(+)/S(-) = 263.85 AND E(+)/W(-) = -29.60

* INTERPOLATED DEPTH

OVERSIZED

DOCUMENT

FILMED

ON

35mm

ATTACHMENT #10

LITHOLOGY STRIP LOG
WellSight Systems Inc.
Scale 1:240 Metric

Well Name: CANADIAN FOREST et al FLETT RAPIDS I - 61
Location: I - 61 N 60 deg 50' W 123 deg 15'
Licence Number: 9211-C131-1-1-1 Region: N.W.T
Spud Date: 98/11/13 @ 12:15hrs Drilling Completed: 99/01/08 @ 11:50hr
Surface Coordinates: LAT - 60 deg 40' 41" N
LONG - 123 deg 26' 34" W
Bottom Hole Coordinates: 264.1 m N surface location. 29.8 m W
" "
Ground Elevation (m) 254.99 K.B. Elevation (m) 262.49
Logged Interval (m) 60 m To: 2660 m Total Depth (m): 2660 m
Formation: LOWER DEVONIAN
Type of Drilling Fluid: KCL POLYMER
Printed by WellSight Log Viewer from WellSight Systems Inc. 1-800-447-1534

OPERATOR

Company: CANADIAN FOREST OIL LIMITED
Address: Suite 600, 800 - 6th Ave. S.W.
Calgary, AB
T3P 3G3

GEOLOGIST

Name:
Company: DAX CONSULTING LTD.
Address: 4215 DALHART ROAD N.W
CALGARY, AB.
T3A 1B6

Cores

NONE CUT

DSTs

NONE BEFORE FINAL LOGS

Comments

Depth Column indicator (EVENTS) = slide mode (mud motor)

ROCK TYPES

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

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
- Biocist
- 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
- BS Boundst
- C Chalky
- CX Cryxln
- E Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

OTHER SYMBOLS

POROSITY TYPE
- E Earthy
- Fenest
- F Fracture
- X Inter
- Moldic
- O Organic
- P Pinpoint
- V Vuggy

SORTING
- W Well
- M Moderate
- P Poor

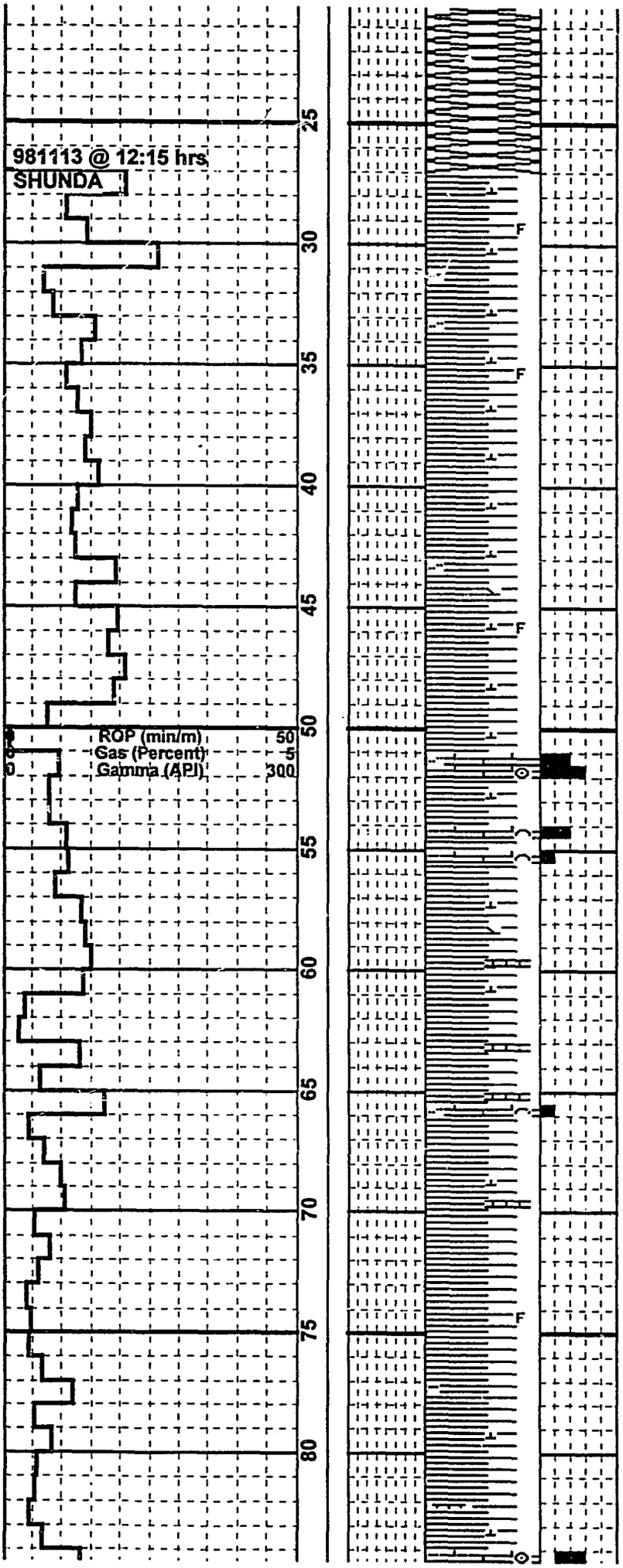
ROUNDING
- R Rounded
- Subrnd
- a Subang
- A Angular

OIL SHOWS
- Even
- Spotted
- Ques
- D Dead

INTERVALS
- None
- Core
- Dst

EVENTS
- Rft
- Sidewall

Curve Track 1 ROP (min/m) Gas (Percent) Gamma (API)	Depth	Porosity Type	Porosit 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
0 ROP (min/m) 50 0 Gas (Percent) 5 0 Gamma (API) 300									Geologist not on Location for drilling of Conductor.
	5								First Sample Collected at 30m
	10								
	15								
	0								



Conductor Pipe set to 28.3 metres K.B.

SH - lt to m gy, blky, loc fis, v calc to mrly, micas, tr pyr, tr shell frags, scat plnt rmns, w ind

SH - a/a, tr brn SLST lam, scat sand.

SH - m to lt gy, pred fis, calc, mrl strgr, micas, tr pyr, tr shell frag, w ind.

SH - a/a, v f gr xln calc, lt brn dol' lam.

SH - m to dk gy, fis, calc, slty, w ind.

SH - a/a, tr sid.

LST - lt to m brn, mot, WACKESTONE, mx, f to m gr biocl, pel, v arg, poss foram frag, com spic, tr crin, tr slt, N v por.

SH - dk gy, fis, mm, tr to rr plnt rmns, rr pyr grnl, tr amts of bent, non calc, mod to p ind.

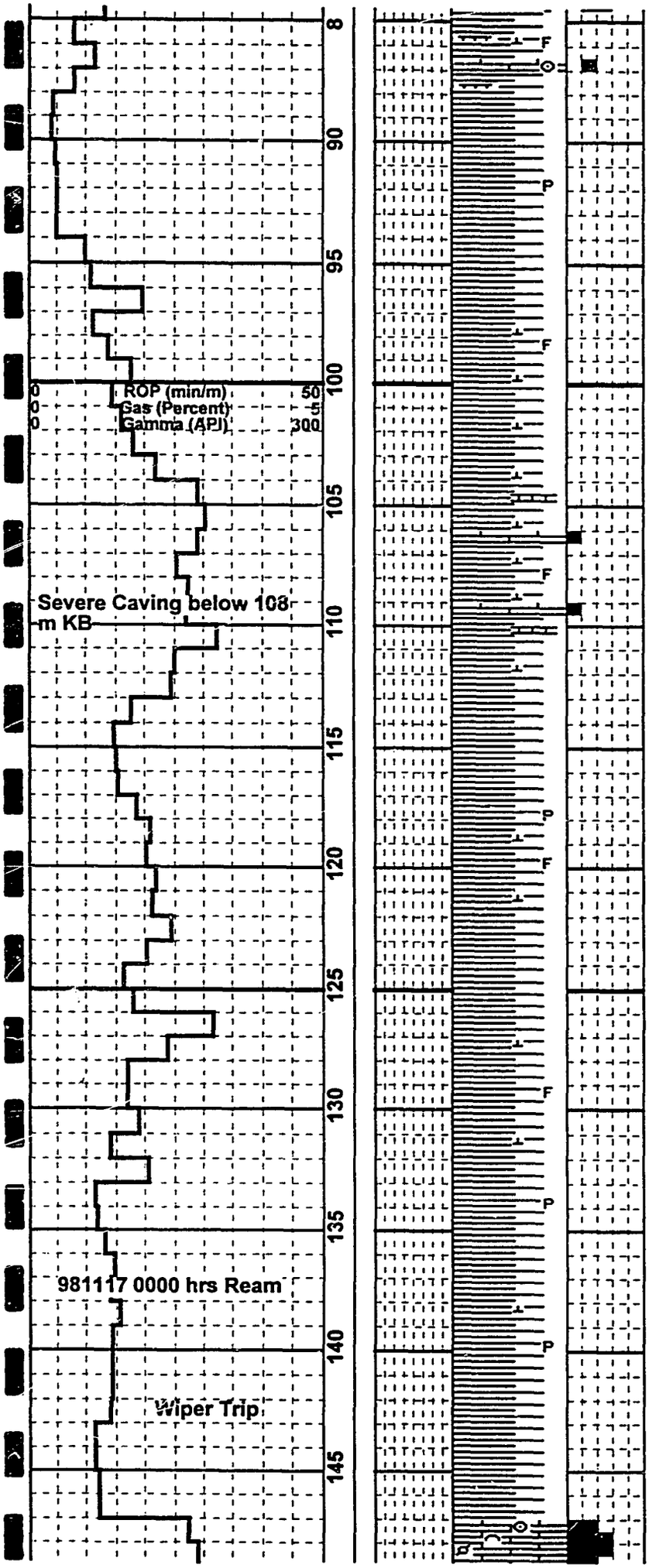
LST - lt to m brn, mot, WACKESTONE, mx, f gr biocl, pel, v arg, tr spic, tr crin, tr slt, N vis por.

SH - dk gy, fis, mm, tr to rr plnt rmns, rr pyr grnl, tr amts of bent, non calc, mod to p ind.

SH - lt to med gy, blky, loc fis, v calc to marl, micas, tr pyr, tr shell frags, scat plnt rmns, w ind

SH - calc as above, common Marl strgr,

LST - lt to m brn, mot, PACKSTONE, mx, f to m



cly ptgs, tr foram frag, tr Brach, tr p p-p por.

SH - dk gy, fis, mm, non calc, rr pyr grnl, tr amts of bent, mod to p ind.

SH - med to dk gy, blky, calc i/p, tr shell + fos frags, tr Brach frags, w ind.

SH - m to dk gy, blky, calc i/p, tr shell + fos frags, tr LST strgrs, tr Brach frags, w ind.

LST - brn, WACKESTONE, mx to v f gr, tr m to c gr, Crin, Brach, v arg, ALG ?.

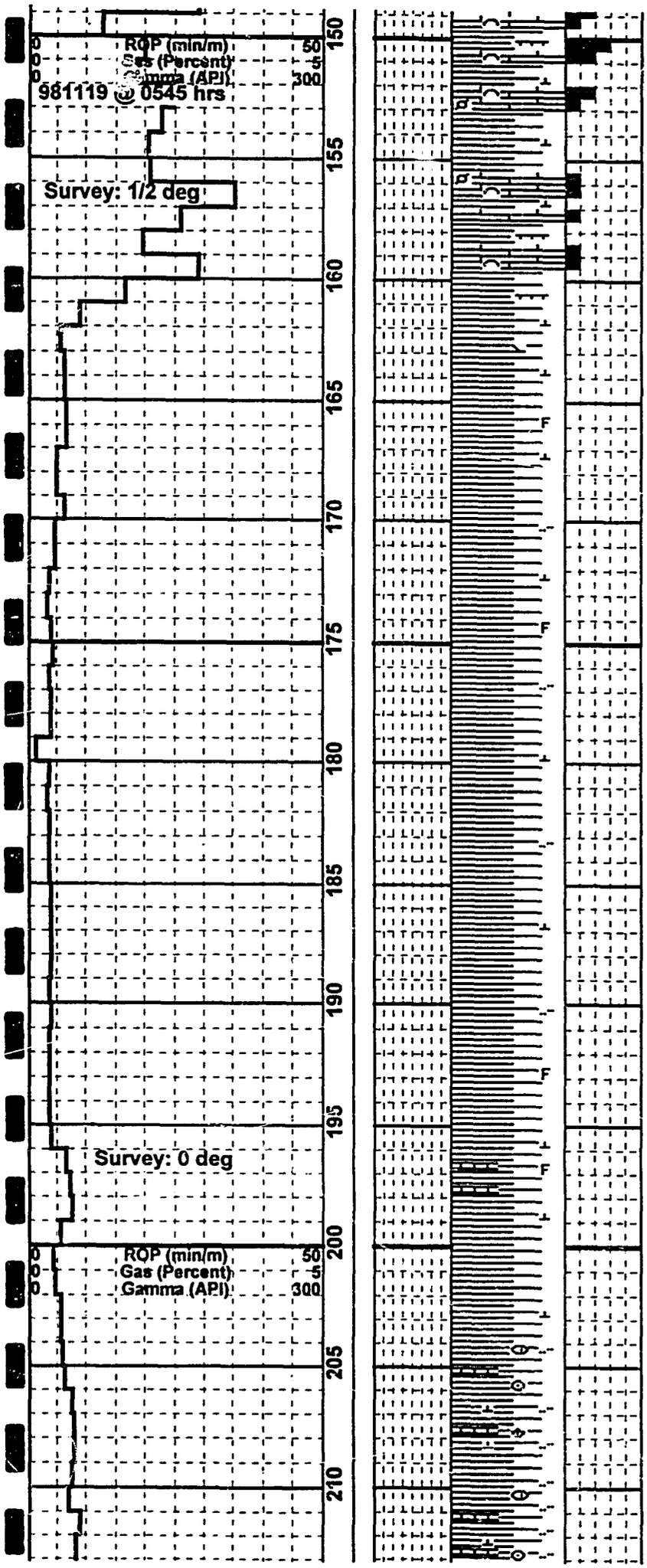
SH - dk gy, fis, mm, non calc, rr pyr grnl, mod to p ind.

SH - m to dk gy, blky, calc i/p, tr shell + fos frags, tr Brach frags, w ind.

SH - m to dk gy, blky, calc i/p, tr shell + fos frags, tr Brach frags, w ind.

SH - dk gy, fis, mm, non calc, rr pyr grnl, mod to p ind.

LST - crm to lt brn, PCKSTN, m to c gr xln, f gr ip, Biocl, rr pel + Spic, rr Crin, com rx clr spar,



SURFACE CASING set at - 150.0 m KB

SH - lt to m gy, blky, loc fis, micas, v calc to tr calc, com fos frag, tr pyr, tr v f aren / slt, w ind.

LST - wh, brn to gy, WACKSTONE, mnr Packstone, v f gr xln to tr mx, f gr biocl, com spic, tr m gr Crin frag, tr Brach, pel?, grdg v arg, tr dol, occ aren.

SH - lt to m gy, blky - bcmg fis, com calc, tr sid, w ind to mod ind ip.

SH - lt to m gy, dk gy, fis, tr calc, tr fos, mod ind.

SH - m to dk gy, fis, com splty, tr calc, tr slt, tr fos, mod ind.

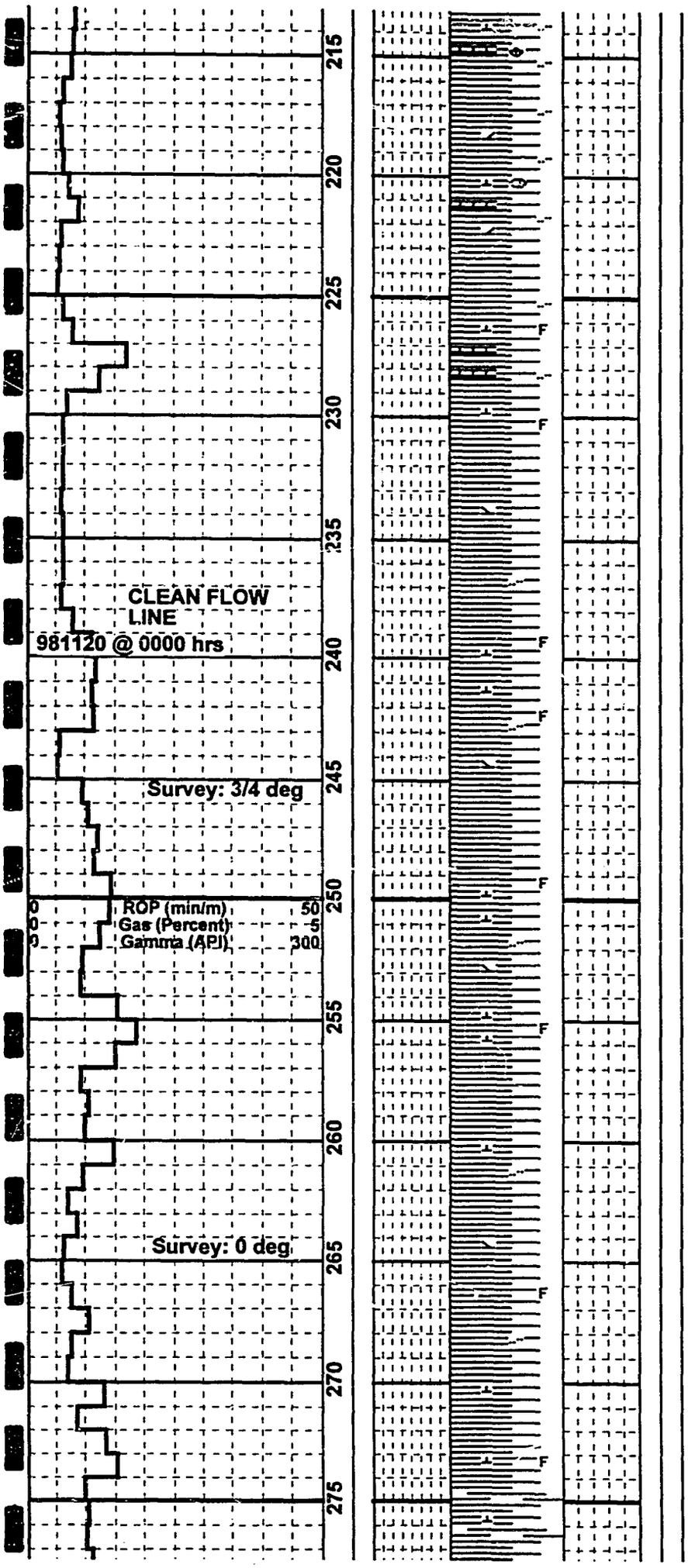
SH - m to dk gy, fis, com splty, tr calc, tr slt, tr fos, mod ind.

SH - m to dk gy, fis, com splty, tr calc, tr slt, tr fos, mod ind.

LST - gy' brn, lith, v arg, rr wh Crin frag, tr Brach, tr fos frag.

SH - m gy, blky, calc ip, rr Crin + Ost, slty, tr v f gr, aren, mod to w ind.

LST - gy, lith, arg, com fos frag, loc ' freq Ost + Brach, Crin + Bry, slty, tr dol.



tr dol.

SH - m gy, blky, calc in part, rr Crin + Ost, silty, tr v f gr aren, mod to w ind.

LST - gy, lith, arg, com fos frag, rr Ost + Brach, rr Crin, slty, tr dol.

SH - lt to m gy, blky, calc in part, slty, tr dol, w ind.

LST - gy, lith to v f gr xln, arg, com fos frag, slty, tr dol.

SH - dk to m gy, fis, non calc, sl tr sid, mod ind.

SH - m to lt gy, blky, calc, tr dol, slty in small part, com fos frags - Crin + Brach, w ind.

CLAUSEN SHALE at 238 metres

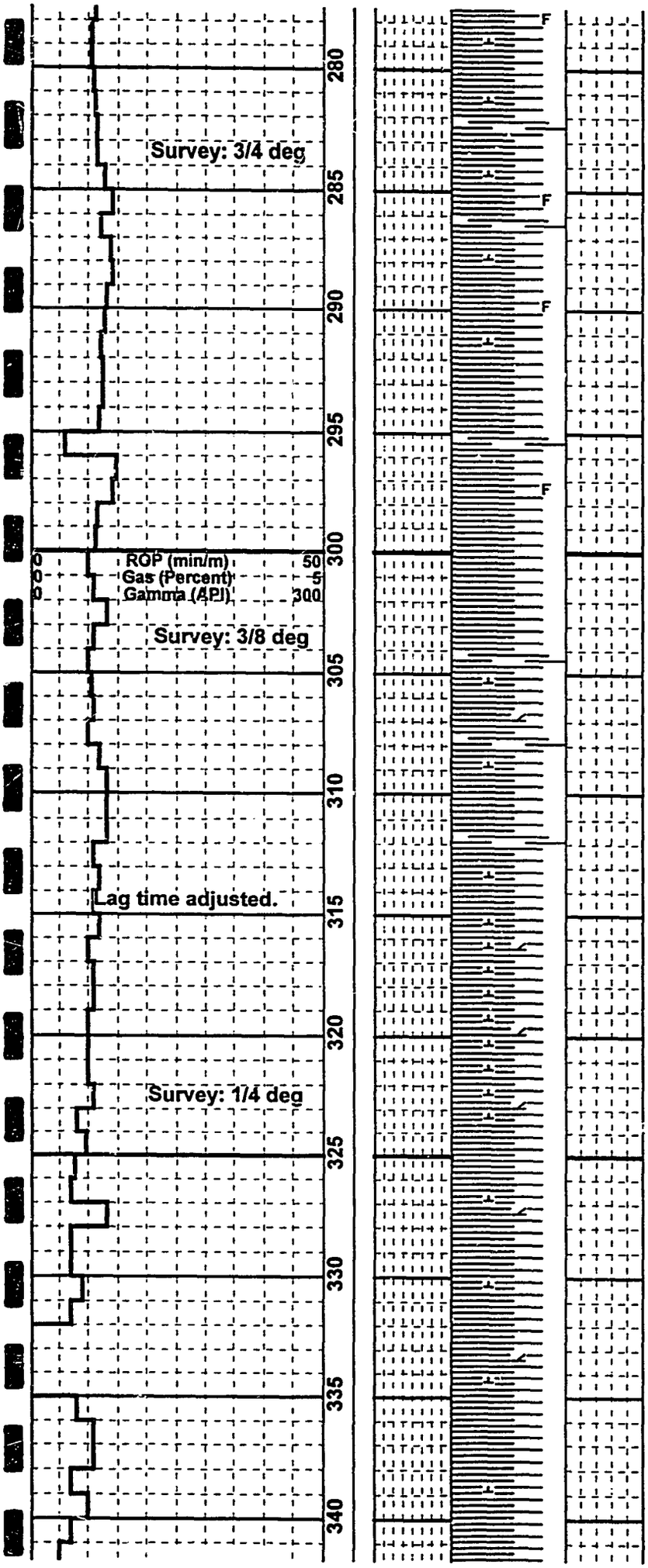
SH - m to lt gy, calc, tr dol, slty in small part, freq fos frags - Crin + Brach, w ind.

SH - dk to m gy, fis, non calc, sl tr sid, mod ind.

SH - lt to m gy, blky, calc, sl tr dol, rr slty, rr fos frags, w ind.

SH - m to dk gy, fis, spity, non to com calc, sl tr sid, mod to loc w ind.

SH - dk to v dk gy, fis to plty, mnr spity, calc, rr to locally com fos frags - Crin, Ost, mod ind.



SH - dk to v dk gy, fis to plty, mnr splty, calc, rr to locally com fos frags - Crin, Ost, mod ind.

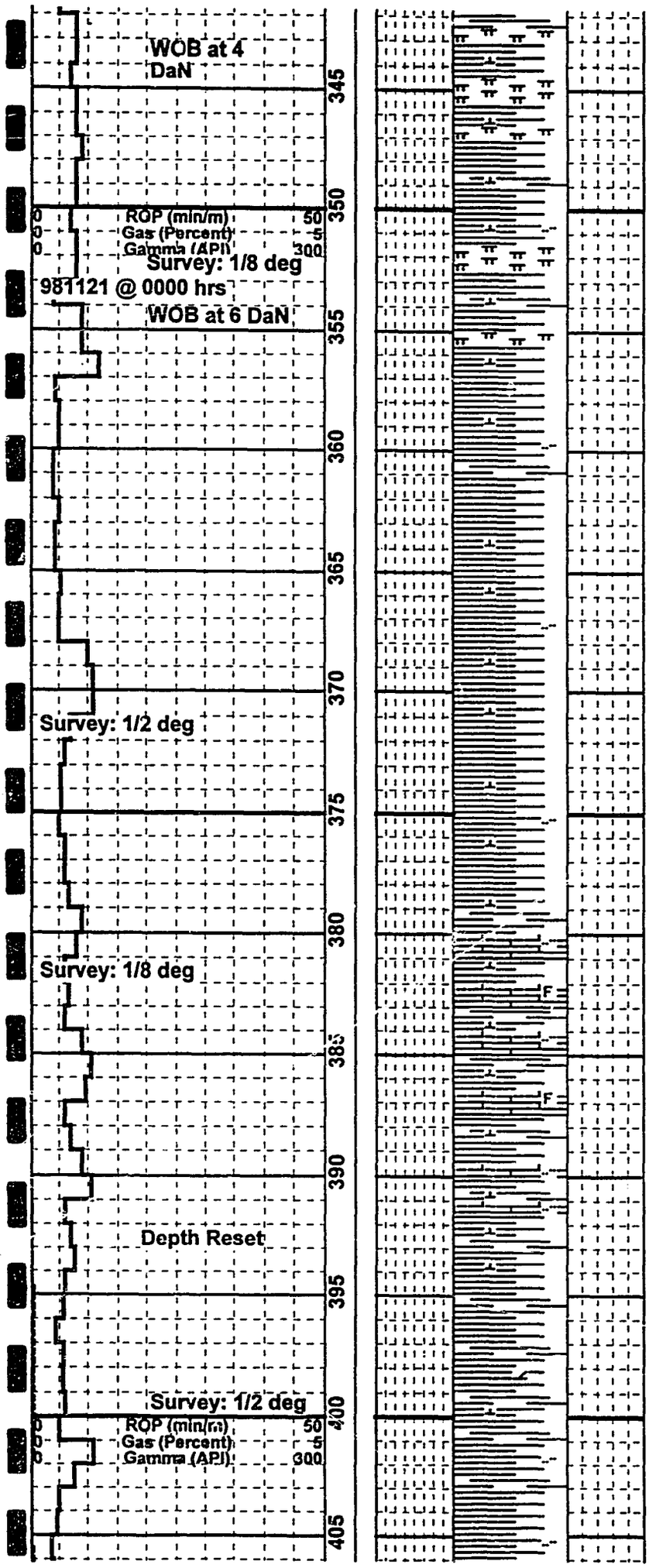
SH - dk to v dk gy, blk ip, fis to plty, mnr splty, dol, loc calc, com micas, rr fos frags - Ost + Crin, tr Brach, tr fltng f gr aren, tr pyr, mod ind.

SH - v dk gy to blk, fis + platy, tr calc, sl dol, tr fos frags, mod ind.

SH - m to dk gy, plty to fis, com calc, non calc ip, tr dol, mod to w ind.

SH - m to dk gy, blky, v calc, arg mx LST lam i/p, tr mx to v f gr DOL, w ind.

SH - dk to m gy, plty to fis, com calc, tr mx LST/DOL xls, w ind.



SH - dk to v dk gy, platy, blky in part, com to very calc, locally MARLSTONE, tr dol, mod to w ind.

SH/MRLST - dk to v dk gy, plty to fis, blky i p, com to v calc, grdg locally to MARLSTONE, micas, mod to w ind.

SH - m to dk, plty, blky i p, com to v calc, rr v f to f gr calc, tr slty, mod to w ind.

SH - dk to m gy, plty, blky in part, com calc, rr v f to f gr calc, tr slty, mod to w ind.

SH - dk to m gy, blk ip. plty to blky, locally very calc, tr shell frag, mod to w ind.

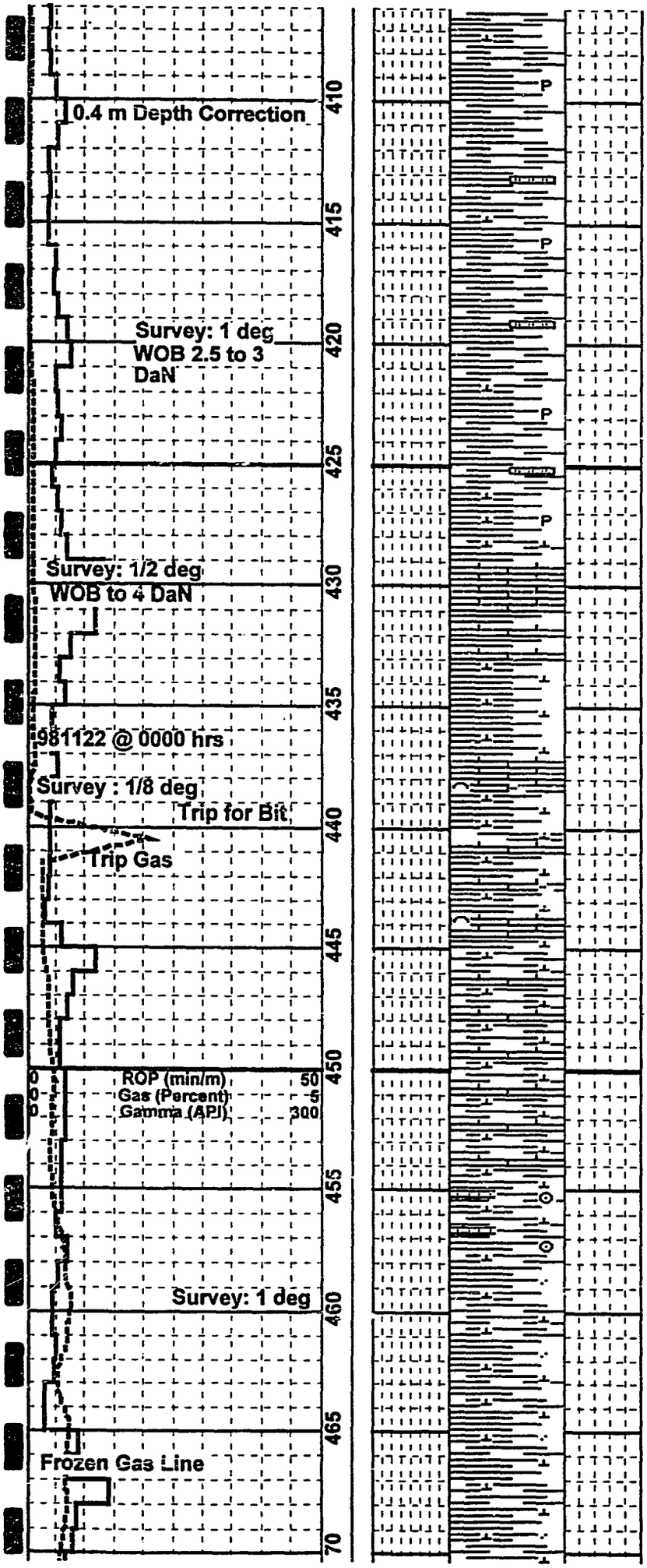
LST - dk gy to blk, m gy ip, MUDSTONE, lith to mx, v arg, slty, tr Crin + mx shell frags.

SH - m to dk gy, blk i/p, blky, calc, tr v f gr rx calc, w ind.

LST - dk gy to blk, m gy ip, MUDSTONE, lith to mx, v arg, slty, tr Crin + shell frags.

SH - v dk gy to blk, plty to fis, blky in part, very calc, w ind.

SH - dk gy, blk ip, plty to fis, locally calc, tr brn slty lam, tr dol, mod w ind.



SH - v dk gy to blk, blky, fiss in part, sl calc, tr brn SLST lam, tr cs grn pyr grns + grnl, w ind.

SH - v dk gy to blk, blky, fis i p, com calc, tr brn SLST lam, tr c gr pyr gr + grnl, w ind.

BESA RIVER/ETANDA or
BANFF FORMATION AT 428 metres KB

LST - dk to m gy, MUDSTONE, lith to mx, v arg, slty in small part.

SH - dk gy, fis, slty i part, mm, freq calc, sl dol, tr pyr, w ind.

LST - dk to m gy, MUDSTONE, lith to mx, v arg, sl tr bioclast, silty in small part.

LST - dk gy to blk, MUDSTONE, lith to mx, v arg, tr slty, sl tr biocl.

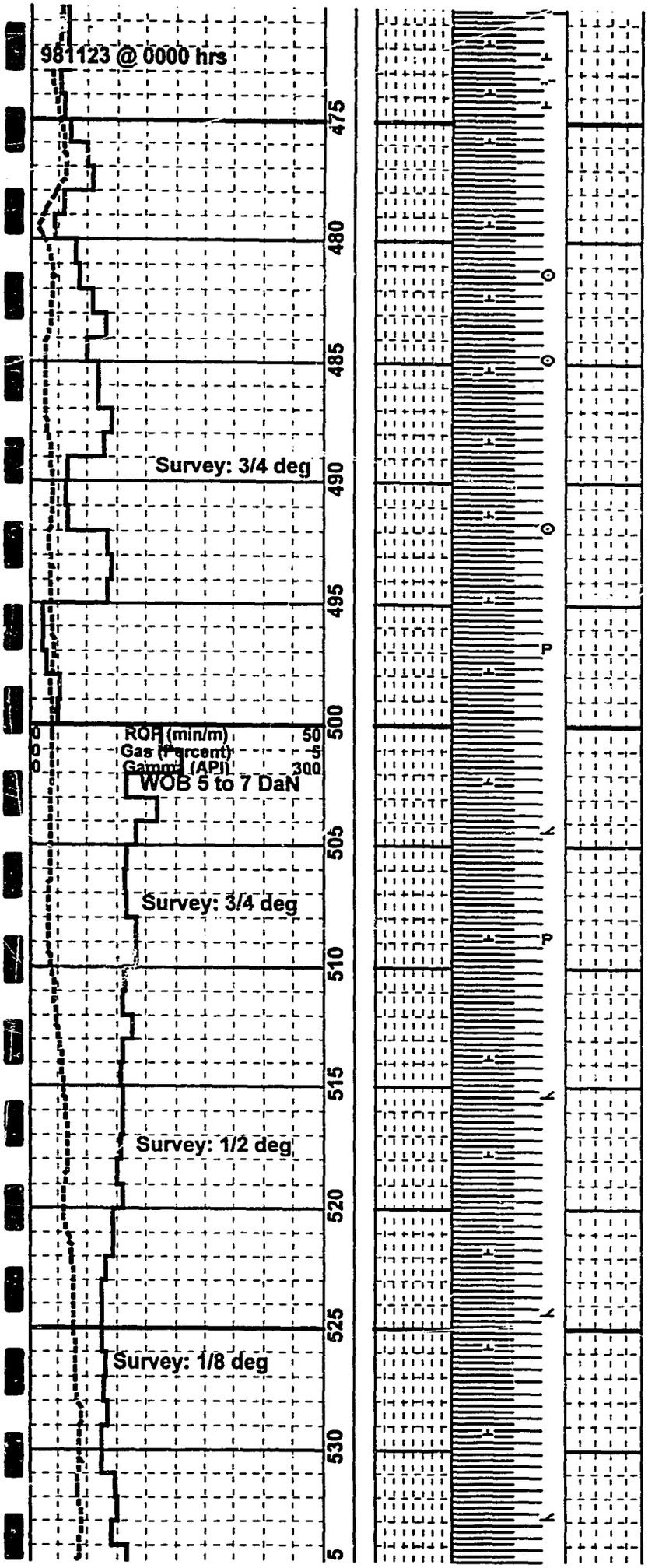
SH - m gy to blk, plty to blky, mm, v calc, tr slty, w ind.

SAND - clr, yel, orng, f to c gr, tr peb, A + R, p srtd, pred lse gr, tr calc cmt, qtz + v clrd cht.

SH - med to dk gy, platy, mm, v calc, tr fltng aren, tr silty, tr Crin fragments, w ind.

SH - m to dk gy, plty, mm, v calc, tr fltng aren, tr slty, tr lse sand gr, w ind.

SH - m gy to blk, plty, mm, v calc, tr fltng aren, tr slty, tr lse sand, w ind.



SH - m gy, fis to loc blky, mm, mod calc, dol, tr slty, tr Crin debris, w ind.

SH - m gy, fis to plty, mm, mod calc, tr Crin debris, loc calc lam, mod w ind.

SH - m gy, fis to plty, mm, mod calc, tr Crin debris, loc calc lam, mod w ind.

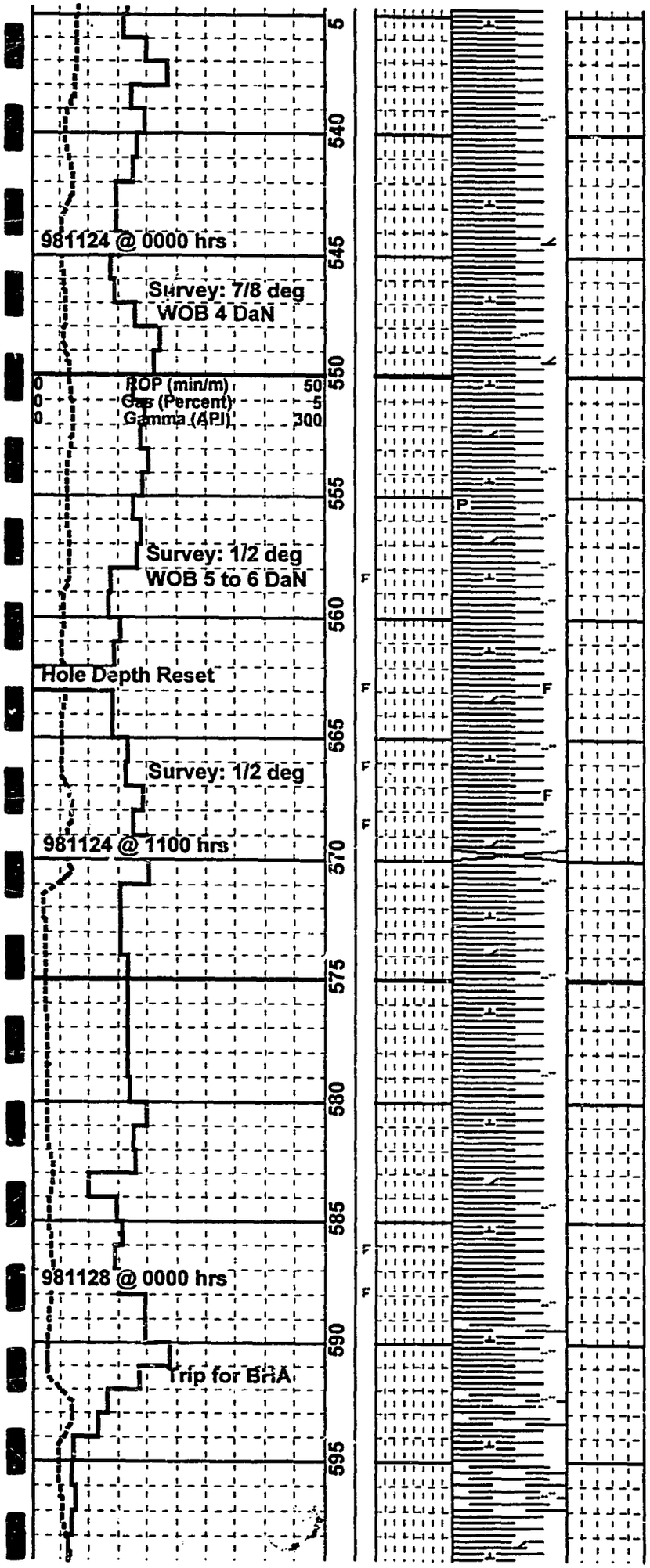
SH - m gy, fis to plty, mm, mod calc, tr pyr grnl, tr loc calc lam, mod ind.

SH - m to dk gy, fis, blky ip, mm, mod calc, tr dol, tr loc pyr grnl, tr ca lam, mod ind.

SH - m to dk gy, fis to plty, mm, tr calc, tr dol, sl slty, mod ind.

SH - m to dk gy, fis to plty, mm, mod calc, tr dol, sl slty, mod ind.

SH - m to dk gy, fis to plty, mm, mod calc, tr dol, sl slty, mod ind.



SH - m to dk gy, fis, blky ip, mm, mod calc, tr dol, sl slty, sl tr dsy rx calc, sl slty, mod w ind.

SH - m to dk gy, blky, fis i/p, mm, mod calc, tr dol, slty, mod w ind.

SH - m to dk gy, blky, fis ip, mod calc, dol, slty, sl tr disem pyr, w ind.

SH - m to dk gy, blky, fis ip, mod calc, dol, loc freq slty, tr dsy calc, tr disem pyr, w ind to hd.

SH - m to dk gy, blky, spity cvgs ip, wkly calc, tr dol, slty, tr dsy calc, sl tr c gr to grnl pyr, tr embedded Crin + Brach, w ind.

SURFACE CASING POINT AT 559.6 metres KB.

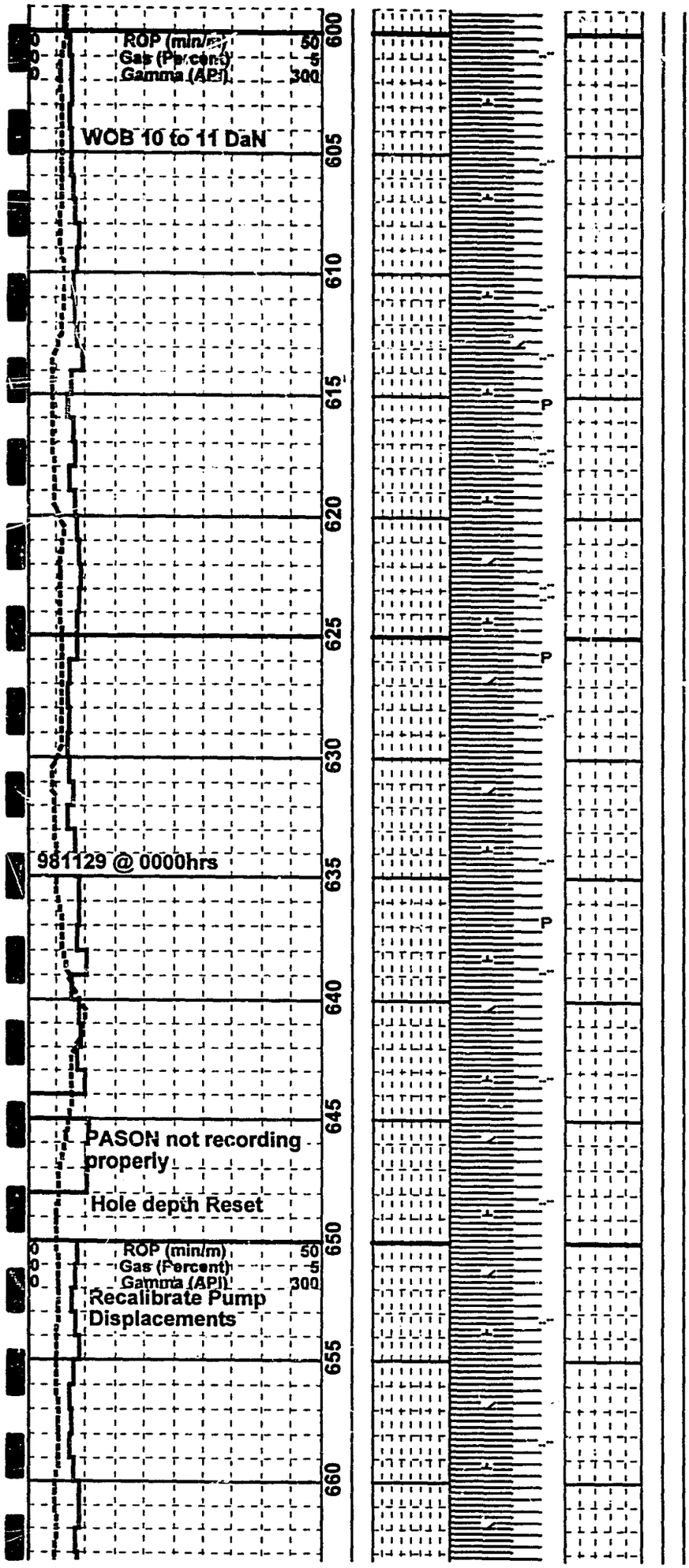
SH - m to dk gy, fis, mm, calc, sl dol, silty, tr f to v f gr aren, mod ind.

SH - m to dk gy, fis, mm, micaceous ip, calc, tr dol, slty, tr aren, mod ind.

SH - m to blk gy, fis, blky ip, calc, tr dsy calc lam, slty, mod to w ind.

SH - m to dk gy, fis, blky ip, calc, tr dol, silty, mod ind.

SH - m to dk gy, blky, fis ip, mica, calc, tr dol, tr slty, mod to p ind.



SH - dk gy, blky, fis ip, mica, mod calc, tr slty, mod to p ind.

SH - dk gy, blky, mica, mod to sl calc, tr dol, tr slty, occ pyr, mod to loc w ind.

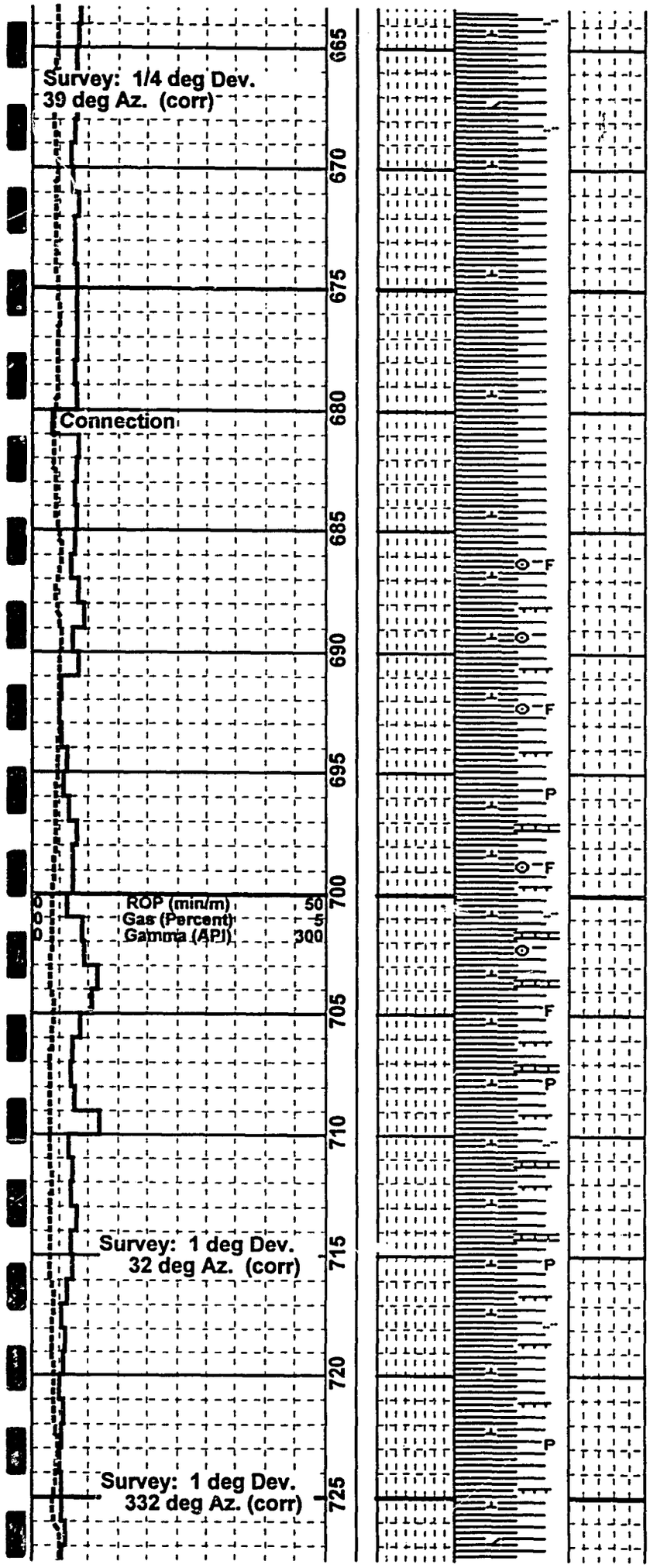
SH - dk gy, blky, fis, mica, sl calc to dol, rr slt, tr pyr grnl, mod ind.

SH - dk gy, blky, fis, mica, sl calc to dol, rr slt, tr pyr grnl, mod ind.

SH - m gy, lt gy ip, blky, mica, mm ip, mod calc to dol, tr calc lam, tr pyr grnl, slty, mod to w ind.

SH - m to dk gy, blky, mm, tr mica flks, mod calc to dol, tr calc lam, slty, w ind.

SH - m to dk gy, blky, mm, tr mica flks, mod calc to dol, tr ca lam, slty, w ind.



SH - m to dk gy, blky, mm, mod calc, mod ind.

SH - m to dk gy, lt gy ip, blky, fis ip, calc to loc v calc, loc MARLSTONE strgrs, tr fos frags, tr disem pyr, mod to w ind.

SH - md to dk gy, lt gy ip, mm, fis ip, calc to loc v calc, loc f gr xl arg LSTstrgrs, tr disem pyr, tr fos frags, w ind.

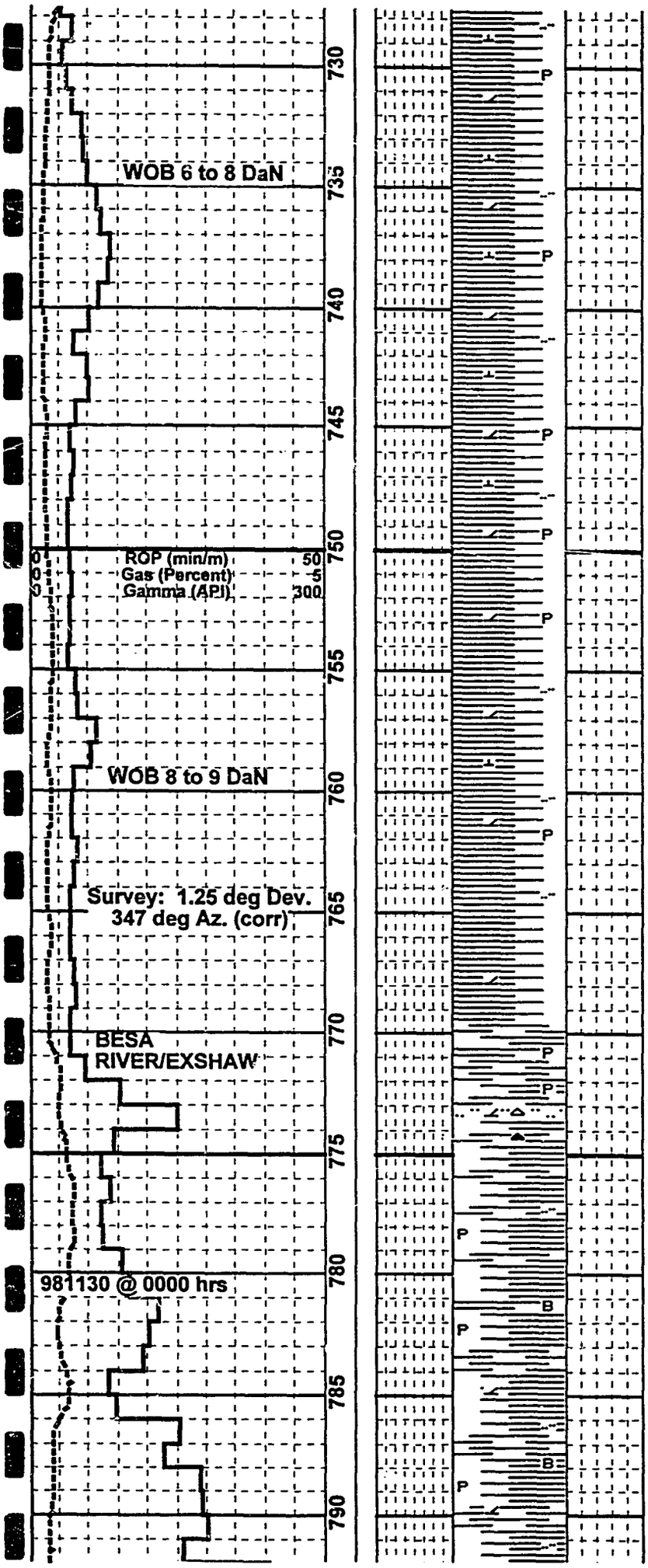
SH - m to dk gy, mm, blky, tr fis, calc to loc v calc, tr disem pyr, tr ibd fos frags - Crin, w ind.

LST - bf, gy' brn, mx to v f xl, MUDSTONE, v argl, tr biocl.

SH - m to dk gy, blky, fis, isp, calc, tr dol, loc grdg to MARLSTONE, tr pyr, tr slty, mod to w ind.

SH - m to dk gy, blky, fis isp, calc, tr dol, loc grdg to MARLSTONE, tr pyr grnl, tr slty, mod to w ind.

SH - lt to m gy, blky, calc, dol ip, tr disem pyr, slty, w ind.



SH - lt to m gy, blky, calc, dol ip, tr disem pyr, slty, w ind.

SH - lt gy, m gy ip, blky, sl calc to dol, loc com pyr grnls, tr slty, w ind.

SH - lt gy, m gy ip, blky, tr fis, sl calc to dol, tr silty, loc com pyr granules, w ind.

SH - lt to m gy, gy' blk ip, blky, fis ip, micas, sl calc, rr pyr gr, tr blk cht, sl bit stn, mod to loc p ind.

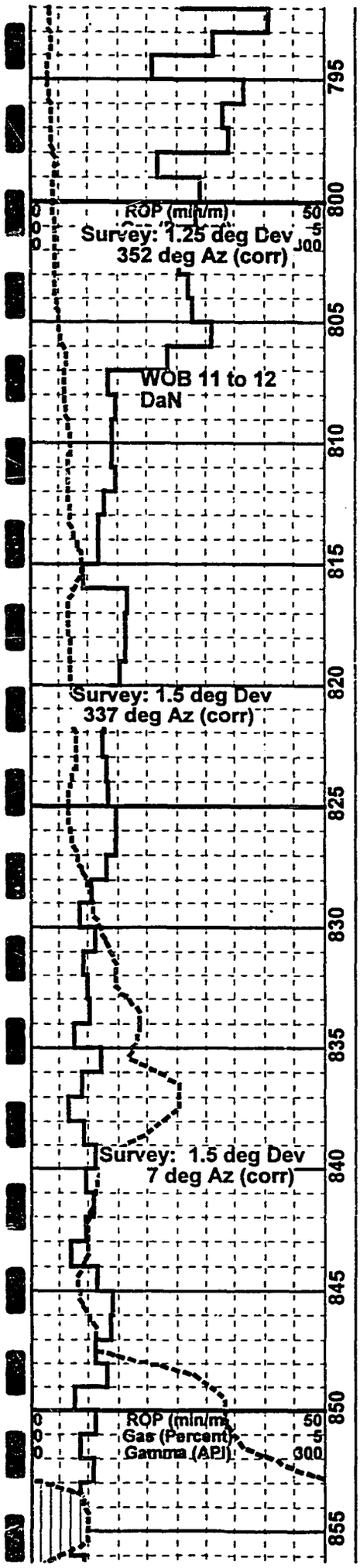
SLTST - sp, blky, qtz + cht, dcl cmt, hard.

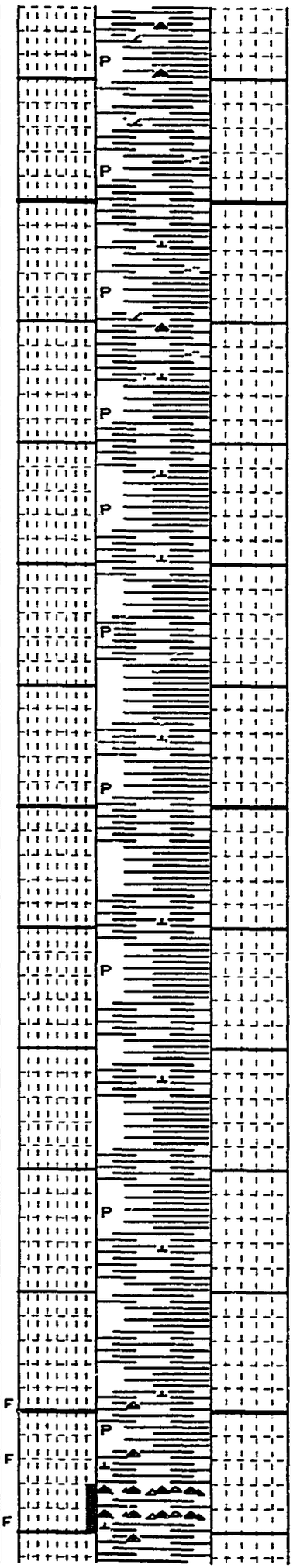
SH - gy' blk, brn' gy ip, blky, fis ip, freq micas, sl calc cvgs?, com pyr gr, sl tr A blk cht, sl HC odor, tr dl orng fluor, n C.

SH - blk' gy, brn' gy, fis, freq micas, com pyr gr, tr bent, p to mod ind, loc hard, sl HC odor, sl tr stmg bri wh C.

SH - blk' gy, brn' gy, pred fis, blky ip, freq micas, com pyr gr, tr bent, hydrophyllic in part, mod to w ind, loc hard, sl HC odor, slw even bri wh C.

SH - blk' gy, brn' gy ip, blky, fis ip, occ micas, dol, com pyr gr, mod to w ind, hard ip, sl HC odor, slw even milky wh C.





SH - v dk brn gy to blk, fis, m sft to m hd, sub bit, v f disem pyr, tr m gy sl calc lam, rr pyr xl.

SH - v dk brn gy to blk, fis, m sft to m hd, sbit, v f disem pyr, tr m gy sl calc lam, rr pyr xl.

SH - v dk gy to brn gy, fis to sfis, m sft to m hd, s ert, sub bit, tr to pres m brn gy sft lmy SH lam, tr pyr vn.

EXSHAW Shale

SH - v dk brn gy to blk, sfis to fis, sbit to bit, sl ert, tr lt mrly ptg, rr pyr vn, com v f disem pyr.

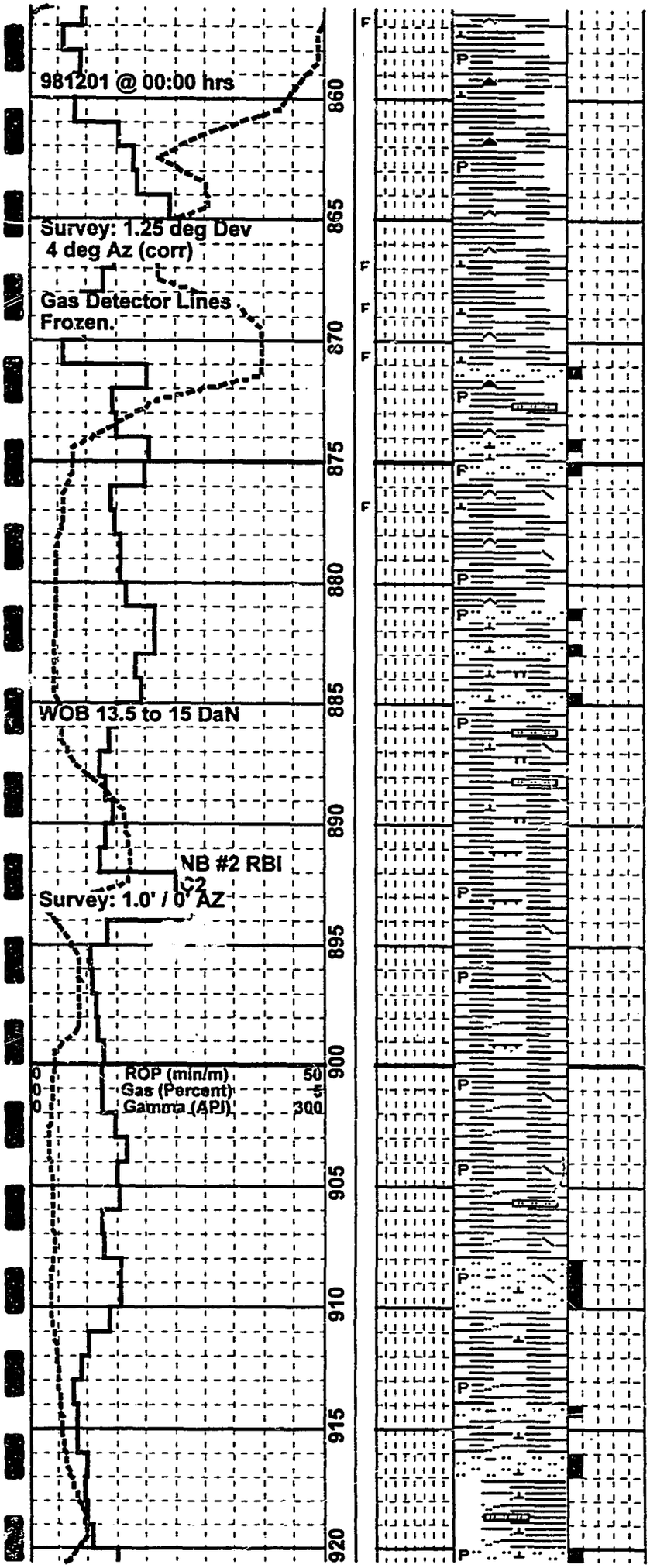
SH - v dk brn gy to blk, sbit to bit ptng, sl ert, tr wh limy spec, tr lt brn gy co mrly ptng, rr to tr pyr.

SH - blk, bit, m sft to m hd, pres vf pyr, rr erthy brn mrly ptg.

SH - blk, bit, m sft to m hd, bcmg brit, pres v f pyr, rr erthy brn mrly ptg.

SH - blk, fis, sl brit, v bit ip, com f to med xl dsy calcite, faint blooming cut.

CHT-dk brn gy col, mas, v hd, sl calc, tr wh si Spic.



U. Dev. KOTCHO

SH - dk gy, blk' gy, blky, loc frcd, si to cht cmtd, f to c xl calc, tr pyr vn, hd.

SH - dk gy, blk' gy, mot, tr frcd, si to cht cmtd, freq cht frags.

SH - dk gy - brn gy, sfis - blky, m hd - hd, pt sl calc, tr vfh xl calc vn mat, tr dk CHT lam, rr pyr.

SLTST - dk brn gy col, a, hd, v arg, sl calc, pt chty, tr pyr, tt, N vss.

SH - v dk gy - brn gy, sfis - blky, hd, sl si, sl bit, v sl calc, tr clr calc vn & dsy xl, rr pyr.

SLTST - dk brn gy, a, m hd, calc cly cmt, tr sdy, tr bit frag & ptg, tt.

SH - dk brn gy col, fis - sfis, m hd, hd, calc, slty, tr calc vn, pres m gy brn sl wxy lam.

SH - dk gy -brn gy, occ v dk str, fis - sfis, m hd - hd, sl calc, rr pyr & calc vn, tr m gy brn sl wxy lam.

SH - dk brn gy, fis - sfis, m hd, sl calc, pt sl slty, tr v f disem pyr, tr m col sl mrly lam.

SH - dk brn gy, fis - sfis, m hd, sl calc, pt sl slty, tr sl bit / bit ptg, tr v f disem pyr.

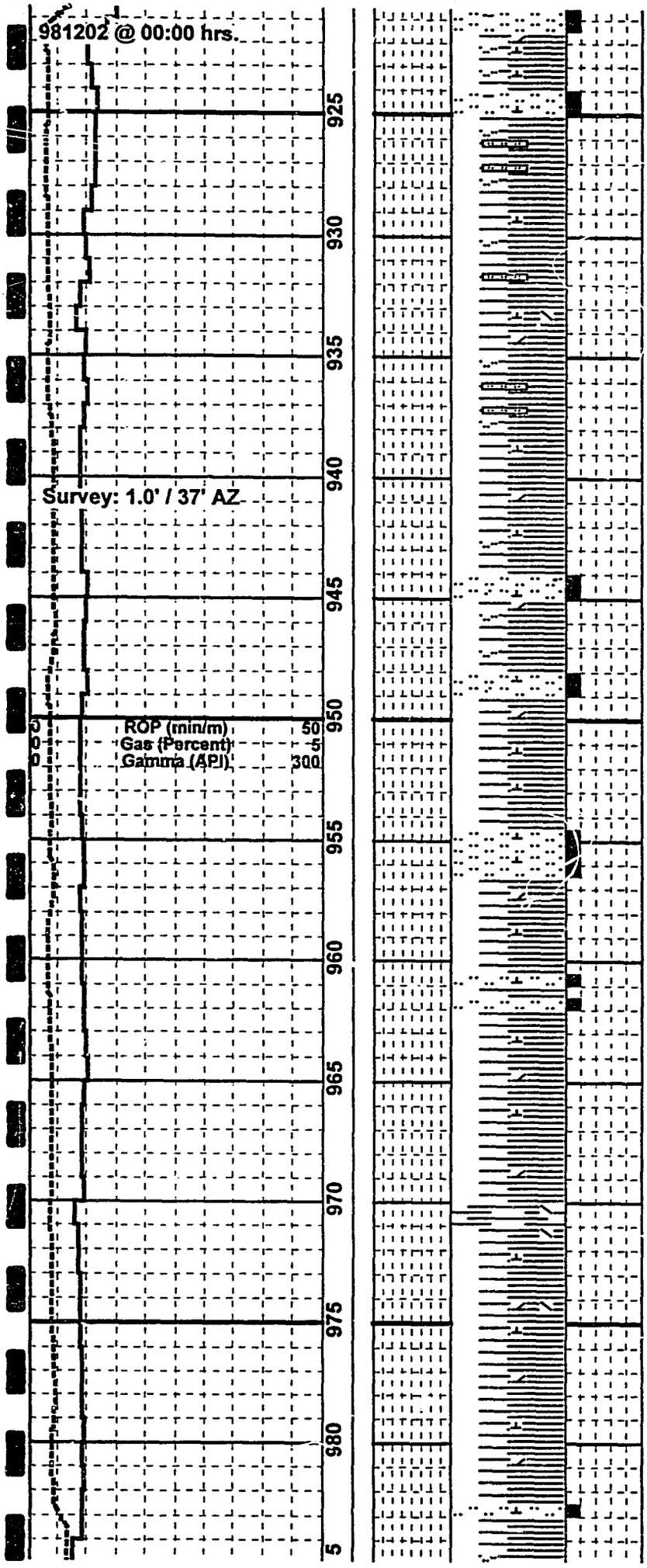
SH - dk - v dk brn gy, fis - sfis, m hd, sl slty, v sl - sl calc, tr pyr vn, tr m brn mrly ptg.

SLTST - dk brn gy, v arg, m hd, sl calc cly cmt, tr pyr, tr bit ptg, tt.

SH - dk brn gy col, s fis, m hd, sl slty - slty, sl calc, tr bit ptg, mrly llam.

SLTST - m lt gy brn, si, m hd, calc cmt, sl arg - arg, pt sl sdy, tt.

SH - m lt gy brn, sfis, m hd, slty - slty, tr mm, tr pyr vn.



vn, tt, N vss.

SH - m lt gy brn col, s fis, m hd, sl wxy lstr, sl calc / dol, tr slty - slty i/p, tr mm, mnr ib slty SH.

SLTST - m lt gy brn, arg, tr sdy, calc, m hd, tr pyr', tt.

SH - m lt gy brn, sfis, m hd, sl wxy, sl calc / dol, tr slty, occ sd gr, tr mm, mnr SLTST.

SLTST - lt gy brn, arg, tr sdy, calc cmt, tr pyr vn, tt.

SH - m lt gy brn, sfis, m hd, sl wxy, sl calc / dol, sl slty.

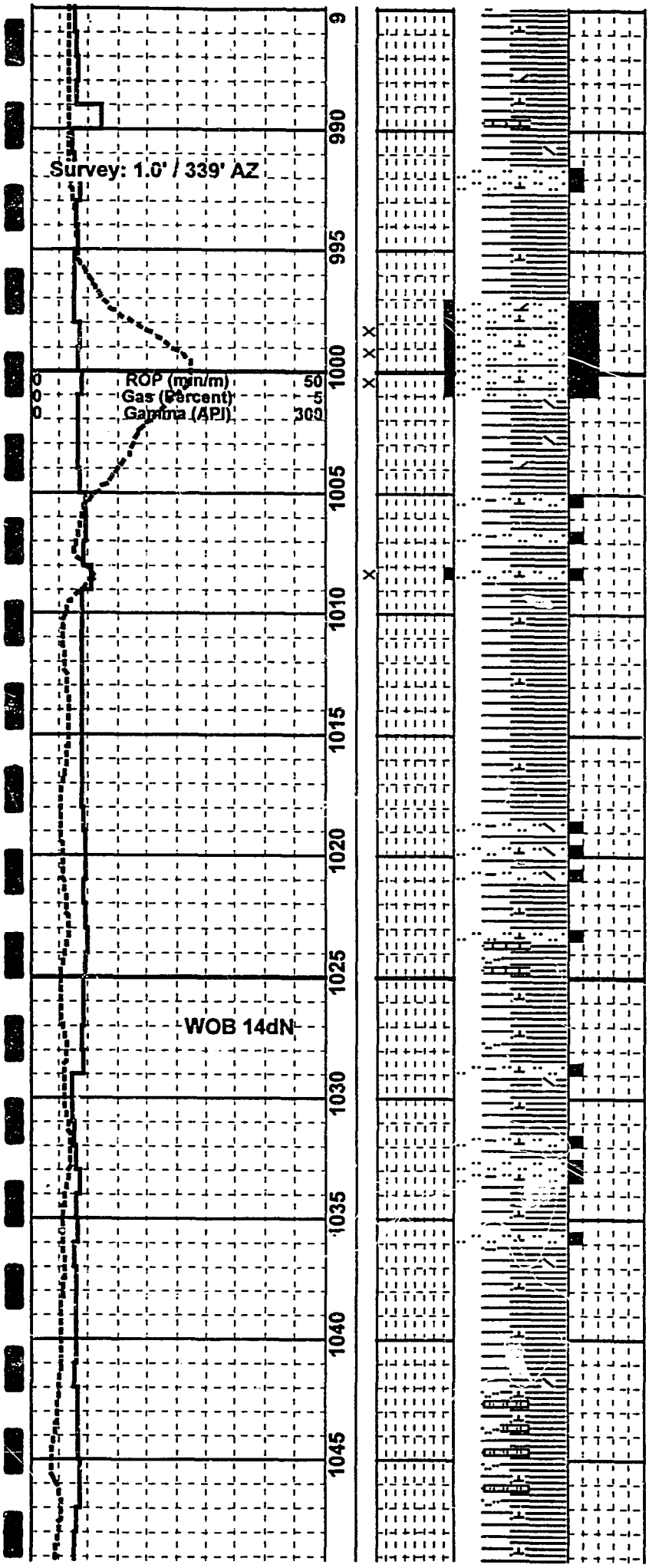
SLTST - m dk brn gy, m hd - hd, calc cmt, arg, pt bit arg stn, mm, tt

SH - m lt gy brn - brn gy col, sfis - fis, m hd, sl calc / dol, tr mm, some slty str, rr calc lam, tr bit ptg.

SH - blk, fis, bit , tr pyr vn.

SH - m lt gn' brn gy col, fis - sfis, sl wxy lstr, m hd - m sft, sl bit, sl calc, / dol, tr mm, rr slty str, rr calc vn.

SH - a/a, bcmg m lt - m gn' brn gy col.



SH - m gn' brn gy, fis, m hd, sl wxy lstr, calc / dol, v sl mm, rr - tr wh calc xln mat.

SLTST - crm - bf col, si, sdy, calc / dol cmt, fri, p ig por, fnt bloom blu cut.

SH - m gn' brn gy, fis - sfis, m hd, sl wxy, sl calc, tr dk col bit ptg, rr calc vn, tr Sltst lam.

SH - m - mlt gn' brn gy, rr calc vn mat.

SLTST - m - m dk brn gy, si, arg, m hd - firm, calc cmt, sl bit - bit, tt.

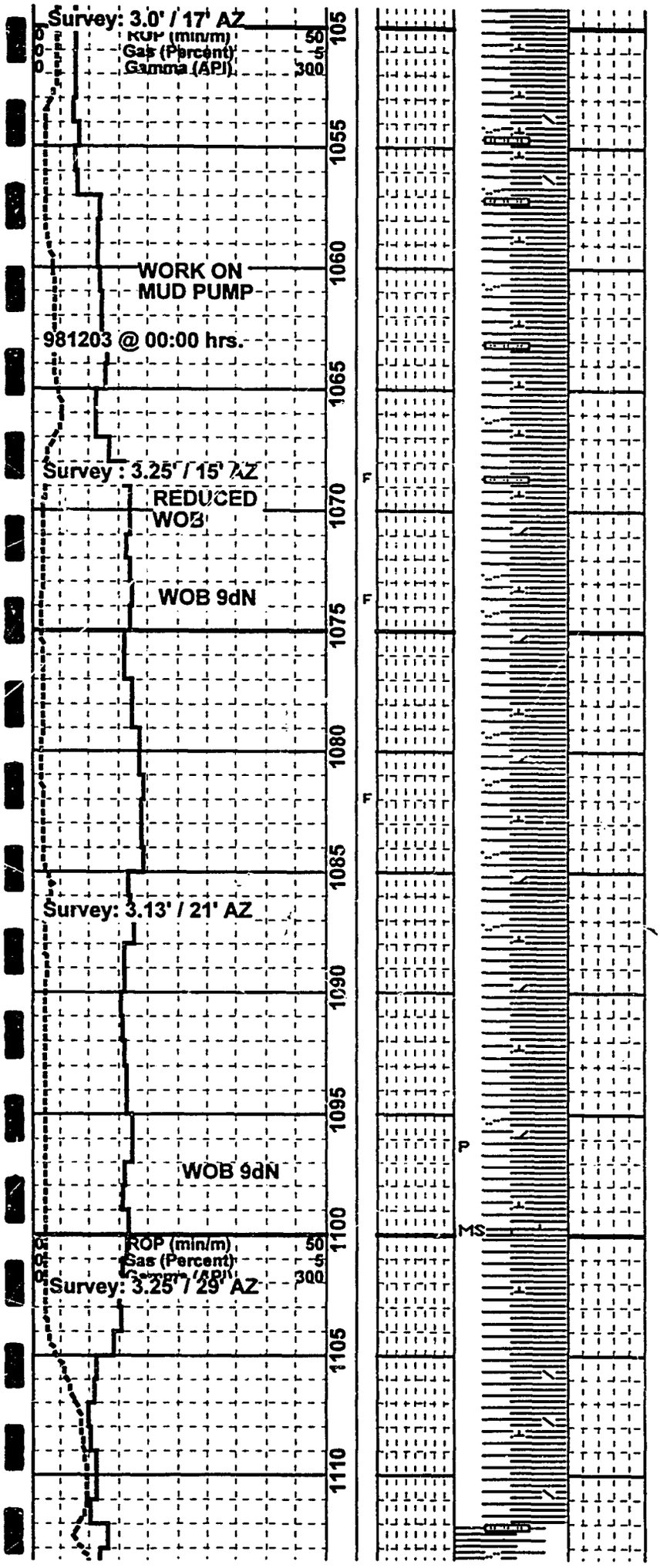
SH - a/a, slty varve ip, tr pyr vn.

LST - bf, v f xl, m hd, dol, sl arg,tr clr calc vn, dns.

SH - lt gy brn, fis, m hd, calc - v calc, dol, tr pel / crin fos ghst struct.

SLTST - lt brn gy, si, calc / dol cmt, m hd, pt arg, tt.

SH - m brn gy. fis - sfis, m hd, calc - v calc, dol, tr dsy xln calc vn, rr bit stn, pt slty, rr clr qtz prem, pt grdg Sltst.



SH - a/a, m - m dk gn' brn gy, calc, dol,pt sl slty, tr bit stn, tr calc vn.

SH - m lt gy brn - brn gy col, fis, m hd, sl wxy, calc, dol, rr - tr calc vn.

SH - m gn' brn gy, fis - sfis, m hd, calc - sl calc, pt sl slty, tr cl wh xln calc vn mat / mfrcs.

SH - a/a, fis - sfis, sl calc - calc , tr calc vn.

SH - m - mdk brn gy, fis, m hd, sl calc, v sl slty i/p, tr calc vn mat, rr tr bit ptg, rr mrly pel.

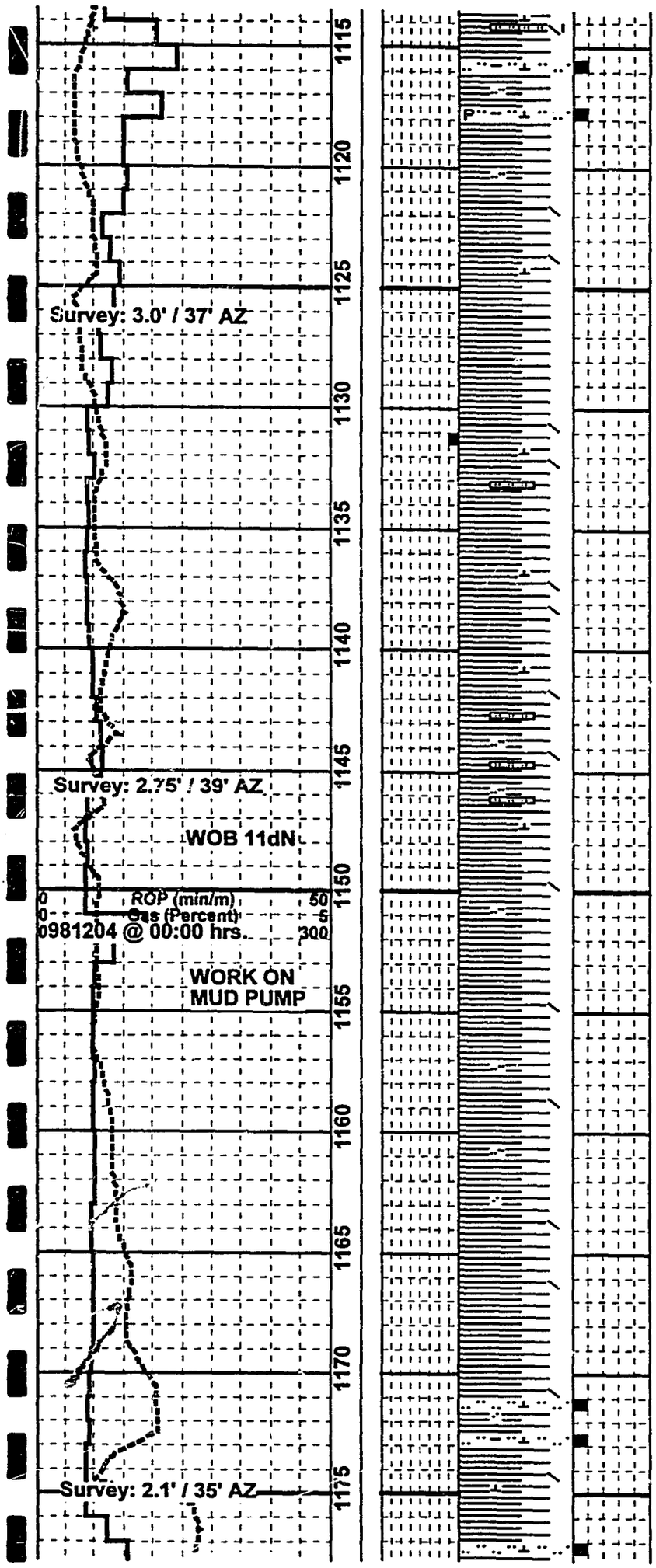
SH - m dk brn gy, fis, sl wxy lstr, sl calc - calc, pt v sl slty, tr mm, rr pyr xl.

LST - m brn gy, m xl, hd - m hd, v arg, dol, dns.

SH - a/a, m k brn gy col, fis, sl calc.

SH - m dk - dk brn gy, s fis habit, m hd - hd, sl slty i/p, sl calc - calc, tr calc vn, pres lt col bit coat, tr f pyr bleb, pres sft m brn lam.

SH - dk gy col, sfis - sl blky, m hd - hd, sl calc, tr clr calc vn mat, tr - pres m brn col sft wxy lam / ptg.



SLTST - m brn gy, m hd, arg cmt, pt sl / pt v calc, tr pyr tt.

SH - m dk gy, sfis, v sl calc, pres m brn col sft wxy / gsy ptg.

SH - m dk gy col, sfis, m hd, v sl calc, sl bit, rr mica, tr sl mrly ptg.

SLTST - m brn gy, v arg, m hd, calc cmt, tr mm, tt.

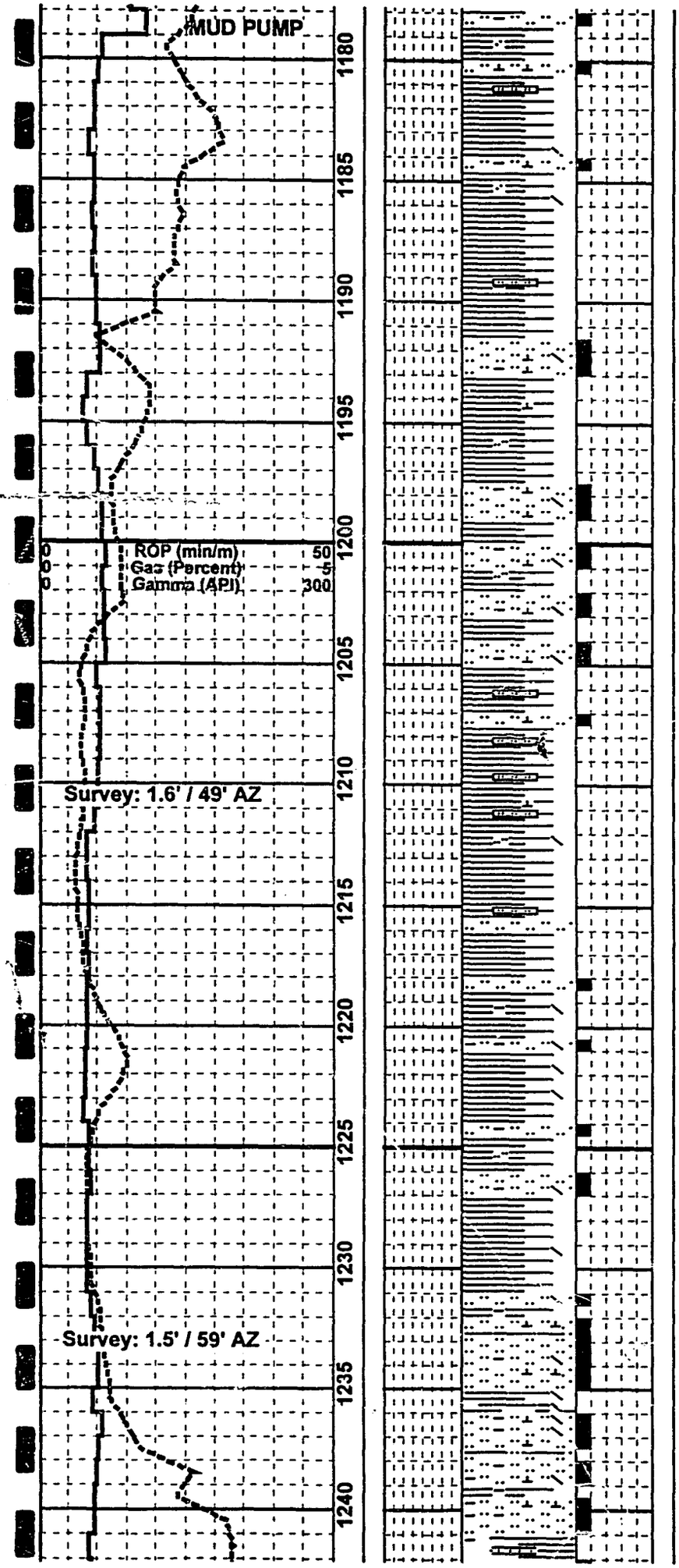
SH - a/a, more sfis sl bky habit, sl slty - slty, sl mm, tr Sltst lam.

SH - dk gy, fis, m hd, sl calc, pt sl slty, tr mm, uniform sl bit stn, rr calc vn, occc sft wxy ptg.

SH - a/a, bcmg sl calc - calc, sl slty, sl bit stn, more freq wxy ptg.

SH - dk gy, fis - sfis, m hd, sl bit, pt sl slty, tr calc, tr wxy ptg, rr calc vn

SLTST - m gy, m hd, v arg, calc cmt, sl bit stn, tt, N vss.



SH - dk gy, fis - sfis, m hd, v sl bit stn, sl calc, tr mm, rr pyr, some slty calc str, tr sks.

SLTST - m dk brn gy, m hd, arg, v calc cmt, mm, tt, N vss.

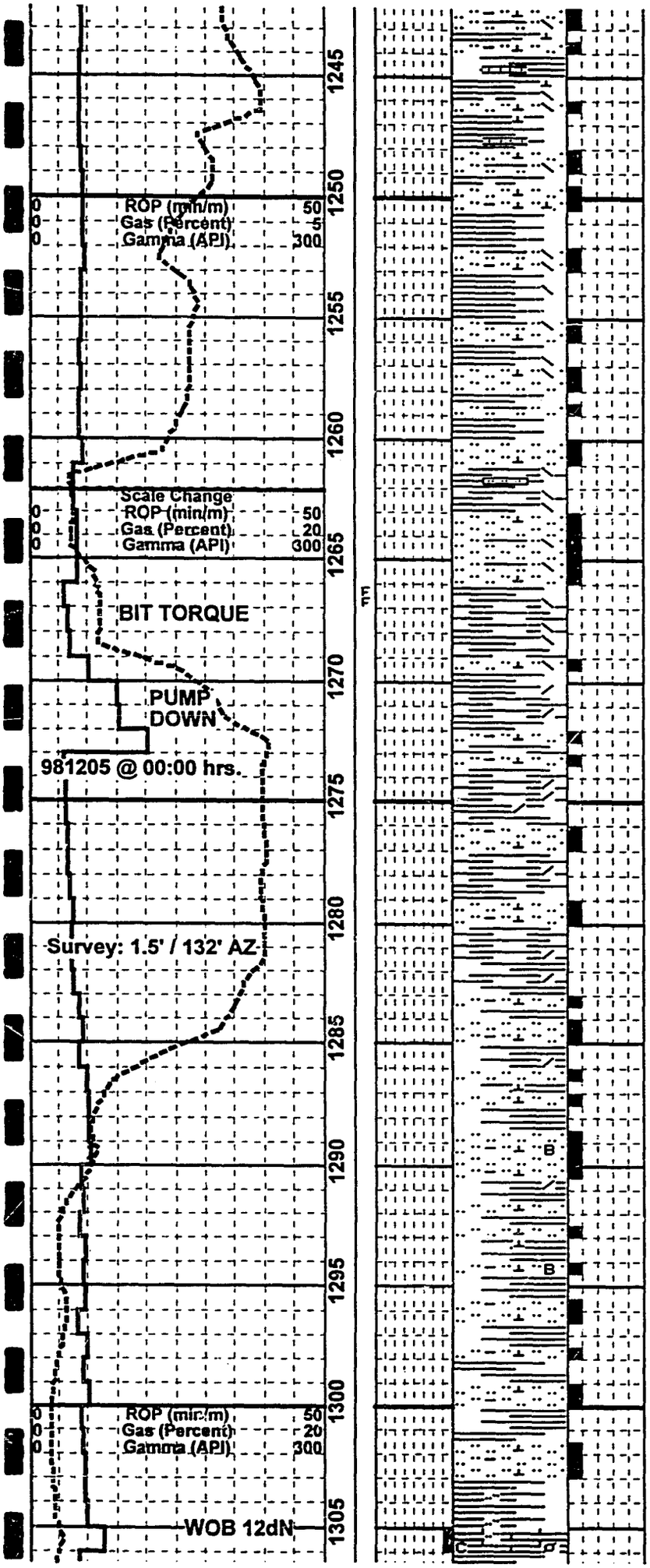
SH - dk gy, fis - sfis, m hd, sl slty - slty, calc, tr mm, slty str.

SH - dk gy, fis - sfis, m hd, calc - sl calc.

SLTST - a/a, v arg, calc tr bit, tt.

SLTST - m dk gy - brn gy, m hd, arg - v arg, v calc cmt, v mm, tr bit stn, tt, N vss.

SLTST - m dk - dk gy - brn gy, m hd , arg - v arg, calc cmt, mm, pt bit stn, tt.



SH - dk - v dk gy, sfis - fis, mhd, slty - v slty, calc, tr bit - bit, mm.

SLTST - dk gy - brn gy, m hd, v arg, calc, mm, sl bit stn, tt.

SH - dk - v dk gy, fis - sfis, m hd, bit, pt v slty, sl calc - calc, mm.

SH - blk - v dk brn gy, fis, plty, m hd, sl brit, v bit, calc, tr slty lam, tr pyr blebs.

SLTST - dk gy - brn gy, m hd, v arg, calc cmt, mm, tt, N flu / cut.

SH - blk- pt bcmg, v dk - dk gy, sl calc - calc, pt slty.

SLTST - dk gy, v arg, m hd, v calc, mm, tt.

SH - dk - v dk gy, fis, m hd, sl bit / bit ptg, tr lt col sft sl calc ptg.

SLTST - m gy, v arg, calc cmt m, tt sl mm, sl calc, tr lmy str.

SH - dk gy - brn' gy, fis - sfis, m hd, sl wxy, calc, mm, rr bit ptg, mrly str, tr pyr xl / vn.

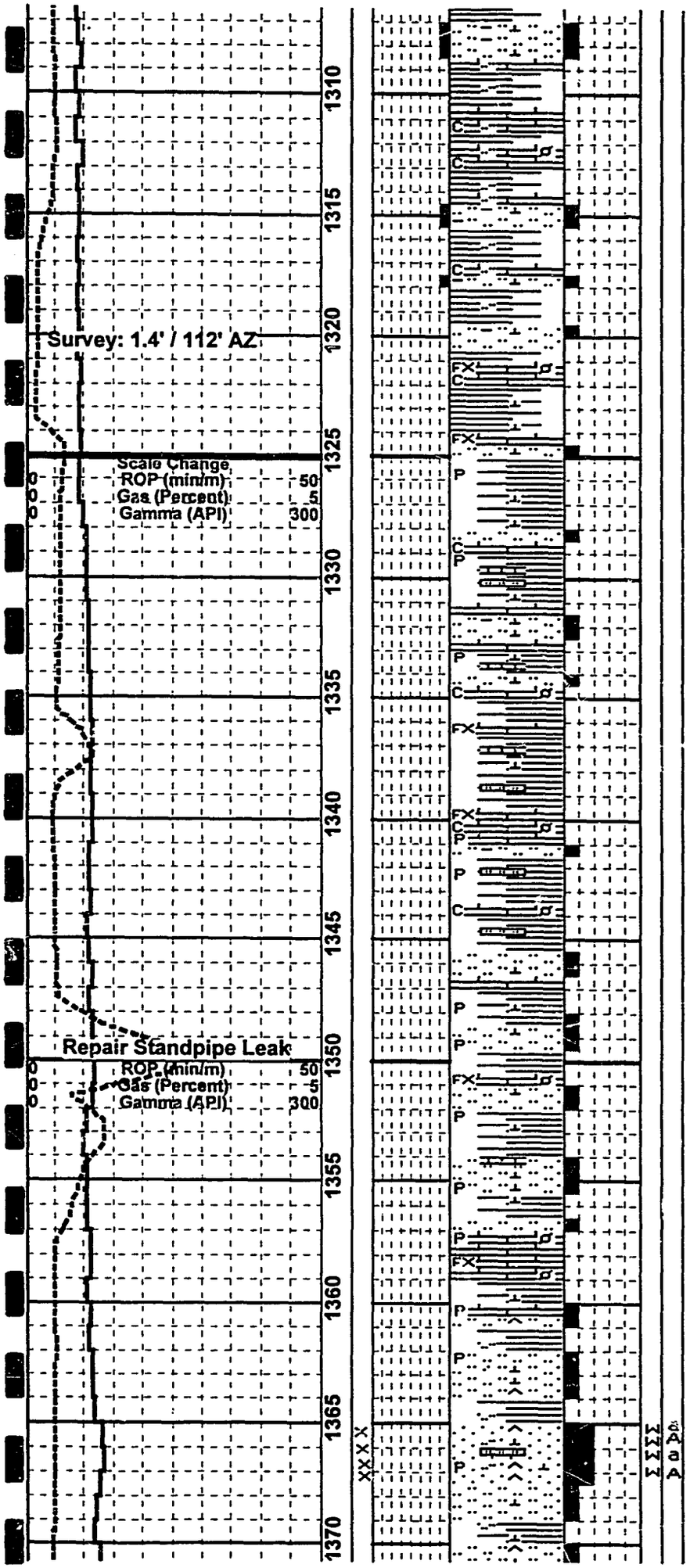
SLTST - m dk brn gy, v arg, calc, m hd, tr pyr xl, mm, tt.

SH - dk brn' gy, m hd, calc, ib SLTST.

U. Dev. TETCHO

SLTST - m dk brn gy, v arg, calc, tr pyr, tt.

LST - bf - lt gy brn col, mx - vf xl, m hd, pt sl



SLTST - m brn gy, v arg, calc, tt, rr SS - clr vit v f xl, a, w srtd, si cmt, hd, p por, gil stn, N vss.
SH - m gy - gn' gy, sfis, m hd, pt slty, sl calc, tr mm.

LST - crm - bf, mx - v f xl, m hd, sl arg, dns.

SH - dk gy - gn gy col, sfis - fis, m hd, sl calc, pt slty, tr mm, tr pyr, tr calc vn.

SLTST - m dk brn gy, v arg, calc, mm tr bit, tr pyr xl.
LST - crm - bf - lt brn gy, mx - v f xl, m hd, tr arg, tr pyr', tr pel ghst struct, dr s.

SH - m gn' gy, fis, sl wxy lstr, calc, tr pyr, rr slty bit str.

LST - crm - lt gy brn, v f xl, m hd, pt chlky, dns.

LST - bf - lt gy brn, mx - v f xl, m hd, sl arg, tr pyr', dns.

SH - m gn' gy, s fis - fis, m hd, pt slty, tr pyr xl.

SLTST - m gn' gy col, v arg, m hd - hd , calc, sl mm, tt.

SH - m dk gn' gy, fis - sfis, m hd, calc, tr slty str, mnr ib SLTST & LST.

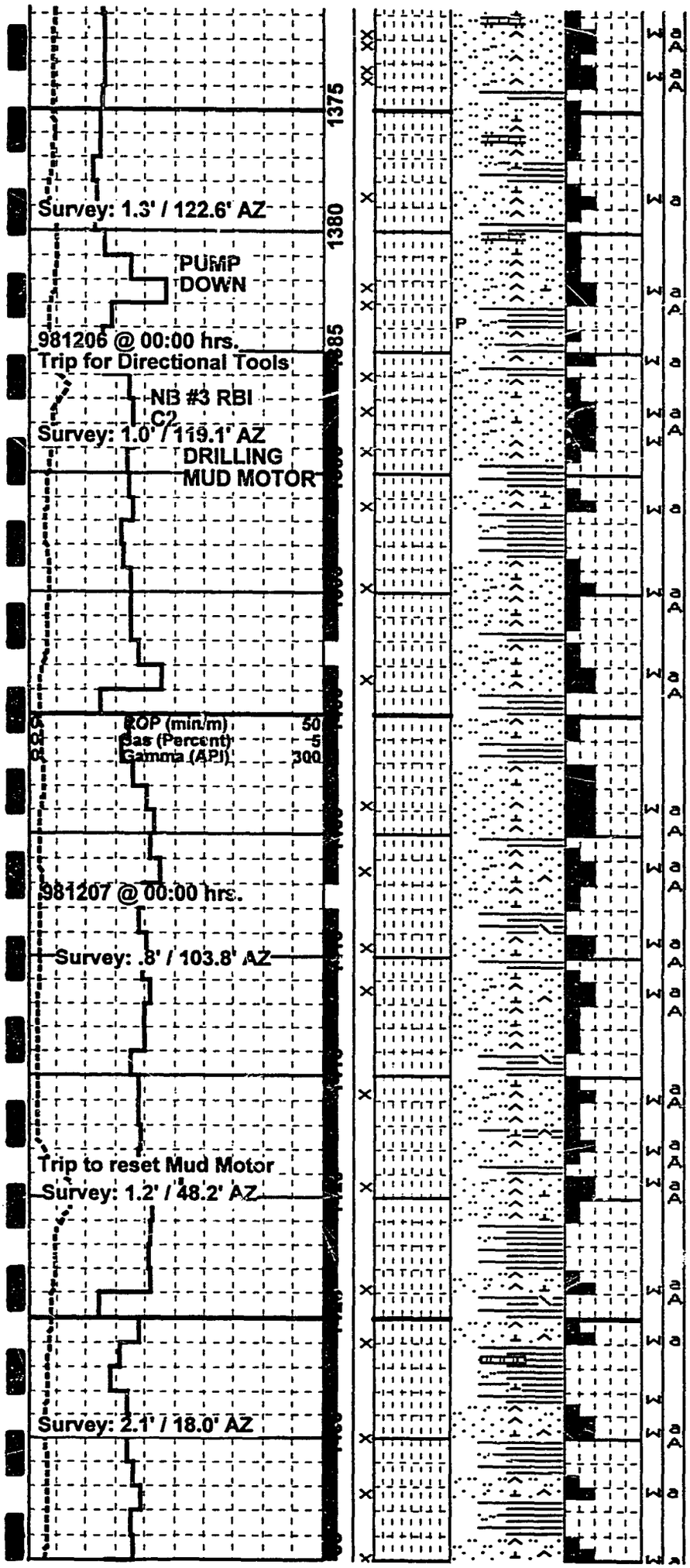
LST - lt brn gy, v f xl - f pel, m hd - hd, sl arg, slty, pt pyr, dns.

SH - m dk gn' gy, fis -s fis, m hd, calc, tr slty str.

SLTST - m gn' gy, m hd, arg, sdy, calc cmt, tt.

SS - lt brn, qtzc, v f gr, a - A, mod w srtd, sl calc si cmt, m hd - hd, slty, sl arg - arg, rr pyr, tr ig pr, N vss.

SLTST - m lt gy brn, m hd, arg, sdy, calc / si cmt,



SS - lt br, qtzc, v f gr, a - A, hd, si sl calc cmt, v slt, tr arg, tr por, N vss.

SH - m gn' gy, fis, m hd, pt slty, sl calc, tr mm.

SLTST - m lt gn' brn, m hd - hd, sl calc si cmt, tr pyr, tt

SS - lt gy brn, qtzc, v f gr, a - A, mod w srtd, sl calc si cmt, w ind, slty, tr arg, tr pyr, tr ig por, N vss.

SH - m - m dk gn' gy col, fis, plty, m hd, sl wxy lstr, v sl - sl calc, tr m, tr calc vn, rr pyr.

SS - lt gy brn , v f gr, a - A, w srtd, hd, sl calc si cmt, slty, tr arg, tr ig por - tt, N vss.

SLTST - m brn' gn' gy col, m hd - hd, sl calc, v arg, sdy, tr mm, tt.

SH - m - m dk gn, gy, fis, m hd, sl wxy, sl calc.

SS - lt - m gn' gy brn col, v f gr, a - A, w srtd, hd, sl calc - calc si cmt, slty, tr arg, mm, tt - tr ig por.

SLTST - m bgn' gy col, sdy, arg, m hd, sl calc, m hd, tr mm, tt.

SS - lt gn' gy - gy col, qtzc, v f gr, a - A, mod w srtd, sl calc si cmt, hd, slty, sl arg, mm, rr pyr, rr - tr vit m R qtz flt, tr carb flecks, tt tr por.

SLTST - m gn' gy, m hd, sdy, arg, sl calc, tr mm, tt.

SH - m - dk gn' gy, fis, m hd, sl wxy, sl calc, pt slty, sl mm, rr pyr, tr sft wxy str.

SLTST - m gn' gy, m hd, sl calc, sdy, arg, tt.

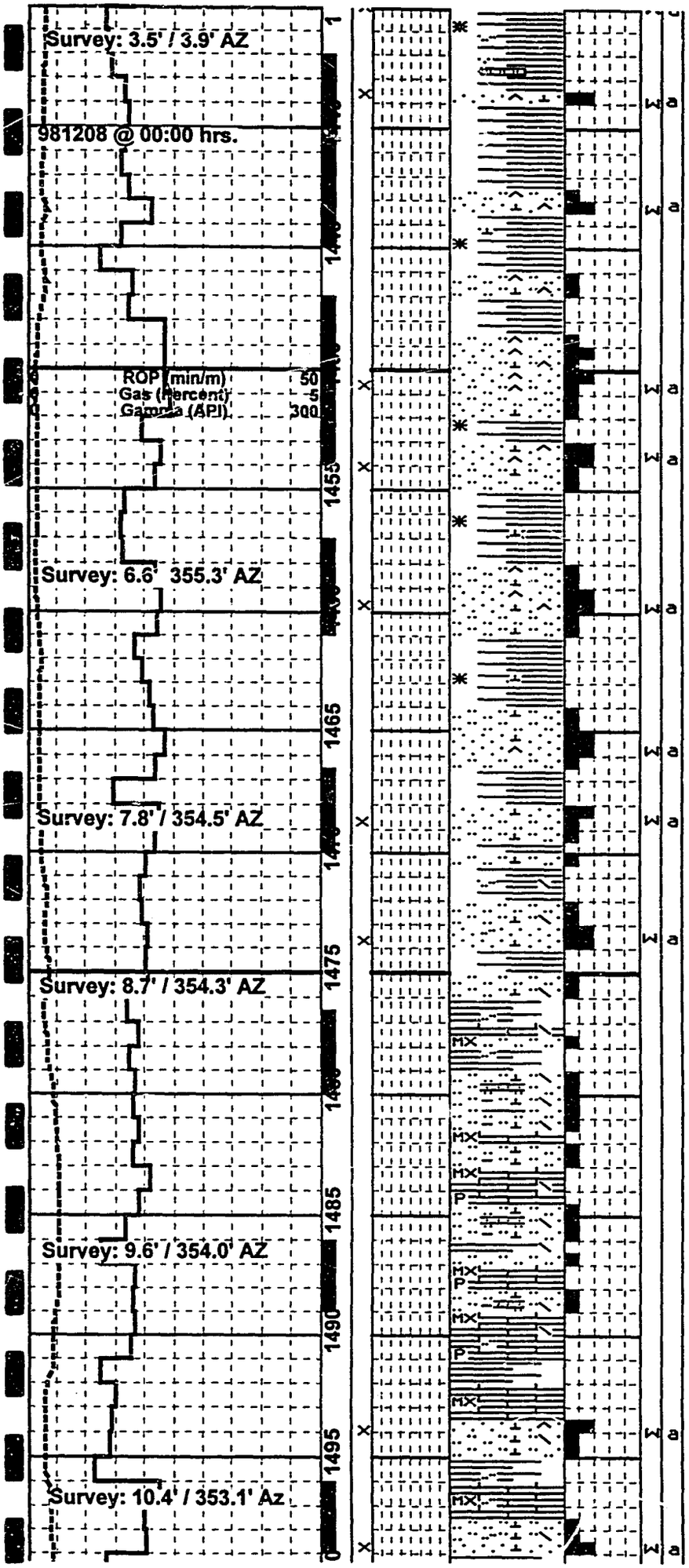
SH - m dk gn' gy col, fis, m hd, sl wxy, v sl calc, tr mm, tr slty str, tr wxy ptg, tr calc vn, mnr SLTST & SS ib.

SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm.

SLTST - m gn' gy, m hd, sl calc, m hd - hd, sdy, arg, tr mm, tt.

SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm

SS - lt - m lt gn' gy, v f gr, a - A, mod w srtd, hd, sl calc si cmt, slty, arg, tt - tr por, rr LST - bf, mx, hd, slty, tr Crin rmn, dns.



SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm, SS & SLTST strgs.

SH - m dk gn' gy, fis, m hd, v sl calc, tr slty str, sl mm, tr lse m sz R qtz gr.

SLTST - m gn' gy, m hd, sl calc, arg, sdy, tt.

SS - lt gn' gy - gy, v f gr, a, hd - m hd, sl calc si cmt, v slty, arg, mm, tr lse clr m qtz, rr pyr, rr bit flks, tt - tr ig por, N vss.

SH - a/a, pt slty, pt sdy, rr blk bit ptg, ib SLTST & SS.

SS - lt gy - gn' gy, v f gr, a - A, mod w srtd, hd, calc si cmt, v slty, arg, mm, tt - tr por.

SLTST - m gn' gy - gy, m hd, sl calc, arg, sdy, mm, tt.

SH - m dk gn' gy, fis, m hd, pt v slty, sl calc, pt sl bit.

SLTST - m gy, m hd, sl calc, m hd, sdy, arg, pt sl bit, tr mm, tt.

SH - m dk gy col, fis, m hd, pt slty, sl calc, tr pyr bleb, sl mm, tr sl bit ptg.

LST - bf, mx, hd, sl chky tex, slty, arg, rr bit ptg, dns.

SLTST - m - dk gy, m hd, v calc cmt, sdy, arg, tr mm, tr pyr', com bit stn & ptg, tt.

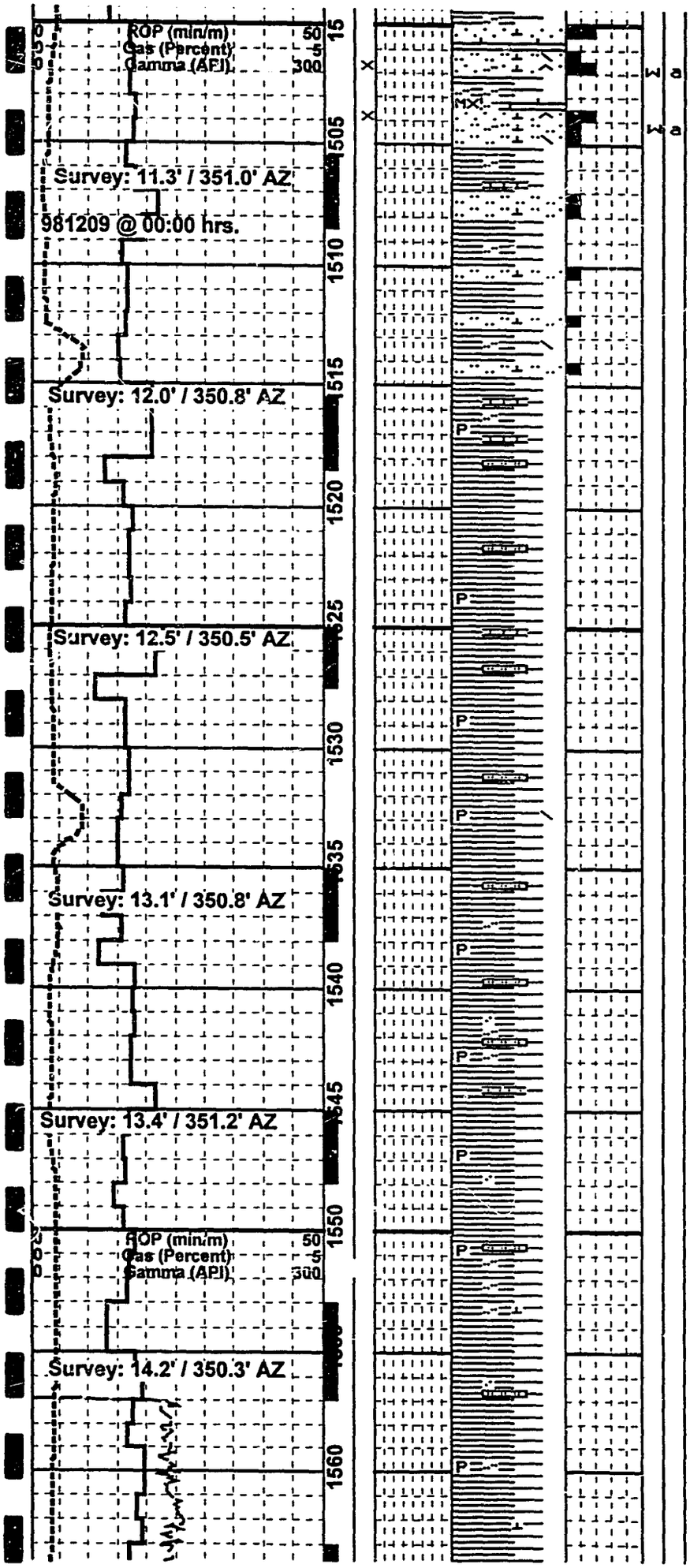
LST - lt brn, mx, hd, slty, arg, v f disemm pyr xl, rr bit stn, dns.

SLTST - a/a, arg, sdy, v calc, bit stn.

LST - lt brn, mx, hd, slty, arg, v f disem pyr xl, rr bit stn, dns.

LST - lt - m gy brn, mx, hd, slty, arg, tr v f disem pyr & bit flks, tr pel / indst fos frag, dns.

SH - m dk gy, fis - sfis, m hd, calc, v slty, sdy str, tr mm, tr bit stn / ptg.



SLTST - m dk gy bit stn, m hd, calc, arg, sdy, tt.

LST - lt - m gy brn, mx, hd, slty, arg, dns.

SS - lt - m gy brn, v f gr, hd, calc / si cmt, v slty, arg, tr bit stn, tt - tr por.

U. Dev. FORT SIMPSON

SH - m dk gy - sl gn' gy, fis - sfis, m hd, sl bit, pt v slty, pres v f disem pyr, tr calc str.

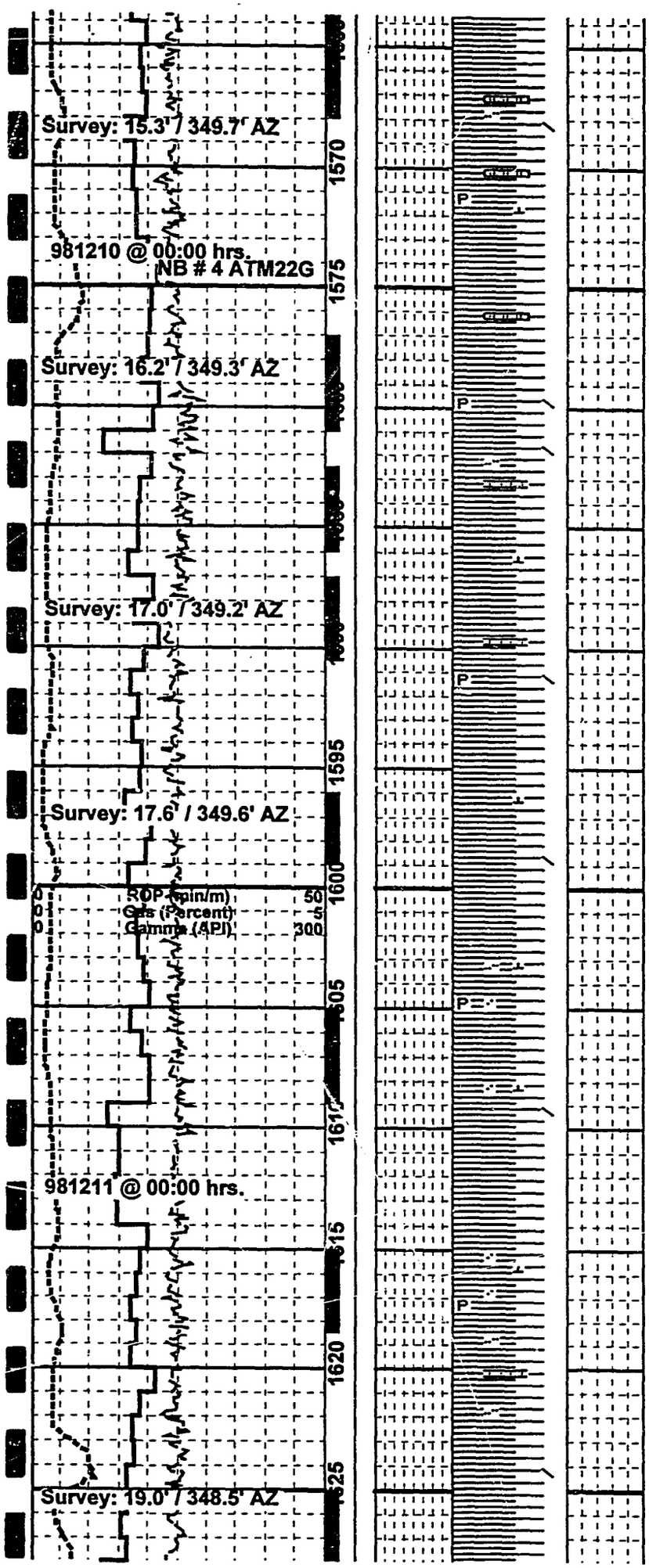
SLTST - m gy - gn' gy, m hd, calc, sdy, arg, mm, tr sl bit stn i/p, tt.

SH - m gy - gn' gy col, fis - sfis, sl wxy, m hd, v sl - sl calc, v f pyr, some slty str, rr LST - crm, mx, sl chlky. scat m sd gr, dns.

SH - m gy - gn' gy, fis, m hd, sl calc, sl mm, tr pyr, lmy str.

SH - m dk gy - sl gn' gy col, fis - sfis, sl wxy, v sl - sl calc, m hd, sl mm, lmy str, tr calc vn, tr pyr, occ SLTST strgs.

SH - m dk olive gy col, fis, sl wxy lst, m hd, v sl calc, sl mm, rr pyr, rr - tr sdy & slty strg, rr calc vn mat.



SH - m dk olive gy col, fis, m hd, sl wxy lstr, v sl calc, tr mm, tr slty str, tr calc vn, rr pyr xl, rr dk sl bit ptg.

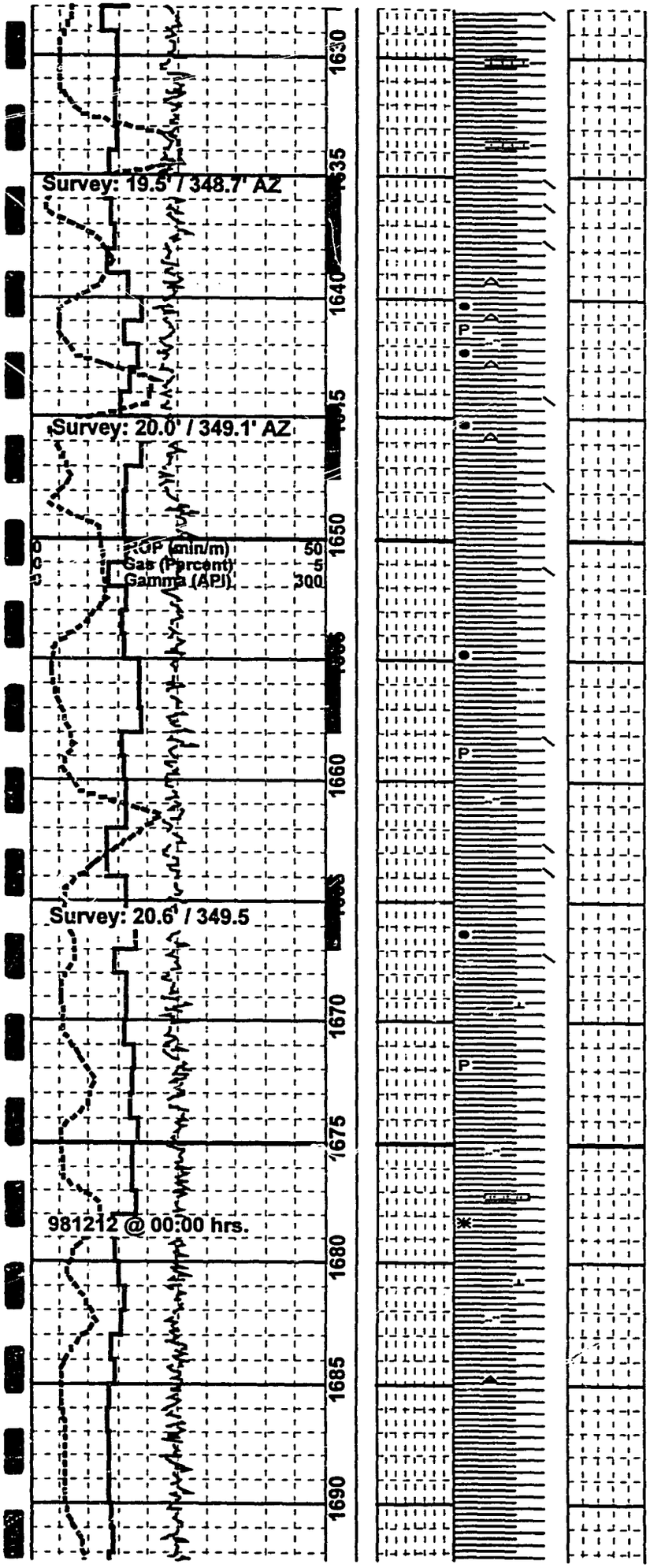
SLTST - m gy col, m hd, v arg, sdy, sl calc, sl mm, rr pyr, tt

SH - m dk olive gy col, fis, m hd, sl soapy, , v sl calc, tr mm, tr calc vn, rr pyr, some sdy & slty str, rr dk bit ptg.

SH - a/a, tr - pres calc vn mat, pt / sdy - slty str.

SH - m dk olive gy, fis - sfis, m hd, v sl calc, sl mm - mm, tr sdy & slty calc vn, rr blk bit ptg.

SH - m dk - dk olive gy col, fis, sl soapy, tr calc vn, some sl dk bit ptg, rr blk brit xbit frag.



SS - m dk gy, v f gr, mod w srtd, v slty, arg, sl bit, tt.

SH m dk - dk olive gy, fis, v sl calc, rr pyr vn, tr sl bit i/p.

SH - dk olive gy, sfis - sl blky, m hd, sl slty, pres - tr v f pyr xl, tr sl bit ptg, rr cly fe stn frag.

CHT - bf col, mas, v hd, sl calc, tr Spic.

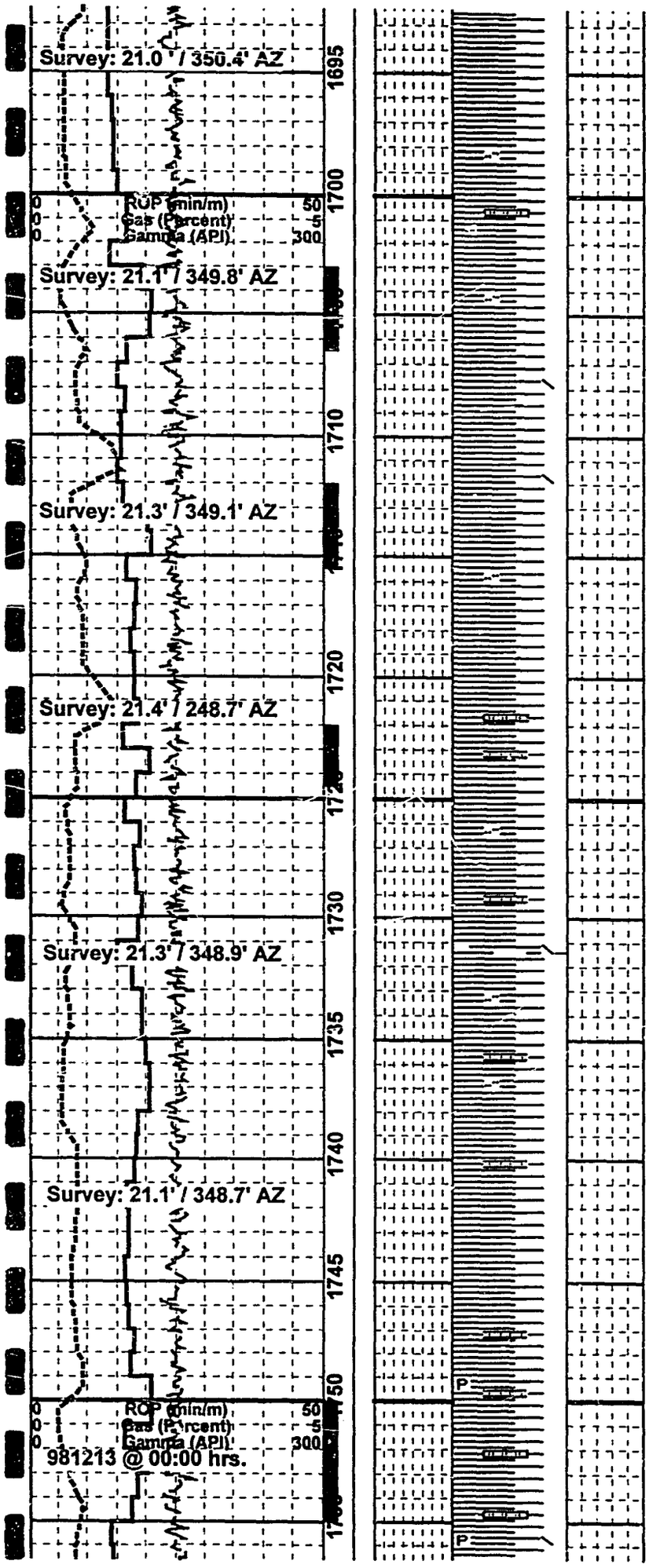
SH - dk olive gy col, fis, trcalc vn, rr - tr blk brit xbit frag.

SH - dk olive gy col. fis, pt splty, m hd, v sl calc, sl mm, tr dk col sl bit ptg.

SH - dk gy - sl olive gy, fis, tr splty, m hd, non calc, sl mm, rr clc vn, rr pyr, rr clr wh calc, rr clr col less qtz shard.

SH - dk gy col, fis, m hd, non calc, sl slty, rr calc vn mat, rr CHT - dk brn, trnsl, v hd.

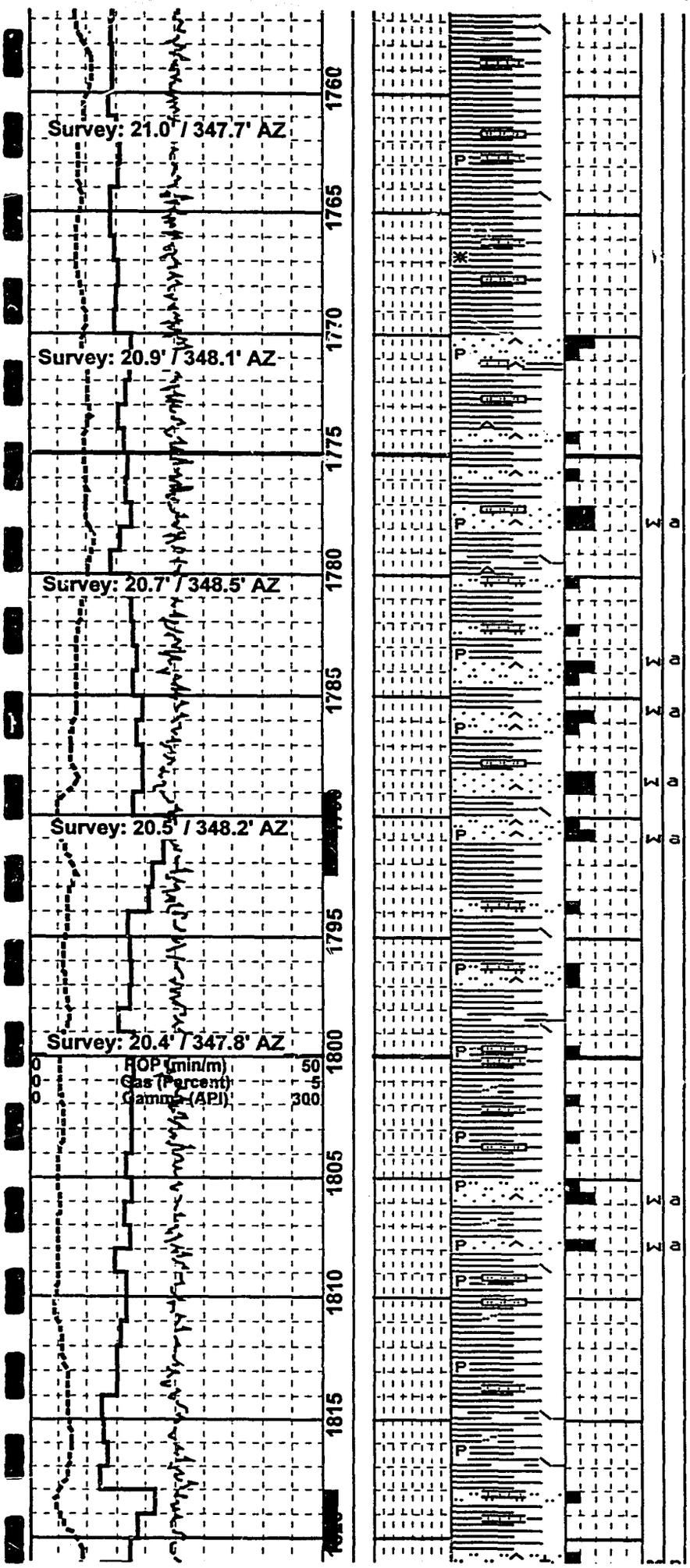
SH - dk gy - sl olive gy col, fis, m hd, rr calc vn.



SH - dk gy, fis, m hd, non calc, pt sl slty, sl mm - pt mm, rr SLTST - m dk gy, v arg, sl calc, m hd, mm, tt grdg slty SS.

SH - dk gy - bcmg sl gn' gy tint, mnr SLTST & SS.

SH - dk gy - sl olive gy col, fis, m hd, sl mm, rr calc vn, tr SS - m - m dk brn gy, v f gr, a, mod w srtd, hd, v sl calc si cmt, v slty, arg, sl mm, tt, grdg SLTST.



v f disem pyr, rr calc vn, rr bit frag.

SS - m - lt brn gy, v f gr, a, mod w srtd, hd v hd, sl calc si cmt, v slty, arg, tt.

SH - dk gy, fis, sl splty, sl bit stn, tr calc vn, tr blk bit ptg, rr clr qtz xl, tr sdy & slty lam.

SLTST - m - dk gy, m hd, sdy, arg, sl calc si cmt, tr mm, tr pyr' i/p, tt.

SS - lt - m gy brn, qtzc, v f gr, a, mod w srtd, v sl calc si cmt, hd - v hd, slty, arg, tr f pyr, tr xbit stn, tt - tr ig por, N vss.

SLTST - m brn gy, m hd - hd, sdy, si cmt, arg, tt.

SS - lt - m gy brn, qtzc, v f gr, hd - v hd, si cmt, slty, tr pyr' tt.

SH - dk gy, fis, m hd, non calc, sl mm, tr thn sdy & slty lb - lam, rr f pyr xl

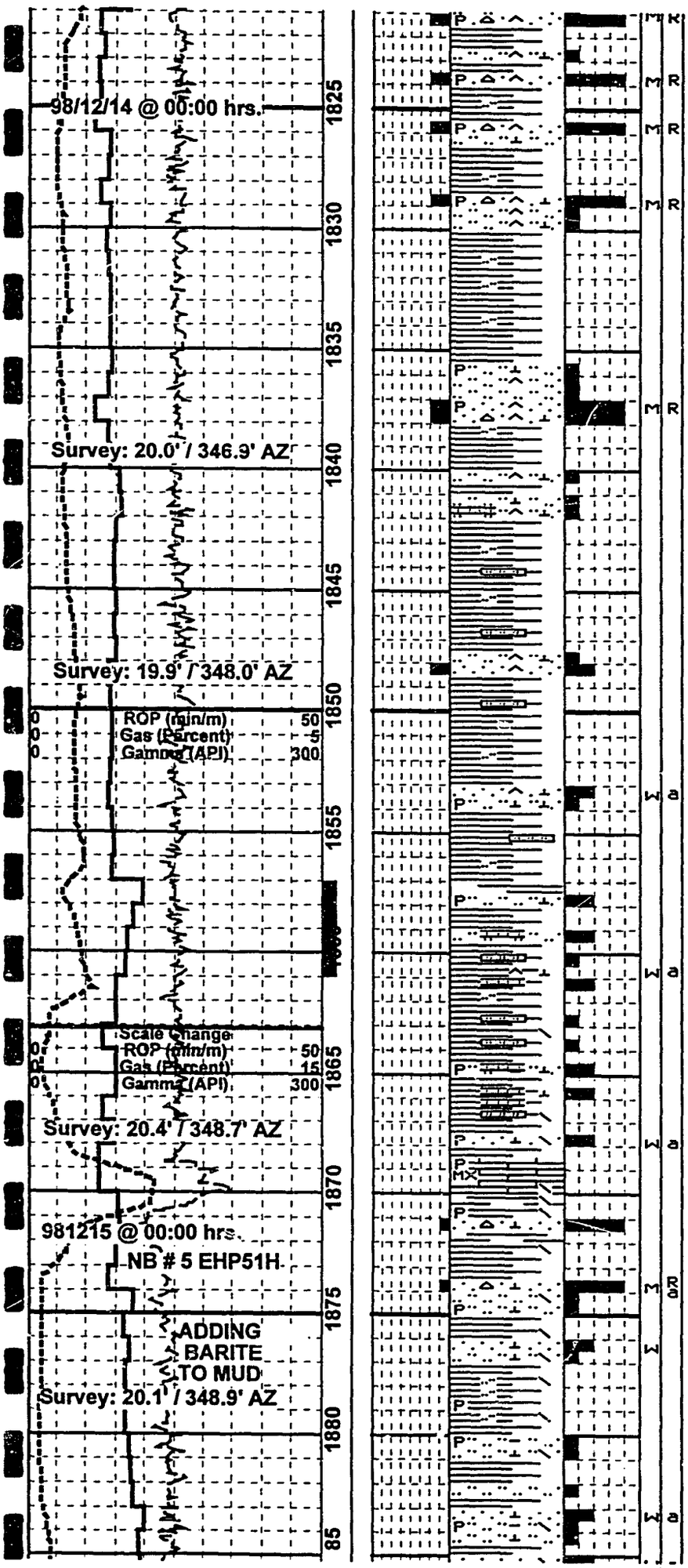
SLTST - m brn gy, m hd - hd, sdy si cmt, tr pyr'.

SH - dk gy - brn' gy col, fis, m hd, non calc, sl mm - pt mm, tr f pyr xl, tr thn SLTST & SS lb - lam.

SS - lt gy brn, qtzc, v f gr, si cmt, hd - v hd, tr pyr', tt.

SLTST - m - dk gy, m hd - hd, si cmt, sdy, arg, tr pyr', tt.

SH - a/a, some dk col ptg, pt slty, mnr SLTST, tr SS.



SS - m gy, f - c sz vcol clr &frost qtz / trip cht, R, mod srtd, m hd, tr v f qtz mtx i/p, tr calc si cmt, pt pyr', f - p ig por, N flu or cut.

SH - dk brn' gy col, fis, m hd, sl wxy, mm.

SH - dk brn' gy, fis, sl wxy, pt slty.

SLTST - dk brn' gy, hd, sdy, arg, mm, sl calc si cmt, tt.

SS - scat lse f - v c sz clr & frost qtz / lt col cht, R, mod srtd, tr calc si cmt, pt pyr', p - fr por, N vss.

SLTST - dk - m dk brn' gy, m hd, sl calc, tr sdy, arg, tr mm, tt.

SH - dk gy - brn' gy, fis, m hd, pt v sl calc, tr slty, tr mm - mm.

SS - m brn' gy, v f - f / scat m gr, r / R, mod srtd, sl calc si cmt, arg, mm, tr ig por.

SH - dk gy - brn' gy, fis, m hd, pt sl calc, tr slty - v slty, tr mm, ib SS & SLTST.

SLTST - m dk gy - brn' gy, m hd, sdy, arg, sl calc, hd, tr mm.

SS - m brn gy, v f gr, hd, si cmt, sl calc - calc, v slty, tt.

SH - dk gy - sl brn' gy, fis, m hd, non calc, pt slty, tr slty & sdy str.

SLTST - m dk gy - sl brn' gy, m hd - hd, sdy, arg, sl calc - calc, si cmt, tt.

SS - m gy - brn' gy, qtzc, v f gr, a, mod w srtd, hd, calc si cmt, tr mm, tr dk bit ptg, tt - tr por.

LST - lt - m brn gy / crm chlky - mtc', mx, hd, slty, sl arg, pt pyr', tr pel , dns.

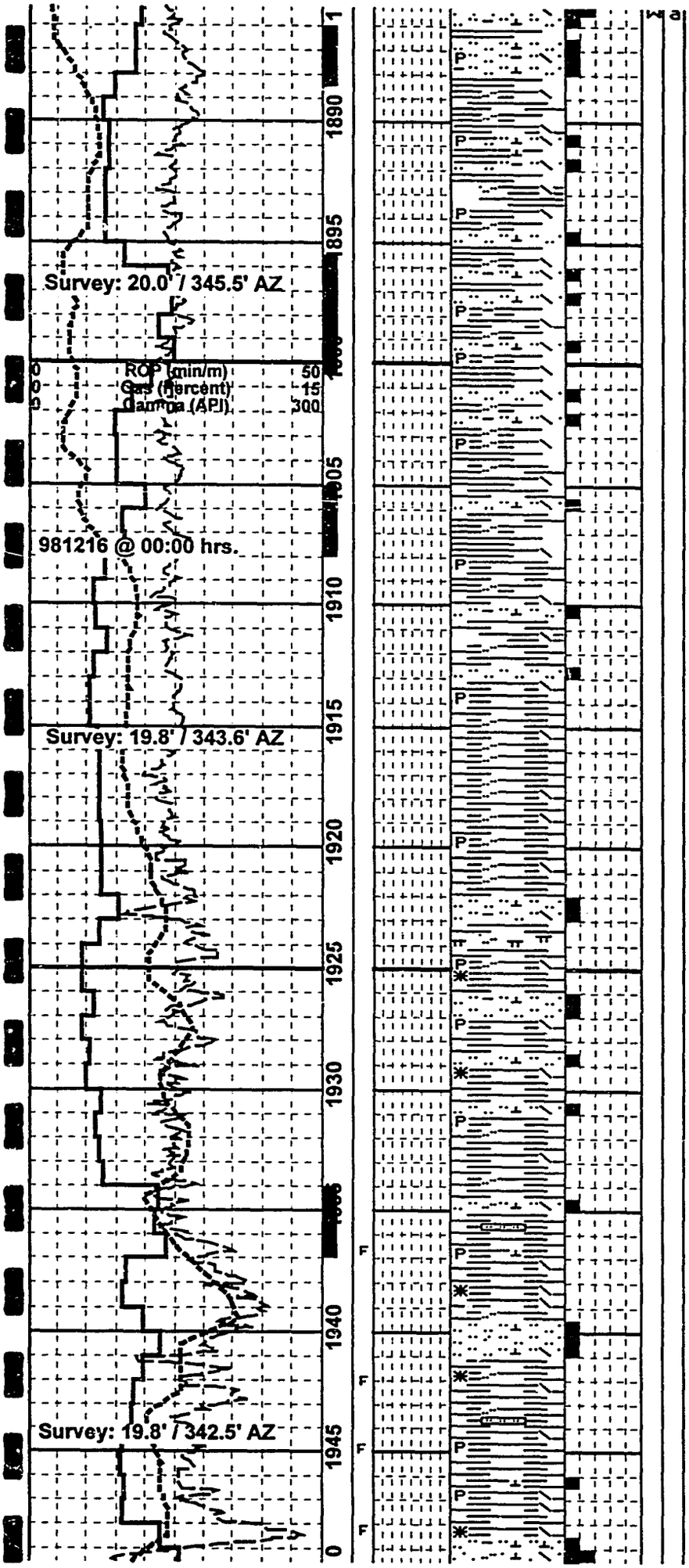
SH - blk, sfis - amor, m sft, v bit, sl calc, pt pyr', pt slty.

SS - m gy, v f gr, a, hd, calc si cmt, scat f - c R qtz & cht, tr pyr, tr bit stn, tr por - p por.

SLTST - m brn' gy, m hd, calc cly cmt, m hd, arg, pres dk bit stn.

SH - m - m dk brn' gy col, fis, m hd, sl calc, sl - v slty, tr v f pyr, pres blk bit stn.

SLTST- m brn' gy col, m hd, sl calc - calc cmt, v arg, tr m, pt / blk bit stn.



stn & ptg.

SLTST -a/a, tr - pres v dk bit stn & ptg, rr pyr cubes, rr dk col Cht.

SLTST - m - v dk stn brn' gy, m hd, calc cly cmt, v arg, pres - com blk bit stn & ptg, rr pyr cubes.

SH - m - md brn' gy / com blk - v dk gy bit stn & ptg.

SLTST - m brn gy & v dk gy stn, m hd, v arg, pt v bit, tr mm, tr pyr, tt.

SH - m brn' gy / blk - v dk gy stn, m hd - m sft, sl calc, slty - v slty, tr m brn sft wxy ptg, tr - pres f pyr.

SH - blk - v dk gy col, fis, m sft - m hd, sl erthy i/p, v bit, slty, tr mm - mnl, rr pyr.

SH - blk, fis, m hd - m sft, v bit, slty - sl slty , mm , rr pyr, tr - pres m gy brn wxy ptg.

SH - v dk gy - blk, fis, m hd, slty - v slty, sl calc, tr m, tr wh calc spec i/p, tr lt gy brn col slty lam, grdg v arg SLTST.

SLTST - dk - v dk gy, v arg, sl calc - calc, tt.

SH - v dk gy - blk, sfis - sl blky, v bit, m hd - hd, slty, sl calc i/p, tr wh calc vn mat, rr pyr, m gy sft Mrlst.

SH - blk - v dk gy, sfis - sl blky, m hd - hd, sl blky, tr calc vn, rr - tr pyr.

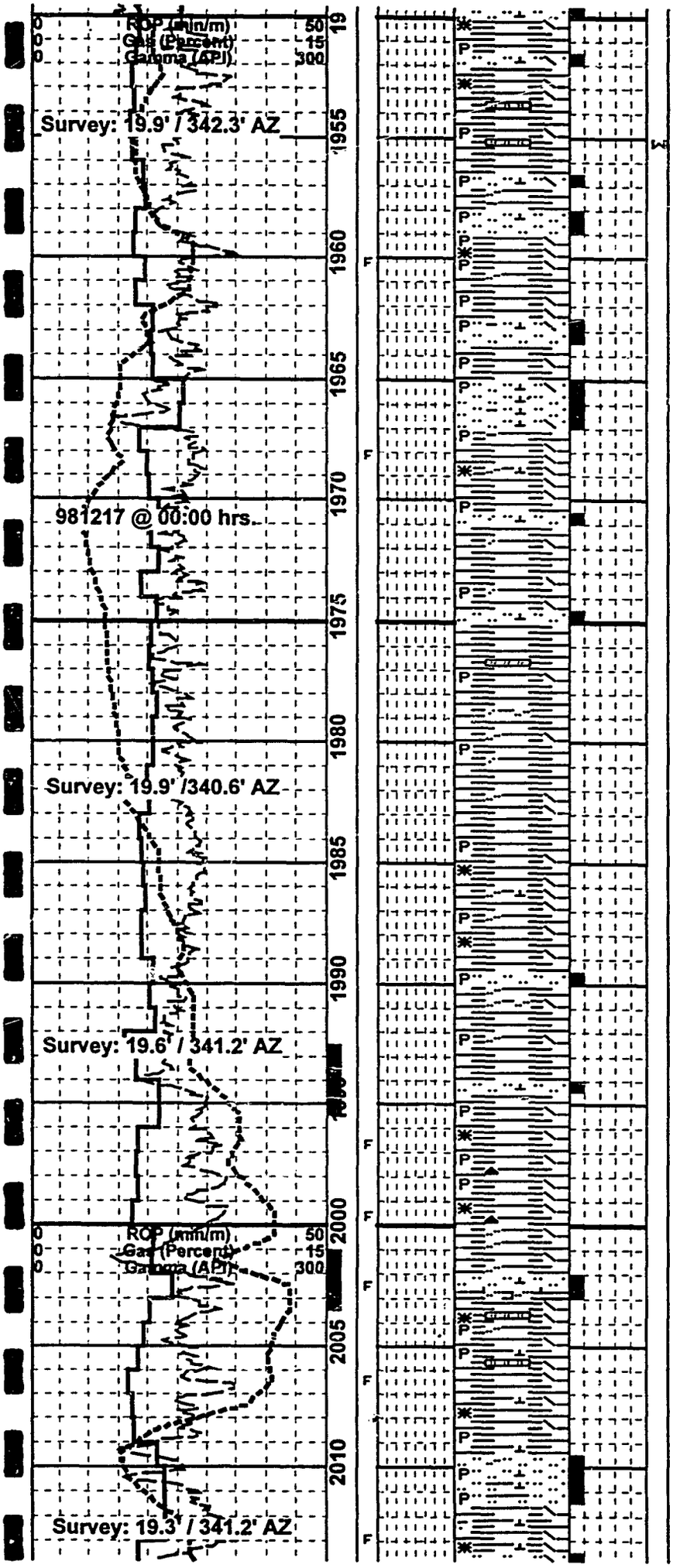
SLTST - dk - v dk gy, m hd - hd, calc - v calc, dol, v arg, com bit stn, tt.

SH - blk - v dk brn' gy, sfis - fis, hd, v bt, pt sl calc, slty, tr mm, tr pyr vn mat, tr wh calc frac infill, tr clr wh qtz vn.

U. Dev. HORN RIVER

SLTST - blk - v dk gy stn, hd, calc, pt sdy, v arg, bit stn , tt - tr por.

SH - blk - v dk brn' gy, sl satin sheen, hd, brit, v bit, tr mm - mm, sl slty, tr pyr vn mat, tr mfrcs / wh qtz & calc fill, tr m - dk brn mrly ptg.



arg, v slty, tr pyr', tt.

SLTST - m dk gy sp, hd, v calc cmt, arg, mm, tr pyr, tt.

SH - blk, fis - sfis, v bit, pt sl slty - slty, pres infill mfrcs, tr pyr vn, pres f pyr xl, tr mrly ptg, SLTST ib.

SLTST - dk - v dk gy, hd, v calc, arg, pt sdy, mm, tr pyr, tt.

SH - blk - v dk brn' gy col, sfis, m hd, v bit, sl erthy, sl calc, pt slty, tr pyr.

SH - blk, sfis, hd, brit, v bit, mm, pry', tr calc vn, rr - sft mrly ptg.

SH - a/a, bcmg blk - v dk brn' gy, sl erthy, m hd - hd, sl calc mm, tr m lt gy sl wxy Sh ptg.

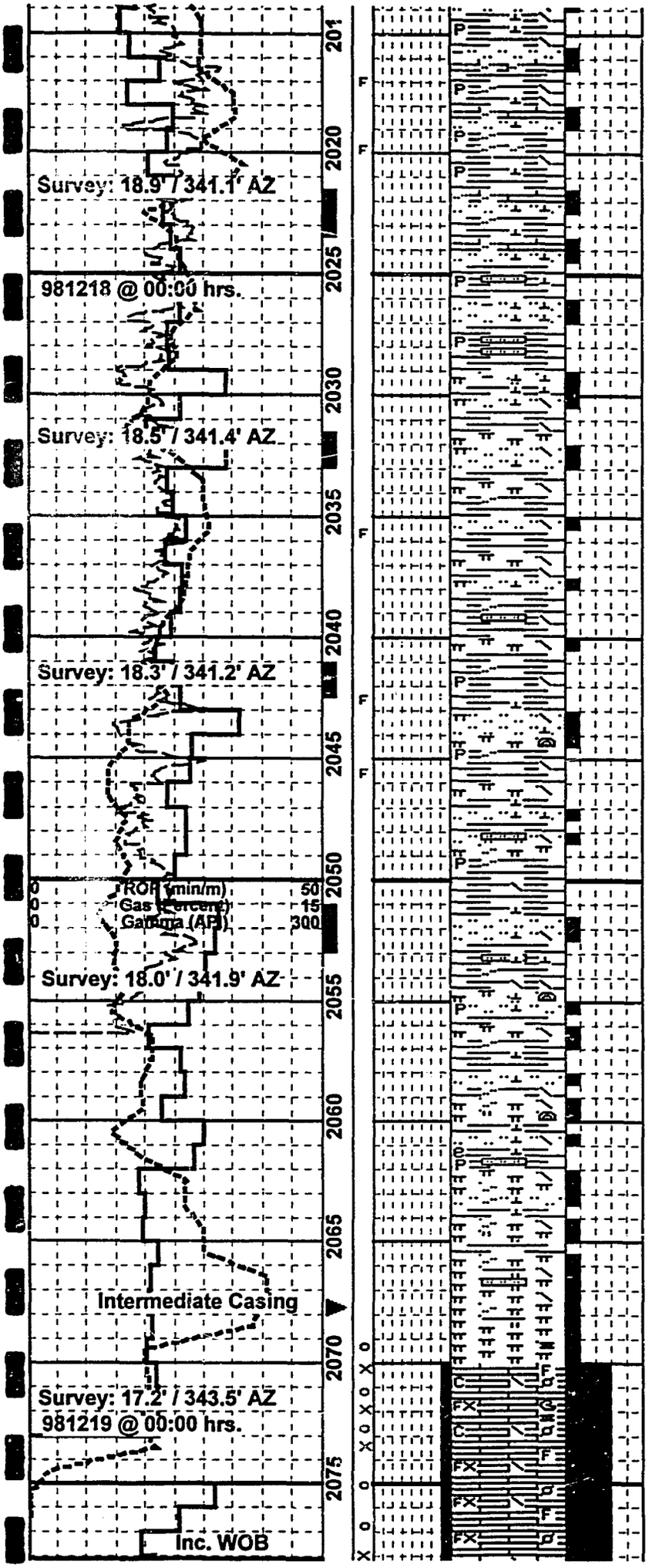
SH - a/a, more brit less erthy, SLTST lam.

SH- blk - v dk brn' gy col, sfis - fis, m hd - hd, sl erthy lstr, v bit, mm, tr - pres pyr.

LST - dk brn, mx - vf xl, hd, v slty, v arg, tr pyr', dns.

SH - blk - pt brn' gy, sfis - sl blky, hd, brit, v bit, sl slty - slty, mm, tr - pres pyr, pres lt gy col ptg, tr calc vn.

SLTST - m gy sl sp, hd, v calc cmt, arg, m, tr pyr xl, com bit stn & ptg, tt.



LST - m dk gy spec, hd, v slty, v arg, pres bit stn & ptg, dns.

SH - blk - v dk gy, sfid - blky, hd - v hd, bit, sl slty - slty, pres wh xl calc vn, mrly str.

SLTST - dk - pt v dk gy, qtzc, hd, v calc, v arg, pres - com bit stn & ptg, N vss.

MRLST - m gy col, mtc', chlky tex, m hd, v slty, tr casph, com - abun bit stng.

SLTST - dk gy - brn' gy, m hd, bit, v calc, v arg.

SH - v dk brn gy, s fis, bit, m hd, calc, slty.

SH - blk, sfis - sl blky hd, brit, bit, sl slty - slty, mm, tr pyr, tr calc infilled mfrcs, pres lt gy sl wxy ptg.

MRLST - m brn gy col, chlky, v slty, com blk bit stn & ptg, casph / calc vn, dns.

SLTST - dk - v dk stn m gy, m hd - hd, arg, v calc, mm, tr pyr, tt.

SH - blk - v dk gy, num m lt brn gy, sft wxy ptg.

SLTST - dk - v dk bit stn m gy, v calc, v arg.

SH - v dk brn gy - blk, sfis, m hd, sl erthy, v bit, calc, pt slty, tr mm, rr - tr pyr, tr lt col ptg.

SLTST - dk - v dk brn ' gy, v arg, v calc, com - abun bit stn, tt.

MRLST - m brn gy col, m hd - hd, chlky tex, v slty, tr mm, pres - com blk bit stn & ptg, f sz wh calc fos frag & vn, dns.

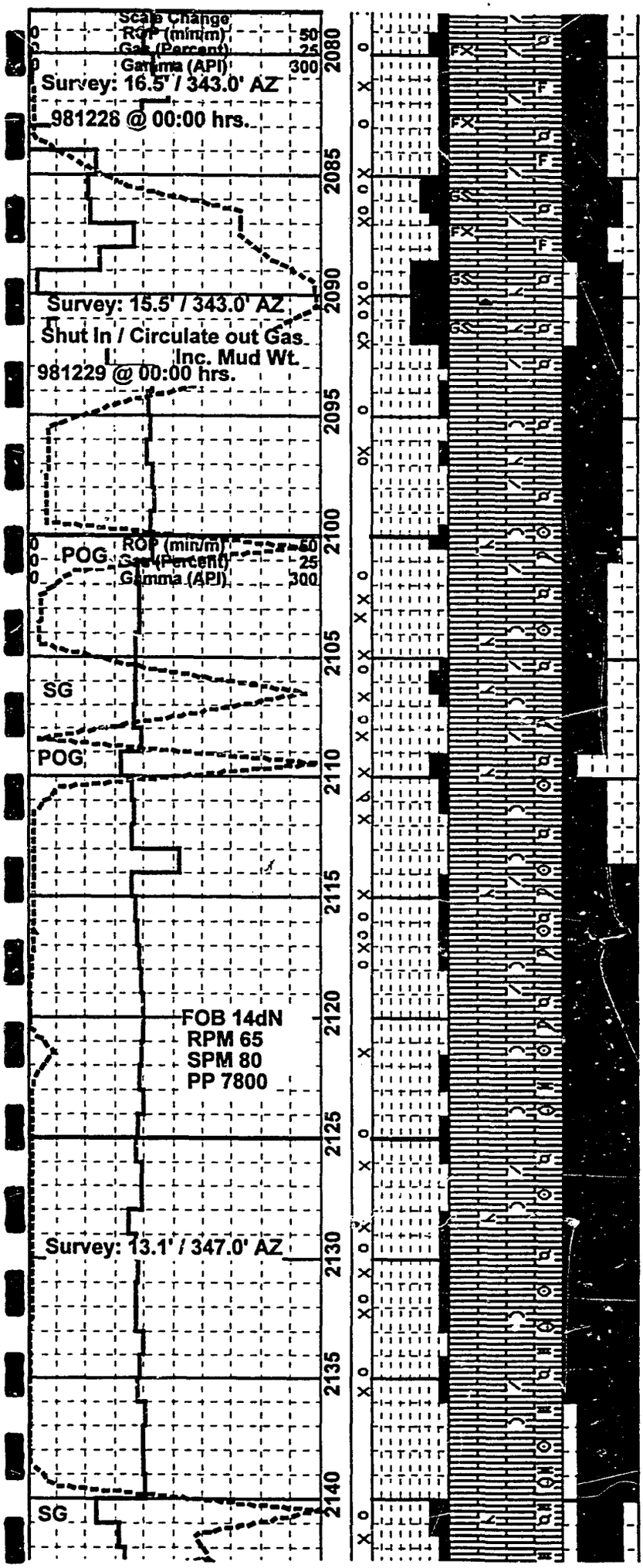
SH - v dk brn' gy - blk, sfis, m hd, sl erthy, v bit, calc, sl slty - slty, tr mm, tr lt col ptg.

CMRL - varigated wh - dk gy - blk, m hd - hd, v slty, com dd oil - bit stn, pres casph / alg rmn.

M. Dev. NAHANNI

LST - lt - m gy brn col, v f - f xln / m sz fos frag, - m hd - hd, pt sl chlky tex, tr indist fos frag, Strom, alg, cor, brac, pres intra fos - pel dd oil / bit stn, dns - tr ixl / ifs por , N flu or cut noted.

LST - a/a, abun cmt contm, com xbit stng.



LST - m gy' brn col, v f - f xl / m sz pel, m hd - hd, sl chlky tex ip, tr arg, tr slty, com blk xbit stng & ptg, tr - p org & ixl por.

LST - mot lt - m brn & tr pk' brn biospar, f - m xln, hd, sl dol, tr m brn Cht nod, num clr wh c xln calc vn / fos repl mat / rx, fr - g org & ixl por, N flu, fnt slow mlky mas cut.

LST - lt brn, v f xl, suc tex, g ixl por.

LST- dk gy brn, cx -mx - v f xl, pt biomtc', hd, blky, sl dol, tr arg, tr slty, tr calc vn / rx, tr - pres blk xbit stn & ptg, com fos frsg Crin / Col / Pel , tr ixl / org por, N v ss.

LST - dk - m gy brn, mx - v f xl, hd, blky, r arg / slty, com f - m gr biocl Crin / Ost / Col ? strom / Pel, sl chlky, tr calc vn mat, tr dd oil stn, tr - occ p ixl - org por.

LST - a/a, bcmg more biocl, tr - pres dk xbit.

LST - lt brn, v f xl, suc tex, m hd, sl dol, p ixl por.

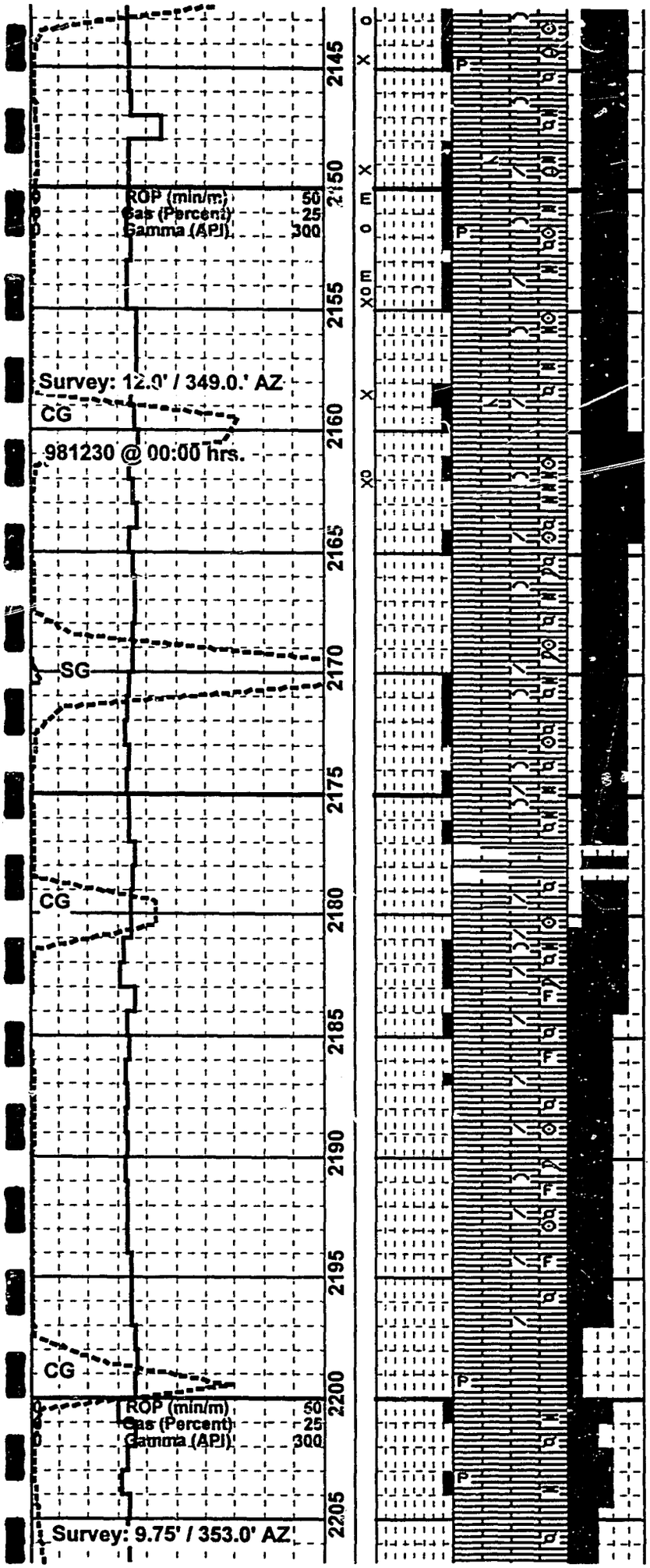
LST - mot m - dk gy brn, biomtc', mx - v f xl / f - v c biocl Crin / Strom / Col / Pel, pt sl chlky, hd, sl dol, tr arg, tr slty, tr clr wh euh calc rx vn, pre dd oil stn, tr - rr p ixl - org por.

LST - mot m - dk gy brn, f - v c biocl / lt - m brn appv f - f sl chlky mtc cmt, tr clr wh calc xl, tr - pres blk xbit stn, tr org - ixl por, N vss.

LST - mot m - dk gy brn biomtc, f - v c sz cx & mx fos frag / mx - v f sl chlky mtc, tr arg / slty, sl dol, tr blk xbit stn, tr calc vn, dns - tr org - ixl por.

LST - a/a, sl coarser mtc comp, tr xbit stng, dns - tr por.

LST - a/a, pres clr wh calc rx / rpl mat, tr str p - fr ifs por, N flu or cut.



LST - mot crm - m / com dk gy brn biocl, hd - m hd, v f xl sl chlky mtc, com - abun f - m pel / f - c sz fos frag, tr calc vn, rr pyr xl, tr blk xbit stn & ptg, tr - rr str p ixl / erthy & org por, N vss.

LST - mot crm -lt - m - dk gy brn, biomtc, f - c sz fos frag / mx - v f xl cmt mtx, m hd - hd, sl chlkt, tr arg, sl dol, fos asby most Pel / Crin - Strom - Amphi Col, tr - str p ixl & org por, N vss.

LST - a/a,more dk brn col pt v c sz mx biocl, rr pyr xl ip.

LST - mot crm - lt m & dk gy brn, biomtc - pelmtc, v f - f cmt / f - c sz fos frag, tr clr wh calc, tr xbit ptg, tr - occ p ixl - org por.

LST - a/a, pres clr mlky wh rx calcite.

SH - m gn' gy col, fis, m hd, sl wxy, & pt blk, plty, v bit.

LST - mot lt - m & com dk gy brn, biomtc, m hd, v f xl tr chlky mtx / f - c fos frag, pres dk arg bit ptg, tr pyr xl, tr por.

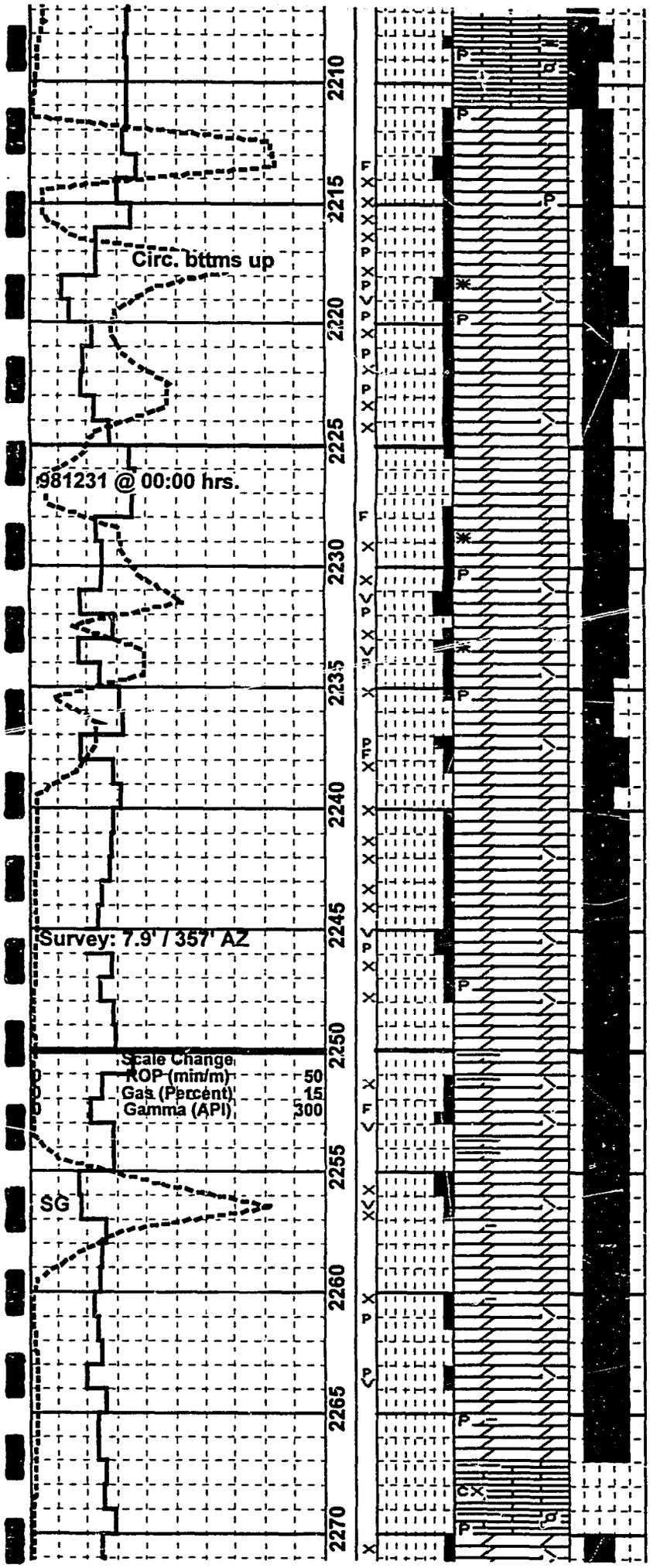
LST - lt - m gy brn, v f - f xl / some m fos frag, m hd, tr arg, tr slty, tr pyr xl, tr calc vn, pres dk xbit ptg & stn, tr - occ p ixl por.

LST - crm - m brn, mx - v f xl, m hd, com pel / amphipora, tr c fos frag, tr slty, tr arg, rr Cht nod, tr calc vn, tr dk xbit, tr - rr p por.

LST - lt brn - tan col, cx, blky, hd, tr stylo, dns.

LST - m - dk gy brn, mx - v f xl/ com f - m sz Pel / Amphipora, tr slty tr arg - arg, pres dk xbit stng, dns - tr ixl por.

LST - m - dk brn, cx - mx, hd, blky, tr - pres Pel /



LST - m - dk brn, cx - mx, blky, hd, com Pel / fos rmn, arg, dns - some p ixl - org por.

M. Dev. NAHANNI DOLOMITE

DOL - mlky wh f - m & occ c sz suc rhmb mozaic, m hd, sl lmy ip, tr xbit, p ixl - tr fr dsy por, N oil stn / flu.

DOL - a/a, greater sz var, rr clr vit qtz, tr dog tooth spar, str p - pos' fr ixl - pp por.

DOL -wh - lt brn col, vf - m sz euh xl, m hd - hd, pt sl arg, tr lmy, tr - p ixl por.

DOL - wh - off wh - crm col, f - m sz euh dol rhmb, m hd - hd, sl lmy, tr clr wh c euh xl, rr - tr blk bit / dd oil stn, p ixl - pp por, N flu, fnt mlky ring on cut.

DOL - wh - lt gy - lt gy brn, m - f xl, m hd, sl lmy, rr pyr xl, tr - rr blk xbit / dd oil stn, tr f - vf xln dk brn bit arg str, tr m - c sz mlky wh dog tooth spar, str p ixl - pp por.

DOL - wh - lt & m brn' gy, f - m xl, m hd - hd, com (40%) m gy brn col bit arg f - vf gr comp, pres c sz mlky wh dog tooth spar, str p - pos' fr ixl - pp por, N flu, fnt mlky ring on cut.

DOL - lt - m brn' gy col, f - m / some vf mtc' mat, pres - com (35%) f sz bit arg stn bd, half spl c mlky wh dog tooth / euh rhmb, pres xbit coating p / tr str fr ixl - pp por.

M. Dev. HEADLESS

DOL - mot wh - v lt gy brn, pred m sz euh xl / (25%) lt - m brn arg bit stn mat, rr clr col less qtz prsm, pres vug / pp dsy xl, str p - rr fr ixl por.

DOL - lt gy - bf - wh, m - c less euh xl, tr(10%) dk arg stn f mat, tr - rr blk xbit, tr - p ixl por.

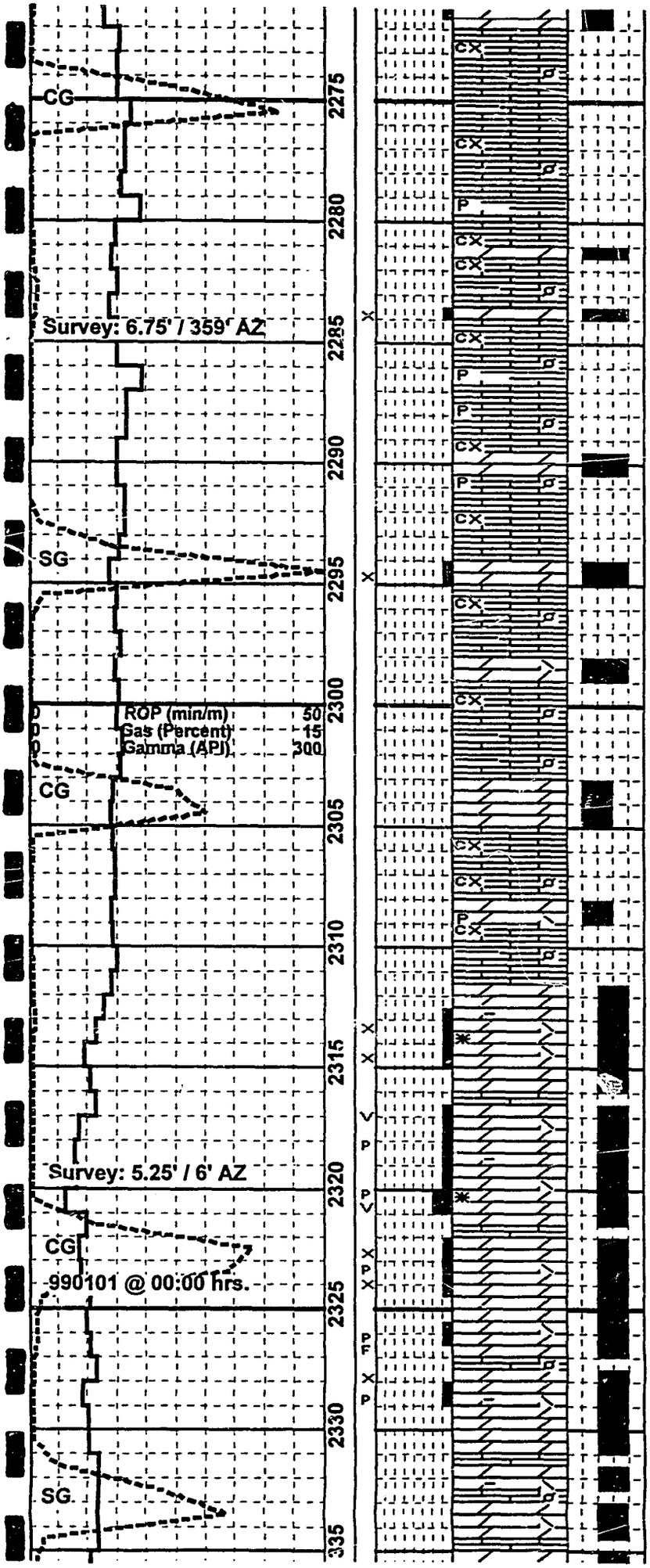
DOL - wh - lt gy - bf, pres (20%) m - dk gy bit stn str, m - f xl, tr c xln spar, dk bit vn, p - tr - some fr por, tr m brn gy wxy SH ptg.

DOL - wh , pres lt - m brn gy arg stn str, pred m / some c euh xl, m hd, sl lmy, rr - tr chlky why lmy str, tr - pres dsy xl vug / pp lining, p - rr fr ixl - pp - vug por.

DOL - a/a, pred m sz mlky wh xl, pt sl suc tex, rr - tr blk xbit along xl margins, tr - p ixl por.

LST - m brn - tan, cx, blky, hd, dns.

SH - m gy col, sfis, sl wxy.



LST - m brn - tan col, cx, hd, blky, sl dol, sl arg, tr str / fos frag - pel, dns.

LST - tan - lt brn, cx, blky, hd, some chlky fos' str, dns.

SH - lt gy gn col, sfis, m hd - m sft, wxy lstr, pyr'

DOL - wh - lt brn, f - m / some c xl, tr xbit coating, tr ixl por.

LST - crm - lt - m gy brn col, cx - mx / some chlky fos' bd, hd, sl arg, sl dol, dns - rr mfrcs.

SH - lt gn gy - gy gn, m sft, wxy, num pyr xl.

M. Dev.LANDRY LST.

LST - lt - m gy brn & gy, mx - cx, hd, tr chlky str, tr arg - arg, sl slty, sl dol, tr pyr xl, tr Pel / Pel ghst, dns.

DOL - a/a, f - c euh wh xl.

LST - a/a, lt - m brn, cx, tr gn' Sh clst.

DOL - wh - crm - bf, pred m sz xl, m hd, sl lmy, tr ib vf - f xl suc str/ com lmy blk arg bit stn, tr xbit, tr ixl por.

SH - pale gy gn, sft, wxy, pyr'.

DOL - wh - bf, f - m xl, m hd, pt lmy, tr ixl por.

LST - a/a, crm - bf - tan col.

LST - lt - m brn, cx blky, hd, sl arg, tr chlky Pel / fos bd, arg str / tr pyr & bit, dns.

M. Dev. ARNICA

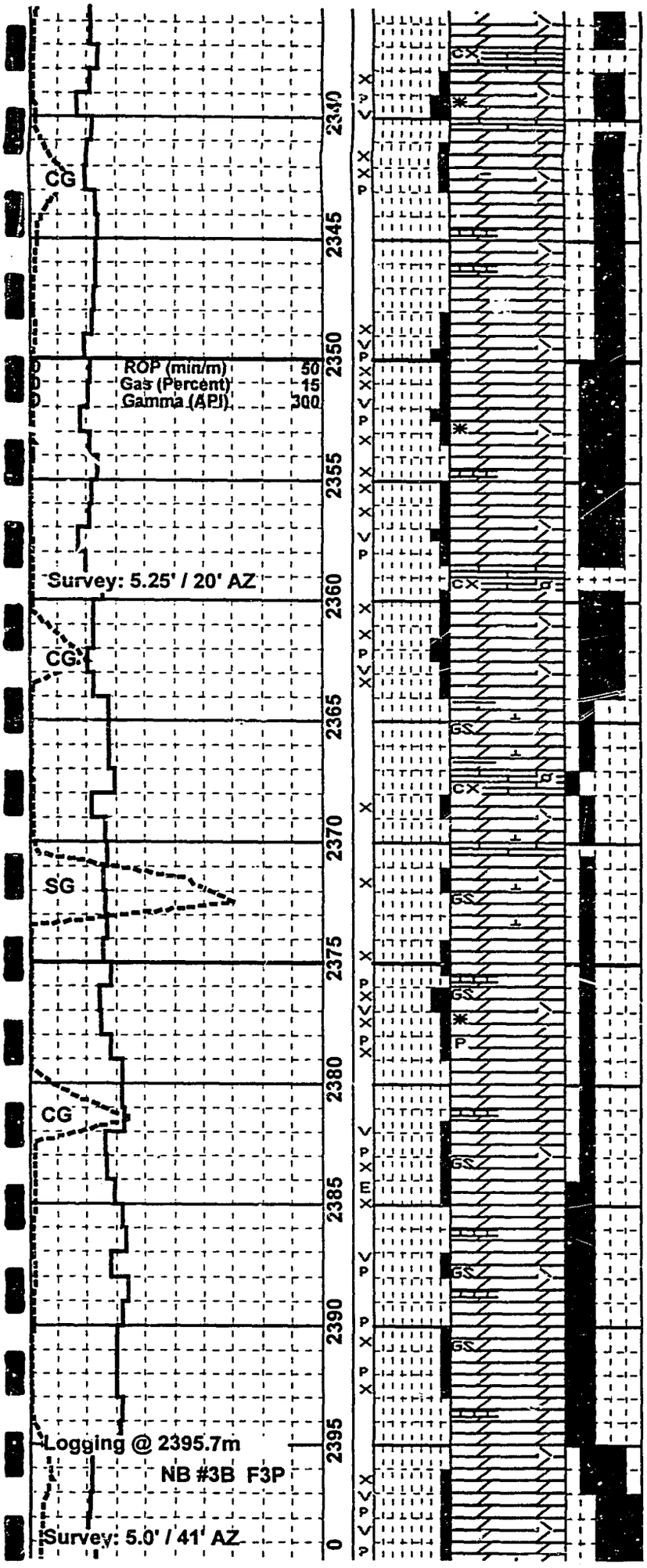
DOL - wh - lt brn, m - c xl, tr - pres dk gy - blk col arg bit coat along xl margins & veins, rr clr qtz / calc xl, tr pyr sphal min', dns - tr ixl por, tr p pp - vug por, gn' Sh clst.

DOL - wh / pres (20%) dk gy - blk arg bit vein, m - c xl, sl lmy, tr dsy pp / vug xl lining, p - tr fr ix - pp - vug por.

LST - a/a, lt gy brn, cx.

DOL - a/a. tr - pres dk arg stn.

LST - lt - m gy brn col, cx / tr chlky Pel / Pel ghst, hd, dol, sl arg, dns.



DOL - wh - some bf - lt brn gy sl lmy arg vn, m - c xl, hd, sl lmy, rr pyr / sphal min', tr (10%) blk xbit vn / ptg, tr calc xl - qtz prsm, some dsy dog tooth xl, str p pos' fr ixl - vug - pp por.

DOL - wh, f - c xl, m hd, sl lmy, pres (25%) lt - m brn arg bit stn vug lining / vn, tr qtz prsm - calc xl - dsy rhmb, p tr fr ixl por, N flu / cut.

LST - m - dk brn, cx / fos - pel ip, arg, dol, dns.

DOL - a/a, pres - com (30%) dk brn gy col, mx, hd abun arg bit stng, tr dsy xl, p ixl - vug - pp por.

SH - m gy - blk, sfis, m hd, sl calc.

DOL - bf col, f gr, suc tex, hd, sl calc - calc, tr slty - slty, tr pp vug dsy xl lining, rr bit stng, p - str por.

LST - dk brn, mx - cx, hd, arg, tr pyr', dns.

DOL - a/a, more wh dsy c xl, tr xbit stn, p por, some yel' flu calc.

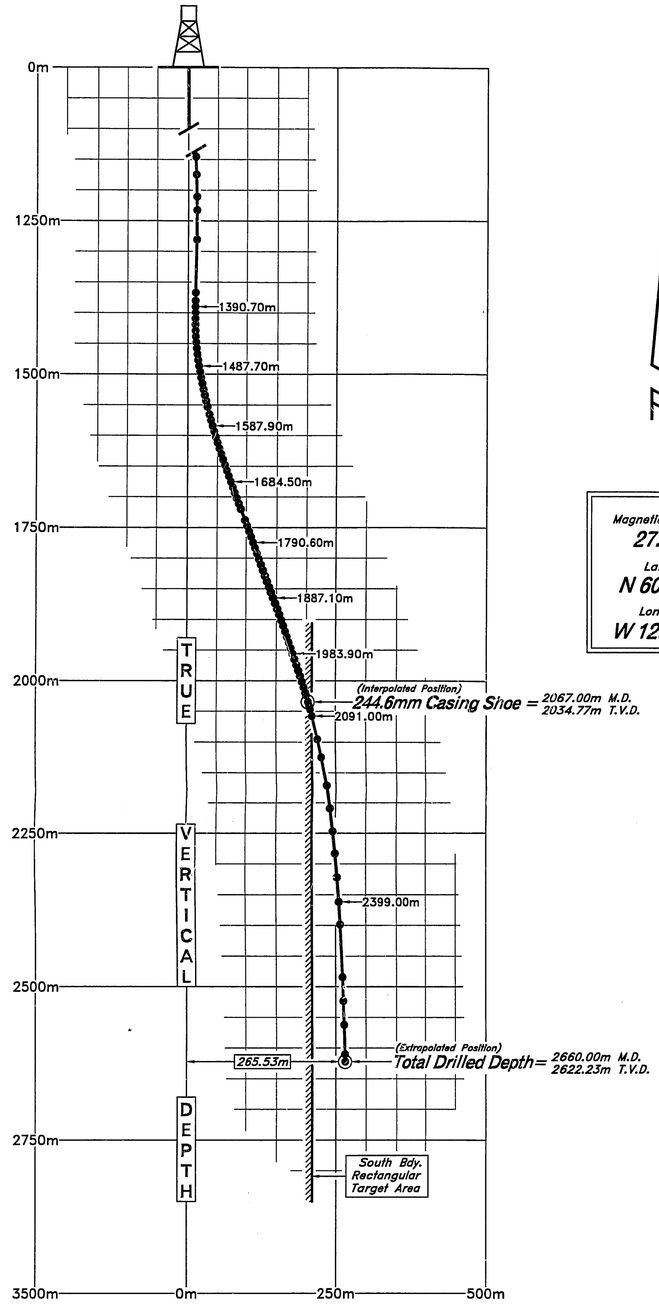
DOL - lt - m gy & brn, pred f gr, suc tex, hd, lmy, rr pyr, rr pyr' Sh ptg, pres xbit vn & ptg, tr wh Dol spar, rr qtz prsm - calc rx, str p - rr to fr ixl por.

DOL - a/a, most f gr, abun mlky wh m - c sz Dol spar, p vug - pp por.

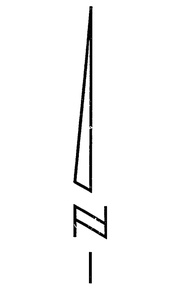
DOL - lt - m gy & brn, f - vf gr, sl suc, hd, lmy, com wh m - c Dol spar, p por, tr LST strgr.

DOL - lt - m gy & brn, f - vf gr, abun wh Dol spar, tr clr qtz & rx calc, tr chlky lmy str, rr xbit, p pos' fr vug - pp por.

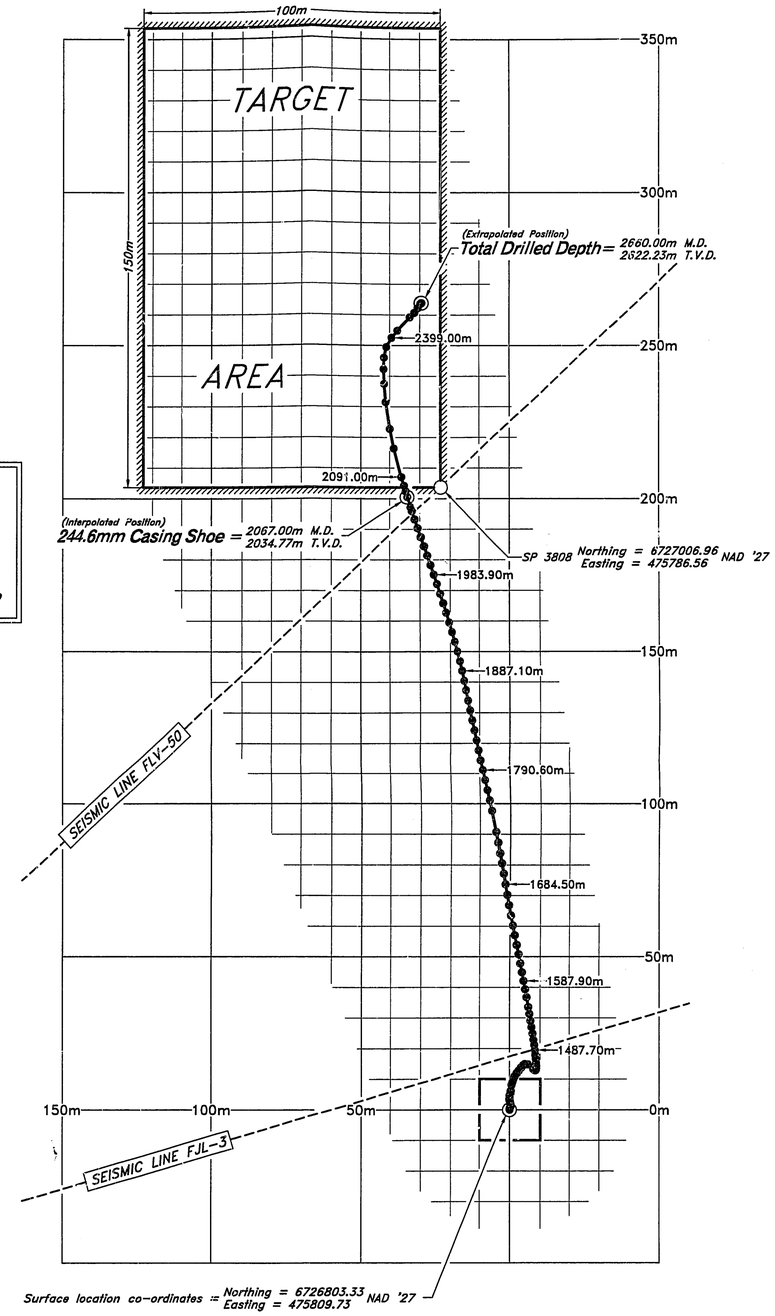
DOL - wh / m gy col arg bit stn str, f - m gr, hd, rr clr vit qtz - rx calc, tr - p ixl - pp por.



VERTICAL PROJECTION
Scale = 1cm to 50m



Magnetic Variation
27.28°E
Latitude
N 60.6781°
Longitude
W 123.4427°



HORIZONTAL PROJECTION
Scale = 1cm to 10m

SP 3808 is displaced 204.98m on a bearing of NORTH 6.4989° WEST of surface location

directional drilling completion plan for

CANADIAN FOREST OIL LTD.

for the directionally drilled well

CDN FOREST et al FLETT RAPIDS I - 61

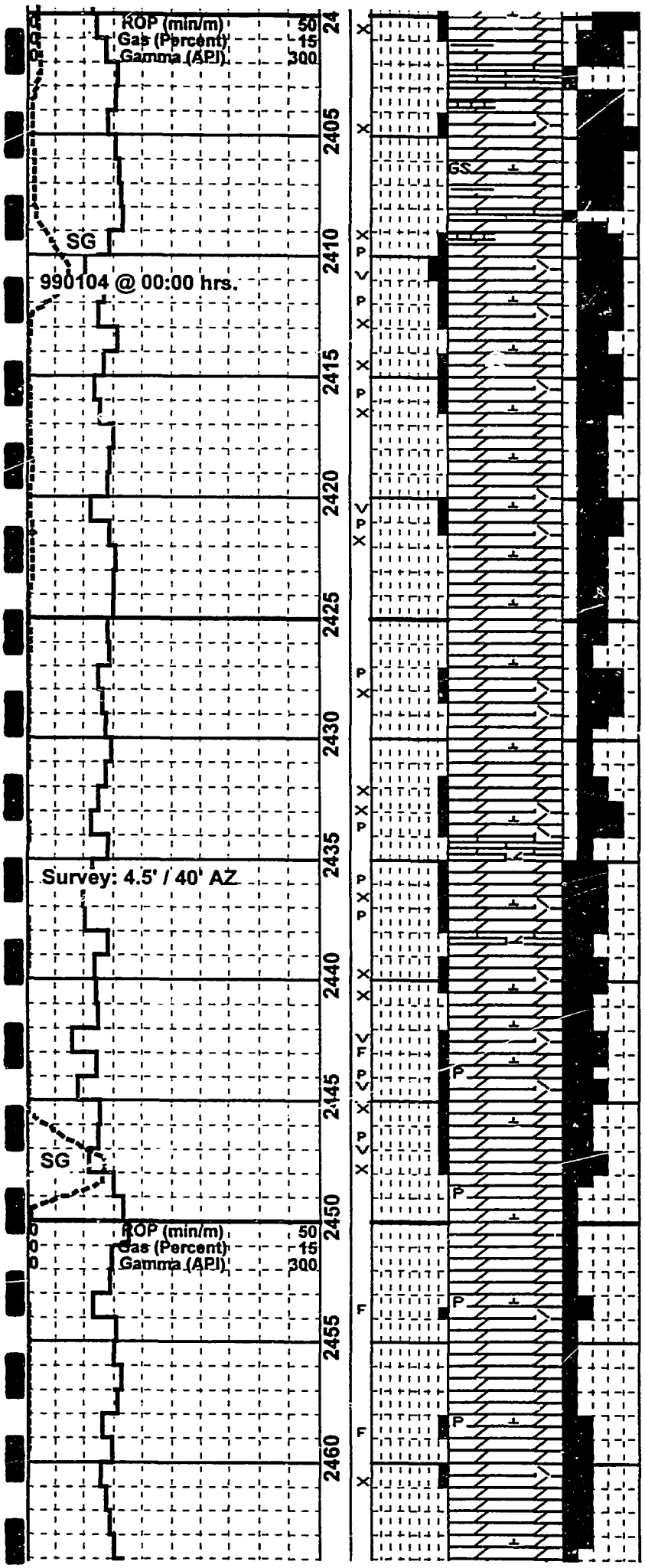
from a surface location in

GRID AREA 60°50', 123°15'

prepared and submitted by

Whipstock Systems Inc.

L. Fate 1999 January 18th.



dk gy arg bit discol on dsy xl, p vug - pp por
LST - m - dk brn' gy col, mx, blky, hd, sl arg, sl dol, rr pyr', dns.

DOL - lt - m lt brn' gy col, f - m grnst, hd, sl arg, lmy, tr fos - Pel, pres (20%) m - dk gy col arg bit stng, p - tr ixl por.

DOL - a/a, com (40%) mlky wh m - c sz Dol spar, p - pos' fr vug - pp por..

DOL - bf - m lt brn' gy col, pred f grnst, hd, lmy, sl arg, com dk col xbit stn & tr blk xbit ptg, rr pyr, pres (25%) wh Dol spar, p por.

DOL - bf - lt brn gy, f - vf xl, hd, lmy - tr v lmy, sl arg, pres xbit stn - ptg, tr c - m sz euh Dol spar, p por.

DOL - dk gy sl sp, v f gr, m hd, v lmy, com - abun dd oil stn, tr ixl, rr pyr, pres c wh Dol sparp vug - pp por.

DOL - bf, mx, blky, hd, lmy, dns - tr frac por.

LST - lt gy col, mx, blky, hd, v dol, dns.

DOL - bf - crm col, f xl, hd, lmy, pt v sl arg, mx - v f xl ib, tr dk col bit str, pres wh dsy - clr qtz & calc xl, p ixl - vug - pp por.

DOL - crm - bf - lt gy col, mx - v f xl, blky, hd, lmy - v lmy, tr - rr wh dsy xl vn, tr xbit stn, tr ixl - pos p - fr pp por.

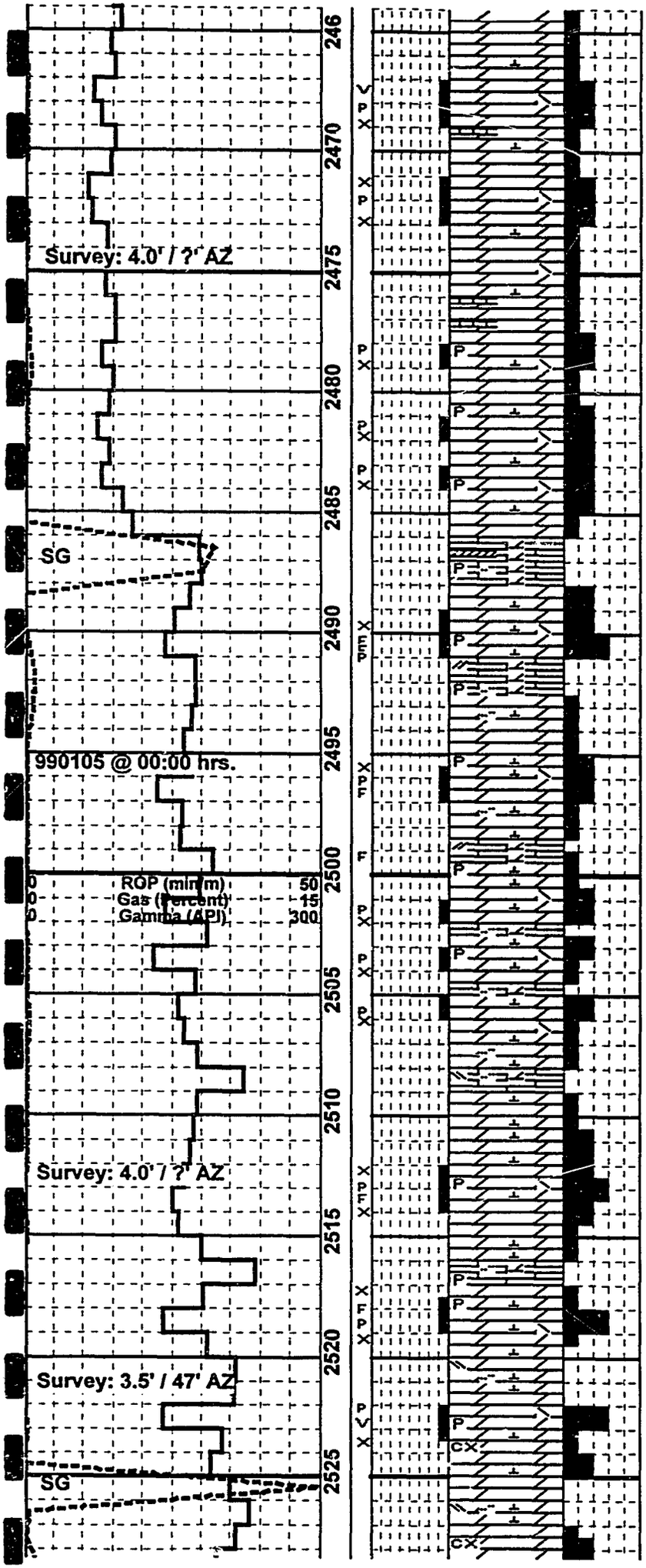
L. Dev. SOMBRE

DOL - crm - bf, mx, blky, hd, lmy, tr lt brn gy cx lam / tr f xl pyr, tr - rr xbit stng, dns - tr frac por.

DOL - lt brn, cx, tr vf f disem pyr.

DOL - crm - bf, mx, hd, blky, lmy, dns - tr frac por.

DOL- crm - bf - lt gy, v f xl / ib mx - cx - f xl var,



blky, hd, lmy - v lmy, tr dsy wh m - c sz xl ip, tr - rr p ixl - vug - pp por.

DOL - crm - bf, v f xl - mx, hd, lmy - v lmy, some m - c xl vn / calc - qtz xl, tr - str p por.

LST - m brn, mx, hd, dol, arg, dns.

DOL - lt gy brn, f - vf xl, suc tex, m hd - hd, pres dk dd oil stng & ptg, tr pyr xl, str p - pos' fr por.

L. Dev. CAMSELL

LST - crm - pale gy, cx - mx, hd - v hd,, v dol, sl slty, dns, mnr Anhy - lt gy - wh, mx, chlky in spl.

DOL - bf - crm col, v f gr, sl suc, hd, lmy, rr pyr, tr vn / f - m sz xl / clr vit qtz & calc, tr - p por.

LST - lt gy, cx, blky, hd - v hd, v dol, slty , tr anhy', dns - tr frac por.

DOL- lt gy - bf, mx, hd - v hd, blky, tr v f disem pyr, v lmy, tr clr slt, dns.

DOL - crm - lt & m gy col, v f xl, m hd, lmy - v lmy, pt sl arg, tr slty, tr str / f xl - rr wh dol spar& tr - pres dk bit stn, tr - occ p ixl - pp - frac por.

LST - pale gy col, cx, hd - v hd, dol, tr clr vit slt, tr v f disem pyr, dns - tr qtz lined vn - frac.

DOL - bf - lt brn, v f - f xl, hd, lmy, tr m - c sz dsy xl vn, rr pyr - dd oil stn, tr ixl - vug por.

DOL - bf - lt brn, v f xl, suc, m hd, lmy pres xbit, p - tr fr ixl por.

DOL - crm - bf, mx - v f xl, lmy - v lmy, tr f xl vn / pyr & xbit, dns - tr ixl por.

LST - pale gy - brn, cx, v dol, hd - v hd, tr slty, tr v f pyr, tr qtz - calc vn, dns - tr por.

DOL - crm - bf - lt gy, v f xl, hd, lmy - v lmy, tr slt, tr dsy xl vn - pp, pres m - c mlky wh Dol spar, rr pyr, tr - some p por.

DOL - lt brn gy, mx, hd - v hd, blky, lmy, tr disem pyr xl, dns - tr frac por.

LST - pale gy col, cx, hd - v hd, v dol, tr - pres slt sz cir A qtz, tr frac por - dns.

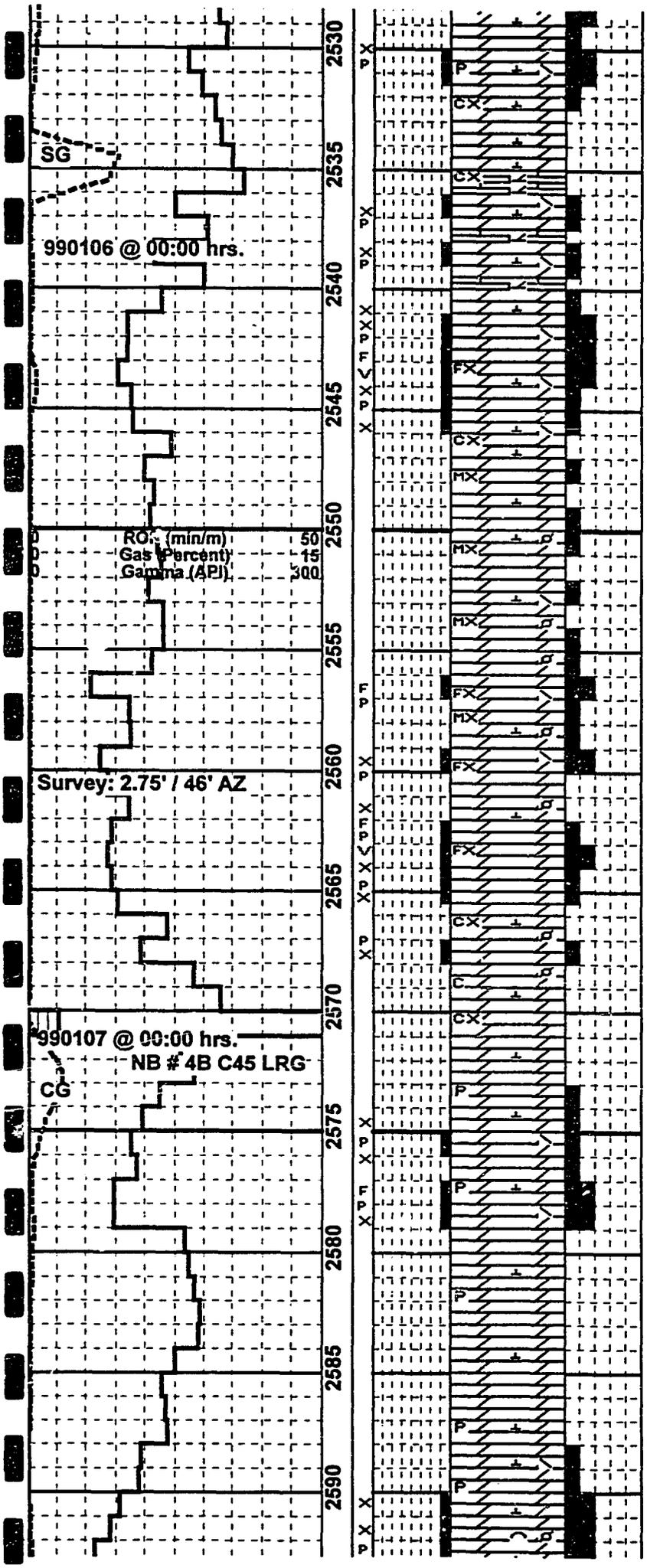
DOL - bf col, v f - f gr, m hd, suc tex, lmy, tr pyr, tr blk dd oil stn, p ixl por.

DOL - lt brn & gy, cx - mx, hd - v hd, lmy - v lmy, tr pyr, dns - tr qtz & calc filled frac - vn.

DOL - crm - lt gy, v f xl, hd, lmy, sl arg, tr pyr, rr bit, tr coarser xl vn, tr por.

DOL - crm - lt gy col, v f xl, hd, lmy, tr v f pyr, dns - tr por.

DOL - bf - lt gy, cx, hd - v hd, v lmy, sl arg, tr



DOL - crm - pale gy col, v f xl - mx, hd, v lmy, tr f - m sz xl vn & pp, tr xbit, dns - tr ixl por.

DOL - bf - lt gy, cx - mx, hd - v hd, lmy, rr anhy', tr slty, sl arg ip, dns.

LST - bf - lt brn' gy, cx - mx, blky, hd - v hd, v dol, sl slty, sl arg, tr calc vn, dns - tr por.

DOL - bf - lt gy, mx, hd, v lmy, sl slty, tr calc vn, tr dsy c sz Dol rhmb, dns tr pp - frac por.

DOL - crm - bf - lt brn gy col, v f xl, hd, lmy, tr dsy wh Dol xl, tr rx calc - qtz xl, tr pyr xl, tr blk xbit stn & ptg, tr - occ p ixl - pp por.

DOL - bf, mx - cx, hd - v hd, lmy, tr slty, tr ch calc vn, tr sft chlky lmy mat, dns - tr por.

DOL - crm - bf - lt gy, v f xl, hd, lmy, tr bit stn, tr dsy xl, tr ixl - pp por.

DOL - crm - bf, mx - cx, hd, tr indst m sz Pel, pt sl chlky, tr slty, sl arg, dns.

DOL - crm - lt brn gy & gy, v fxl, hd, lmy, tr m - c sz dsy Dol - clr calc & si xl, tr - pres dd oil stn & ptg, tr - p ixl - pp por.

DOL - crm - lt gy, vf xl - mx, hd, lmy, sl slty, tr indst Pel, tr calc xl - v , rr - tr xbit stn, tr - occ p por.

DOL - crm - bf, mx, hd - v hd, lmy, com indst f - m sz Pel, pt sl chlky / wh lmy str, tr calc vn, dns - tr frac por.

DOL - bf - m lt brn gy, cx- mx, hd - v hd, lmy, dns.

DOL - lt brn gy - bf - crm col, mx - v f xl, hd, lmy, dns - tr ixl por str.

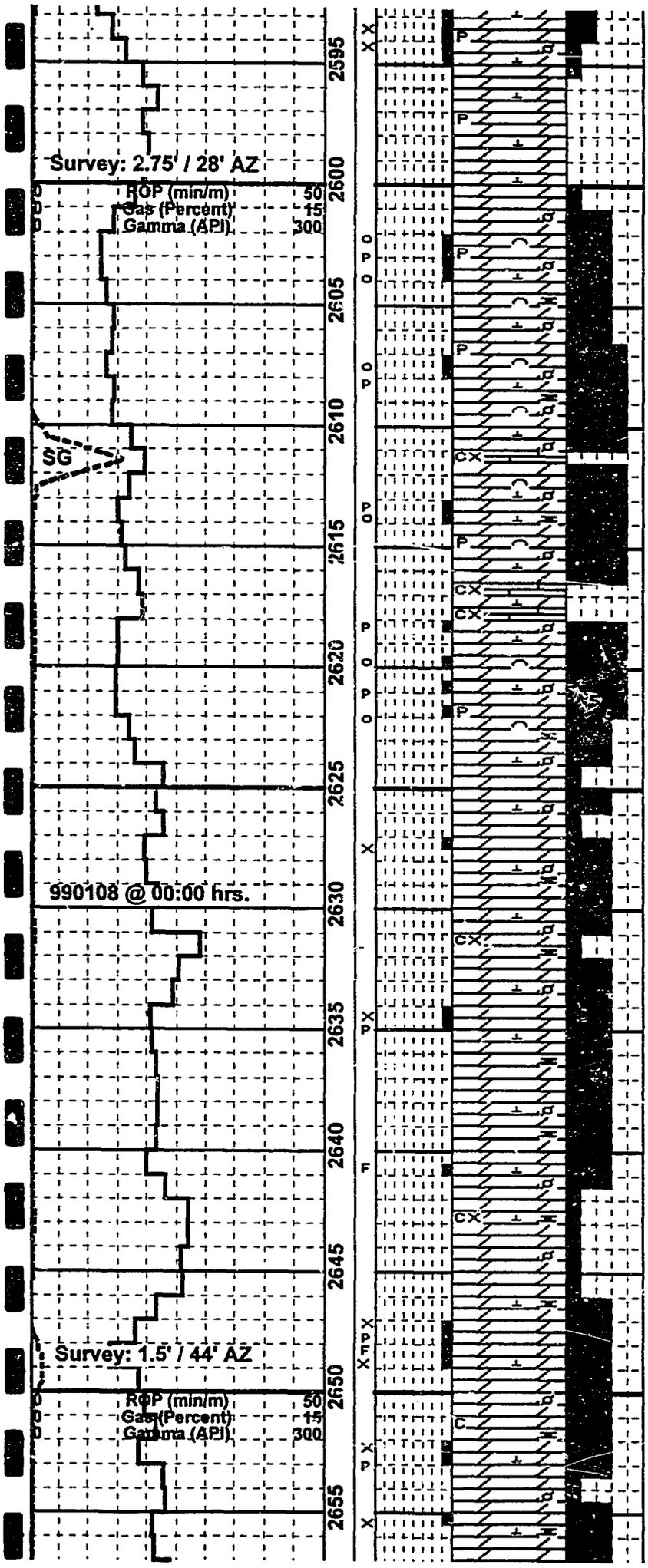
DOL - crm - bf, v f xl, hd, lmy, tr clr calc vn & mfrcs, tr por - dns.

DOL - crm - bf, v f xl - mx, hd - m hd, lmy, sl slty, v f pyr, rr gn' gy arg str, tr f - m calc xl vn / tr blk xbit stng, tr ixl por.

DOL - lt - m brn' gy, mx - cx, hd - v hd, lmy - v lmy, tr slty, fnt Pel, tr v f disem pyr, tr calc filled mfrcs, dns.

DOL - m - lt brn' gy col, cx - mx, blky, hd - v hd, lmy, tr v f disem pyr, dns.

DOL - m gy col, cx- mx, blky, hd - v hd, lmy - v lmy, sl slty, rr fos frag, tr calc vn, tr chlky lmy str, tr clr qtz xl, dns - tr pp - frac por.



indst f sz fos frag - Pel, v f disem pyr, tr calc vn, rr wh Dol spar, tr ixl por.

DOL- bf - lt - m brn' gy col, cx - mx, blky, hd - v hd, dns - tr frac por.

DOL - bf - crm, mx - v f xl, com f - m sz fos frag - Pel, lmy, sl chlky ip, pres - com clr wh calc vn- Dol spar - qtz xl, rr x bit, p org - pp por.

DOL - crm - bf - lt brn' gy, f - c biocl, sl chlky mx mtx, sl slty, pres - com f - m mlky wh Dol spar, tr arg str, tr - p org - pp por.

LST - dk brn, cx, hd - v hd, arg, dns.

DOL - a/a, m - vf sz m - c sz biocl, some vf xl str, tr Dol spar - calc vn, tr por..

DOL - bf - lt brn' gy, mx - v f xl, hd, lmy, sl slty, com indst f - m sz Pel - fos, tr clr calc xl, dns - tr por.

DOL - bf - lt brn' gy, mx - v f xl, lmy, com indst Pel, tr clr calc xl, tr ixl por.

DOL - bf - lt brn' gy col, mx - cx, hd, lmy, dns.

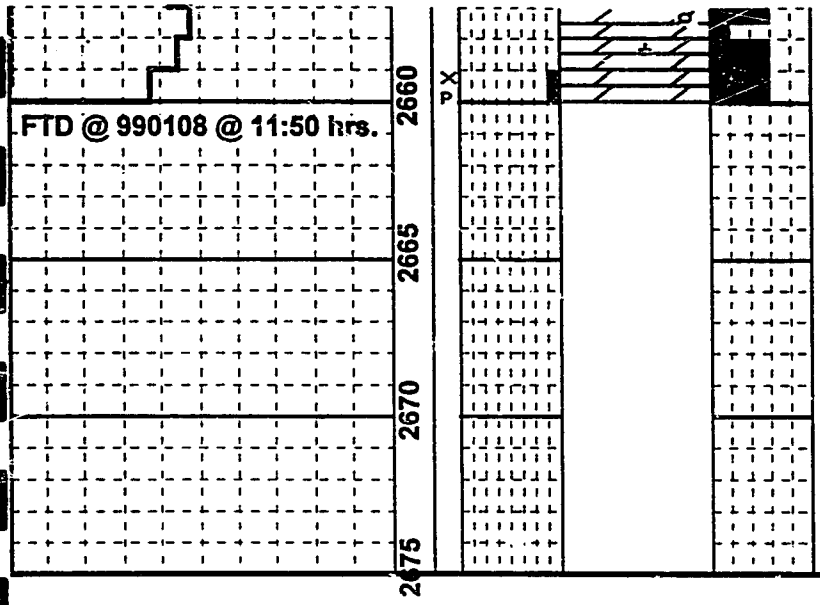
DOL - crm - bf - lt brn' gy, mx - v f xl, hd, lmy, sl slty, abun indst Pel - Amphipora, tr sft chly wh lmy mat, pres f - m sz Dol - calc xl - qtz xl, tr ixl & pp por - dns.

DOL - bf - m lt brn gy col, cx - mx, blky, hd - v hd, lmy, sl slty, indst, Pel - Amphipora, dns - tr frac por.

DOL - lt - m brn gy, mx - some cx, hd, lmy - v lmy, sl slty, com indst Pel, tr chlky wh lmy vn, rr - tr xl lined pp - mfrcs, tr f - m dsy Dol xl, tr ixl - pp - frac por - dns.

DOL - a/a, pt bcmg more cx, pres - com f - c sz mlky wh Dol spar - clr rx calc & qtz prsm, tr - pos' p str por.

DOL - bf - m brn' gy, mx - pt cx / pres v f xl lam -



calc & Dol spar, tr ixl por.

ATTACHMENT #11

FINAL WELL REPORT

CANADIAN FOREST OIL LTD.

DATALOG

CANADIAN FOREST ET AL FLETT RAPIDS I-61-60-50-123-15

JANUARY 13, 1999

INTRODUCTION

The objective of Cdn. Forest et al Flett Rapids was to drill a vertical well to the base of the Cambrian Sandstone/Shale formation to confirm good Ordovician - Cambrian porosity.

Datalog Technology Inc. provided continuous realtime monitoring and databasing of mud gas, in the gas sample stream, rate of penetration and depth.

Mud gas analysis was undertaken via a high speed gas chromatograph; providing methane (C1), ethane (C2), propane (C3), iso-butane (IC4), normal butane (NC4), iso-pentane (IC5), normal pentane (C5), and carbon dioxide (CO2) concentrations every 30 seconds for the duration of the well.

DATALOG SYSTEM

Datalog Technology Inc. was contracted to provide mudlogging services for this well. Continuous data acquisition was provided through our QLOG system with both databased and realtime monitoring throughout. This system was interfaced with a high speed m200 chromatograph to monitor, collect, and evaluate hydrocarbons C1 through C5 and CO2. A high sample rate of once per 28 seconds provided a high resolution profile of the entire well. This high resolution can be exploited to differentiate /gas/oil/water zones, to determine their contacts and to detect small zones of high, local porosity such as rock fractures.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

WELL HISTORY

COMPANY:	Canadian Forest Ltd.
WELL NAME:	Canadian Forest et al Flett Rapids
LOCATION:	I-61-60-50-123-15
GROUND ELEVATION:	255.00 metres
K.B. ELEVATION:	260.00 metres
CONTRACTOR:	Nabors - Rig #24E
PERSONNEL:	Adrian Pristolnicu Victor Matusovski
LOGGING COMMENCED:	November 22, 1998
DEPTH:	385 metres
LOGGING COMPLETED:	January 14, 1999
TOTAL DEPTH:	2660m

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

GAS REPORT

Monitoring and analysis of gases in the drilling fluid was undertaken using an electric degasser mounted in the shaker belly, which by stirring the mud with a high-speed rotating agitator reduced it's surface tension, thus releasing gas from the mud. This mud gas was drawn to the logging unit with a sample pump, where percentage and compositional analysis were carried out.

Gas compositional analysis was performed with an MTI 200 thermal conductivity gas chromatograph, which provided continuous high speed resolution of methane (C1), ethane (C2), propane (C3), iso-butane (IC4), normal butane (NC4), iso-pentane (IC5), normal pentane (C5) and CO2, every 32 seconds, accurate to 10 ppm.

Gas concentrations are reported in percent of volume of sample.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Clausen: 385 - 428 m

Gas detection commenced in the Clausen formation. Background gas ranged from 0.02 to 0.12 % and consisted of predominantly C1 with trace levels of C2 through C5.

No produced gas was detected in Clausen formation.

BACKGROUND GAS:

DEPTH INTERVAL	TOTAL GAS BKGND(%)	C1 (%)	C2 (%)	C3 (%)	C4 (%)	C5 (%)
385 - 428	0.02 - 0.12	0.01 - 0.1	0.01 - tr	tr	tr	tr

No significant gas responses were recorded in Clausen formation.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Banff: 428 - 815 m

Background gas level ranged from 0.13% to 1.02% and consisted of predominantly C1 and minor C2 through C5 in the Banff formation.

BACKGROUND GAS:

DEPTH (m) TERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
440 - 472	.29 - .71	.21 -.49	.02 -.06	.02 -.07	.02 -.07	.01 -.03
472 - 510	.23 - .40	.15 -.26	.02 -.03	.03 -.04	.02 -.04	.01 -.01
510 - 544	.35 - .93	.23 -.64	.03 -.08	.04 -.09	.03 -.08	.01 -.04
544 - 570	.36 - .70	.25 -.49	.03 -.06	.03 -.06	.02 -.06	.02 -.03
570 - 588	.13 - .38	.08 -.26	.01 -.04	.02 -.04	.01 -.03	.01 -.02
588 - 592	.13 - .38	.08 -.26	.01 -.04	.02 -.04	.01 -.03	.01 -.02
592 - 636	.46 - .65	.26 -.39	.04 -.06	.05 -.08	.06 -.08	.03 -.05
636 - 782	.22 -1.02	.17 -.66	.02 -.10	.01 -.11	.01 -.10	.05 - tr
782 - 815	.42 - .67	.22 -.36	.11 -.14	.05 -.09	.03 -.06	.01 -.02

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH	TOTAL (%) / BACKGROUND (%) / PUMPS OFF TIME
Trip Gas	440	2.13 / .37 / 360min
Survey Gas	566	.74 / .52 / 780min
Trip Gas	592	.70 / .20 / 720min

No significant gas response was recorded in Banff formation.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Exshaw: 815 - 862 m

The gas maintained an average level of background of 0.70%, and consisted of predominantly C1 and minor C2 through C5.

No produced gases were detected in the Exshaw.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
815 - 862	.66 - .76	.40 -.65	.12 -.05	.07 -.03	.05 -.02	.02 -.01

GAS SHOWS: (max/loc.background)

DEPTH (m) INTERVAL	MAXIMUM HYDR.(%)	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
828 - 835	1.87 /.89	1.63/ .64	.10/.10	.06/.07	.05/.02	.02/.02
836 - 840	2.58 /1.31	2.34/1.17	.11/.07	.06/.04	.05/.03	.02/.02
849 - 360	6.01 /1.08	5.79/ .96	.14/.05	.04/.03	.02/.03	.01/.02

Cdn. Forest et al Flett Rapids
I-61-60-50-123-1

Kotcho: 862 - 1292 m

Background gas consisted of mainly C1 and C2, with minor concentrations of C3 and C4, along with trace levels of C5. The background ranged erratic from 0.19 to 2.39 % through the Kotcho formation.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
862 - 874	3.98 -1.43	3.79 -1.30	.11 -.07	.04 -.03	.02 -.02	.01 -.01
874 - 885	.77 - .37	.65 - .31	.07 -.03	.03 -.02	.02 -.01	.01 - tr
885 - 900	1.79 - .22	1.43 - .19	.15 -.02	.10 -.01	.07 -.01	.03 - tr
900 - 983	.50 - .32	.40 - .25	.06 -.03	.02 -.02	.02 -.01	.01 -.01
983 - 1069	.67 - .41	.57 - .37	.06 -.03	.02 -.01	.01 -.01	tr - tr
1069 - 1105	.25 - .19	.22 - .17	.02 -.01	.01 -.01	tr - tr	tr - tr
1105 - 1150	1.39 - .58	1.26 - .52	.10 -.04	.03 -.01	.01 -.01	tr - tr
1150 - 1292	1.09 -0.65	3.76 - .95	.07 -.03	.02 -.01	.01 - tr	tr - tr

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH (m)	(%) TOTAL / (%) BACKGROUND / TIME PUMPS OFF
Trip Gas	893	.57 / .23 / 420min

GAS SHOWS: (max/loc.background)

DEPTH (m) INTERVAL	MAXIMUM HYDR.(%)	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1160 - 1215	3.15 /1.04	2.96/.95	.16/.07	.02/.02	.01/.01	tr / tr
1215 - 1270	3.92 / .84	3.76/.79	.13/.04	.03/.01	.01/ tr	tr / tr
1272 - 1274	15.36 /4.09	15.8/3.97	.47/.11	.03/.01	.01/ tr	tr / tr

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Tetcho: 1292 - 1506 m

Background gas in the Tetcho was mainly composed of C1 and trace levels of C2 through C5, ranging from 0.16 to 2.39 %.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1292 - 1305	2.39 -1.37	2.32 -1.32	.06 -.04	.01 -.01	tr - tr	tr - tr
1305 - 1385	.92 - .43	.88 - .42	.03 -.01	.01 - tr	tr - tr	tr - tr
1385 - 1418	.36 - .19	.35 - .18	.01 -.01	tr - tr	tr - tr	tr - tr
1418 - 1440	.75 - .24	.71 - .23	.03 -.01	.01 - tr	.01 - tr	tr - tr
1440 - 1506	.43 - .16	.41 - .15	.01 - tr	tr - tr	tr - tr	tr - tr

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH (m)	(%) TOTAL /	(%) BACKGROUND /	TIME PUMPS OFF
Survey Gas	1337	1.17 /	.50 /	27min
Trip Gas	1385	8.50 /	.50 /	900min
Trip Gas	1418	2.65 /	.40 /	720min

GAS SHOWS: (max/loc.background)

DEPTH (m) INTERVAL	MAXIMUM HYDR.(%)	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1349 - 1351	2.59 / .45	2.55/ .43	.04/.01	.01/ tr	tr/ tr	tr / tr

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Ft. Simpson: 1506 - 1936 m

Background gas consisted of mainly C1 and C2, with minor concentrations of C3 and C4, along with trace to minor levels of C5. The background ranged erratic from 0.18 to 10.85 units through the Ft.Simpson formation.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1507 - 1573	.44 - .24	.42 - .23	.01 - .01	tr - tr	tr - tr	tr - tr
1615 - 1677	.45 - .18	.44 - .17	.01 - tr	tr - tr	tr - tr	tr - tr
1677 - 1750	.71 - .52	.70 - .50	.01 -.01	tr - tr	tr - tr	tr - tr
1750 - 1872	1.06 - .43	1.05 - .42	.01 -.01	tr - tr	tr - tr	tr - tr
1872 - 1884	.88 - .67	.87 - .66	.01 -.01	tr - tr	tr - tr	tr - tr
1884 - 1905	3.44 -1.26	3.42 -1.25	.01 -.01	tr - tr	tr - tr	tr - tr
1905 - 1936	10.85-2.59	10.82-2.58	.02 -.01	tr - tr	tr - tr	tr - tr

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH (m)	(%) TOTAL	/	(%) BACKGROUND	/	TIME PUMPS OFF
Survey Gas	1514	.92	/	.25	/	5 min
Survey Gas	1533	.93	/	.35	/	9 min
Trip Gas	1573	4.80	/	.61	/	720min
Recicled T.G.	1576	.91	/	.53	/	-
Survey Gas	1635	2.57	/	.59	/	7min
Pump Down Gas	1650	1.24	/	.45	/	45min
Survey Gas	1678	1.24	/	.45	/	30min
Trip Gas	1872	6.58	/	.80	/	750min

One significant show was recorded in Ft.Simpson formation.

GAS SHOWS: (max/loc.background)

DEPTH (m) INTERVAL	MAXIMUM HYDR.(%)	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1869.5-1870.0	6.55/1.86	6.53/1.85	.02 /.01	tr / tr	tr / tr	tr / tr

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Horn River Shale: 1936 - 2069.5 m

Background gas consisted of mainly C1 and C2, with minor concentrations of C3 and C4, along with trace levels of C5. The background ranged from the level of 2.59% to 12.18% through the Horn River formation.

No produced gases were detected in Horn River formation.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
1936 - 2025	13.20-2.59	13.18-2.58	.02 -.01	tr - tr	tr - tr	tr - tr
2025 - 2069	12.18-3.05	12.15-3.04	.02 -.01	tr - tr	tr - tr	tr - tr

No significant gas response was recorded in Horn River formation.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Nahanni: 2069.5 - 2239 m

This formation had a level background of 0.14 - 2.12 % which consisted of predominantly C1, with minor trace level of C2 through C5.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	C4+C5 (%)	C02 (%)
2069 - 2073	0.44	0.42	0.01	tr	tr	.03
2073 - 2083	0.14	0.14	tr	tr	tr	.03
2083 - 2084	2.12 - 0.50	2.12- .50	tr	tr	tr	.03
2084 - 2222	1.62 - 0.15	1.62- .15	tr	0	0	.03
2222 - 2239	0.79 - 0.10	0.78- .10	tr	0	0	.03

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH (m)	(%) TOTAL	(%) BACKGROUND	TIME PUMPS OFF
Recicled Gas	2101	23.72	1.06	-- min
Survey Gas	2106	23.94	0.77	45 min
Connection Gas	2121	2.35	0.63	2 min
Survey Gas	2141	25.12	0.65	45 min
Connection Gas	2160	17.99	0.24	7 min
Survey Gas	2170	26.06	0.49	52 min
Connection Gas	2200	17.32	0.22	5 min

GAS SHOWS: (max/loc.background)

DEPTH (m) INTERVAL	MAXIMUM HYDR.(%)	C1 (%)	C2 (%)	C3 (%)	IC4+NC4 (%)	IC5+NC5 (%)
2084.0-2093.0	24.44/8.66	24.4/8.66	tr / tr	tr / tr	tr / tr	tr / tr
2212.8-2213.4	21.80/ 0.41	21.1/0.40	.01/ tr	0	0	0
2222.0-2226.2	11.89/ 4.65	11.9/4.65	tr	0	0	0
2228.8-2230.0	8.20/ 0.79	8.2/0.79	tr	0	0	0
2231.2-2232.0	13.20/ 3.46	13.2/3.46	tr	0	0	0
2233.2-2234.4	9.88/ 1.55	9.8/1.55	tr	0	0	0

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Headless: 2239 - 2291 m

In Headless formation the background gas ranged from 0.10 to 0.79 %. The background gas consisted of mainly C1 with the trace levels of concentrations of C2, C3, C4 and C5.

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	C4+C5 (%)	CO2 (%)
2239 - 2291	0.79 - 0.10	0.78- .10	tr	0	0	.03

No produced gas or significant gas response was recorded in Headless formation.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Lanory Lst: 2290.7 - 2310 m

Background gas readings, which consisted of predominantly C1, with trace levels of C2, C3, C4 and C5, ranged from 0.10 to 0.79%

BACKGROUND GAS:

DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	C4+C5 (%)	CO2 (%)
2291 - 2310	0.79 - 0.10	0.78- .10	tr	0	0	.03

PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

TYPE	DEPTH (m)	(%) TOTAL /	(%) BACKGROUND /	TIME PUMPS OFF
Survey Gas	2294	15.18 /	0.80 /	40 min
Pump-off Gas	2304	9.08 /	1.04 /	7 min

No significant gas response was recorded in Lanory Lst. formation.

Cdn. Forest et al Flett Rapids
I-61-60-50-123-15

Arnica: 2310 - 2660m T.D.

Background gas readings, which consisted of predominantly C1, with trace levels of C2, C3, C4 and C5, ranged from 0.10 to 0.79%

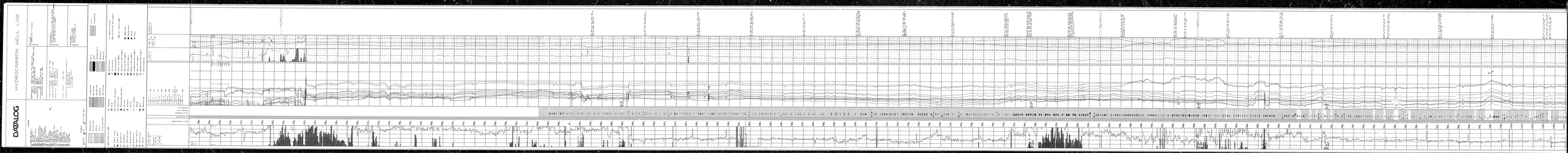
BACKGROUND GAS:

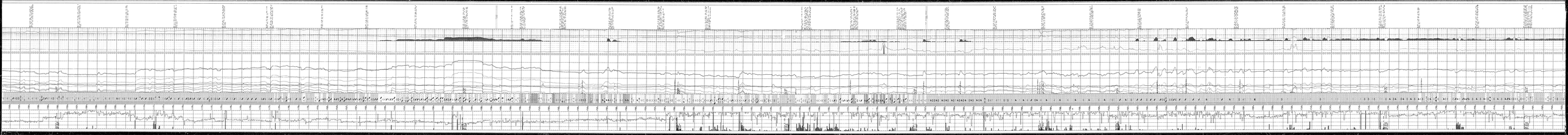
DEPTH (m) INTERVAL	TOTAL(%) HYDROCARB	C1 (%)	C2 (%)	C3 (%)	C4+C5 (%)	CO2 (%)
2310 - 2660	0.79 - 0.10	0.78- .10	tr	0	0	.03

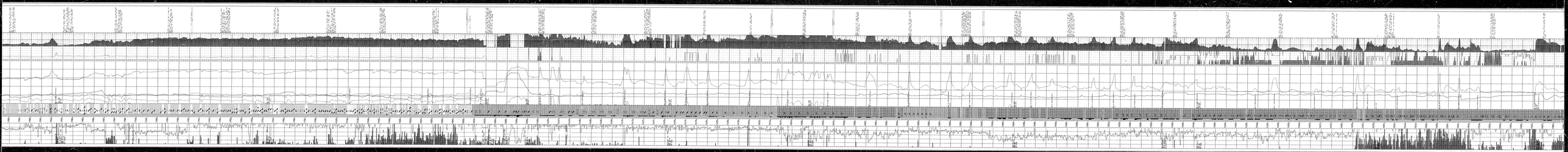
PRODUCED GAS: (Trip Gas, Connection Gas, etc.)

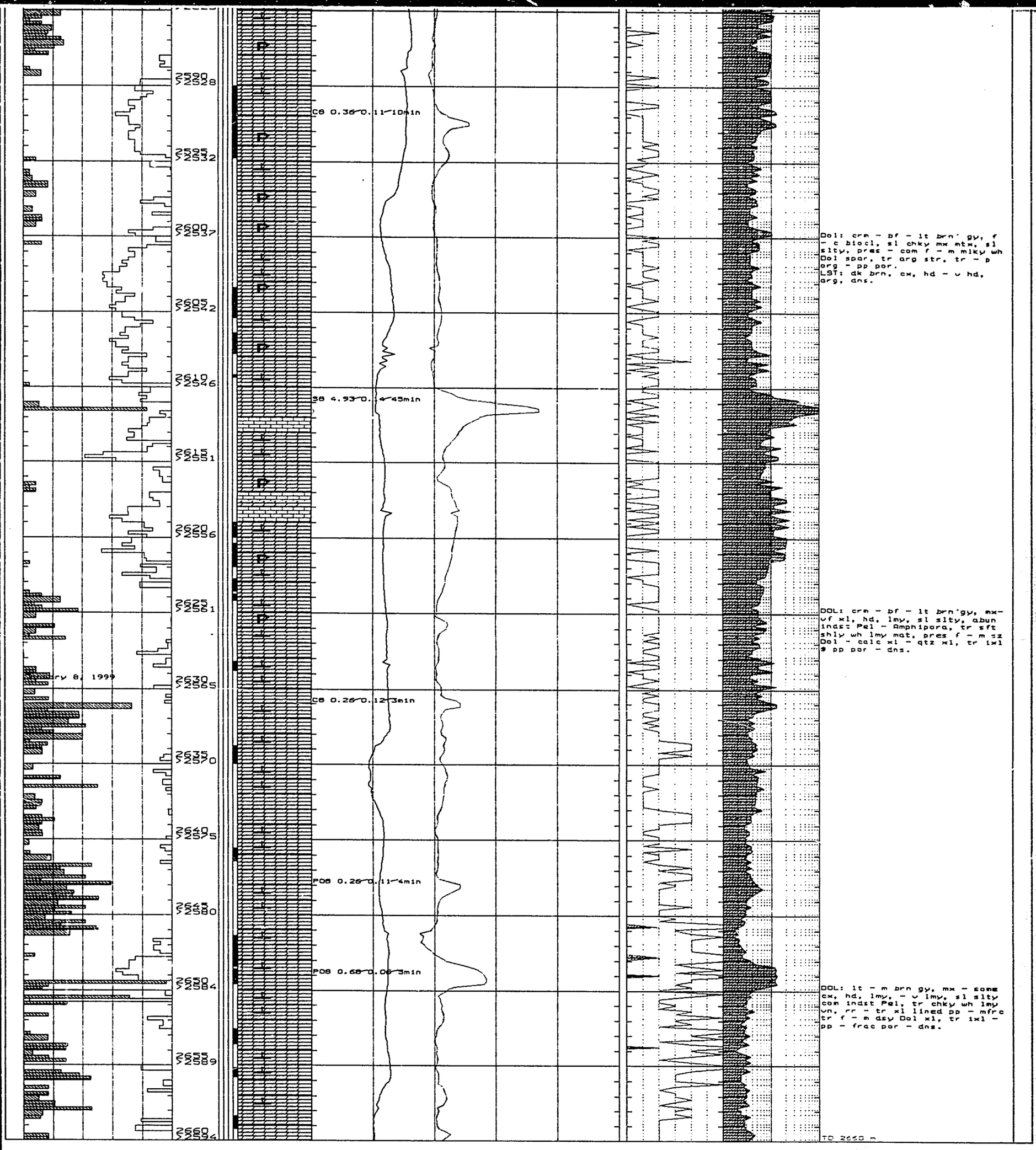
TYPE	DEPTH (m)	(%) TOTAL	(%) BACKGROUND	TIME PUMPS OFF
Connection Gas	2324	11.44	0.28	5 min
Survey Gas	2333	10.14	0.27	40 min
Connection Gas	2343	2.18	0.26	3 min
Connection Gas	2362	3.11	0.20	4 min
Survey Gas	2372	10.56	0.18	40 min
Connection Gas	2382	5.32	0.15	5 min
Wiper-Trip Gas	2395	32.87	0.20	150min

No significant gas response was recorded in Arnica formation.


HYDROCARBON WELL LOG
DATALOG






2590
2528
2595
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2561
2630
2565
2635
2570
2640
2575
2643
2580
2650
2584
2655
2589
2660
2594
C8 0.36 0.11 10min
S8 4.93 0.14 45min
C8 0.26 0.12 3min
P08 0.26 0.11 4min
P08 0.68 0.06 3min
Dol: crm - bf - lt brn gy, f - c biocl, sl chky mx mtx, sl slty, pres - com f - m mlky wh Dol spar, tr org str, tr - p org - pp por.
LST: dk brn, cx, hd - v hd, org, dns.
DOL: crm - bf - lt brn gy, mx - vf xl, hd, lmy, sl slty, abun indst Pel - Amphipora, tr sft shly wh lmy mat, pres f - m sz Dol - calc xl - qtz xl, tr ixl - pp por - dns.
DOL: lt - m brn gy, mx - some cx, hd, lmy, - v lmy, sl slty com indst Pel, tr chky wh lmy vn, rr - tr xl lined pp - mfrc tr f - m dsy Dol xl, tr ixl - pp - frac por - dns.
TD 2650 m

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

LITHOLOGY STRIP LOG
WellSight Systems Inc.
Scale 1:1200 Metric

Well Name: CDN FOREST et al FLETT RAPIDS I - 61
Location: I - 61 - 60 - 50 - 123 - 15
Licence Number: Region: N.W.T
Spud Date: 98/11/13 @ 12:15hrs Drilling Completed: 99/01/08 @ 11:50hr
Surface Coordinates: 60 degrees 40' 40.94" N 123 degrees 26' 33.96" W
Bottom Hole Coordinates: 264.1 m N surface location. 29.8 m W
" : .
Ground Elevation (m) 254.99 K.B. Elevation (m) 262.50
Logged Interval (m) 60 m To: 2660 m Total Depth (m): 2660 m
Formation: Lower Devonian
Type of Drilling Fluid K2SO4 Gel Polymer
Printed by WellSight Log Viewer from WellSight Systems Inc. 1-800-447-1534

OPERATOR

Company: Canadian Forest Oil Ltd.
Address: #600, 800 - Sixth Avenue S.W.
Calgary, Ab.
T2P 3G3

GEOLOGIST

Name:
Company: Dax Consulting Ltd.
Address: 4215 Dalhart Rd. N.W.
Calgary, Ab.

Cores

No Cores Cut.

DSTs

No DSTs run Prior to Logging.

ROCK TYPES

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
- Biocist
- 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
- BS Boundst
- C Chalky
- CX Cryxln
- e Earthy
- FX Finexln
- GS Grainst
- L Lithogr
- MX Microxln
- MS Mudst
- PS Packst
- WS Wackest

OTHER SYMBOLS

POROSITY TYPE
- E Earthy
- Fenest
- F Fracture
- inter
- Moldic
- Organic
- P Pinpoint
- V Vuggy

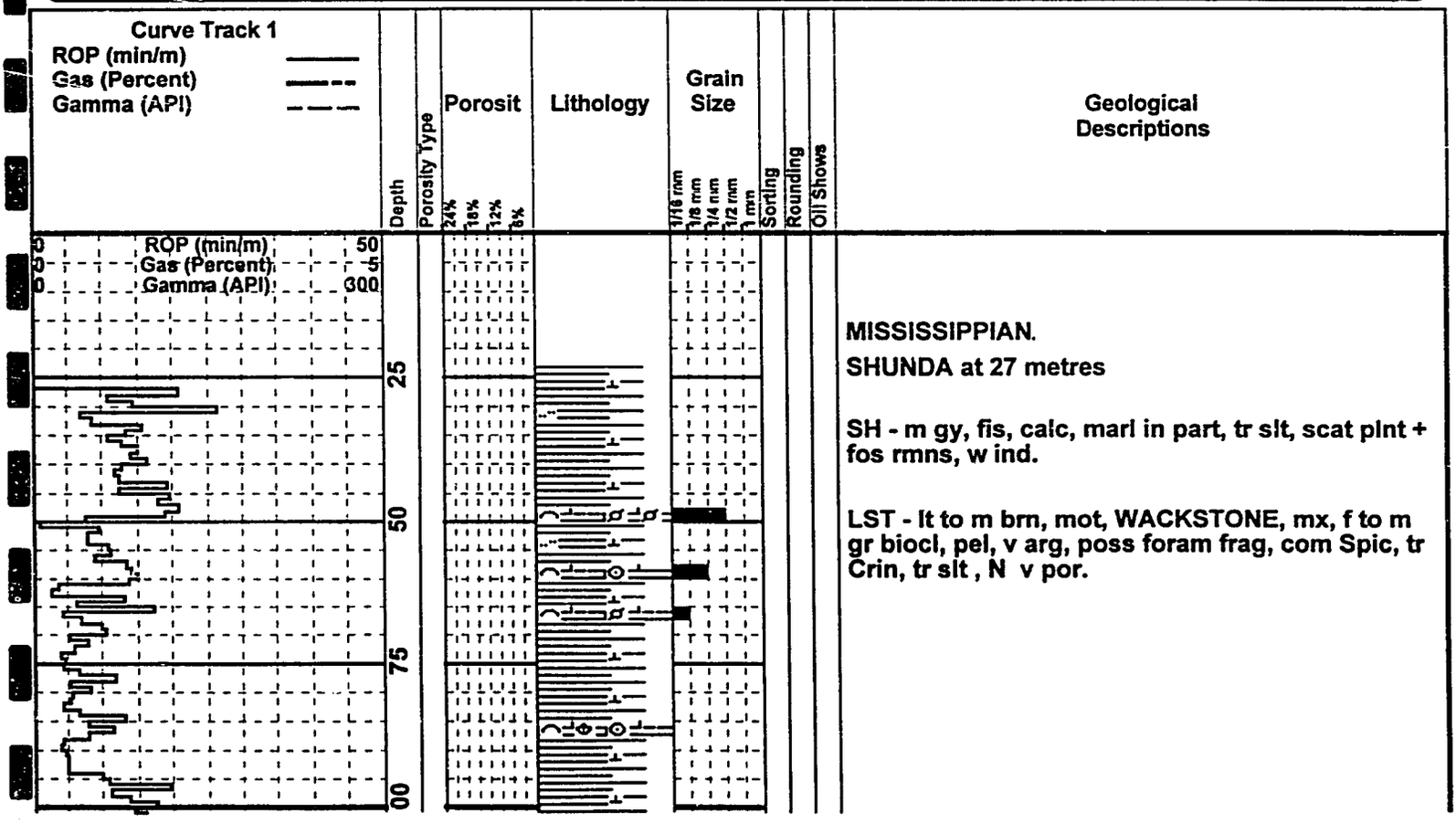
SORTING
- W Well
- M Moderate
- P Poor

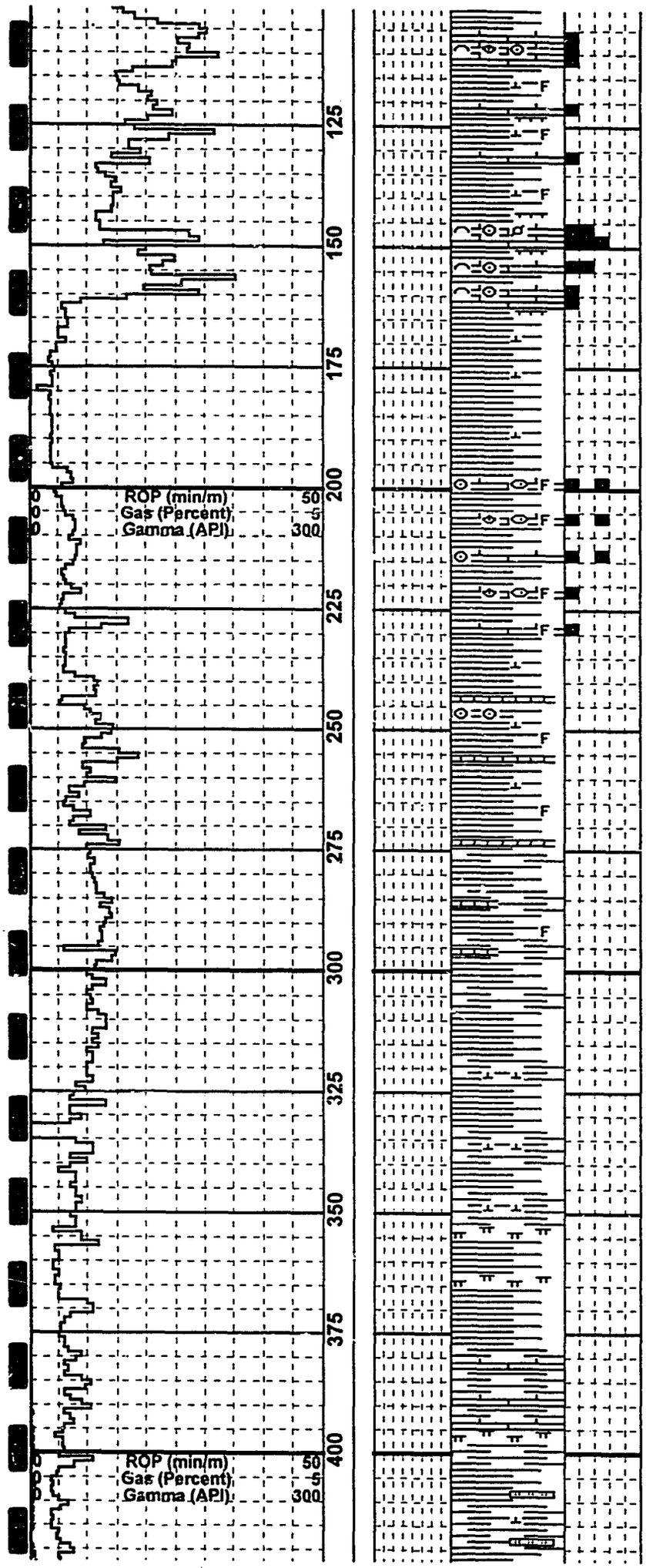
ROUNDING
- R Rounded
- r Subrnd
- a Subang
- A Angular

OIL SHOWS
- Even
- Spotted
- Ques
- D Dead

INTERVALS
- None
- Core
- Dst

EVENTS
- Rft
- Sidewall





LST - brn, WACKSTONE, mx to v f gr, tr m to c grn, CRIN, BRACH, v arg, ALG?

SH - med to dk gy, blky to occ fiss, calc to loc non calc, tr foss frags, tr pyr, w ind.

LST - crm to lt brn, PACKSTONE, m to c gr xln, f gr ip, Bioclastic, rr Pel + Spic, rr Crin, com rextln clr spar, com arg frags, N vss.

LST - wh, brn to gy, WACKSTONE, v f gr xln to tr mx, f gr Bioclastic, com Spic, tr m gr Crin + Brach frag, Pel?, grdg v arg, tr dol, occ aren, N vss.

Lower SHUNDA - SHALE and MUDSTONE facies

LST - gy, lith, arg, com fos frag, loc freq Ost + Brach, Crin + Bry, slty, tr dol.

LST - gy, lith, arg, com fos frag, rr Ost + Brach, rr Crin, slty, tr dol

LST - gy, lith to v f gr xln, arg, com fos frag, tr dol.

CLAUSEN SHALE at 238 metres

Crinoidal debris

SH - med to lt gy, calc, silty is/p, foss frags - Crinoid + Brach debris

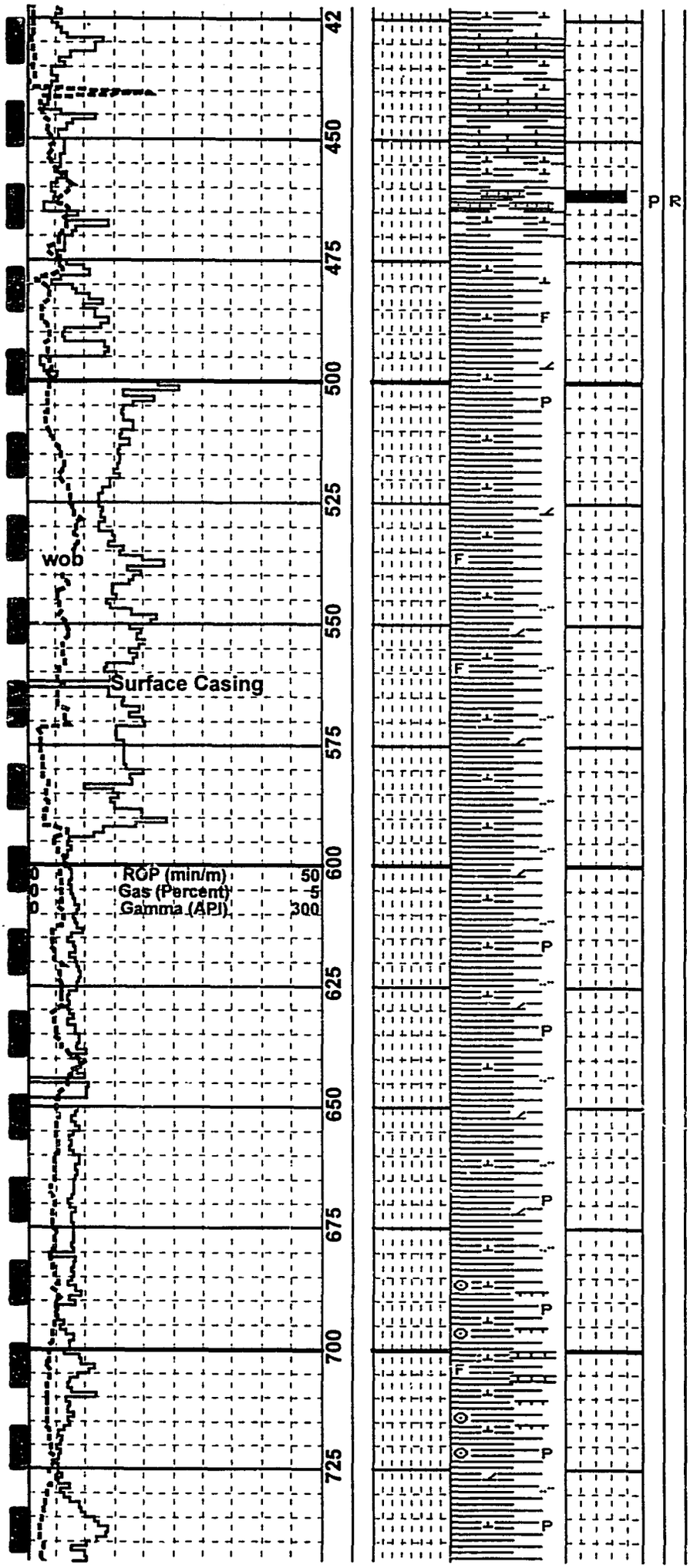
Lower Missippian - Dark SHALE and Mudstone facies

Dark Shale - generally non calcareous with variably calcareous beds occasionally grading to MUDSTONE. Fossil debris occasional and locallized.

LS - dk gy to blk, m gy ip, MUDSTONE, grdg to MARLSTONE, lith to mx, v arg, slty, tr Crin + shell frags.

Trace siltstone stringers.

BESA RIVER/BANFF at 428 m KB



LS - dk to med gy, MUDSTONE, lith to mx, v arg, silty in small part.

LS - dk to m gy, MUDSTONE, lith to mx, v arg, silty.

Sand Stringer

SH - Mod calc grey shale, dol, mm, tr amt slt.

SH - m gy, fis, mod calc, dol ip, tr loc pyr grnl, tr ca lam, mod ind.

SH - m to dk gy, fis to plty, mod calc, tr dol i/p, sl slty, mod ind.

SH - m to dk gy, blky, fis i/p, mm, mod calc, dol i/p, slty, mod ind.

SH - m to dk gy, blky, splty cvgs, mm, wkly calc, tr dol ip, silty, tr dsy calc, tr Crin + Brach, sl tr cs gr to grnl pyr, w ind.

SURFACE CASING AT 569.6 m K.B.

SH - m to dk gy, fis, mm, calc, tr dol, slty, mod ind.

SH - dk gy, blky, tr micas, mod calc, tr dol, tr silty, mod to p ind.

SH - dk gy, blky, tr micas, sl calc to dol, rr slt, tr pyr grnl, mod ind.

SH - m gy, lt gy ip, blky, micas, mm ip, mod calc to dol, tr ca lam, tr pyr grnls, slty, mod to w ind.

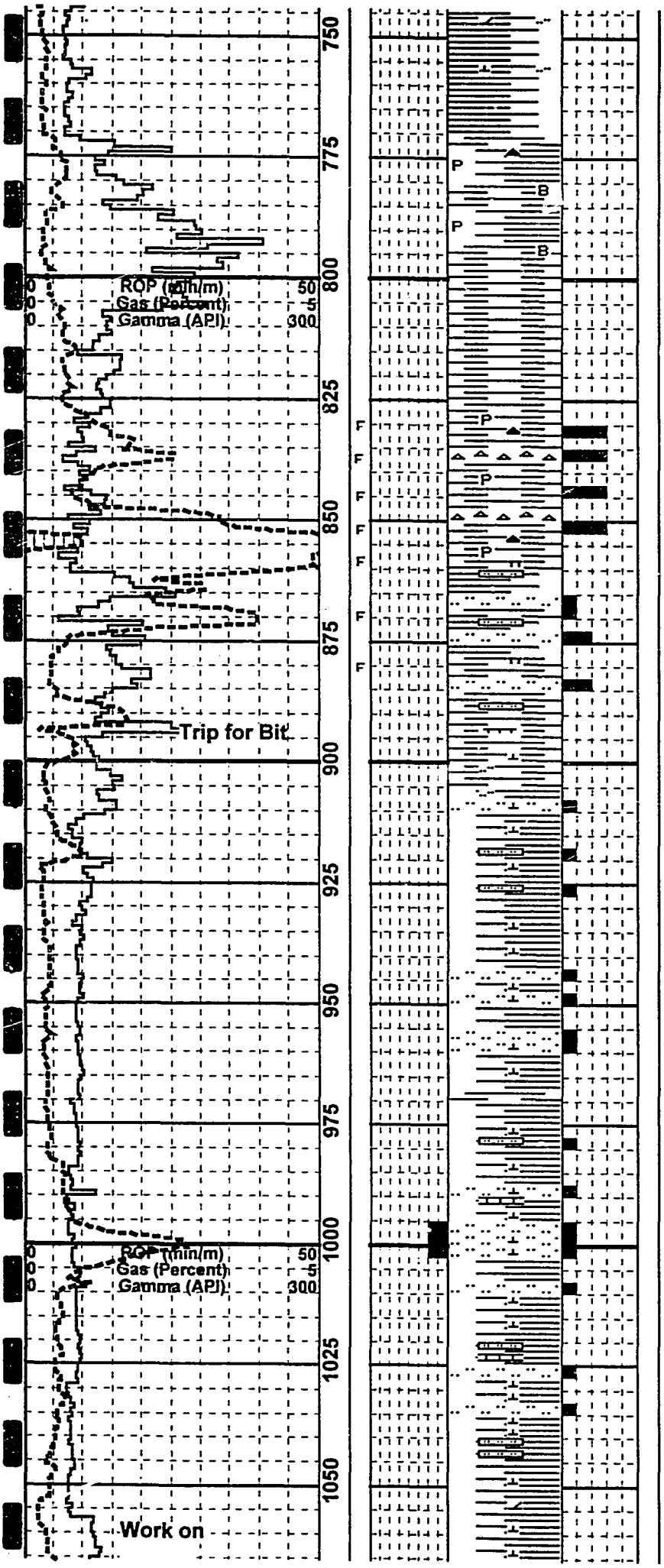
SH - m to dk gy, blky, mm, tr mica flks, mod calc to dol, tr ca lam, slty, w ind.

SH - m to dk gy, lt gy ip, blky, fis ip, calc to loc v calc, loc MARLSTONE strgrs, tr fos frags, tr Crin frags, tr disem pyr, mod to w ind

LST - bf, gy' brn, mx to v f x gr, MUDSTONE, v arg, tr biocl.

SH - m to dk gy, lt gy ip, blky, fis ip, calc to loc v calc, loc MARLSTONE strgrs, tr fos frags, tr Crin frags, tr disem pyr, mod to w ind.

SH - lt to med gy, blky, calc, dol ip, tr disem pyr, silty, w ind.



SH - lt gy, m gy ip, blky, sl calc to dol, tr slty, w ind.

BESA RIVER at 771 metres

SH - gysh blk, brnsh gy ip, blky, fiss ip, freq micas, com pyr grns, tr bent, sl tr A blk cht, p to mod ind, loc hard, sl HC odor, tr dl orng fluor, n C.

SH - blk' gy, brn' gy, fis, blky ip, freq micas, com pyr gr, tr bent, hydrophyllic in part, p to mod ind, loc hard, sl HC odor, sl tr stmg bri wh to even milky wh C.

EXSHAW Shale

SH - blk, v dk brn gy, fis, m hd, sl brit, bit, tr clr wh calc vn mat, tr pyr, rr calc wh spec, pres dk brn gy mas CHT frag.

CHT - dk brn gy, mas, v hd, sl calc, tr wh spec, n fluor, tr faint blooming yel C.

U. Dev. KOTCHO

SLTST- dk brn gy col, a, hd, v arg, sl calc cmt, pt chty tt, N vss.

SH - v dk gy - brn gy, sfis - blky, hd, si, tr bit,

SLTST - dk brn gy, m hd, tr sdy, calc cly cmt, tt.

SH - dk brn gy, fis - sfis, m hd - hd, tr clr wh calc vn, pres m gy brn sl wxy lam.

SH - dk gy - brn gy, fis, m hd, sl calc, m brn lam.

SH - dk brn gy, fis - sfis, m hd, sl sl calc, tr slty, tr sl bit / bit ptg, tr v f disem pyr, sl carb.

SLTST- m lt gy brn col, si, m hd, sl calc - calc, pt sdy, pt v arg, tr pyr', rr bit ptg, tt, N vss.

SLTST - m dk brn gy, m hd - hd, calc cmt, arg, pt bit arg stn, mm, tt.

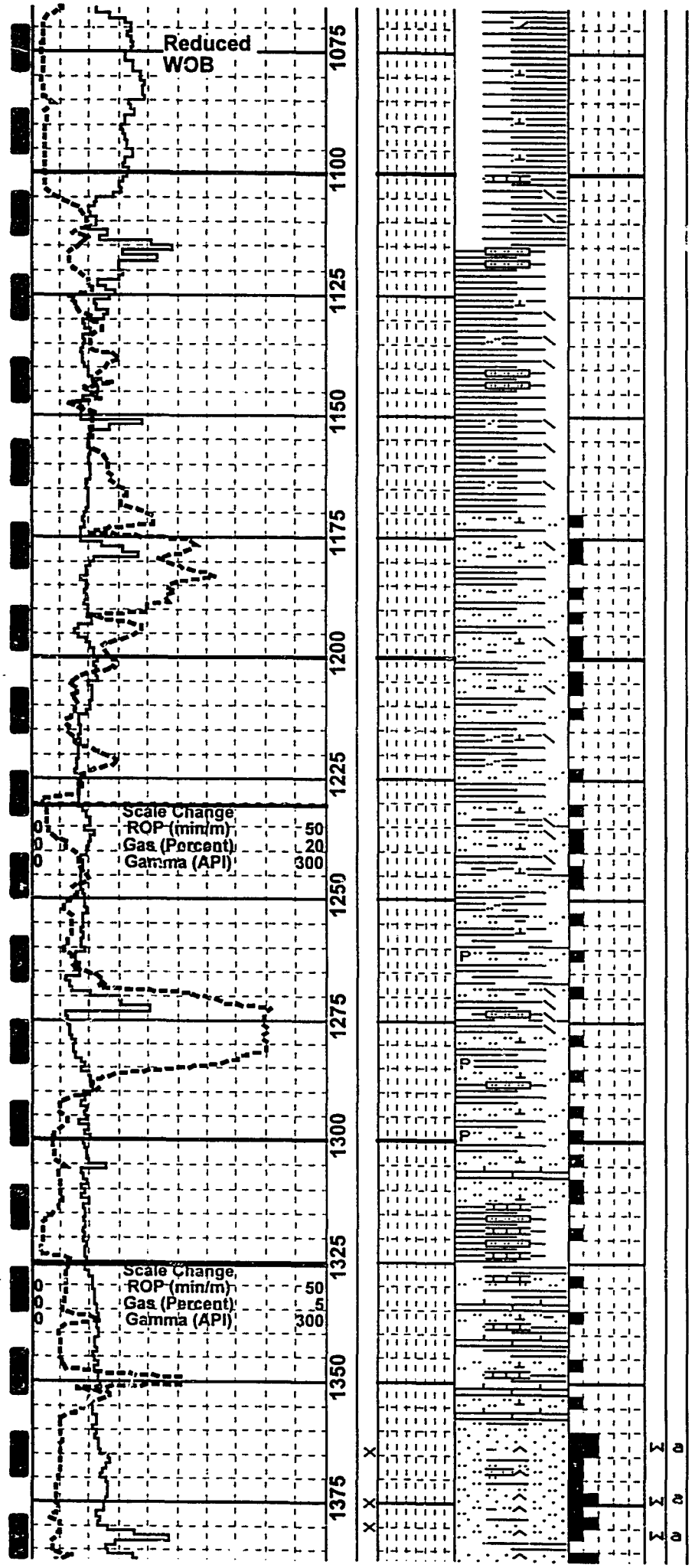
SH - m lt gn' brn gy col, fis - sfis, sl wxy, m hd - hd, m sft, sl bit, sl calc, tr mm, rr slty, rr calc vn.

SLTST - crm - bf col, si, fri, calc / dol cmt, ig por, fnt bloom blu wh cut.

SH - m gn' brn gy, fis, m hd, sl wxy, sl calc, tr dk col bit ptg, rr calc vn, tr Sltst lam.

SH - m brn gy, fis - sfis, m hd, calc - v calc, dol, tr druzy calc xl, rr bit stn, pt slty, pt grdg Sltst

SH- m - m brn gy, calc, dol, pt sl slty, tr bit stn, tr calc vn.



SH - m - mdk brn gy col, m hd, sl wxy lstr, sl calc - calc, v sl slty, tr clr wh calc vn mat, rr tr bit ptg, tr mm.

LST - m brn gy, mxl, v arg, dol, m hd, dns.

SH - m - m dk gy, sfis - sl blky, m hd, sl slty, sl calc, tr bit coat, tr calc vn, tr pyr, pres m brn sft wxy ptg.

SH - m dk gy, sfis, m hd,v sl calc, pres m brn sft wxy ptg.

SLTST- m brn gy, v arg, calc, tr mm, tt.
SH - m gy col, sfis, m hd, v sl calc, tr bit, mn Sltst.

SH - dk gy , fis, m hd, sl calc, pt sl slty, tr mm, sl bit stn, rr calc vn, occ sft wxy ptg.

SLTST -- m dk gy col, m hd, v arg, calc cmt, tt, N vss.

SH - dk gy, fis - sfis, m hd, sl it, sl calc, slty calc str, rr pyr, tr sks.

SLTST - m dk br gy, m hd, arg, v calc cmt, mm, tt - tr por, N vss.

SH - dk gy, fis - sfis, m hd, sl slty - slty, calc, tr mm.

SLTST - m dk - dk gy - brn gy, m hd, arg - v arg, calc, v mm, tr bit stn, tt, vss.

SH - dk - v dk gy, sfis - fis, m hd, slty - v slty, tr bit - bit, calc, ib SLTST.

SH - blk - v dk brn gy, fis, plty, v bit, calc, tr slty lam, tr pyr.
U. Dev. - TETCHO
SLTST - dk gy, v arg, m hd, calc ,mm, tt.

SH - dk gy - brn' gy, fis, m d, sl wxy, calc, mm, tr mrly str, tr pyr xl, ib SLTST.

SLTST - m d brn gy, v arg, calc, tr pyr xl.

LST - bf - lt gy brn, mx - v f xl, m hd, pt chlky, arg, tr pyr, tr - p por, N vss.

SH - m gy - gn' gy, sfis, m hd, pt slty, sl calc.

SLTST - m brn gy, v arg, calc, rr ss strg.

LST - crm - bf, mx - v f xl, m hd, tr arg, tr pyr', tr pel, dns.

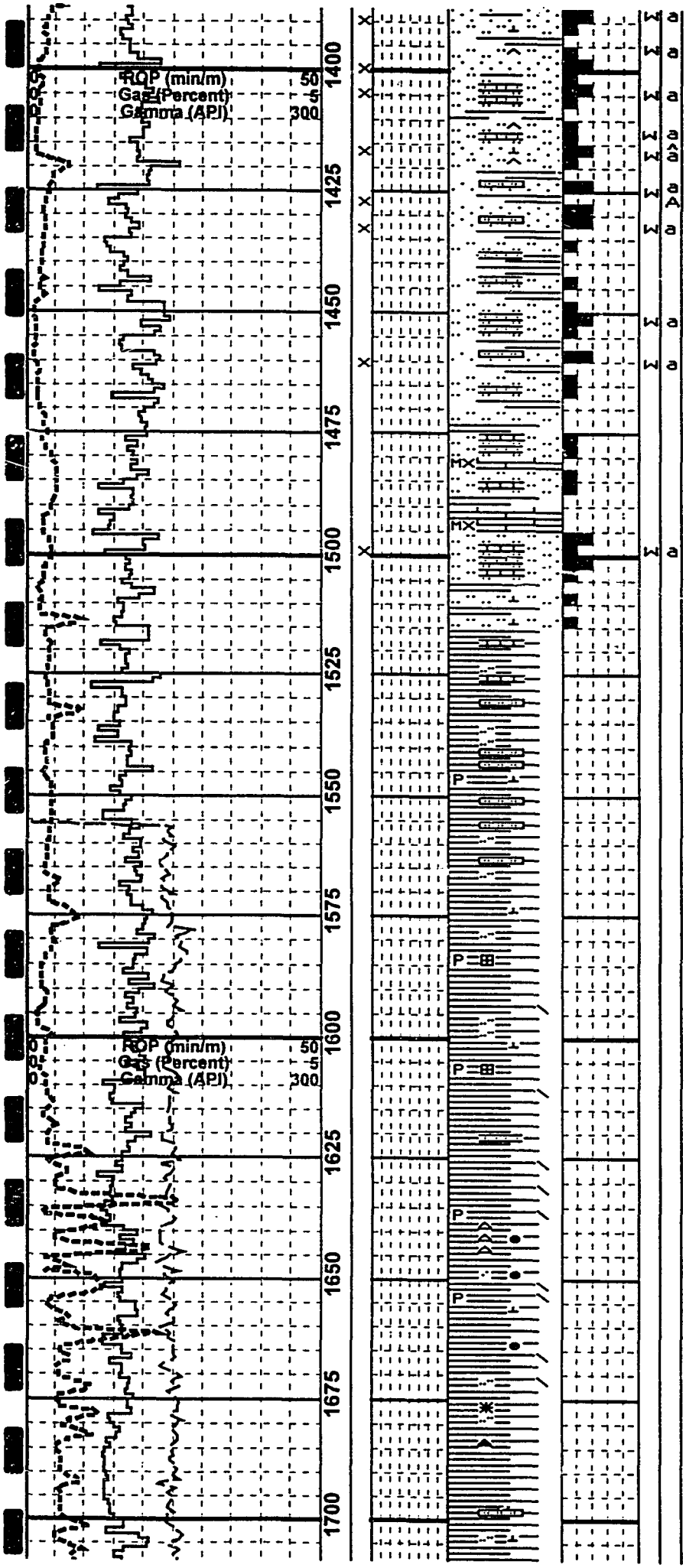
SH - m gn' gy, fis, sl wxy, calc, rr bit slty str.

LST - bf - t gy brn, v f xl, m hd, sl arg, slty, dns.

SS - lt brn, qtzc, v f gr, a,w srtd, hd, si cmt, slty, sl arg, tr ig por, N vss.

SH - m - m dk gn' gy, fis, m hd. sl calc, pt slty.

SLTST - m lt gy brn, sdy, sl calc si cmt, hd, tt.



cmt, slty, sl arg, mm, tt - tr ig por, N vss.

SLTST - m gn' gy, m hd, sl calc, sdy arg, tt

SS - lt - m lt gn gy - gy, v f gr, a, mod w srt, hd, sl calc si cmt, slty, tr arg, sl mm, tt - tr por.

SH - m k gn' gy, fis, m hd, sl wxy, v sl calc, tr mm tr slty, tr wxy ptg, tr calc vn, mnr SS & SLTST ib.

SLTST - m gn' gy, m hd, arg, sdy, sl calc, tt.

SS - lt gy gn' gy, v f gr, a, hd, calc si cmt, v slty, arg, mm, tr lse m gr qtz, rr pyr, rr bit flks, tt - tr ig por, N vss.

SH - m dk gy col, fis, pt slty, sl calc, pt sl bit.

LST - lt brn, mx, hd, slty, arg, tr pyr', tr xbit stn,

LST - lt - m gy brn, mx, hd, slty, arg, tr v f disem pyr & bit flks, tr indst fos, dns.

SLTST - m dk gy brn, m hd, v calc, sdy, arg, tt.

FT. SIMPSON SH.

SH - m gn' gy col, fis - sfs, m hd, sl wxy, v sl - sl calc, tr v f pyr, some slty strgr, rr LST - crm, mx, sl chlky, scat m sz sd gr, dns.

SH - m gy - gn' gy, fis, m hd, sl calc, sl mm, lmy str, rr - tr SS & SLTST strgr.

SH - olive gy col, fis, sl wxy, m hd, v sl calc, tr calc vn/ slty & sdy strgs.

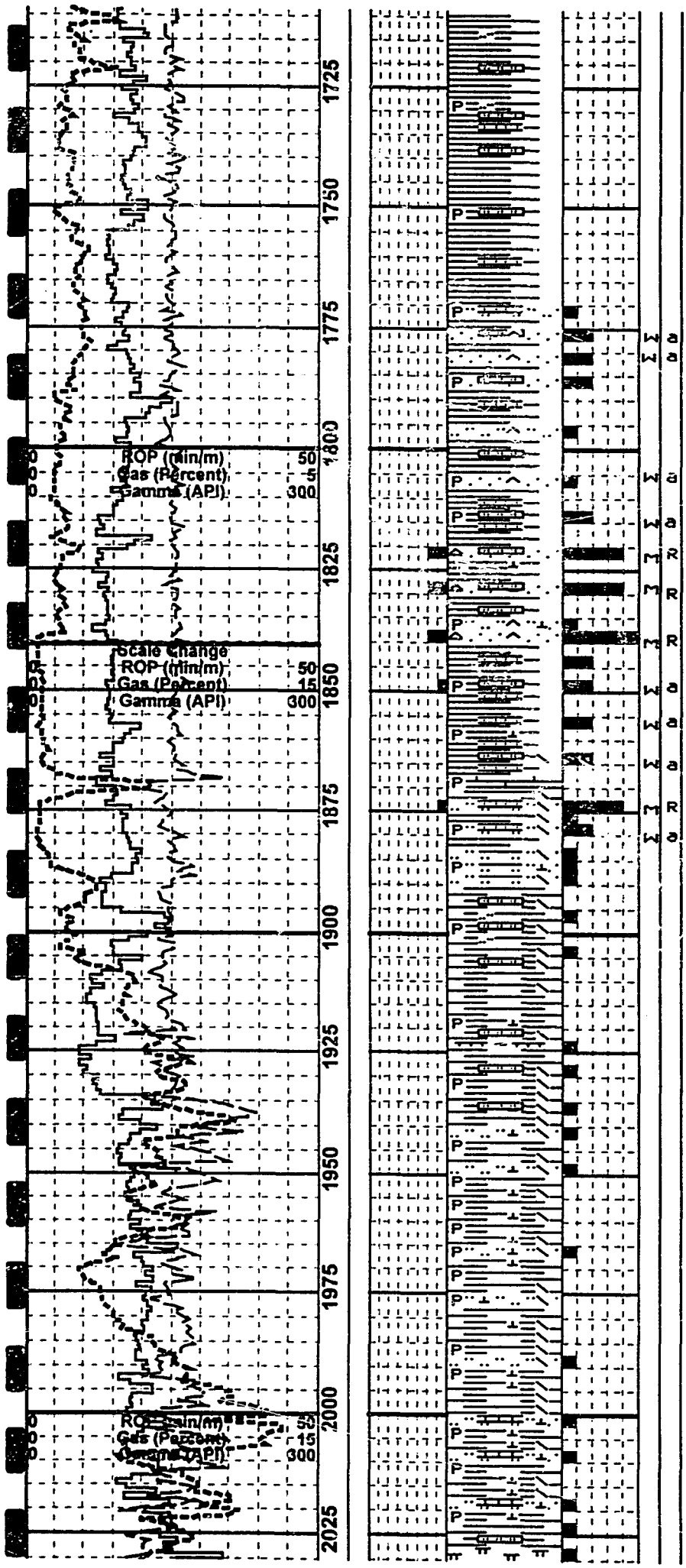
SH - m dk olive gy col, fis, m hd, sl soapy, v sl calc, tr mm, tr calc vn, rr pyr, some sdy & slty str, rr dk bit ptg.

SS - m dk gy, v f gr, a, hd, v slty, arg, sl bit tt.

CHT - bf col, mas, v hd, sl calc, tr Spic.

SH - dk olive gy, fis, m hd, tr calc vn, tr blk brit xbit frag.

SH - dk gy - sl olive gy col, fis, sl splty, non calc, rr calc vn.
SH - dk gy col, fis, m hd, non calc, sl slty, sl mm, rr pyr, rr clr calc vn, rr qtz shard, rr CHT - dk brn, trnsl, v hd..



SH - dk gy, fis, m hd, non clc, sl mm, pt sl slty, rr SLTST - m dk gy, v arg, sl calc, mm, tt.

SH - dk gy - bcmg sl gn' gy tint,mnr SLTST & SS.

SH - dk gy - sl olive gy col,fis, m hd, sl mm, rr calc vn, tr SS - m - m dk brn gy, v f gr, a, mod w srtd, hd, v sl calc si cmt, v slty, arg, tt, grdg SLTST.

SH - dk gy, fis, sl splty, non calc, rr - tr v f disem pyr, rr calc vn, rr bit frag.

SS - m - lt brn, v f gr, a, hd - v hd, si cmt, slty, tr arg, tr pyr', tt.

SLTST - m - dk gy, m hd, sdy, arg, sl calc si cmt, tr mm, tr pyr' i/p, tt.

SS - lt - m gy brn, qtzc, v f gr, a, mod w srtd, hd - v hd, si cmt,slty, tr arg, tr f pyr xl, tr xbit stn, tt - tr por, N vss.

SH - gk gy - sl brn' gy, fis, m hd, non calc, sl mm, tr v f pyr,tr thn SS & SLTST ib - lam.

SS - m gy, f - v c sz qtz & trip cht, R, mod srtd, hd, calc si cmt, v f gr mtx, pt pyr, p - fr ig por.

SH - dk gy - brn' gy, fis, m hd, pt slty - v slty, pt v sl calc, tr mm, ib SS & SLTST.

SLTST - m dk brn gy, m hd, sdy, arg, sl calc, tt.

SS - m gy - brn' gy, v f gr a, mod w srtd, calc si cmt, hd, v slty, tr pyr, tt - tr por.

LST - lt - m brn gy, mx, slty, tr pyr', dns.

SH - blk, amor, m sft, v bit, sl calc, tr pyr.

SS - lt - m brn, v f gr, v slty, arg, calc si cmt, tr pyr', tr bit stn, tt.

SLTST - m - v dk brn gy, m hd, clc cly cmt, v arg, pres - com blk bit stn & ptg, tr pyr cube, tt.

SH - blk - v dk gy stn, fis, m sft, v bit, slty - v slty, tr m brn wxy ptg, tr f pyr xl.

SH - blk, fis, m hd - m sft, v bit, slty, mm, rr pyr, tr m gy brn wxy ptg.

SH blk - v dk gy, s fis - sl blky, v bit, m hd - hd, tr calc vn, rr - tr pyr, ib SLTST, tr mrlst.

HORN RIVER Shale

SH - blk - v dk brn' gy, hd, brit, v bit, sl slty - slty i/p, tr calc & qtz vn, tr m - brn gy sft mrly ptg.

SLTST - m gy sp, hd, v calc, sdy, arg, tr pyr', tt.

SH - blk sfis, m hd, brit, v bit, mm, tr wh calc & qtz mfrcs infill, pyr', mrly ptg, SLTST ib.

SLTST - m dk gy sp, m hd - hd, v calc, arg, tr pyr, tt.

SH - blk, sfis, hd, brit, v bit, mm, pyr', tr calc vn, rr - tr sft wxy ptg.

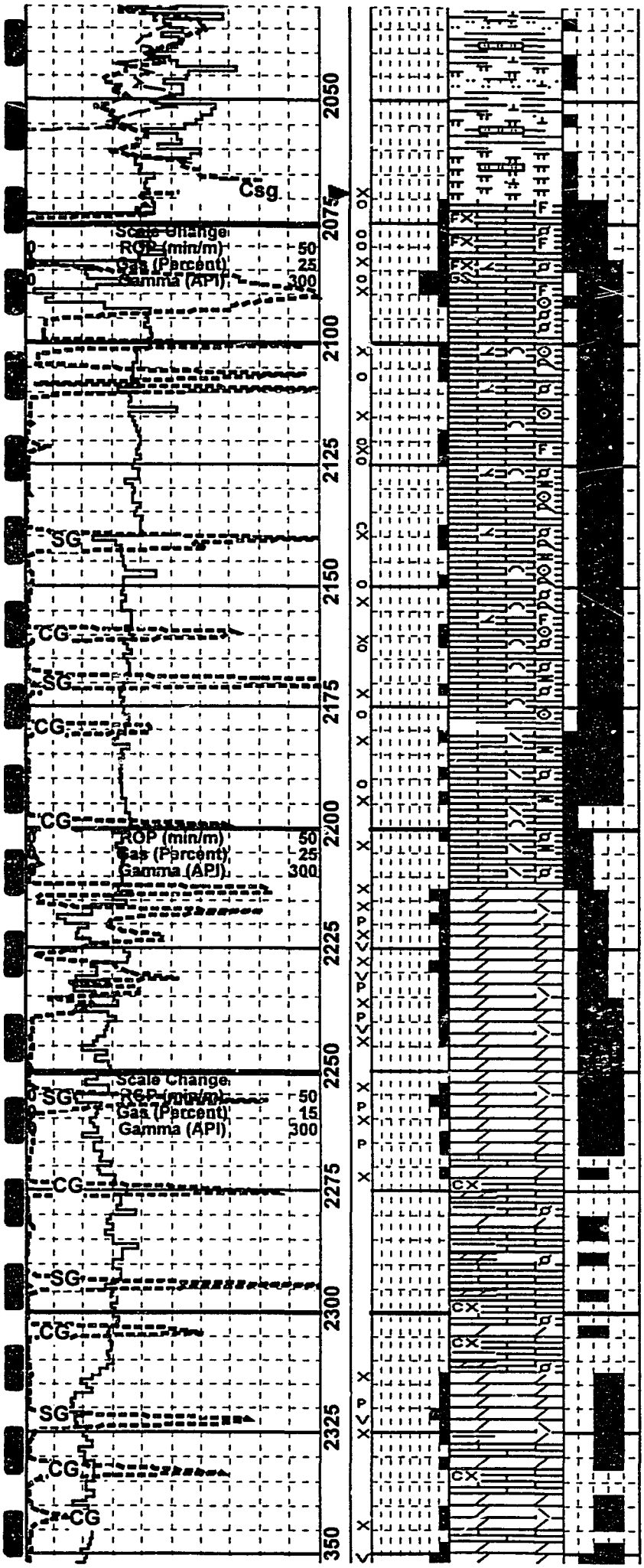
SH - a/a, bcmg blk - v dk brn' gy, sl erthy, v bit, sl calc, tr m lt gy wxy ptg.

SH - a/a, more brit, SLTST lam & ib.

LST - dk brn, v f xl, hd, v slty, v arg, tr pyr', dns.

SH - blk - pt grn' gy, sfis - sl blky, hd, brit, v bit, sl slty - slty, mm, tr - pres pyr, pres lt gy ptg.

SLTST - dk - v dk gy, m hd - hd, v calc, v arg, pres - com bit stn & ptg, tt.



casph, com - abun bit stng.
SH - blk, sfis, hd, brit, v bit, sl slty - slty, mm, tr pyr, tr calc mfrcs, pres lt gy wxy ptg.
SLTST - dk - v dk stn, v bit, v calc, varg, tt.
CMRL - varigated wh - m - v dk gy, v slty, com dd oil / xbit stn & ptg, pres casph / alg rmn.

M. Dev. NAHANNI

LST - lt - m gy brn, v f - f xl / m sz pel, m hd - hd, pt chlky tex, tr indist fos -Strom, col, brac, pres intra fos dd oil / bit stng, dns, tr ixl ifs por, N flu or cut noted.

LST - mot lt - m gy brn, f - m xl, sl dol, num wh c calc vn / fos rpl' / rx, fr - g org / ixl por, fnt cut.

LST - mot m - dk gy brn col, biomtc, mx - v f xl, / f - v c sz biocl Crin / Col / Strom / Pel, hd, sl chlky, tr arg, tr slty, sl dol, tr clr euh calc rx, tr - pes blk xbit mat.tr occ p ixl / org por.

LST - mot m - dk gy brn, biomtc, f - v c sz biocl / v f - f xl mtc cmt, hd, tr arg, tr slty.

LST - mot crm - m & pt dk biomtc, hd - v f xl mtc, abun - com f - m pel & c fos frag, tr calc vn, rr pyr, tr blk xbit stn, tr ixl / org / erthy por, N vss.

LST - mot lt - m & com dk gy brn, biomtc, m hd, v f xl tr chlky mtx / f - c fos frag, pres dk xbit ptg, tr pyr xl, tr por.

LST - lt brn - tan, cx, blky, hd, tr stylo,dns

LST - m - dk brn, cx - mx, blky, hd, com Pel / Amphipora, dns,some p ixl por.

M. Dev. NAHANNI DLOMITE

DOL - mlky wh f - m sz suc rhmb mozaic, m hd, sl lmy ip, tr blk xbit, p ixl - tr fr dsy por.

DOL - lt gy - bf - wh, m - c xl, tr dk arg stn f xl mat, tr - rr xbit, tr - p ixl por.

M. Dev. HEADLESS

DOL - wh, pres lt - m gy arg stn str, pred m some c euh xl, m hd, sl lmy, rr - tr chlky wh lmy str, tr - pres dsy xl vug - pp lining, p - rr fr por.

LST - m brn - tan col, cx, hd, blky, sl dol, sl arg, tr chlky str / Pel - fos, dns.

DOL- lt brn gy, f - m xl, tr dsy xl p - tr por.

M. Dev LANDRY LST.

LST - crm - lt - m brn, cx - mx, some chlky fos, bd, hd, sl arg, sl dol, dns - rr mfrcs.

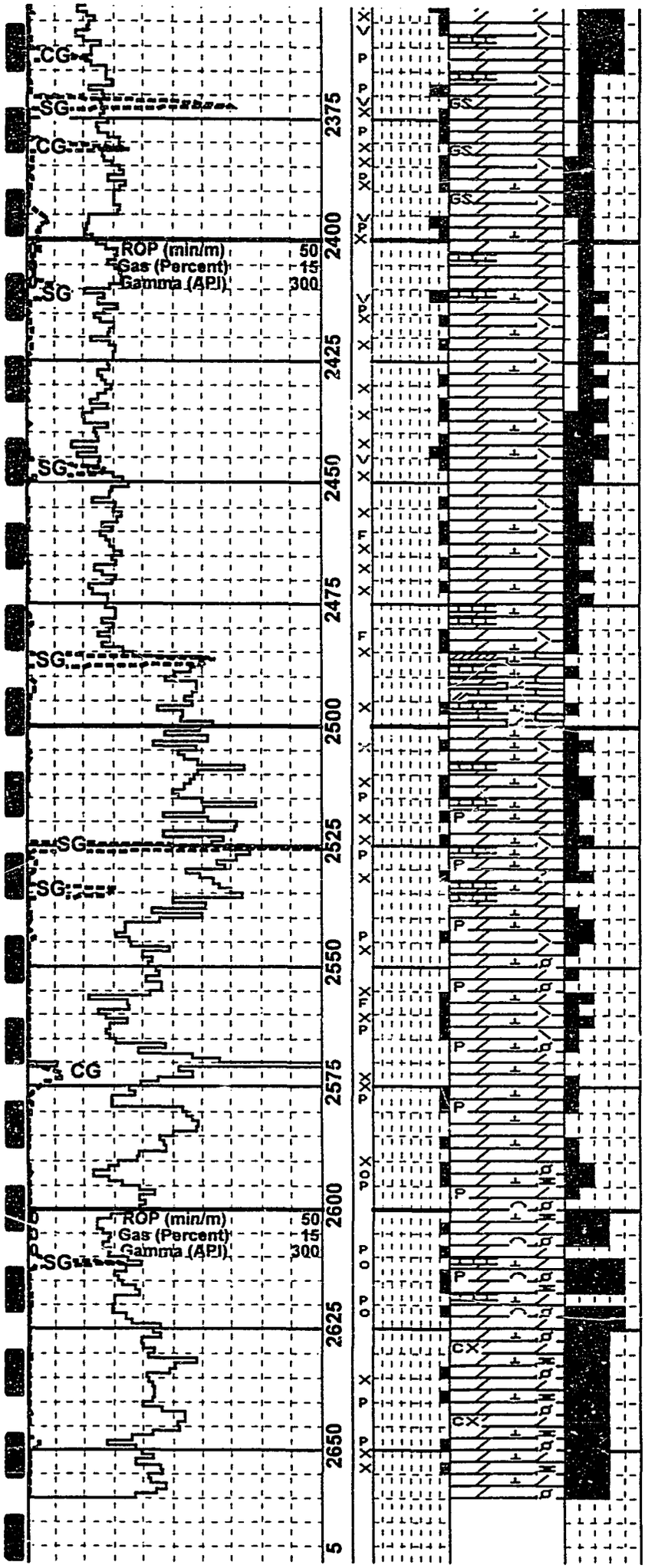
DOL - wh - lt brn, f - m some c xl, tr bit coat, tr ixl
SH - lt gn gy - gy gn, sfis, sft, wxy.

M. Dev. ARNICA

DOL - wh - lt brn, m - c xl, tr - pres dk gy - blk col arg bit coat along xl margins & vn, rr clr qtz - rx calc, tr pyr, dns - tr ixl por, tr gn' Sh clst.

DOL- wh - some bf, lt brn gy lmy arg vn, m - c xl, hd, sl lmy, tr blk xbit vn, tr calc - qtz xl, str p por.

LST - lt - m brn , cx - tr chlky Pel, hd, dol, dns.



stn arg bit vug lining, tr pyr, tr blk xbit ptg, tr calc - qtz prsm, some dsy dog tooth spar, strp - tr fr ixl - vug - pp por, N vss.

DOL- lt - m gy & brn, most f gr, suc tex, hd, lmy, rr pyr, pres xbit vn & ptg, tr wh Dol spar, rr qtz - rx calc, str p - fr ixl por.

DOL- lt - m gy & brn, f - vf gr, abun wh Dol spar, tr clr qtz prsm - rx calc, tr chlky lmy str, rr xbit, p - pos' fr vug - pp por.

LST - m - dk brn' gy, mx, blky, hd, sl arg, sl dol, rr pyr', dns.

DOL - lt - m brn' gy col, f - m grnst, hd, sl arg, lmy, tr fos - Pel, pres m - dk gy col arg bit stn, p - tr ixl por.

DOL - bf - lt brn gy, f - v f xl, lmy - v lmy, sl arg, pres xbit stn - ptg, tr c - m euh Dol spar, p por.

DOL - crm - bf, mx - v f xl, lmy - v lmy, tr wh dsy xl, tr bit stn, tr ixl - pos fr vug - pp por.

DOL - crm - bf, mx, hd, lmy, tr lt brn gy cx lam, tr f xl pyr, tr - rr xbit stn, dns - tr frac por.

DOL - crm - bf, mx - cx, hd, lmy, dns - tr frac por.

DOL - crm - bf, v f xl / mx - cx - f xl var, blky, hd, lmy - v lmy, tr dsy wh - m - c sz xl, tr - p ixl - vug - pp por.

LST - m brn, mx - v hd, hd, dol, arg, dns.

DOL - lt gy brn, f - v f xl, suc tex, m hd, pres dk dd oil stn & ptg, tr pyr xl, str p - pos fr por.

ANHY - wh - v lt gy, mx, hd, chlky in spl.

LST - pale gy, cx, hd - v hd, dol, tr qtz vn - frac, dns.

DOL - crm - bf, mx - v f xl, lmy - v lmy, dns - tr xln por.

DOL- crm - bf - lt gy, v f xl, hd, lmy - v lmy, tr slt, tr dsy xl vn - pp, pres - m - c dol spar, tr - p por.

DOL - bf - lt gy, cx, hd- v hd, v lmy, sl arg, tr pyr, tr dsy xl, dns - tr frac por.

DOL - bf - lt gy, cx - mx, hd, lmy, tr anhy', tr slty, sl arg ip, dns.

DOL - crm - lt gy, v f xl, hd, lmy, pres - tr dsy xl vn & pp, tr dd oil stn, str tr - p por.

DOL - bf - lt brn gy, cx - mx, blky, hd, dns.

DOL - crm - lt brn gy, v f xl, hd, lmy, com indst Pel ip, tr dsy Dol - calc vn - qtz, tr - p por.

DOL - bf - m lt gy, cx - mx, hd v hd, lmy, dns.

DOL - crm - bf, v f xl - mx, hd - v hd,, lmy, sl slty, v f pyr, rr gn gy arg str, tr f calc vn, tr ixl por.

DOL - crm - bf, mx - v f xl, hd, lmy, rr fos frag, tr calc vn, tr chlky lmy str, tr clr qtz - rx calc, tr por.

DOL - bf - crm, mx - v f xl / com f - m sz fos - Pel, com clr wh Dol spar - calc vn - qtz xl, p org - pp por.

DOL - crm - bf - lt br' gy, f - c biocl, sl chlky mx mtx, sl slty, pres - com f - m mlky wh Dol spar, tr arg str, tr - p org - pp por.

DOL - crm - bf - lt brn' gy, mx - v f xl, hd, lmy, abun indst Pel - Amphipora, pres Dol xl, tr por.

DOL - crm - bf - lt brn gy col, mx - cx, hd, pres - com f - c Dol spar, tr calc vn, tr qtz vn, tr - pos p ixl - pp - frac por.

DOL -bf- m lt brn' gy, mx - pt cx / pres v f sz xl lam - vn, hd, lmy, indst Pel - Amphipora, pres - tr clr rx calc - wh Dol spar - clr qtz, tr por.

ATTACHMENT #13

DAX CONSULTING LTD.

GEOLOGICAL WELL REPORT

PREPARED FOR

CANADIAN FOREST OIL LTD.

CDN FOREST et al FLETT RAPIDS I – 61

Unit I, Section 61 GRID AREA: 60-50-123-15

DIRECTIONAL WELL

Report prepared by: M. Fox / B. Bellman

Report approved by: William B. 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

DAX Consulting Ltd.
CDN FOREST et al FLETT RAPIDS I-61

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ADDENDUM

DIRECTIONAL SURVEY RECORD ..... A

GEOLOGICAL STRIP LOG ..... B

DAX Consulting Ltd.
CDN FOREST et al FLETT RAPIDS I-61

WELL DATA SUMMARY

OPERATOR: CANADIAN FOREST OIL LIMITED

WELL NAME: CANADIAN FOREST et al FLETT RAPIDS I-61

SURFACE LOCATION: Unit I, Section 61, Grid Area 60-50-123-15

SURFACE COORDINATES: N 60 degrees 40' 41"
W 123 degrees 26' 34"

FINAL COORDINATES: 264.1 metres North; 29.8 metres West
as calculated from surface location

FINAL LOCATION: Unit I, Section 61, Grid Area 60 - 50 - 123- 15

LICENCE No.: 9211-C131-1-1, WID 1851 A.F.E. No: A983002

ELEVATIONS: Ground: 254.0 metres K.B.: 262.5 metres

ZONES OF INTEREST: Primary: Middle Devonian - Arnica

Secondary: Mississippian
Upper Devonian

CONSULTING GEOLOGIST: M.Fox / B.Bellman

COMPANY GEOLOGIST: J. Taylor

DRILLING CONTRACTOR: Nabors Drilling Ltd. Rig No. 24E

SPUD DATE: November 13, 1998 at 12:15 hour

KICK OFF DEPTH: 1385.0 m K.B. / 1384.7 m T.V.D.

INITIAL AZIMUTH: 120.8 degrees

FINAL AZIMUTH: 48.0 degrees

MAXIMUM HOLE ANGLE: 21.4 degrees at 1722.8 m K.B.

DRILLING COMPLETED: January 8, 1999 at 11:50 hour

TOTAL DEPTH: 2660.0 m K.B. / 2622.2 m T.V.D.

TERMINATING FORMATION: Lower Devonian - Camsell (?)

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CDN FOREST et al FLETT RAPIDS I-61

WELL DATA SUMMARY

CONDUCTOR HOLE: Hole Size: 660 mm Casing Size: 508 mm
Weight and Type: 139.87 kg/m K-55 BT & C
Landing Depth: 150.8 metres

SURFACE HOLE: Hole Size: 445 mm Casing Size: 339.7 mm
Weight and Type: 101.2 kg/m, K-55 Buttress
Landing Depth: 569.6 metres

INTERMEDIATE HOLE: Hole Size: 311 mm Casing Size: 244.5 mm
Weight and Type: 64.73 g/m, L-80 Buttress
Landing Depth: 2067.7 metres

FINAL HOLE: Hole Size: 215.9 mm Casing Size: 177.8 mm
Weight and Type: 43.2 kg/m, L-80 Buttress
Landing Depth: Not available

MUD PARAMETERS:

Interval	Mud System
0 m to 150 m	Gel Chemical
150 m to 2073 m	K2SO4 Gel Polymer
2073 m to 2660 m	Gel Polymer

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CDN FOREST et al FLETT RAPIDS I-61

WELL DATA SUMMARY

SAMPLES: Operator: CANADIAN FOREST OIL LIMITED

(Sample Vials)

Interval: 28 m to 2660 m at 5 m intervals

Partner: WINTERSHALL CANADA LTD.

(Sample Vials)

Interval: 28 m to 2660 m at 5 m intervals

Government: NATIONAL ENERGY BOARD

(Two (2) sets of Sample Vials)

(One (1) set of lined Sample Bags)

Interval: 28 m to 2660 m at 5 m intervals

CORES: None

DRILL STEM TESTS: None on penetration

LOGGING PROGRAM: Company: Computalog

District: Grande Prairie

Logging Engineer: J. Grubb

Date: December 22, 1998

Run No. 1: Service	Interval	Time
STI / SP / GR	569.8 m to 1663.0 m	5.00 hours
BCS / GR / Cal	569.8 m to 1611.2 m	SPed / CNS /
x-y cal	569.8 m to 1656.0 m	Hole Volume Log
	569.8 m to 1656.0 m	

Comments: Run No. 1 - Logs run in combination. Bridged at 1695 m and wedged below 1688 m, freed tool, logged out from 1663 m.

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CDN FOREST et al FLETT RAPIDS I-61

WELL DATA SUMMARY

LOGGING PROGRAM: **Company:** Computalog

District: Edmonton

Logging Engineer: C. Scutchings

Date: January 02, 1999

Run No. 2: Service	Interval	Time
DLL / MSFL / SP	2066.7 m to 2394.0 m	6.00 hours
Sped / CNS / X-Y	1550.0 m to 2386.2 m	4.50 hours
BCS / GR / CAL	1550.0 m to 2371.9 m	
EMI / GR	2066.7 m to 2394.0 m	5.00 hours
Hole Volume Log	2066.7 m to 2394.0 m	

Comments: Run No. 2 - Logged BCS / GR - CNS run 500 m into intermediate casing over unlogged interval of Run No. 1.

LOGGING PROGRAM: **Company:** Schlumberger

District: Grande Prairie

Logging Engineer: T. Daniel / S. Kirstein

Date: January 09, 1999

Run No. 3: Service	Interval	Time
DLL / SP / GR	2067.0 m to 2655.1 m	3.00 hours
CNL / LDT /GR / EDAC	2067.0 m to 2648.3 m	DSI
2067.0 m to 2652.0 m NGT		2067.0 m to
2640.0 m FMI / GR	2067.0 m to 2300.0 m	
6.00 hours		
MDT	2090.1 m to 2565.8 m	4.00 hours

Comments: Bridged off at 2510 m on first attempt DLL/SP/GR/ and CNL/LDT/GR/EDAC combination tool. EDAC caliper arms and tool sleeve broken off and left in hole, clean out trip required. Line fault developed FMI/GR run approximately two thirds into hole, pulled tool to surface to check and correct. MDT ran pipe conveyed.

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CDN FOREST et al FLETT RAPIDS I-61

GEOLOGICAL MARKERS

K.B. ELEVATION: 262.5 metres

FORMATIONS	PROGNOSIS SUBSEA (metres)	MEASURED LOG DEPTH (metres)	TRUE VERT. LOG DEPTH (metres)	TRUE VERT. SUBSEA (metres)
MISSISSIPPIAN				
Clausen	210	27.0	27.0	+235.5
Crinoid Bank	-368			
Yohin Ss	-400			
Banff	-450	428.0	428.0	-165.5)
Exshaw	-760	815.0	815.0	-552.5
DEVONIAN				
Clastic Wedge	-920	862.0	862.0	-599.5
Kotcho	-920	862.0	862.0	-599.5
Tetcho	-1337	1292.0	1292.0	-1029.5
Fort Simpson	-1788	1506.0	1505.0	-1242.5
Horn River	-1902	1936.0	1911.0	-1637.5
Intermediate Casing Depth	-1975	2066.7	2034.4	-1771.9
Nahanni	-1974	2069.5	2037.2	-1774.7
Nahanni Dol.		2208.6	2172.6	-1910.1
Headless	-2148	2239.0	2146.0	-1883.5
Landry Limestone		2290.7	2253.9	-1991.4
Arnica	-2182	2310.0	2273.1	-2010.6
Unconformity		2371.0	2333.0	-2070.5

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GEOLOGICAL MARKERS

K.B. ELEVATION: 262.5 metres

FORMATIONS	PROGNOSIS SUBSEA (metres)	MEASURED LOG DEPTH (metres)	TRUE VERT. LOG DEPTH (metres)	TRUE VERT. SUBSEA (metres)
Sombre	-2425	2449.0	2412.0	-2149.5
Camsell	-2460	2486.0	2448.8	-2186.3
Root River	-2560			
Thrust Fault	-2624			
Mount Kindle	-2690			
Little Doctor	-2860			
Franklin Mtn.	-2880			
Cambrian SS/SH	-2890			
Total Depth	-2940	2660.0	2622.2	-2359.7

** NOTE: Geological Markers Record represents Consultant Log Picks

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BIT RECORD

BIT No.	TYPE	MFG	SIZE (mm)	DEPTH OUT (metres)	METRES DRILLED	TOTAL HOURS
CONDUCTOR HOLE						
PILOT						
1A	MS13GJ	REED	445	150.8	150.8	33.50
REAM						
2A	S4	SEC	660	150.8	150.8	24.75
SURFACE HOLE						
1A	XG3	HC	445	440.0	289.2	61.25
RR1A	MS13GJ	REED	445	569.6	129.6	3.25
INTERMEDIATE HOLE						
1	F1	SMITH	311	892	300.0	56.25
2	C2	RBI	311	1385	493.0	89.00
3	C2	RBI	311	1418	33.0	10.50
3RR	C2	RBI	311	1573	155.0	48.50
4	ATM22G	HC	311	1872	299.0	85.75
5	EHP51H	REED	311	2073	201.0	67.50
3RR	C2	RBI	311	2073	REAM	
MAIN HOLE						
1B	HP11	REED	216	2083	10.0	2.50
2B	GS84F	SEC	216	2395	312.0	77.25
3B	F3P	SMITH	216	2571	176.0	57.75
4B	C45LRG	RBI	216	2660	89.0	29.75

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
28 - 30	100	SHALE - light to medium grey, blocky, locally fissile, very calcareous to marlstone, micaceous, trace pyrite, trace shell fragment, scattered plant remains, well indurated.
30 - 35	100	SHALE - light to medium grey, blocky, locally fissile, very calcareous to marlstone, micaceous, trace pyrite, trace shell fragments, trace brown siltstone laminae, scattered sand grains, well indurated.
35 - 40	100	SHALE - medium to light grey, fissile, calcareous, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
40 - 50	100	SHALE - medium to light grey, fissile, calcareous, very fine grain crystalline calcite, light brown dolomitic laminae marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
50 - 55	70	LIMESTONE - light to medium brown, mottled, wackestone, microcrystalline, fine to medium grain bioclasts, pellets, very argillaceous, possible Foraminifera fragments, common Spicula, trace Crinoid, trace silt, no visible voids.
	30	SHALE - medium to light grey, fissile, calcareous, very fine grain crystalline calcite, light brown dolomitic laminae, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
55 - 60	60	SHALE - medium to light grey, fissile, calcareous, very fine grain crystalline calcite, light brown dolomitic laminae, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
	30	LIMESTONE - light to medium brown, mottled, wackestone, microcrystalline, fine to medium grain bioclasts, pellets, very argillaceous, possible Foraminifera fragment, common Spicula, trace Crinoid, trace silt, no visible voids.

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SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
	10	SHALE - dark grey, fissile, non calcareous, trace to rare plant remains and pyrite grains, moderately indurated.
60 - 75	80/85	SHALE - dark grey, fissile, micromicaceous, non calcareous, trace plant remains, moderately indurated.
	10	SHALE - medium to light grey, fissile, calcareous, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
	5/10	LIMESTONE - light to medium brown, mottled, wackestone, microcrystalline, fine to medium grain bioclasts, pellets, very argillaceous, common Spicula, trace Crinoid, no visible voids.
75 - 80	90	SHALE - dark grey, fissile, micromicaceous, non calcareous, trace plant remains, moderately indurated.
	10	SHALE - medium to light grey, fissile, calcareous, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.
80 - 85	50	SHALE - dark grey, fissile, micromicaceous, non calcareous, trace plant remains, moderately indurated.
	30	LIMESTONE - light to medium brown, mottled, packstone, microcrystalline, fine to medium grain bioclasts, rare coarse grain Crinoids, pellets, very argillaceous, rare medium and coarse grain size Crinoids, rare clay partings, trace Foraminifera fragment, trace Brachiopods, trace poor pinpoint porosity.
	20	SHALE - medium to light grey, fissile, calcareous, marlstone stringers, micaceous, trace pyrite, trace shell fragment, well indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
85 - 95	60	SHALE - medium to light grey, fissile, calcareous, marlstone stringers, micaceous, trace shell fragment, well indurated.
	20/25	LIMESTONE - predominantly as above, fine to very fine grain bioclastic.
	10/15	SHALE - dark grey, fissile, micromicaceous, non calcareous, trace plant remains, moderately indurated.
95 - 100	85	SHALE - medium to dark grey, blocky, calcareous in part, trace shell and fossil fragments, trace Brachiopods fragments, well indurated.
	15	LIMESTONE - as above, trace amounts Ostracod.
100 - 110	90	SHALE/MARLSTONE - medium to dark grey, blocky, calcareous in part, trace shell and fossil fragments, trace limestone stringers, trace Brachiopods fragments, well indurated.
	10	LIMESTONE - brown, wackestone, microcrystalline to very fine grain, trace medium to coarse grains, slightly trace Crinoids and Brachiopods, very argillaceous, no visible voids.
110 - 120	85	SHALE - dark grey, fissile to splintery, micromicaceous, non calcareous, rare pyrite granules, moderately to poor indurated.
	15	SHALE - medium to dark grey, blocky, calcareous in part, trace shell and fossil fragments, trace Brachiopods fragments, well indurated.
120 - 145	100	SHALE - predominantly non calcareous as above, trace silty dolomite laminae, occasional Crinoids and Brachiopod fragments.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
145 - 151	75/80	LIMESTONE - cream to light brown, packstone, medium to coarse grain crystalline, fine grain in part, Bioclastic, rare pellets and Spicula, rare Crinoids, common recrystallized clear spar, common argillaceous fragments, no visible voids.
	20/25	SHALE - dark grey, fissile, blocky in part, calcareous in part, predominantly as above.
151		CONDUCTOR PIPE SET AT 150.6 metres K.B.
151-155	90	SHALE - light to medium grey, blocky, locally fissile, micaceous, very calcareous to trace calcareous, common fossil fragment, trace pyrite, trace very fine arenaceous with silt, well indurated.
	10	LIMESTONE - white, brown to grey, wackestone, minor packstone, very fine grain crystalline to trace microcrystalline, fine grain bioclasts, common Spicula, trace medium grain Crinoids fragment, trace Brachiopods, pellets (?), grading very argillaceous, trace dolomite, occasional arenaceous, no visible voids.
155-160	65/70	LIMESTONE - white, brown to grey, wackestone, minor packstone, very fine grain crystalline to trace microcrystalline, fine grain bioclasts, common Spicula, trace medium grain Crinoids fragment, trace Brachiopods, pellets (?), grading very argillaceous, trace dolomite, occasional arenaceous, no visible voids.
	30/35	SHALE - light to medium grey, blocky, locally fissile, micaceous, very calcareous to trace calcareous, common fossil fragment, trace pyrite, trace very fine arenaceous with silt, well indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
160-165	80/85	SHALE - light to medium grey, blocky, becoming fissile, common calcareous, well to moderately indurated.
	15/20	LIMESTONE - as above, very argillaceous.
165-170	90	SHALE - light to medium grey, dark grey, fissile, trace calcareous, trace fossil, moderately indurated.
	10	LIMESTONE - as above.
170-195	100	SHALE - medium to dark grey, fissile, common splintery, trace calcareous, trace silt, trace fossil, moderately indurated.
195-205	40	SHALE - medium to dark grey, blocky, calcareous in part, rare Crinoids and Ostracod, silty, trace very fine grain arenaceous, moderately to well indurated.
	30	LIMESTONE - grey, lithographic, argillaceous, common fossil fragment, locally frequent Ostracod and Brachiopods , Crinoids and Bryzoan, silty, trace dolomite.
	30	SHALE - medium to dark grey, fissile, common splintery, trace calcareous, trace silt, trace fossil fragments, moderately indurated.
205-225	85/90	SHALE - medium grey, blocky, calcareous in part, rare Crinoids and Ostracod, silty, trace very fine grain arenaceous, moderately to well indurated.
	10/15	LIMESTONE - grey, lithographic, argillaceous, common fossil fragment, rare Ostracod and Brachiopods, rare Crinoids, pellets?, silty.
225-230	90	SHALE - light to medium grey, blocky, calcareous in part, silty, trace dolomite, well indurated.
	10	LIMESTONE - grey, lithographic to very fine grain, argillaceous, common fossil fragment, silty, trace dolomite, no visible voids.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
230-240	80	SHALE - medium to dark grey, fissile, non calcareous, slightly trace siderite, moderately indurated.
	20	SHALE - medium to light grey, calcareous, silty in small part, common fossil fragments - Crinoid and Brachiopods, well indurated.
240-245	70	SHALE - medium to dark grey, fissile, splintery in small part, non calcareous, slightly trace siderite, moderately indurated.
	30	SHALE - medium to light grey, calcareous, trace dolomite, silty in small part, frequent fossil fragments - Crinoid and Brachiopods, well indurated.
245-255	80	SHALE - medium to dark grey, fissile, splintery in small part, non calcareous, slightly trace siderite, moderately indurated.
	20	SHALE - medium to light grey, calcareous, silty in small part, rare fossil fragments - crinoid and Brachiopods, trace dolomite, well indurated.
255-265	60	SHALE - medium to dark grey, fissile, splintery in small part, non calcareous, slightly trace siderite, moderately indurated.
	40	SHALE - medium to light grey, calcareous, rare silty, trace dolomite, trace fossil fragments - crinoid and Brachiopods, well indurated.
265-275	70	SHALE - medium to dark grey, fissile, splintery in small part, non calcareous, slightly trace siderite, moderately indurated.
	30	SHALE - medium to light grey, calcareous, rare silty, trace dolomite, trace fossil fragments - Crinoid and Brachiopods, well indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
275-295	100	SHALE - dark to very dark grey, fissile to platy, minor splintery, dolomite, trace calcareous, rare to locally common fossil fragments - Crinoids and Ostracod, moderately indurated.
295-305	100	SHALE - dark to very dark grey, black in part, fissile to platy, minor splintery, common calcareous, common micaceous, rare fossil fragments - Ostracod and Brachiopods and Crinoids, trace floating fine grain arenaceous, trace pyrite, moderately indurated.
305-310	100	SHALE - very dark grey to black, fissile and platy, trace calcareous, slightly dolomitic, trace fossil fragments, moderately indurated.
310-335	100	SHALE - medium and dark grey, blocky, very calcareous, argillaceous microcrystalline LIMESTONE laminae in part, trace dolomite, well indurated.
335-340	100	SHALE - dark and medium grey, platy to fissile, common calcareous, non calcareous in part, moderately well indurated.
340-360	100	SHALE - dark to very dark grey, platy, blocky in part, common to very calcareous, grading locally to marlstone, micaceous, moderately to well indurated.
360-375	100	SHALE - dark to medium grey, platy, blocky in part, common calcareous rare very fine to fine grain calcite, trace silty, moderately to well indurated.
375-380	90	SHALE - dark to medium grey, platy, blocky in part, locally very calcareous, trace shell fragment, moderately to well indurated.
	10	LIMESTONE - medium to dark grey, trace black, mudstone, lithographic to microcrystalline, very argillaceous, locally silty, trace Crinoids and shell fragments, no visible voids.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
380-390	50/60	SHALE - medium to dark grey, black in part, blocky, calcareous, trace very fine grain calcite recrystallized, well indurated.
	40/50	LIMESTONE - dark grey to black, medium grey in part, mudstone, lithographic to microcrystalline, very argillaceous, silty, trace Crinoids and shell fragments.
390-395	100	SHALE - very dark grey to black, platy to fissile, blocky in part, micromicaceous, very calcareous, well indurated.
395-405	100	SHALE - dark grey, black in part, platy and fissile, micromicaceous, common to non calcareous, trace brown silty laminae, trace pyrite, moderately well indurated.
405-425	100	SHALE - very dark grey to black, blocky, fissile in part, micromicaceous, slightly calcareous, trace brown SILTSTONE laminae, trace coarse grain pyrite granule and grains, well indurated.
425-435	70	SHALE - dark grey to black, fissile, splintery in part, micromicaceous, frequent calcareous, trace pyrite, trace silty, slightly dolomitic, well indurated.
	30	LIMESTONE - dark to medium grey, mudstone, lithographic to microcrystalline, very argillaceous , silty in small part.
435-445	80	SHALE - dark grey, blocky, micromicaceous, very calcareous, trace silty, slightly dolomitic, well indurated.
	20	LIMESTONE - medium to dark grey, mudstone, lithographic to microcrystalline, very argillaceous, slightly trace bioclastic, silty in small part.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
445-455	50	SHALE - medium grey to black grey, platy to blocky, micromicaceous, very calcareous, trace silty, well indurated.
	50	LIMESTONE - dark grey to black, mudstone, lithographic to microcrystalline, very argillaceous, trace silty, slightly trace bioclastic, no visible voids.
455-460	95	SHALE - medium grey to black, platy, micromicaceous, very calcareous, trace floating arenaceous, trace silty, well indurated.
	05	SANDSTONE - clear, yellow, orange, fine to coarse grain, trace pebble, angular and rounded, poor sorted, predominantly loose grains, trace calcite cement.
460-465	100	SHALE - medium grey to black, platy, micromicaceous, very calcareous, trace floating arenaceous, trace silty, trace loose sand grains, well indurated.
465-475	100	SHALE - medium grey, fissile to locally blocky, micromicaceous, moderately calcareous, trace dolomite, trace silty, trace Crinoids debris, well indurated.
475-490	100	SHALE - medium grey, fissile to platy, micromicaceous, moderately calcareous, trace dolomite, trace Crinoids debris, locally calcite laminae, moderately well indurated.
490-500	100	SHALE - medium grey, fissile to platy, micromicaceous, moderately calcareous, trace dolomite, trace pyrite granule, trace locally calcite laminae, moderately well indurated.
500-520	100	SHALE - medium to dark grey, fissile, trace blocky, moderately calcareous, rare dolomite, trace locally pyrite granule, trace calcite laminae, moderately indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
520-535	100	SHALE - medium to dark grey, fissile to platy, micromicaceous, moderately calcareous, trace dolomite in part, slightly silty, moderately indurated.
535-545	100	SHALE - medium to dark grey, fissile, blocky in part, micromicaceous, moderately calcareous, trace dolomite in part, slightly trace drusy recrystallized calcite, slightly silty, moderately well indurated.
545-550	100	SHALE - medium to dark grey, blocky, fissile in part, micromicaceous, moderately calcareous, trace dolomite in part, silty, moderately well indurated.
550-555	100	SHALE - medium to dark grey, blocky, fissile in part, moderately calcareous, dolomite, silty, slightly trace disseminated pyrite, well indurated.
555-560	100	SHALE - medium to dark grey, blocky, fissile in part, moderately calcareous, dolomite in part, locally frequent silt, trace drusy calcite, trace disseminated pyrite, well indurated.
560-570	100	SHALE - medium to dark grey, blocky, splintery cavings, micromicaceous, weakly calcareous, trace dolomite in part, silty, trace drusy calcite, trace Crinoids and Brachiopods, slightly trace coarse grain to granule pyrite, well indurated.
570		<u>SURFACE CASING DEPTH</u>

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
570 - 580	100	SHALE - medium to dark grey, fissile, micromicaceous, calcareous, slightly dolomitic, silty, trace fine to very fine grain arenaceous, moderately indurated.
580 - 590	100	SHALE - medium to black grey, fissile, blocky in part, micaceous, trace drusy calcite, trace calcite laminae, silty, moderately to locally well indurated.
590 - 595	100	SHALE - dark grey to black grey, fissile, blocky in part, micaceous, calcareous, trace dolomitic, silty, moderately to poorly indurated.
595 - 610	100	SHALE - dark grey, blocky, fissile in part, micaceous, moderately calcareous, trace silty, moderately to poorly indurated.
610 - 620	100	SHALE - dark grey, blocky, trace micaceous, moderately to slightly calcareous, trace dolomitic, trace silty, trace occasional pyrite, moderately to locally well indurated.
620 - 635	100	SHALE - dark grey, blocky, fissile in part, micaceous, slightly calcareous to dolomitic, rare silt, trace pyrite granule, moderately indurated.
635 - 645	100	SHALE - medium grey, light grey in part, blocky, micaceous, micromicaceous in part, moderately calcareous to dolomitic, trace calcite laminae, trace pyrite granules, silty, moderately to well indurated.
645 - 675	100	SHALE - medium to dark grey, blocky, micromicaceous, trace micaceous flakes, moderately calcareous to dolomitic, trace calcite laminae, silty, well indurated.
675 - 685	100	SHALE - medium to dark grey, blocky, micromicaceous, moderately calcareous, moderately indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
685 - 695	100	SHALE - medium to dark grey, light grey in part, blocky, fissile in part, calcareous to locally very calcareous, local marlstone stringers, trace fossil fragments, trace Crinoid fragments, trace disseminated pyrite, moderately to well indurated.
695 - 700	100	SHALE - medium to dark grey, light grey in part, micromicaceous, blocky, fissile in part, calcareous to locally very calcareous, local fine grain crystalline lime stringers, trace disseminated pyrite, trace fossil fragments, well indurated.
700 - 715	95	SHALE - medium to dark grey, micromicaceous, blocky, trace fissile, calcareous to locally very calcareous, trace disseminated pyrite, trace imbedded fossil fragments, well indurated.
	05	LIMESTONE - buff, greyish brown, microcrystalline to very fine grain crystalline, mudstone, very argillaceous, trace bioclastic, no visible voids.
715 - 725	100	SHALE - medium to dark grey, blocky, fissile in small part, calcareous, trace dolomitic, locally grading to marlstone, trace pyrite, trace silty, moderately to well indurated.
725 - 735	100	SHALE - light to medium grey, blocky, calcareous, dolomitic in part, trace disseminated pyrite, silty, well indurated.
735 - 745	100	SHALE - light to medium grey, blocky, calcareous, dolomitic in part, trace disseminated pyrite, silty, well indurated.
745 - 765	100	SHALE - light grey, medium grey in part, blocky, trace fissile, slightly calcareous to dolomitic, trace silty, locally common pyrite granules, well indurated.
765 - 770	100	SHALE - light to medium grey, greyish black in part, blocky, fissile in part, micaceous, slightly calcareous, rare pyrite grains, moderately to locally poorly indurated.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
770 - 775	95	SHALE - greyish black, brownish grey in part, blocky, fissile in part, frequently micaceous, slightly calcareous, common pyrite grains, slight trace angular black chert shards, slight hydrocarbon odor, trace dull orange fluorescence, no cut fluorescence.
	05	SILTSTONE - salt and pepper, blocky, quartzose, cherty in part, dolomite cement, hard.
775 - 780	100	SHALE - greyish black, brownish grey in part, blocky, fissile in part, frequently micaceous, slightly calcareous, common pyrite grains to granules, slight trace angular black chert, slight hydrocarbon odor, trace dull orange fluorescence, no cut fluorescence.
780 - 785	100	SHALE - greyish black, brownish grey, fissile, frequently micaceous, common pyrite grains, trace bentonitic, poor to moderately indurated, locally hard, slight hydrocarbon odor, slow streaming bright white cut fluorescence.
785 - 795	100	SHALE - blackish to brownish grey, predominantly fissile, blocky in part, frequently micaceous, common pyrite grains, trace bentonitic, moderately to well indurated, locally hard, slight hydrocarbon odor, slow even bright white cut fluorescence.
795 - 810	100	SHALE - very dark brown grey to black, fissile, medium soft to medium hard, sub bituminous, very fine disseminated pyrite, trace medium grey slightly calcareous laminae, rare pyrite crystals.
810 - 815	100	SHALE - very dark grey to brownish grey, fissile to subfissile, sub bituminous, trace medium brown grey soft calcareous streaks with trace pyrite vein.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
815 - 825	100	SHALE - very dark brown grey - black, subfissile - fissile, sub bituminous to bituminous, slightly earthy texture, trace light marlstone partings, rare pyrite vein, common very fine disseminated pyrite.
825 - 840	100	SHALE - very dark brown grey to black, sub bituminous, bituminous, slightly earthy texture, trace white calcareous spec in part, trace light grey color marlstone partings, rare to trace pyrite.
840 - 845	100	SHALE - black, bituminous, medium soft to medium hard, presence very fine disseminated pyrite, rare earthy brown marlstone partings.
845 - 855	80	SHALE - black, fissile, very bituminous, medium hard, trace clear white calcite veining, trace pyrite, rare white calcareous spec.
	20	CHERT - dark grey brown color, massive, very hard, slightly calcareous, trace white Spicules, no fluorescence, faint bloom yellowish cut fluorescence.
855 - 865	100	SHALE - dark grey, blocky, locally fractured, fine to coarse crystalline calcite throughout, trace pyrite, hard.
865 - 875	100	SHALE - dark grey - brown grey, subfissile to blocky, medium hard to hard, part slightly calcareous, trace white crystalline calcite crystals as above, trace dark chert shards, rare pyrite.
875 - 880	70	SHALE - as above.
	30	SILTSTONE - dark brownish grey, subangular, hard, very argillaceous, slightly calcareous, trace pyrite, tight.
880 - 890:	100	SHALE - very dark grey to brownish grey, subfissile to blocky, hard, siliceous, trace bituminous, very slightly calcareous, trace clear white calcite veining and drusy crystal, rare pyrite.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
890 - 905	100	SHALE - dark brownish grey, fissile to subfissile, medium hard, slightly calcareous, slightly silty, trace slightly bituminous, trace very fine disseminated pyrite crystal, trace medium brown colored laminae.
905 - 910	90	SHALE - dark to very dark brownish grey, fissile to subfissile, medium hard, slightly silty, very slightly calcareous, trace pyrite, trace medium brown grey marlstone partings.
	10	SILTSTONE - dark brown grey, very argillaceous, medium hard, slightly calcareous clay cement, trace pyrite, tight.
910 - 925	70	SHALE - medium light grey brown to brown grey color, subfissile, medium hard, silty to very silty, calcareous, trace micromicaceous, trace pyrite vein.
	30	SILTSTONE - medium light grey brown, argillaceous, trace arenaceous, calcareous cement, subrounded pyrite vein, tight.
925 - 950	90	SHALE - medium light grey brown to brown grey, subfissile, medium hard, slightly waxy lustre, slightly calcareous, dolomite, slightly silty to silty, occasional sand grains, trace micromicaceous, trace very fine pyrite crystal.
	10	SILTSTONE - medium light brown grey, very argillaceous.
950 - 955	100	SHALE - medium light grey brown, subfissile, medium hard, slightly waxy, slightly calcareous, slightly silty.
955 - 960	50	SHALE - as above.
	50	SILTSTONE - medium dark brown grey, medium hard to hard, calcareous cement, argillaceous, part bituminous argillaceous stain, micromicaceous, tight.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
960 - 970	70	SHALE - medium light grey brown, subfissile, medium hard, slightly calcareous with dolomite, some silty streaks, rare calcareous laminae, trace bituminous partings.
	30	SILTSTONE - as above, becoming medium to light brown grey, less argillaceous.
970 - 975	100	SHALE - black to very dark grey, fissile to subfissile, slightly bituminous, trace pyrite vein.
975 - 985	100	SHALE - medium light greenish brownish grey, fissile to subfissile, slightly waxy, medium hard to medium soft, slightly bituminous, slightly calcareous, trace micromicaceous, trace silty streaks, rare calcite veining.
985 - 995	100	SHALE - as above, becoming medium grey.
995 - 1000	80	SHALE - medium to medium dark greenish brownish grey, fissile, medium hard to medium soft, slightly waxy.
	20	SILTSTONE - cream to buff color, silica cement, calcareous cement.
1000 - 1010	100	SHALE - medium greenish brownish grey, fissile to subfissile, medium hard, slightly waxy, slightly calcareous, trace dark bituminous partings, rare calcite veining.
	trace	SILTSTONE - as above.
1010 - 1020	80	SHALE - medium to medium light greenish brown grey, fissile to subfissile, slightly waxy, rare calcite veining, silty varves, trace very dark grey brown bituminous laminae.
	20	SILTSTONE - medium to medium dark brown grey, silica, argillaceous, firm to medium hard, slightly bituminous to bituminous, calcareous, trace pyrite vein, tight, faint cut fluorescence.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1020 - 1025	80	SHALE - as above.
	20	LIMESTONE - buff, very fine crystalline, medium hard, dolomitic, slightly argillaceous, trace calcite veining, dense.
1025 - 1035	60	LIMESTONE - as above.
	40	SHALE - light grey brown, fissile, medium hard, calcareous, dolomite, trace peloids with Crinoid ghost structures.
1035 - 1045	90	SHALE - medium greenish brown grey, fissile to subfissile, medium hard, slightly waxy, calcareous, dolomite, trace calcite veining, rare pyrite crystal.
	10	SILTSTONE - light brown grey, silica, calcareous cement, medium hard, part argillaceous, tight.
1045 - 1055	100	SHALE - medium greenish brownish grey, fissile to subfissile, medium hard, calcareous to very calcareous, trace drusy crystalline calcite veining, rare bituminous stain, part silty, rare clear quartz prism, part grading siltstone.
1055 - 1065	100	SHALE - medium greenish brownish grey, fissile, medium hard, slightly waxy lustre, calcareous to slightly calcareous, part slightly silty, trace micromicaceous, trace white crystalline calcite veining.
1065 - 1080	100	SHALE - as above, fissile to subfissile and, part slightly blocky, medium dark brown color slightly silty streaks.
1080 - 1095	100	SHALE - medium to medium dark brown grey, fissile, medium hard, slightly calcareous, very slightly silty, trace clear white crystalline calcite veining material, rare bituminous partings, rare marlstone partings.
1095 - 1100	100	SHALE - medium dark brown grey, slightly waxy, slightly calcareous to calcareous, part very silty, rare pyrite crystal.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1100 - 1105	90	SHALE - as above.
	10	LIMESTONE - medium brown grey, microcrystalline, hard, very argillaceous, dolomitic, dense.
1105 - 1120	100	SHALE - medium dark to dark grey, subfissile, medium hard to hard, slightly silty, slightly calcareous to calcareous, trace silty varves, trace calcite veining, slight bituminous coating in part, trace fine pyrite blebs, presence soft medium brown waxy laminae.
1120 - 1125	90	SHALE - dark brown grey, subfissile, medium hard, slightly calcareous, trace euhedral calcite veining crystal, trace medium brown waxy streaks.
	10	SILTSTONE - medium brownish grey, very argillaceous, medium hard to firm, clay cement, very slightly calcareous, trace pyritic, tight, no visual shows.
1125 - 1135	100	SHALE - medium dark grey, subfissile, very slightly calcareous, presence medium brown color, soft waxy laminae.
1135 - 1145	100	SHALE - as above, very slightly bituminous, trace micaceous, trace slightly marlstone partings.
1145 - 1150	100	SHALE - as above, more subfissile to slightly blocky, slightly bituminous, slightly silty, trace siltstone laminae.
1150 - 1160	100	SHALE - dark grey, fissile, medium hard, slightly calcareous, part slightly silty, trace micromicaceous, uniform slightly bituminous stain, rare calcite veining, occasional soft waxy partings.
1160 - 1170	100	SHALE - as above, becoming slightly calcareous to calcareous, slightly silty, more frequent waxy partings.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1170 - 1190	90	SHALE - dark grey, fissile to subfissile, medium hard, slightly bituminous, part slightly silty, trace calcareous, trace waxy partings, rare calcite veining.
	10	SILTSTONE - medium to dark grey, medium hard, very argillaceous, calcareous cement, tight.
1190 - 1205	100	SHALE - dark grey, fissile to subfissile, medium hard, very slightly bituminous, slightly calcareous, trace micromicaceous, rare pyrite, some silty calcareous streaks, trace slickensides.
1205 - 1235	70	SHALE - dark grey, slightly silty to silty, slightly calcareous, trace micromicaceous.
	30	SILTSTONE - medium to dark brownish grey, medium hard, very calcareous cement, argillaceous, micromicaceous, tight to trace porosity, no visual shows.
1235 - 1250	50	SHALE - dark to very dark grey, subfissile to fissile, medium hard, silty to very silty, trace bituminous, calcareous, micromicaceous.
	50	SILTSTONE - medium to dark grey to brownish grey, medium hard, calcareous cement, medium hard, very argillaceous, micromicaceous, slightly bituminous stained, tight.
1260 - 1265	100	SHALE - black to very dark brown grey, fissile, platy, medium hard, very bituminous, calcareous, silty laminae, trace pyrite.
1265 - 1270	80	SHALE - as above, becoming dark to very dark grey, fissile, slightly calcareous to calcareous, part silty, part bituminous.
	20	SILTSTONE - dark grey, very argillaceous, very calcareous, micromicaceous, tight.
1270 - 1275	90	SHALE - dark to very dark grey, slightly bituminous with bituminous partings, trace light colored slightly calcareous soft waxy partings.
	10	SILTSTONE - medium grey, very argillaceous, calcareous cement, micromicaceous, tight.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1275 - 1285	100	SHALE - black to very dark brownish grey, platy, bituminous, medium hard, slightly brittle, very slightly to slightly calcareous with calcareous streaks.
1285 - 1300	70	SHALE - dark grey to brownish grey, fissile to subfissile, slightly waxy lustre, calcareous, micromicaceous, trace bituminous partings, marlstone streaks, trace pyrite crystals and veining.
	30	SILTSTONE - medium dark brown grey, very argillaceous, calcareous, medium hard, trace pyrite crystal, tight.
1300 - 1305	50	SILTSTONE - medium dark brown grey, very argillaceous to argillaceous, calcareous, trace pyrite, trace micromicaceous, tight.
	40	SHALE - as above.
	10	LIMESTONE - buff to light grey brown, microcrystalline to very fine crystal, medium hard, argillaceous, trace very fine disseminated pyrite crystals, trace to poor intercrystalline porosity, no visual shows.
1305 - 1310	70	SHALE - medium grey to greenish grey color, subfissile, medium hard, part silty, slightly calcareous, trace micromicaceous.
	30	SILTSTONE - as above.
	trace	LIMESTONE - as above.
1310 - 1315	50	SHALE - dark grey to slightly greenish grey, subfissile to fissile, silty, slightly calcareous, trace micromicaceous.
	30	SILTSTONE - as above.
	20	LIMESTONE - cream to buff, microcrystalline to very fine crystalline, medium hard, slightly argillaceous to argillaceous, dense.
	trace	SANDSTONE - clear, vitreous, very fine grained, subangular, hard, silica cement, common black gilsonite (?), poor porosity, no visual shows.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1315 - 1325	70	SHALE - dark grey to slightly greenish grey, subfissile to fissile, medium hard, slightly calcareous, part silty, trace micromicaceous, trace pyrite, trace calcite veining.
	20	SILTSTONE - medium dark brown grey, very argillaceous, calcareous, micromicaceous, tight.
	10	LIMESTONE - cream to light grey brown, microcrystalline to very fine crystalline, medium hard, argillaceous, trace pyrite, dense.
1325 - 1340	80	SHALE - medium greenish grey color, fissile, medium hard, slightly waxy lustre, calcareous, rare bituminous partings, trace silty streaks.
	20	LIMESTONE - cream to buff, microcrystalline to very fine crystalline, slightly argillaceous, trace ghost peloids, dense.
1340 - 1350	40	SHALE - as above, part silty, trace pyrite crystal.
	40	SILTSTONE - medium greenish grey, very argillaceous, calcareous, medium hard to hard, slightly micromicaceous, tight.
	20	LIMESTONE - buff to light grey brown, microcrystalline very fine crystalline, medium hard, slightly argillaceous, trace pyritic, dense.
1350 - 1360	70	SHALE - medium to dark greenish grey, fissile to subfissile, calcareous, trace silty streaks.
	20	SILTSTONE - as above.
	10	LIMESTONE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1360 - 1365	40	SHALE - as above.
	30	SILTSTONE - as above.
	30	LIMESTONE - light brown grey, very fine crystalline, fine size peloids, medium hard to hard, slightly argillaceous, silty, part pyritic, dense.
1365 - 1375	50	SHALE - medium greenish grey color, fissile to slightly flaky, slightly waxy, medium hard, calcareous, trace calcite veining.
	30	SANDSTONE - light brown, quartzitic, very fine grained, subangular, moderate well sorted, slightly calcareous silica cement, medium hard to hard, very argillaceous, trace porosity to tight, no visual shows
	20	SILTSTONE - medium greenish grey, very argillaceous, slightly calcareous cement, very argillaceous, trace pyrite, tight.
1375 - 1385	20	SHALE - medium greenish grey, fissile, part silty, slightly calcareous, trace micromicaceous.
	30	SILTSTONE - medium light grey brown, argillaceous, arenaceous, slightly calcareous, tight.
	50	SANDSTONE - light grey brown, quartz with trace calcareous grained, very fine grained, subangular, well indurated, slightly calcareous silica cement, hard, trace argillaceous, silty, trace poor intergranular porosity, no visual shows.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1385 - 1395	70	SHALE - medium to medium dark greenish grey, fissile, medium hard, slightly waxy, very slightly to slightly calcareous trace micromicaceous, rare pyrite, trace calcite veining.
	20	SILTSTONE - medium brownish grey, medium hard to hard, slightly calcareous, silica cement, tight.
	10	SANDSTONE - light brown, very fine grained, subangular with angular, moderate to well sorted, hard, slightly calcareous silica cement, very silty, micromicaceous, tight to trace poor porosity, no visual shows.
1395 - 1405	40	SHALE - as above.
	30	SILTSTONE - as above.
	30	SANDSTONE - light to medium greenish grey, quartzitic, very fine grained, hard, silica cement, silty, micromicaceous, tight to trace porosity.
1405 - 1415	40	SHALE - medium greenish grey, fissile, medium hard, slightly waxy, part silty, slightly micromicaceous, rare black bituminous partings.
	30	SILTSTONE - medium greenish grey, medium hard, very argillaceous, arenaceous, slightly calcareous, trace micromicaceous, tight.
	30	SANDSTONE - light greenish grey, quartzose, very fine grained, subangular to angular, well sorted, hard, silica cement, slightly calcareous, micromicaceous, trace pyritic, rare floating clear vitreous rounded medium grained, rare carbonaceous flakes, tight to trace poor porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1415 - 1420	60	SHALE - medium to medium dark greenish grey, fissile, slightly waxy, slightly calcareous, part silty, slightly micromicaceous, rare pyrite, trace soft waxy streaks.
	20	SILTSTONE - as above.
	20	SANDSTONE - as above.
1420 - 1425	80	SHALE - as above.
	20	SILTSTONE - as above.
1425 - 1430	90	SHALE - as above, becoming silty.
	10	SILTSTONE - medium greenish grey, very argillaceous, arenaceous, tight.
1430 - 1435	70	SHALE - medium dark greenish grey to grey, fissile to subfissile, very slightly calcareous, silty to very silty, trace micromicaceous.
	20	SANDSTONE - light to medium light green yellowish green to grey, very fine grained, subangular with angular, well sorted, slightly calcareous silica cement, hard, very silty, trace argillaceous, tight.
	10	SILTSTONE - as above.
	trace	LIMESTONE - buff, microcrystalline, hard, silty, trace Crinoid ossicles, dense.
1435 - 1445	90	SHALE - medium dark greenish grey, fissile, medium hard, very slightly calcareous, trace silty streaks, slightly micromicaceous, trace loose medium grained clear quartz.
	10	SILTSTONE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1445 - 1455	50	SILTSTONE - medium greenish grey color, slightly calcareous, argillaceous, arenaceous, slightly micromicaceous, tight.
	30	SHALE - as above, becoming silty to very silty, part arenaceous.
	20	SANDSTONE - light greenish grey to grey, very fine grained, subangular with angular, well sorted, silica cement, slightly calcareous, very silty, micromicaceous, trace loose clear quartz, rare pyrite, rare bituminous fragment, tight to trace porosity.
1455 - 1465	70	SHALE - as above, part arenaceous, rare black bituminous partings.
	20	SILTSTONE - as above.
	10	SANDSTONE - as above.
1465 - 1475	40	SILTSTONE - medium greenish grey, slightly calcareous, arenaceous, micromicaceous, tight.
	30	SHALE - medium dark greenish grey, fissile to subfissile, part very silty, slightly calcareous, slightly bituminous.
	30	SANDSTONE - light grey to greenish grey, very fine grained, hard to medium hard, silica cement, slightly calcareous, silty, micromicaceous, tight.
1475 - 1485	40	SHALE - as above, trace slightly bituminous partings, trace pyrite blebs.
	40	SILTSTONE - medium grey, slightly calcareous, arenaceous, part slightly bituminous, tight.
	10	SANDSTONE - as above, trace loose medium size quartz floating.
	10	LIMESTONE - buff, microcrystalline, medium hard to slightly chalky texture, argillaceous, silty, trace pyrobitumen partings, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1485 - 1490	60	SILTSTONE - medium to dark grey, medium hard, arenaceous, very calcareous cement, argillaceous, trace micromicaceous, trace pyritic, common bituminous stain with partings, tight.
	20	LIMESTONE - light brown, microcrystalline, hard, slightly argillaceous, silty, rare bituminous, dense, trace very fine pyrite crystals.
	10	SHALE - as above.
	10	SANDSTONE - as above, loose clear white medium size quartz floating.
1490 - 1495	50	LIMESTONE - light to medium grey brown, microcrystalline, hard, silty, argillaceous, trace very fine disseminated pyrite, trace bituminous flecks, trace peloids and indistinct fossil fragments, dense.
	30	SHALE - as above.
	20	SILTSTONE - as above, very calcareous, minor bituminous stain.
1495 - 1505	40	SILTSTONE - medium dark grey, calcareous, slight bituminous stain, micromicaceous, trace pyrite, tight.
	20	SHALE - as above.
	20	SANDSTONE - medium grey brown, very fine grained, very silty, calcareous, argillaceous, micromicaceous, trace bituminous stain, tight.
	20	LIMESTONE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1580 - 1585	100	SHALE - medium to medium dark olive grey color, fissile, slightly waxy, medium hard, very slightly calcareous, slightly micromicaceous, rare to trace calcite veining, trace arenaceous and silty streaks.
1585 - 1595	100	SHALE - medium dark olive grey, fissile to subfissile, slightly soapy, very slightly calcareous, trace calcite veining.
1595 - 1605	100	SHALE - as above, trace calcite veining material, parted with silty and arenaceous streaks.
1605 - 1620	100	SHALE - medium dark olive grey, fissile to subfissile, medium hard, very slightly calcareous, slightly micromicaceous to micromicaceous, trace arenaceous and silty laminae, trace calcite veining, rare black bituminous partings.
1620 - 1630	100	SHALE - as above, some slightly dark with rare pyrobitumen fragments.
1630 - 1640	90	SHALE - medium dark to dark olive grey, trace very fine pyrite crystals.
	10	SANDSTONE - medium dark grey, very fine grained, subangular, moderate well sorted, slightly calcareous, hard, argillaceous, silty, slightly bituminous, tight.
1640 - 1650	100	SHALE - dark olive grey color, fissile to subfissile, presence to trace very fine pyrite crystals, occasional bituminous partings.
	trace	CHERT - buff color, massive, very hard, slightly calcareous, trace sponge spicules.
1650 - 1665	100	SHALE - dark olive grey, trace calcite veining, trace black brittle pyrobitumen fragments.
1665 - 1675	100	SHALE - dark olive grey, fissile, splintery, medium hard, very slightly calcareous, slightly micromicaceous, trace slightly bituminous partings.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1675 - 1685	100	SHALE - dark grey, fissile, non calcareous, slightly silty, rare clear colorless quartz shards, rare calcite veining, rare pyrite.
1685 - 1710	100	SHALE - dark grey, fissile, non calcareous, slightly silty.
	rare	CHERT - dark brown, translucent, massive, very hard.
1710 - 1730	100	SHALE - dark grey, fissile, non calcareous, part silty.
	trace	SILTSTONE - medium dark brown grey, very argillaceous, very slightly calcareous, slightly micromicaceous, rare black bituminous part.
	rare	SANDSTONE - medium grey brown, quartzose, very fine grained, hard, silica cement, trace pyrite, trace micromicaceous, tight.
1730 - 1740	100	SHALE - as above, becoming slightly greenish grey tint in part.
1740 - 1755	100	SHALE - dark grey to slightly olive grey, fissile, medium hard, slightly silty, rare calcite veining, slightly micromicaceous, rare clay iron stain nodules, rare trace sand and silt stringers.
1755 - 1770	100	SHALE - dark grey, slightly splintery, non calcareous, rare to trace very fine disseminated pyrite, rare calcite veining, rare bituminous partings.
	trace	SANDSTONE - medium brown grey, very fine grained, subangular, calcareous silica cement, hard, very silty, tight.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1770 - 1780	90	SHALE - dark grey, fissile, slightly splintery, trace calcite veining, rare black bituminous partings, rare clear colorless quartz crystals.
	10	SILTSTONE - dark grey, medium hard, very argillaceous, arenaceous, slightly calcareous, trace pyrite, rare chert fragment, tight.
1780 - 1790	60	SHALE - as above.
	30	SANDSTONE - light to medium brown grey, very fine grained, subangular, moderate well sorted, silica cement, hard, very silty, argillaceous, trace pyritic, rare pyrobitumen fragment, trace bituminous stain, tight to trace porosity, no visual shows.
	10	SILTSTONE - as above.
1790 - 1800	70	SHALE - dark grey, fissile, part slightly silty to silty, trace very fine pyrite.
	20	SILTSTONE - dark to medium dark grey, medium hard to hard, silica cement, very argillaceous, part arenaceous, very slightly calcareous, trace very fine pyrite.
	10	SANDSTONE - as above, trace clear quartz fragments.
1800 - 1815	90	SHALE - dark grey to brownish grey, fissile, medium hard, non calcareous, slightly micromicaceous, trace thin arenaceous and silty laminae.
	10	SANDSTONE - light brown, very fine grained, hard to very hard, silica cement, silty, trace pyrite, tight.
1815 - 1820	85	SHALE - as above.
	10	SILTSTONE - dark to medium dark grey, very argillaceous, arenaceous, tight.
	05	SANDSTONE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1820 - 1825	80	SHALE - as above.
	20	SANDSTONE - medium grey, fine to coarse size varicolored clear and frost quartz with tripolitic chert, rounded, moderate sorted, medium hard, calcareous silica cement, very fine quartz matrix, trace pyrite in part, poor to fair intergranular porosity, no fluorescence, no cut fluorescence.
1825 - 1835	100	SHALE - dark brownish grey color, fissile, medium hard, slightly waxy, micromicaceous.
1835 - 1840	80	SHALE - as above, becoming silty.
	20	SILTSTONE - dark brownish grey, arenaceous, argillaceous, micromicaceous, very slightly calcareous, silica cement, tight.
1840 - 1850	85	SHALE - as above.
	10	SILTSTONE - as above.
	05	SANDSTONE - scattered loose fine to very coarse size subrounded light color clear and frost quartz and chert, trace calcareous, very fine grained quartz matrix material, part pyritic, poor porosity.
1850 - 1860	80	SHALE - dark grey to brownish grey, fissile, medium hard, part very slightly calcareous, trace silty to silty.
	10	SILTSTONE - dark to medium dark brown grey, medium hard, slightly calcareous, trace arenaceous, argillaceous, tight.
	10	SANDSTONE - medium brownish grey, very fine to fine grained with scattered medium grained, subangular with subrounded, moderate well sorted, medium hard, slightly calcareous silica cement, argillaceous, micromicaceous, tight to trace poor porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1895 - 1900	60	SHALE - medium brownish grey, fissile, slightly waxy, slightly calcareous, common black bituminous stain, trace very fine pyrite, trace black very bituminous partings.
	40	SILTSTONE - medium brownish grey, calcareous, very argillaceous, common to abundant very dark brownish grey bituminous stain.
1900 - 1905	80	SHALE - black to very dark brownish grey, fissile, medium soft to medium hard, very bituminous, silty to very silty, micromicaceous, trace fine pyrite crystals.
	20	SILTSTONE - dark grey to black, very argillaceous, bituminous.
1905 - 1910	90	SHALE - black to very dark brownish grey, very bituminous, silty, trace to rare pyrite, micromicaceous.
	10	SILTSTONE - as above.
1910 - 1920	100	SHALE - black, fissile, medium hard to medium soft, very bituminous, slightly silty to silty, slightly micromicaceous, rare pyrite, trace medium brown grey, waxy partings.
1920 - 1925	100	SHALE - black to very dark brownish grey, subfissile to slightly blocky, very bituminous, hard to medium hard, silty, trace calcite veining, rare to trace pyrite.
1925 - 1935	80	SHALE - as above.
	20	SILTSTONE - dark to very dark brown, hard, calcareous to very calcareous, argillaceous.
1935 - 1945	100	SHALE - black to very dark brownish grey, slightly satin sheen, hard, brittle, very bituminous, trace micromicaceous to micromicaceous, slightly silty, trace pyrite veining, trace microfracture with white quartz and calcareous infill, trace soft medium brown marlstone partings.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1995 - 2005	100	SHALE - black to very dark brownish grey, slightly earthy, bituminous, micromicaceous, trace pyrite.
	trace	SILTSTONE - medium dark to very dark grey, medium hard to hard, very bituminous, micromicaceous, calcareous, argillaceous, micromicaceous, tight.
2005 - 2010	80	SHALE - black, subfissile to slightly blocky, bituminous, trace pyrite vein, trace calcite veining, presence medium to light grey claystone partings.
	10	SILTSTONE - as above.
	10	LIMESTONE - medium dark brown, microcrystalline to very fine crystalline, hard, extremely silty and argillaceous, part pyritic, dense.
2010 - 2020	60	SHALE - as above.
	30	SILTSTONE - medium grey, salt and pepper, hard, abundant calcareous cement, argillaceous, micromicaceous, trace pyritic, slight bituminous stain and partings, tight.
	10	LIMESTONE - medium grey slightly speckled, very fine crystalline, very silty, very argillaceous, hard, slight bitumen stain, dense.
2020 - 2030	50	SHALE - black to very dark grey, subfissile to slightly blocky, calcareous, silty, minor white crystal calcite veining.
	50	SILTSTONE - dark to very dark brownish grey, quartzitic, hard, very calcareous, very argillaceous, trace bituminous stain and partings, tight.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2030 - 2035	70	SHALE - black, very bituminous, slightly silty, slightly calcareous, minor medium grey claystone partings.
	25	SILTSTONE - as above.
	05	MARLSTONE - medium grey, micritic, chalky texture, very silty, slight bituminous staining, trace calcisphaera.
2035 - 2040	40	SHALE - very dark brownish grey, subfissile, medium hard to hard, bituminous, very calcareous, silty.
	30	SILTSTONE - dark grey to brownish grey, very calcareous, argillaceous, bituminous.
	30	MARLSTONE - medium grey to brownish grey, very calcareous, slightly chalky, very silty.
2040 - 2045	70	SHALE - black, subfissile to slightly blocky, hard to very hard, bituminous, calcareous, slightly silty, slightly micromicaceous, presence calcareous microfracture infill, trace pyrite.
	20	MARLSTONE - as above.
	10	SILTSTONE - as above.
2045 - 2050	40	SHALE - as above, numerous medium to light grey waxy claystone partings.
	35	SILTSTONE - dark to very dark grey, minor medium grey, medium hard to hard, argillaceous, very calcareous, micromicaceous, slight bituminous staining, tight.
	25	MARLSTONE - medium brownish grey, medium hard, calcareous, very silty, chalky texture, trace micromicaceous, slight medium brown to black bituminous stain, trace calcisphaera dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2050 - 2055	70	SHALE - very dark brownish grey to black, subfissile, medium hard, slightly earthy, very bituminous, calcareous, part silty, trace micromicaceous, trace medium to light grey claystone partings.
	20	SILTSTONE - dark to very dark grey, bituminous, very calcareous, very argillaceous.
	10	MARLSTONE - as above.
2055 - 2060	60	SHALE - as above.
	30	MARLSTONE - varigated light to very dark grey, medium hard, part chalky texture, very silty, trace calcisphaera, common black bituminous staining, dense.
	10	SILTSTONE - as above.
2060 - 2065	75	MARLSTONE - varigated light to very dark brownish grey color, medium hard, trace chalky, indistinct fossil fragment with calcisphaera, very calcareous, trace dead oil, and bituminous stain / partings.
	25	SHALE - very dark brownish grey to black, very bituminous, calcareous, presence shiny black brittle conchoidal fractured Gilsonite.
2065 - 2073	60	LIMESTONE - mottled, light to medium grey brown, very fine to fine crystalline, medium size peloids, hard, part slightly chalky, trace pyrite, trace calcite veining, indistinct fossil fragments - brachiopod, stromatoporoid, coral, dead oil with pyrobitumen stain, dense to trace intercrystalline and intrafossil porosity, no fluorescence or cut fluorescence.
	20	SHALE - as above.
	20	MARLSTONE - as above.
2073		<u>INTERMEDIATE CASING DEPTH</u>
		CASING STRING LANDED AT 2067.7 m K.B

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2073 - 2080	50	CEMENT
	40	SHALE - as above, cavings.
	10	LIMESTONE - medium to light greyish brown, very fine to fine crystalline, medium hard, Peloidal, slightly chalky texture, common bituminous stain, trace to poor porosity.
2080 - 2090	40	CEMENT
	30	SHALE - black, fissile, very bituminous, calcareous, cavings.
	30	LIMESTONE - medium grey brown color, very fine to fine crystalline, Peloidal, hard to medium hard, silty, common white calcareous fossil remains, slightly chalky texture in part, trace calcareous vein, common pyrobitumen staining and partings, trace to occasional poor porosity.
2090 - 2093	100	LIMESTONE - mottled light to medium grey brown color, part slightly pink tinge, biosparite, fine to medium crystal, medium hard to hard, slightly dolomitic, abundant clear milky white recrystallized fossil replacement, calcareous, trace medium brown Chert nodules, fair to good intercrystalline (some very fine crystalline sucrosic stringers) to organic porosity, no fluorescence, faint slow milky massive cut.
2093 - 2095	100	LIMESTONE - medium to dark grey brown, bioclastic, hard, slightly chalky, trace argillaceous, trace pyrobitumen stain, trace porosity.
2095 - 2100	100	LIMESTONE - dark greyish brown, cryptocrystalline to microcrystalline to very fine crystalline, biomicrite, blocky, hard, argillaceous, trace silty, slightly dolomitic, fossil fragment Crinoid, Peloids, Coral, some calcareous vein material, presence black bituminous staining, trace to poor intercrystalline to organic porosity, No visual shows.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2100 - 2105	100	LIMESTONE - dark to medium grey brown, microcrystalline to very fine crystalline, blocky, hard, trace argillaceous and silty, slightly chalky, rare pyrite, trace pyrobitumen stain and partings, trace calcareous vein, trace to some poor porosity.
	trace	LIMESTONE - light brown, very fine crystalline, sucrosic texture, medium hard, dolomitic, poor to rare fair intercrystalline porosity.
2105 - 2110	100	LIMESTONE - as above, becoming more bioclastic, pelloidal, trace to presence black dead oil stain.
2110 - 2115	100	LIMESTONE - mottled medium to dark grey brown color, biomicrite, microcrystalline to fine crystalline cement matrix with fine to very coarse size bioclastic inclusions, Peloids, Crinoids, Stromatoporoids, Coral, part slightly chalky, slightly dolomitic, slightly argillaceous, trace clear white euhedral calcite vein to replacement, presence dark pyrobitumen stain, trace intercrystalline to organic porosity.
2115 - 2125	100	LIMESTONE - mottled medium to dark greyish brown, fine to very coarse bioclastic with very fine to fine crystalline cement matrix, slightly chalky, trace argillaceous, trace euhedral calcite crystals, trace to presence dark pyrobitumen, trace to rare poor organic to intercrystalline porosity.
2125 - 2130	100	LIMESTONE - biomicrite, mottled medium to dark grey brown color, fine to very coarse size bioclastic with microcrystalline to very fine crystalline slightly chalky micritic matrix, trace argillaceous, slightly dolomitic, trace pyrobituminous staining, trace calcite veining, dense to trace porosity.
2130 - 2145	100	LIMESTONE - as above, slightly coarser very fine to fine grained matrix, trace pyrobitumen, trace intercrystalline and organic porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2145 - 2155	100	LIMESTONE - mottled cream to dark grey brown, bioclastic, hard to medium hard, very fine crystalline, slightly chalky micrite, abundant fine to medium Peloids with fine to coarse size fossil fragment, trace euhedral calcite vein, rare pyrite crystal, trace black pyrobitumen, trace to rare poor intercrystalline to earthy to organic porosity.
2155 - 2160	100	LIMESTONE - mottled cream to light and medium grey brown color, biomicritic, fine to coarse fossil fragment with microcrystalline to very fine crystalline cement, medium hard, trace chert nodules, fossil assembly most Peloids with Crinoid to Stromatoporoids to Amphipora Coral to Brachiopod, trace to presence recrystallized calcite, rare dead oil stain, trace to occasional poor intercrystalline to organic porosity, no visual shows.
2160 - 2165	100	LIMESTONE - as above, more darker color microcrystalline very coarse size bioclastic, rare pyrite crystal.
2165 - 2170	100	LIMESTONE - mottled cream to light to medium to dark grey brown color, biomicrite to pelmicrite, very fine to fine crystalline cement matrix, fine to coarse size fossil fragment, trace clear white calcite, trace black dead oil stain and partings, trace to some poor intercrystalline to organic porosity.
2170 - 2175	100	LIMESTONE - as above, presence clear milky white recrystallized calcite.
2175 - 2185	80	LIMESTONE - as above.
	20	SHALE - medium greenish grey color, fissile, medium hard, slightly waxy, part black, fissile, very bituminous.
2185 - 2190	100	LIMESTONE - light to medium grey brown, very fine to fine crystalline with minor fossil fragment, medium hard, trace argillaceous, trace silty, trace pyrite, trace calcite vein, dark bituminous partings and stain, trace to occasional poor porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2100 - 2105	100	LIMESTONE - dark to medium grey brown, microcrystalline to very fine crystalline, blocky, hard, trace argillaceous and silty, slightly chalky, rare pyrite, trace pyrobitumen stain and partings, trace calcareous vein, trace to some poor porosity.
	trace	LIMESTONE - light brown, very fine crystalline, sucrosic texture, medium hard, dolomitic, poor to rare fair intercrystalline porosity.
2105 - 2110	100	LIMESTONE - as above, becoming more bioclastic, pelloidal, trace to presence black dead oil stain.
2110 - 2115	100	LIMESTONE - mottled medium to dark grey brown color, biomicrite, microcrystalline to fine crystalline cement matrix with fine to very coarse size bioclastic inclusions, Peloids, Crinoids, Stromatoporoids, Coral, part slightly chalky, slightly dolomitic, slightly argillaceous, trace clear white euhedral calcite vein to replacement, presence dark pyrobitumen stain, trace intercrystalline to organic porosity.
2115 - 2125	100	LIMESTONE - mottled medium to dark greyish brown, fine to very coarse bioclastic with very fine to fine crystalline cement matrix, slightly chalky, trace argillaceous, trace euhedral calcite crystals, trace to presence dark pyrobitumen, trace to rare poor organic to intercrystalline porosity.
2125 - 2130	100	LIMESTONE - biomicrite, mottled medium to dark grey brown color, fine to very coarse size bioclastic with microcrystalline to very fine crystalline slightly chalky micritic matrix, trace argillaceous, slightly dolomitic, trace pyrobituminous staining, trace calcite veining, dense to trace porosity.
2130 - 2145	100	LIMESTONE - as above, slightly coarser very fine to fine grained matrix, trace pyrobitumen, trace intercrystalline and organic porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2190 - 2195	100	LIMESTONE - cream to medium brown, microcrystalline to very fine crystalline, common fine to medium Peloids with Amphipora Coral, coarse fossil, trace calcite vein, trace dark bituminous material, trace to rare poor porosity.
2195 - 2200	100	LIMESTONE - light brown to tan, cryptocrystalline, blocky, hard, trace stylolite, dense.
2200 - 2205	100	LIMESTONE - medium to medium dark grey brown, microcrystalline to very fine crystalline, common fine to medium Peloids, Coral, trace silty, trace argillaceous to argillaceous, presence pyrobitumen staining, dense to trace intercrystalline porosity.
2205 - 2210	100	LIMESTONE - light brown to tan, cryptocrystalline, blocky, hard, trace argillaceous, trace to presence fossil fragment to bioclastic interbedded, dense to trace organic porosity.
2210 - 2212	100	LIMESTONE - medium dark brown, cryptocrystalline to microcrystalline, common Peloids to Amphipora, dense to trace poor intercrystalline to organic porosity.
2212 - 2215	70	DOLOMITE - milky white fine to medium size dolomite sucrosic rhomb mozaic, medium hard, slightly calcareous, trace black pyrobitumen, poor intercrystalline to possible fair drusy pinpoint porosity.
	30	LIMESTONE - as above.
2215 - 2218	100	DOLOMITE - milky white, fine to medium with occasional coarse size rhomb, rare clear vitreous quartz crystal, trace dog tooth spar, streaks poor to possibly fair intercrystalline to vuggy porosity.
2218 - 2220	100	DOLOMITE - white to light brown color, fine to medium sucrosic crystal, medium hard to hard, slightly calcareous, trace argillaceous in part, trace to poor intercrystalline porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2220 - 2225	100	DOLOMITE - white to off white to cream color, fine to medium size euhedral dolomite rhomb, medium hard to hard, slightly calcareous, rare to trace black dead oil stain, poor intercrystalline to pinpoint porosity, no fluorescence, no cut.
2225 - 2230	100	DOLOMITE - white to light grey to light brown, medium to fine crystalline, rare fine pyrite crystal, some fine to very fine crystalline dark brown grey color argillaceous bituminous streaks, trace coarse size white dog tooth spar, trace to rare black pyrobitumen, poor to trace possibly to fair intercrystalline to pinpoint to vuggy porosity.
2230 - 2240	60	DOLOMITE - as above, milky white coarse euhedral crystal, presence to trace pyrobitumen coat and stain poor to occasionally fair pinpoint to vuggy porosity.
	40	DOLOMITE - medium grey brown color, argillaceous bituminous stain material, most fine crystalline to very fine crystalline, part calcareous, trace Pellet with Pellet ghost structure, streaky trace to poor intercrystalline porosity.
2240 - 2245	100	DOLOMITE - white to very light grey to buff color, with light to medium brown argillaceous bituminous stain streaks, predominantly medium size euhedral crystal, medium hard, slightly calcareous, rare clear color less quartz prism, streaky poor to trace intercrystalline to pinpoint porosity.
2245 - 2255	100	DOLOMITE - as above, less medium to coarse size euhedral type crystal, trace bituminous staining, poor to trace porosity.
2255 - 2265	100	DOLOMITE - white to light and trace medium to dark argillaceous bituminous stain streaks, medium to fine crystalline, trace coarse spar, rare to trace chalky white calcareous material, trace dark interstitial crystal dead oil stain, trace to some poor porosity.
	trace	SHALE - medium grey, subfissile, waxy.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2265 - 2275	60	LIMESTONE - medium brown to tan color, cryptocrystalline, blocky, hard, slightly dolomitic, slightly argillaceous, dense.
	40	DOLOMITE - light brown grey to white predominantly medium crystal, slightly sucrosic texture in part, rare to trace dead oil stain along crystal margins, trace to poor with possible fair intercrystalline to pinpoint to vuggy porosity.
	trace	SHALE - medium grey color, subfissile, medium, hard, slightly waxy.
2275 - 2280	50	DOLOMITE - white to light brown, fine to medium with some coarse crystal, slightly calcareous, trace to presence drusy crystal, trace bitumen along crystal margins, trace intercrystalline porosity.
	40	LIMESTONE - tan to light brown color, cryptocrystalline, blocky, hard, some chalky fossil streaks, dense.
	10	SHALE - light grey green color, subfissile, medium hard to medium soft, waxy lustre, pyritic.
2280 - 2285	60	LIMESTONE - cream to medium brown grey color, cryptocrystalline to microcrystalline with some chalky fossil streaks to interbedded, medium hard to hard, slightly argillaceous, slightly dolomitic, dense, trace microfractures.
	30	DOLOMITE - as above.
	10	SHALE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2285 - 2295	60	LIMESTONE - light to medium grey brown and grey, microcrystalline to cryptocrystalline, hard, part chalky, trace Peloids, trace argillaceous to argillaceous, trace pyrite crystal, slightly silty, dense.
	20	SHALE - light grey green to green grey, soft, waxy, numerous pyrite crystal.
	20	DOLOMITE - as above, white, fine to coarse sized crystals, trace to poor porosity.
2295 - 2300	50	LIMESTONE - as above, trace greenish Shale claystone.
	50	DOLOMITE - white to cream to buff, predominantly medium euhedral crystal, medium hard, slightly calcareous, trace to rare pyrobitumen, trace very fine to fine sucrosic argillaceous bituminous stain crystalline streaks, trace intercrystalline porosity to dense.
2300 - 2305	50	LIMESTONE - light brown to tan, cryptocrystalline, dolomitic, slightly argillaceous, pyritic, rare fossil fragment, dense.
	40	DOLOMITE - as above.
	10	SHALE - pale greenish grey color, soft waxy, pyritic.
2305 - 2310	70	LIMESTONE - as above, cream to buff to tan color.
	20	DOLOMITE - white to buff, fine to medium crystal, medium hard, part calcareous, trace intercrystalline porosity.
	10	SHALE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2310 - 2315	55	LIMESTONE - light to medium brown, cryptocrystalline, blocky, hard, trace Peloids, indistinct fossils, part chalky, argillaceous streaks, part pyritic, dense.
	45	DOLOMITE - white to light brown, fine to medium with some coarse euhedral crystal, medium hard, slightly calcareous, trace drusy calcite vuggy lining crystal, trace black pyrobitumen vein and crystal margin, dense, trace intercrystalline porosity, poor pinpoint to vuggy porosity.
2315 - 2320	70	DOLOMITE - white to light grey and brown, medium to coarse euhedral crystal, trace to presence dark grey to black color pyrobitumen with argillaceous along crystal margin and vein, rare clear quartz and recrystallized calcite, rare pyrite to sphalerite, trace to poor porosity, some green pyritic Shale clasts.
	30	LIMESTONE - as above.
2320 - 2330	80	DOLOMITE - white with dark grey to black vein, medium coarse crystal, slightly calcareous, dark colored argillaceous bituminous veins and partings.
	20	LIMESTONE - as above, light grey brown, cryptocrystalline.
2330 - 2340	70	DOLOMITE - as above, trace to presence argillaceous bituminous stain streaks, trace recrystallized calcareous, coarse dolomite rhomb, poor to trace porosity.
	30	LIMESTONE - light to medium grey brown color, cryptocrystalline with trace Peloids, hard, dolomitic, slightly argillaceous, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2340 - 2350	90	DOLOMITE - white to some buff to light brownish grey color calcareous argillaceous streaks, medium to coarse crystal, hard, slightly calcareous, rare pyrite with sphalerite mineralization, trace dead oil stain and partings, trace calcite vein to quartz prism to dog tooth spar dolomite, trace to poor possibly fair intercrystalline to pinpoint to vuggy porosity.
	10	LIMESTONE as above.
2350 - 2355	100	DOLOMITE - white, fine to coarse crystalline, light to medium argillaceous bituminous stain vuggy crystal lining, trace quartz crystal, trace recrystallized calcite, poor intercrystalline to pinpoint to vuggy porosity, no visual shows.
2355 - 2360	90	DOLOMITE - as above.
	10	LIMESTONE - medium to dark brown, cryptocrystalline with fossil fragment to Peloids in part, hard, argillaceous, dolomitic, dense.
2360 - 2365	100	DOLOMITE - as above, part dark brown grey color, medium size crystal, hard, abundant argillaceous bituminous staining, trace drusy crystal, poor intercrystalline and pinpoint porosity.
2365 - 2370	100	DOLOMITE - buff color, fine grained, sucrosic texture, hard, calcareous, trace silty, trace silty, trace pinpoint to vuggy drusy crystal lining, rare bituminous stain, poor porosity.
2370 - 2375	90	DOLOMITE - as above, more coarse white drusy crystals, trace bituminous stain.
	05	SHALE - medium grey and black, part very bituminous.
	05	LIMESTONE - dark brown, microcrystalline, hard, argillaceous, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2375 - 2380	100	DOLOMITE - light to medium grey and brown, predominantly fine grained, sucrosic texture, hard, calcareous, veins and partings with dead oil stain, trace white dolomite spar, rare quartz, rare pyrite, streaks poor intercrystalline porosity.
2380 - 2385	100	DOLOMITE - as above abundant milky white medium to coarse size dolomite spars, poor pinpoint to vuggy porosity.
2385 - 2390	100	DOLOMITE - light to medium grey and brown, fine to very fine grained, slightly sucrosic, hard, calcareous, common white medium to coarse crystalline dolomite spar, poor porosity.
2390 - 2395	100	DOLOMITE - as above, abundant medium size milky white dolomite crystals, trace clear quartz crystals and recrystallized calcite, chalky white calcareous streaks, rare pyrobitumen, poor to possibly fair vuggy and pinpoint porosity.
2395 - 2400	90	DOLOMITE - white to medium grey color argillaceous bituminous veining, fine to medium grained, medium hard, trace clear vitreous quartz crystal, trace recrystallized calcite, trace to poor porosity.
	10	LIMESTONE - dark brown, cryptocrystalline to micro-crystalline, blocky, hard, slightly argillaceous, dolomitic, dense.
2400 - 2405	75	DOLOMITE - white to light grey color, medium to coarse crystal, hard, slightly calcareous, presence medium to dark grey bituminous discolored drusy crystal, poor vuggy to pinpoint porosity.
	25	LIMESTONE - medium to dark brownish grey, microcrystalline, hard, slightly argillaceous to argillaceous, slightly dolomitic, rare pyrite, dense.
	trace	SHALE - medium greenish grey, subfissile, slightly waxy.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2405 - 2410	90	DOLOMITE - light to medium brownish grey color, fine grainstone, hard, slightly argillaceous, calcareous, trace fossil ghost and Peloids, minor medium to dark grey color argillaceous bituminous streaks, poor intercrystalline porosity.
	10	LIMESTONE - as above.
2410 - 2415	100	DOLOMITE - as above, common milky white medium to coarse size dolomite spar.
2415 - 2420	100	DOLOMITE - buff to medium light brownish grey color, predominantly fine grainstone, hard to medium hard, calcareous, very slightly argillaceous, common pyrobitumen staining and partings, rare pyrite, minor white dolomite spar, poor porosity.
2420 - 2425	100	DOLOMITE - buff to light brown grey, fine to very fine crystalline, hard, calcareous to very calcareous, presence pyrobitumen stain, trace coarse to medium size euhedral dolomite, poor porosity.
2425 - 2430	100	DOLOMITE - as above, part buff color, microcrystalline, hard to very hard, calcareous, dense, part dark grey, very fine crystalline, very calcareous streaks with common to abundant dead oil stain, trace clear quartz to calcareous crystal, trace to poor pinpoint porosity, part buff color, microcrystalline, hard to very hard, calcareous, dense.
2430 - 2445	100	DOLOMITE - buff to cream, fine crystalline, hard, calcareous, part slightly argillaceous, microcrystalline to very fine crystalline very calcareous interbedded, trace dark color bituminous stain, presence white drusy dolomite with clear quartz crystal, poor intercrystalline to pinpoint to vuggy porosity.
	rare	LIMESTONE - light grey, microcrystalline, blocky, hard to very hard, dolomitic, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2445 - 2455	100	DOLOMITE - cream to buff to light grey, microcrystalline to very fine crystalline, blocky, hard to very hard, calcareous to very calcareous, trace to rare drusy crystal, trace pyrobitumen stain, dense to trace intercrystalline porosity.
2455 - 2460	100	DOLOMITE - cream to buff, microcrystalline, hard to very hard, blocky, calcareous, trace light brown cryptocrystalline pyritic laminae, dense to trace fracture porosity.
2460 - 2475	100	DOLOMITE - cream to buff to light grey, very fine crystalline with microcrystalline to cryptocrystalline to fine crystalline, blocky, hard, calcareous to very calcareous, trace drusy white medium to coarse crystal, trace to rare poor intercrystalline to pinpoint porosity.
2475 - 2480	90	DOLOMITE - as above, cream to buff very fine crystalline to microcrystalline, calcareous, some medium to coarse crystal vein with calcareous to quartz, trace to streaky poor porosity.
	10	LIMESTONE - medium brown, microcrystalline, hard to very hard, dolomitic, argillaceous, dense.
2480 - 2485	100	DOLOMITE - light grey brown, fine to very fine crystalline, sucrosic texture, presence dark dead oil stain and partings with pyrite crystal, streaks poor to fair intercrystalline to pinpoint porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2485 - 2490	40	DOLOMITE - light grey to buff color, microcrystalline, blocky, hard, very calcareous, trace very fine disseminated pyrite, trace clear silt size angular quartz, dense.
	40	DOLOMITE - buff to cream color, very fine crystalline, slightly sucrosic, hard, calcareous, trace streaks fine to medium crystalline with trace bituminous stain and clear quartz veining, trace anhydrite, rare pyrite crystals and blebs, trace porosity.
	20	LIMESTONE - cream to pale grey color, cryptocrystalline to microcrystalline, hard, very dolomitic, slightly silty, dense.
2490 - 2495	50	DOLOMITE - cream to buff, microcrystalline, hard to very hard, calcareous to very calcareous, trace quartz vein, trace indistinct fossil, dense.
	30	DOLOMITE - cream to light to medium grey, very fine crystalline, medium hard, calcareous, trace silty, trace dolomite spar, presence argillaceous bituminous stain, trace intercrystalline to occasional poor porosity.
	10	LIMESTONE - light grey, cryptocrystalline, hard to very hard, blocky, trace anhydritic, very dolomitic, trace very fine disseminated pyrite, trace to presence clear vitreous silt size quartz, dense to trace fracture porosity.
	10	LIMESTONE - dark brown, cryptocrystalline, argillaceous, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2495 - 2500	50	DOLOMITE - pale grey to buff, microcrystalline, hard to very hard, very calcareous, dense.
	40	DOLOMITE - buff to light brown, very fine to fine crystalline, hard, calcareous, trace medium to coarse size drusy crystal veining, rare pyrite, rare pyrobitumen, trace intercrystalline to pinpoint porosity.
	10	LIMESTONE - pale grey, cryptocrystalline, hard to very hard, very dolomitic, trace pyritic, trace clear quartz vein, dense.
2500 - 2510	40	DOLOMITE - cream to buff, microcrystalline to very fine crystalline, hard, calcareous to very calcareous, trace to rare pyrite vein and fine crystalline, presence bituminous stain, dense to trace intercrystalline porosity.
	30	LIMESTONE - pale grey to grey brown, cryptocrystalline, very hard, dolomitic, very fine pyrite crystal, trace calcareous to quartz vein, dense.
	20	DOLOMITE - buff to light grey brown, very fine crystalline, sucrosic texture, medium hard, calcareous, presence bituminous stain, poor to fair intercrystalline porosity, no visual shows.
	10	DOLOMITE - pale grey to buff, cryptocrystalline, blocky, hard to very hard, very calcareous, dense.
2510 - 2515	70	DOLOMITE - cream to buff to light grey, very fine crystalline, hard, calcareous, trace silty, presence drusy dolomite crystal vein to pinpoint, rare pyrite, trace poor porosity.
	30	DOLOMITE - light brown color, microcrystalline, blocky, hard to very hard, calcareous to very calcareous,, trace pyrite, dense, trace fracture porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2515 - 2525	30	DOLOMITE - light brown grey, cryptocrystalline to microcrystalline, blocky, very hard, calcareous, trace pyrite, trace calcite to quartz filled fracture, dense.
	30	DOLOMITE - cream to light grey, very fine crystalline, hard, calcareous, trace pyrite, dense to trace porosity.
	30	DOLOMITE - buff, very fine to fine grained, sucrosic texture, medium hard, silty, calcareous, trace black dead oil stain, poor intercrystalline porosity.
	10	LIMESTONE - pale grey, cryptocrystalline, hard to very hard, very dolomitic, trace pyrite, dense to trace fracture porosity.
2525 - 2535	70	DOLOMITE - cream to light grey, very fine crystalline, hard, calcareous, slightly argillaceous, trace pyrite, rare pyrobitumen, trace coarse drusy crystal vein, trace porosity.
	30	DOLOMITE - buff to light grey, cryptocrystalline, blocky, very calcareous slightly silty, trace calcite to silica crystal, dense to trace fracture porosity.
2535 - 2540	40	DOLOMITE - cream to light brownish grey, very fine crystalline, medium hard, calcareous, trace silty, trace recrystallized calcite and silica crystals and white drusy dolomite, trace dead oil stain and partings, trace to poor intercrystalline and pinpoint porosity.
	30	DOLOMITE - buff to light grey, microcrystalline, blocky, hard, very calcareous, dense to trace pinpoint porosity.
	30	LIMESTONE - buff to light brownish grey, cryptocrystalline to microcrystalline, hard to very hard, very dolomitic, slightly silty, slightly argillaceous, trace calcite vein, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2540 - 2545	50	DOLOMITE - buff, microcrystalline to cryptocrystalline, blocky, hard to very hard, calcareous, silty, dense.
	40	DOLOMITE - cream to buff to light brown grey, very fine crystalline, hard, very calcareous, trace pyrobitumen, trace pyrite crystal, rare coarse drusy dolomite, dense to trace porosity.
	10	LIMESTONE - as above.
2545 - 2550	70	DOLOMITE - buff, microcrystalline to cryptocrystalline, blocky, hard to very hard, calcareous, trace recrystallized calcite, trace chalky calcareous streaks, dense.
	30	DOLOMITE - cream to buff to light grey, very fine crystalline, trace bituminous staining, trace pyrite, trace porosity.
2550 - 2560	60	DOLOMITE - buff, microcrystalline to cryptocrystalline, hard to very hard, calcareous, dense.
	40	DOLOMITE - cream to light grey bituminous stain, very fine crystalline, hard, calcareous, trace milky white drusy Dolomite with recrystallized calcareous and quartz prism, trace to presence black dead oil stain, trace intercrystalline to pinpoint porosity.
2560 - 2570	40	DOLOMITE - buff, microcrystalline to cryptocrystalline, blocky, calcareous to very calcareous, very fine disseminated pyrite, trace calcareous vein, dense.
	30	DOLOMITE - cream to light brown grey, very fine crystalline, calcareous, rare to trace pyrobitumen stain, trace porosity.
	30	DOLOMITE - cream to buff, microcrystalline, hard, common fine to medium size indistinct Peloids to Amphipora, slightly chalky texture in part, very calcareous, dense.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2570 - 2575	70	DOLOMITE - medium brownish grey to buff, cryptocrystalline to microcrystalline, blocky, hard to very hard, calcareous, slightly silty, trace calcareous vein, trace microfractures, dense.
	30	DOLOMITE - cream to buff, very fine crystalline, hard, calcareous, trace coarse crystal vein with pyrobitumen stain, trace porosity.
2575 - 2580	100	DOLOMITE - light brown to buff and cream, becoming microcrystalline to very fine crystalline, calcareous, slightly silty, very fine disseminated pyrite, trace coarse crystal vein, rare pyrobitumen, trace porosity, rare greenish grey argillaceous streaks.
2580 - 2585	50	DOLOMITE - as above.
	50	DOLOMITE - light to medium grey to brown grey, microcrystalline to cryptocrystalline, hard to very hard, calcareous to very calcareous, faint Pellet, trace very fine pyrite, trace calcareous filled microfractures.
2585 - 2595	70	DOLOMITE - medium light brown grey, cryptocrystalline to microcrystalline, calcareous, trace chalky calcareous streaks, dense.
	30	DOLOMITE - cream to buff, microcrystalline to very fine crystalline, calcareous, trace pyrobitumen stain, trace to poor intercrystalline porosity.
2595 - 2600	50	DOLOMITE - cryptocrystalline to microcrystalline, dense.
	50	DOLOMITE - cream to buff, microcrystalline to very fine crystalline, hard, calcareous, slightly silty, common indistinct fine size Peloids, trace fossil, trace very fine pyrite, rare white dolomite spar, trace intercrystalline porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2600 - 2605	75	DOLOMITE - buff to light and medium brown grey, cryptocrystalline to microcrystalline, blocky, hard, calcareous, slightly silty, pyritic, dense to trace fracture porosity.
	25	DOLOMITE - cream to buff color, microcrystalline to very fine crystalline, trace porosity.
2605 - 2610	70	DOLOMITE - buff to cream, microcrystalline to very fine crystalline, common medium to fine size fossil fragment to Pellet, calcareous, slightly chalky in part, presence to common clear white recrystallized calcite to dolomite spar to quartz crystal, rare pyrobitumen, poor organic to pinpoint porosity.
	30	DOLOMITE - buff, microcrystalline to cryptocrystalline.
2610 - 2615	100	DOLOMITE - cream to buff to light brownish grey, fine to coarse size bioclasts, indistinct Peloids, microcrystalline matrix, slightly chalky, slightly silty, presence to common fine to medium size milky white dolomite with calcite crystal, trace argillite streaks, trace to poor organic and pinpoint porosity.
2615 - 2620	95	DOLOMITE - as above, medium to very fine size bioclasts, some very fine crystalline streaks, trace dolomite spar, recrystallized calcite, trace porosity.
	05	LIMESTONE - dark brown color, cryptocrystalline, hard, argillaceous, dense.
2620 - 2625	100	DOLOMITE - buff to light brown grey, microcrystalline to very fine crystalline, hard, calcareous, slightly silty, common indistinct fine to medium size Peloids, trace clear calcite crystal, dense to trace intercrystalline to pinpoint porosity.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
2625 - 2630	100	DOLOMITE - as above, part buff, cryptocrystalline to microcrystalline, blocky, hard, calcareous, dense.
2630 - 2640	100	DOLOMITE - cream to buff to light brown grey, microcrystalline to very fine crystalline, hard, calcareous, abundant indistinct Peloids and Amphipora, trace soft white chalky calcareous streaks, minor fine to medium white dolomite spar, recrystallized calcite and silica crystal, trace pinpoint porosity.
2640 - 2645	100	DOLOMITE - buff to medium light brown grey, cryptocrystalline to microcrystalline, blocky, hard to very hard, calcareous to very calcareous, slightly silty, common indistinct Peloids, trace fossil, rare to trace fine to medium crystal lined pinpoint to fracture, dense to trace fracture and pinpoint porosity.
2645 - 2650	100	DOLOMITE - as above, part more cryptocrystalline, presence to common fine to coarse size milky white dolomite spar, recrystallized calcite, trace clear quartz prism, trace to possibly streaks poor porosity.
2650 - 2660	100	DOLOMITE - buff to medium brownish grey color, microcrystalline to part cryptocrystalline, common very fine crystalline laminae to vein, hard, calcareous, slightly silty, indistinct Peloids and Amphipora, presence clear recrystallized calcite to milky dolomite to clear quartz, trace intercrystalline to pinpoint porosity.
2660		TOTAL DEPTH / 2622.2 m T.V.D.

REPORT DISTRIBUTION

The original and seven (7) copies of the Geological Report on CDN FOREST et al FLETT RAPIDS I-61-60-5-123-15 have now been completed. The original and six (6) copies have been forwarded to CANADIAN FOREST OIL LTD., and the remaining copy will be retained in DAX Consulting Ltd. files.

DAX Consulting Ltd.
CDN FOREST et al FLETT RAPIDS I-61

ADDENDUM A - DIRECTIONAL SURVEY RECORD

Surveyed by:
DAX Consulting Ltd.
4215 Dalhart Road N.W.
Calgary, Alberta
T3A 1B6
Phone: 403-288-9388

Company: CANADIAN FOREST OIL LTD.
WellName: CDN FOREST et al FLETT RAPIDS I-61-60-50-123-15
Location: I-61-60-50-123-15
LATITUDE: NORTH 60.6781 degrees LONGITUDE: 123.4427 degrees
SURFACE UTM COORDINATES: NORTHING = 6726803.33 EASTING = 475809.73
Vertical Section calculated on an Azimuth of: 348.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\Program Files\PathTracker50\FLETTSVY.sr5

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	SubSea Meters	North Meters	East Meters	Section Meters	Dogleg /30m	BldRate /30m	Trnrate /30m	Comment
0	0.00	0.00	0.00	0.00	262.49	0.00	0.00	0.00	0.00	0.00	0.00	
1	569.60	0.00	0.00	569.60	-307.11	0.00	0.00	0.00	0.00	0.00	0.00	
2	588.00	0.75	355.00	588.00	-326.51	0.12	-0.01	0.12	1.22	1.22	8.15	
3	599.00	0.50	7.00	599.00	-336.51	0.24	-0.01	0.24	0.77	0.68	32.73	
4	618.00	0.25	2.00	618.00	-355.51	0.36	0.00	0.35	0.40	0.39	7.89	
5	667.00	0.25	39.00	667.00	-404.51	0.55	0.07	0.53	0.10	0.00	22.65	
6	714.00	1.00	32.00	713.99	-451.50	0.98	0.35	0.89	0.48	0.48	4.47	
7	724.00	1.00	332.00	723.99	-461.50	1.13	0.38	1.03	3.00	0.00	180.00	
8	743.00	1.25	347.00	742.99	-480.50	1.48	0.23	1.40	0.61	0.39	23.68	
9	764.00	1.25	347.00	763.98	-501.49	1.93	0.13	1.86	0.00	0.00	0.00	
10	783.00	1.25	336.00	782.98	-520.49	2.32	0.00	2.27	0.41	0.00	18.95	
11	792.00	1.25	7.00	791.98	-529.49	2.50	-0.03	2.45	2.30	0.00	108.67	
12	802.00	1.25	352.00	801.98	-539.49	2.72	-0.03	2.67	0.98	0.00	45.00	
13	821.00	1.50	337.00	820.97	-558.48	3.15	-0.18	3.12	0.69	0.39	23.68	
14	839.00	1.50	7.00	838.96	-576.47	3.60	-0.22	3.57	1.29	0.00	60.00	
15	866.00	1.25	4.00	865.96	-603.47	4.25	-0.18	4.19	0.29	0.28	3.33	
16	893.00	1.00	9.00	892.95	-630.46	4.78	-0.14	4.70	0.29	0.28	4.44	
17	940.00	1.00	37.00	939.94	-677.45	5.52	0.11	5.37	0.41	0.00	23.62	
18	992.00	1.00	339.00	991.94	-729.45	6.30	0.22	6.12	0.56	0.00	33.46	
19	1049.00	3.00	17.00	1048.90	-786.41	8.19	0.48	7.91	1.21	1.05	20.00	
20	1067.00	3.25	16.00	1066.88	-804.39	9.14	0.76	8.78	0.45	0.42	3.33	
21	1087.00	3.13	21.00	1086.84	-824.35	10.19	1.09	9.74	0.53	0.19	9.00	
22	1102.00	3.25	29.00	1101.82	-839.33	10.95	1.44	10.41	0.92	0.25	16.00	
23	1126.00	3.00	37.00	1125.79	-863.30	12.04	2.15	11.33	0.63	0.31	10.00	
24	1146.00	2.75	39.00	1145.76	-883.27	12.83	2.76	11.98	0.40	0.38	3.00	
25	1175.00	2.10	35.00	1174.73	-912.24	13.81	3.51	12.78	0.69	0.67	4.14	
26	1211.00	1.60	49.00	1210.72	-948.23	14.68	4.27	13.47	0.56	0.42	11.67	
27	1233.00	1.50	59.00	1232.71	-970.22	15.03	4.74	13.71	0.39	0.14	13.64	
28	1281.00	1.50	132.00	1280.70	-1018.21	14.93	5.75	13.41	1.12	0.00	45.63	
29	1367.80	1.50	131.80	1367.47	-1104.98	13.41	7.44	11.57	0.00	0.00	0.07	
30	1380.90	1.30	122.60	1380.56	-1118.07	13.22	7.69	11.33	0.69	0.46	21.07	
31	1390.70	1.00	119.10	1390.36	-1127.87	13.12	7.86	11.20	0.94	0.92	10.71	
32	1400.30	0.90	120.60	1399.96	-1137.47	13.04	8.00	11.09	0.32	0.31	4.37	
33	1409.09	0.80	103.80	1408.75	-1146.26	12.99	8.12	11.02	0.91	0.34	57.00	
34	1419.70	1.20	48.20	1419.36	-1156.87	13.05	8.27	11.04	2.82	1.13	157.21	
35	1429.50	2.10	18.00	1429.15	-1166.66	13.29	8.41	11.25	3.74	2.76	92.45	
36	1439.10	3.60	3.90	1438.74	-1176.25	13.75	8.48	11.68	4.84	4.38	44.06	
37	1448.80	5.10	357.90	1448.41	-1185.92	14.47	8.48	12.39	5.13	4.95	18.56	
38	1458.40	6.60	355.30	1457.96	-1195.47	15.45	8.42	13.36	4.76	4.69	8.13	
39	1468.10	7.80	354.60	1467.59	-1205.10	16.66	8.31	14.57	3.72	3.71	2.47	
40	1477.90	8.70	354.30	1477.28	-1214.79	18.06	8.18	16.96	2.76	2.76	0.61	
41	1487.70	9.60	354.00	1486.96	-1224.47	19.61	8.02	17.51	2.76	2.76	0.92	

Surveyed by:
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4215 Dalhart Road N.W.
Calgary, Alberta
T3A 1B6
Phone: 403-288-9388

Company: CANADIAN FOREST OIL LTD.
WellName: CDN FOREST et al FLETT RAPIDS I-61-60-50-123-15
Location: I-61-60-50-123-15
LATITUDE: NORTH 60.6781 degrees LONGITUDE: 123.4427 degrees
SURFACE UTM COORDINATES: NORTHING = 6726803.33 EASTING = 475809.73
Vertical Section calculated on an Azimuth of: 348.0000
Survey Calculation Method: Minimum Curvature
FileName: C:\Program Files\PathTracker50\FLETTSVY.sr5

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	SubSea Meters	North Meters	East Meters	Section Meters	Doglegs /30m	BldRate /30m	Trnrate /30m	Comment
42	1497.40	10.40	353.10	1496.51	-1234.02	21.28	7.83	19.19	2.52	2.47	2.78	
43	1507.00	11.30	351.00	1506.94	-1243.46	23.07	7.58	20.99	3.07	2.81	6.56	
44	1516.80	12.00	350.80	1516.54	-1253.06	25.03	7.26	22.97	2.15	2.14	0.61	
45	1526.60	12.50	350.50	1526.12	-1262.63	27.08	6.93	25.05	1.54	1.53	0.92	
46	1536.20	13.10	350.80	1534.48	-1271.99	29.18	6.58	27.17	1.89	1.88	0.94	
47	1546.00	13.40	351.20	1544.02	-1281.53	31.39	6.23	29.41	0.96	0.92	1.22	
48	1555.60	14.20	350.30	1553.34	-1290.85	33.65	5.86	31.70	2.59	2.50	2.81	
49	1565.40	15.30	349.70	1566.72	-1303.23	36.86	5.29	34.96	2.60	2.58	1.41	
50	1575.20	16.20	349.30	1575.15	-1312.69	39.48	4.61	37.62	2.78	2.76	1.22	
51	1587.90	17.00	349.20	1584.44	-1321.96	42.20	4.29	40.39	2.48	2.47	0.31	
52	1597.60	17.60	349.60	1593.61	-1331.12	45.01	3.77	43.24	1.91	1.88	1.25	
53	1607.20	18.10	348.70	1602.84	-1340.35	47.93	3.21	46.21	1.77	1.56	2.78	
54	1616.90	18.50	348.90	1612.05	-1349.56	50.91	2.62	49.26	1.25	1.24	0.62	
55	1626.60	19.00	348.60	1621.24	-1358.75	53.97	2.01	52.38	1.60	1.55	1.24	
56	1636.40	19.50	348.70	1630.49	-1368.00	57.14	1.37	55.61	1.54	1.53	0.61	
57	1646.00	20.00	349.10	1639.53	-1377.04	60.32	0.74	58.85	1.62	1.56	1.25	
58	1655.60	20.60	349.30	1648.53	-1386.04	63.59	0.12	62.18	1.89	1.89	0.62	
59	1665.20	21.20	349.40	1657.50	-1395.01	66.95	-0.51	65.60	1.88	1.88	0.31	
60	1674.80	21.20	350.30	1666.45	-1403.96	70.38	-1.13	69.07	1.02	0.00	2.81	
61	1684.50	21.10	350.30	1675.49	-1413.00	73.83	-1.72	72.67	0.31	0.31	0.00	
62	1694.20	21.00	350.40	1684.55	-1422.06	77.26	-2.30	76.05	0.33	0.31	0.31	
63	1703.80	21.10	349.80	1693.61	-1431.02	80.66	-2.89	79.50	0.74	0.31	1.88	
64	1713.00	21.30	349.10	1702.08	-1439.59	83.93	-3.50	82.82	1.05	0.65	2.28	
65	1722.80	21.40	349.70	1711.21	-1448.72	87.43	-4.19	86.39	0.54	0.31	1.22	
66	1732.50	21.30	348.90	1720.25	-1457.76	90.89	-4.88	89.92	0.38	0.31	0.62	
67	1741.90	21.10	348.10	1738.33	-1475.84	97.77	-6.27	96.94	0.54	0.31	1.24	
68	1761.60	21.00	347.70	1747.39	-1484.90	101.18	-7.00	100.42	0.54	0.31	1.24	
69	1771.30	20.90	348.10	1756.44	-1493.95	104.67	-7.73	103.89	0.54	0.31	1.24	
70	1780.90	20.70	348.50	1765.42	-1502.93	107.91	-8.42	107.30	0.77	0.62	1.25	
71	1790.60	20.50	348.20	1774.50	-1512.01	111.25	-9.11	110.71	0.70	0.62	0.93	
72	1800.10	20.40	347.80	1783.40	-1520.91	114.49	-9.80	114.03	0.54	0.32	1.26	
73	1809.90	20.20	347.20	1792.59	-1530.10	117.81	-10.54	117.43	0.88	0.61	1.84	
74	1819.60	20.30	347.40	1801.69	-1539.20	121.09	-11.28	120.79	0.38	0.31	0.32	
75	1829.30	20.20	346.90	1810.79	-1548.30	124.36	-12.02	124.14	0.62	0.31	1.55	
76	1839.00	20.00	346.90	1819.90	-1557.41	127.61	-12.78	127.48	0.62	0.62	0.00	
77	1848.70	19.90	348.00	1829.02	-1566.53	130.84	-13.50	130.79	1.20	0.31	3.40	
78	1858.30	20.20	348.00	1838.04	-1575.55	134.06	-14.18	134.09	0.94	0.94	0.00	
79	1868.30	20.40	348.70	1847.42	-1584.93	137.46	-14.88	137.55	0.94	0.60	2.10	
80	1877.30	20.10	348.90	1856.86	-1593.37	140.61	-15.49	140.66	1.03	1.00	0.67	
81	1887.10	20.00	347.70	1866.07	-1602.58	143.80	-16.17	144.02	1.30	0.31	3.67	
82	1896.60	20.00	345.50	1873.98	-1611.50	146.96	-16.92	147.27	2.38	0.00	6.95	
83	1906.30	19.80	344.50	1883.11	-1620.62	150.16	-17.78	150.57	1.22	0.62	3.09	

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FileName: C:\Program Files\PathTracker50\FLETTSVY.sr5

#	Depth Meters	Inc Degrees	Azimuth Degrees	TVD Meters	SubSea Meters	North Meters	East Meters	Section Meters	Dogleg /30m	BldRate /30m	Trnrate /30m	Comment
84	1916.00	19.80	343.60	1892.24	-1629.76	163.31	-18.68	163.84	0.94	0.00	2.78	
85	1925.70	19.80	342.80	1901.37	-1638.88	166.46	-19.63	167.12	0.84	0.00	2.47	
86	1945.20	19.80	342.60	1919.71	-1657.22	162.76	-21.60	163.69	0.16	0.00	0.46	
87	1954.80	19.90	342.60	1928.74	-1666.25	165.87	-22.68	166.94	0.31	0.31	0.00	
88	1974.30	19.90	340.90	1947.08	-1684.59	172.17	-24.66	173.54	0.84	0.00	2.46	
89	1983.90	19.90	340.60	1956.11	-1693.62	175.26	-25.74	176.78	0.32	0.00	0.94	
90	1993.70	19.60	341.20	1965.33	-1702.84	178.38	-26.82	180.06	1.11	0.92	1.84	
91	2003.50	19.30	341.20	1974.67	-1712.06	181.47	-27.87	183.30	0.92	0.92	0.00	
92	2013.20	19.30	341.20	1983.72	-1721.23	184.51	-28.91	186.49	0.00	0.00	0.00	
93	2022.90	18.90	341.10	1992.89	-1730.40	187.51	-29.93	189.64	1.24	1.24	0.31	
94	2034.50	18.50	341.40	2003.88	-1741.39	191.03	-31.13	193.33	1.06	1.03	0.78	
95	2042.20	18.30	341.20	2011.18	-1748.69	193.34	-31.91	195.75	0.82	0.78	0.78	
96	2051.30	18.10	341.10	2019.83	-1757.34	196.03	-32.83	198.57	0.67	0.66	0.33	
97	2055.60	18.00	341.90	2023.92	-1761.43	197.29	-33.25	199.89	1.86	0.70	5.58	
98	2060.00	16.50	343.00	2047.22	-1784.73	204.19	-35.43	207.09	1.89	1.84	1.35	
99	2091.00	15.50	343.00	2067.79	-1796.30	207.05	-36.32	210.11	2.73	2.73	0.00	
100	2130.00	13.13	347.00	2096.58	-1833.09	216.38	-38.84	219.72	2.00	1.95	3.08	
101	2160.00	12.00	349.00	2124.87	-1862.38	222.75	-40.20	226.24	1.18	1.10	2.00	
102	2207.00	9.75	353.00	2171.02	-1908.53	231.50	-41.62	235.09	1.61	1.44	2.55	
103	2246.00	7.88	357.00	2209.56	-1947.07	237.45	-42.16	241.02	1.52	1.44	3.08	
104	2284.00	6.75	359.00	2247.25	-1984.76	242.28	-42.33	245.79	0.91	0.89	1.58	
105	2320.00	5.25	6.00	2283.03	-2020.54	245.03	-42.20	249.43	1.39	1.25	5.83	
106	2359.00	5.25	20.00	2321.89	-2059.40	249.40	-41.40	252.64	0.98	0.00	10.77	
107	2399.00	5.00	41.00	2361.73	-2099.24	252.52	-39.63	255.24	1.41	0.19	15.75	
108	2436.00	4.50	40.00	2398.60	-2136.11	254.95	-37.64	257.11	0.41	0.41	0.81	
109	2475.00	4.00	40.00	2437.50	-2175.01	257.03	-35.78	258.98	0.38	0.38	0.00	
110	2513.00	4.00	40.00	2475.41	-2212.92	259.09	-34.08	260.52	0.00	0.00	0.00	
111	2522.00	3.50	47.00	2484.39	-2221.90	259.52	-33.68	260.85	2.25	1.67	23.33	
112	2561.00	2.75	46.00	2523.33	-2260.84	260.98	-32.13	261.96	0.58	0.58	0.77	
113	2600.00	2.75	28.00	2562.28	-2299.79	263.46	-31.02	263.17	0.66	0.00	13.85	
114	2648.00	1.50	44.00	2610.25	-2347.76	263.93	-30.04	264.41	0.86	0.78	10.00	
Ext	2660.00	1.19	48.00	2622.25	-2359.76	264.12	-29.84	264.56	0.92	0.78	10.00	

Closure is 265.8040 meters on an Azimuth of 353.5539

ADDENDUM B - GEOLOGICAL STRIP LOG

CONFIDENTIAL DATA REMOVED

RELEASE DATE JANUARY 18, 2004

ATTACHMENT #14

ATTACHMENT #15

NOWSCO

Nowsco Well Services Ltd.

Coiled Tubing Treatment Report

TYPE OF TREATMENT	ACID WASH AND SQUEEZE			DATE:	19/02/99	SERVICE ORDER #	U-3084
CUSTOMER:	CANADIAN FOREST OIL	WELL NAME	CAN-FOR-OIL ET-AL FLEET RAPIDS		LOCATION (LSD):	300-I61-6050-12315-O	
PROVINCE	NWT	MAILING ADDRESS					
FORMATION	UPPER NAHANNI	TUBING	88.9MM, 2082			PACKER DEPTH	2061
CASING	244.4 1890		VOLUMES			TOTAL DEPTH	
MAXIMUM ALLOWABLE PRESSURE: MPa			28MPA		CASING		COILED TUBING
WELL TYPE:	☑ NEW	☐ WORKOVER		☐ OIL		☑ GAS	☐ INJECTION
COMPLETION:	☐ VERTICAL	☐ DEVIATED		☐ HORIZONTAL		☑ H2S %	☐ CO2 %
KICKOFF DEPTH		m	AVERAGE DEVIATION				DEG/100m
TRUE VERTICAL DEPTH		m	HORIZONTAL LENGTH				m
OPEN HOLE SIZE		mm	LINER	177.8MM 1899-2306			
PERFORATIONS	2087-2091					K.B. HEIGHT	6.9
NIPPLE LOCATIONS	2081	m	2061	m		m	
NIPPLE I.D.	69.85	mm	69.85	mm		mm	
SLIDING SLEEVES		m		m		m	
SLIDING SLEEVES I.D.		mm		mm		mm	
SUB SURFACE SAFETY VALVE I.D.		mm			WELL HEAD FLANGE SIZE		R-35
PACKER	☐ TENSION		☐ COMPRESSION		TYPE:		
COILED TUBING STRING SIZE (mm)		38.1	WALL THICKNESS (mm)	2.77	LENGTH (m)	3180	REEL I.D.# 5240
TUBING DEPTH AND RUN (m)		1st RUN		ADDITIONAL RUNS			

TREATMENT DESCRIPTION: AS PER TRATMENT REPORT

TOOLS RUN:	38.1MM COIL	TREATING FLUID	28%HCL
	38.1MM DOUBLE DART CHECK VALVE		3%KCL
	44.4NO-GO DART CHECK VALVE		
	38.1MM SWIRL JET NOZZLE		
		ADDITIVES	AS PER PRO RAM
		CUSTOMER REP.	BLAIR
		NOWSCO SUPERVISOR	CHAD KISSINGER

NOWSCO

Nowsco Well Services Ltd.

Pg. 1

Customer: CANADIAN FOREST OIL Well LSD. 300-I61-6050-12315-O Service Order No. U-3084

Date: 19/02/99

Coiled Tubing Treatment Report

TIME	PRESSURE		DEPTH	WEIGHT		DEPTH	PUMP RATE		DESCRIPTION
	CTU (MPa)	ANN (MPa)	BEGIN (m)	IN dNa	OUT dNa	END (m)	FLUID (L/min)	N2 (m3/min)	OPERATIONAL DETAILS
0:30									STAND BY AT CAMP
8:00									ARRIVED ON LOCATION
8:05									SPOT TRUCKS
8:10									RIG IN
8:45									FUNCTION TEST BOPS
9:30									SAFETY MEETING
10:00									PICKLE COIL 25M3 ACID
11:10	30	30							PRESSURE TEST
11:45	12	.6		1100			200		RIH START PUMP
12:01	14.7	.3	450	2200	2600	440	200		PULL TEST
12:02	14.7	.3	440	2200		1230	200		RIH
12:25	15.7	.3	1230	3300	4600	1220	200		PULL TEST
12:26	15.7	.3	1220	3300		1515	200		RIH
12:34	.5	.3	1515	3700		1550	30		SPEARED HEAD START ACID
12:35	5.8	.4	1550	3800		2089	120		INCREASE PUMP RATE
12:52	5	.6	2089	4900		2092	120		STOP COIL
12:56	5	.6	2092		5100	2092	120		HOLD BACK PRESSURE
12:59	5.6	2.2	2092		5100	2092			STOP PUMP WASH #1
13:00	5.6	2.5	2092		5100	2092			WAIT 5 MIN
13:05	1.8	3	2092		5900	2092	40		START PUMP
13:06	1.8	3	2086		5900	2086	40		PULL UP WASH #2 .600
13:15	2.9	4.9	2092	5400		2092	40		RIH WASH #3 .300
13:22	5.6	7	2086	5400	5800	2086	40		PULL UP WASH #4 .200
13:23	5.6	7	2086		5800	2086	40		OPEN FLOW LINE AT 7MPA
13:24	5.89	7	2092	3900		2092	40		RIH WASH #5 1.400
13:56	6.3	6.9	2092		5000	2086	40		PULL UP WASH #6 .500
14:06	7.2	7	2086	3600		2092	40		START WATER DISPLACEMENT
14:06	7.2	7	2086	3600		2092	40		RIH WASH #7 .350
14:17	7.7	7.3	2086		5150	2086	40		PULL UP WASH #8 .250
14:30	7	6.8	2086				160		INCREASE PUMP SHUT IN SQUEEZE
14:33	14	14	2086						SQUEEZE .45
14:35	11.6	12.2	2086	2800					RIH
14:36	10.9	11.6	2088	2700			60		SQUEEZE .40
14:37	14.6	13.6	2089	3300			60		STOP CTU
14:38	13.8	14	2088	3200		2088	20		SQUEEZE .2M3
14:43	14.5	14.8	2088	1600		2092	20		RIH SQUEEZE .2M3
14:47	16.5	16.6	2092		5800*	2091	20		PULL UP SQUEEZE .1M3
14:48	14.8	14.6	2091		4800	2090	20		PRESSURE BLEEDING DOWN
14:50	16.5	16.3	2090		4800	2086	20		INCREASE RATE STABLIZED .1M3
14:54	28	26	2086		4800	2086	70-40		INCREASE RATE -DECREASE RATE
14:59	28	25.8	2086	400		2089	40		RIH
15:03	28	27.6	2089		1500	2089			STOP PUMPING 2.05M3 SQUEEZE
15:04									FIX PUMPER
15:14	12.1	12.1	2089		2500				SATART OVER FLUSH KCL
15:15	21.9	13.6		2000			70		RIH
15:16	28	13.1	2092	2800		2092	19		INCREASE PUMP RATE
15:20	28	14	2092		5900	2087	19		PULL UPP SQUEEZE 1M3
15:22	28	14	2087			2087			STOP PUMP
15:32	4.7	4.5	2087			2087			PRSSSURE DROP
15:36	4.6	4.3	2087		4400	2087		30	START N2 OPEN FLOW LINE

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Nowsco Well Services Ltd.

Pg. 1

Customer: CANADIAN FOREST OIL Well LSD. 300-I61-6050-12315-O Service Order No. U-3084

Date: 19/02/99

Coiled Tubing Treatment Report

TIME	PRESSURE		DEPTH	WEIGHT		DEPTH	PUMP RATE		DESCRIPTION
	CTU (MPa)	ANN (MPa)	BEGIN (m)	IN dNa	OUT dNa	END (m)	FLUID (L/min)	N2 (m3/min)	OPERATIONAL DETAILS
15:45	18.7	.5	2092	3100		2092		30	RIH
15:55	18.8	.8	2092		5000	1850		30	POOH
16:06	11	8	1850		3700	1850		30	CLOSE FLOW LINE FIX NEDDLE VALVE
16:07	11	8.0	1850		3700	1850			STOP N2
16:11	10.6	8.9	1850	2200		1850			POOH
16:13	10.9	5.5	2000	2200		2000		30	START N2
16:19	11.6	2.8	2092		3800			30	POOH
17:10	.2	.3	800		2052			10	SHUT DOWN N2
17:18	0	.2	781						STOP CT PIG COIL
17:21	10	.2	781					30	PRESSURE UP N2 LAUNCH N2
17:21	10	.2	781					30	RIH
17:30	6.0	.2	570						SHUTDOWN N2
17:55	6.2	.3							TAG SURFACE
17:56									CLOSE MASTER VALVE AND WING VALVE
17:57									BLEED OFF COIL PRESSURE
18:00									RIG OUT
18:30									LEAVE LOCATION

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Nowsco Well Services Ltd.

Pg. 1

Customer: CANADIAN FOREST OIL Well LSD. YT-1-61 Service Order No. U1172

Date: 15-Feb-99

Coiled Tubing Treatment Report

TIME	PRESSURE		DEPTH	WEIGHT		DEPTH	PUMP RATE		DESCRIPTION
	CTU (MPa)	ANN (MPa)	BEGIN (m)	IN dNa	OUT dNa	END (m)	FLUID (m3/min)	N2 (m3/min)	OPERATIONAL DETAILS
8:00									ARRIVE ON LOCATION
8:15									RIG IN EQUIPMENT
8:30									FUNCTION TEST BOPS
9:00									INJECTOR ON WELL HEAD
10:00									SAFETY MEETING
10:55									FILL COIL (3.5M3)
11:40	28	28							PRESSURE TEST
11:58	0	0	0	700					RIH
12:10	0	0	400	700	1100	390			PULL TEST
12:13	1	0.2	390	700			0.03		START PUMP
12:39	1	0.2	1300		3000	1290	0.03		PULL TEST
12:58	5.5	0.2	1950	3700			0.1		START ACID INTO COIL
13:10	5.0	0.2	2250	4100	5000	2240	0.1		PULL TEST
13:19	4.1	0.2	2320				0.1		STOP CT BOTTOM OF PERFS
13:23	3.7	0.2	2320		6000	2309	0.1		ACID TO END OF CT, START
									WASH, PULL UP (1.1M3)
13:32	4.0	0.2	2309		5500		0		STOP CT, STOP PUMP, SHUT IN WELL
									PRESSURE CSG (21MPA)
13:43	0	1.2	2309				0.1		START SQUEEZE
13:50	26.5	28.8	2309	2000		2311	0		RIH, STOP PUMP
13:51	26.2	28.4	2311	2000					STOP CT
13:54	25.8	27.2	2311	2000		2313			RIH
13:56	25	26.5	2313	2000					STOP CT
13:58	24.7	26.1	2313				0.03		START PUMP
14:02	23.8	25.2	2313						PRESSURE READING
14:09	25.8	28	2313	2000					RIH
14:10	25.8	28.1	2314						STOP CT
14:11	26.2	28.5	2314				0		PUMP STOP
14:15	25	27.4	2314	1700		2316			RIH
14:18	24.3	26.7	2316						STOP CT
14:21	24.1	26.4	2316				0.01		START PUMP
14:26	25.4	28.6	2316				0		STOP PUMP
14:27	25.2	27.5	2316	1001					RIH
14:32	24.3	26.7	2318	1010					STOP CT
14:36	23.7	26.1	2318				0.1		START PUMP
14:40	25.8	28.3	2318				0		STOP PUMP, OPEN FLOW LINE
14:44	6.9	10	2318				0.1		CLOSE FLOWLINE, START PUMP
14:50	26	28.5	2318		3500		0		STOP PUMP, PULL UP (0.100M3)
14:58	24.1	26.5	2315		3500		0.01		START PUMP
15:00	26.2	28.5	2314		3400		0		STOP PUMP
15:04	24.9	27.3	2314		3400				STOP CT, BLEED DOWN
15:07	3.6	6.7	2314						CLOSE FLOWLINE, START PUMP
15:12	26	28.9	2314						STOP PUMP (0.200M3)
15:35	24.8	27.1	2314						OPEN FLOWLINE, DISPLACE ACID
									RIH TO BOTTOM PERFS
15:51	0	0.3	2320	1000	5500		0.1		START PUMP, POOH
17:11	0	0.1	120		640		0.1		PUMP NEUTRALIZATION FLUID
17:22	0.5	0.2	4				0		STOP PUMP
17:25	0.2	0.3	0						TAG SURFACE
17:40	0	0	0					25	PIG COIL, START N2

Nowsco Well Services Ltd.

Pg. 1

Customer: CANADIAN FOREST OIL Well LSD. YT-1-61 Service Order No. U1172

Date: 15-Feb-99

Coiled Tubing Treatment Report

TIME	PRESSURE		DEPTH	WEIGHT		DEPTH	PUMP RATE		DESCRIPTION
	CTU (MPa)	ANN (MPa)	BEGIN (m)	IN dNa	OUT dNa	END (m)	FLUID (m3/min)	N2 (m3/min)	OPERATIONAL DETAILS
17:50	7.2	0.2						0	STOP N2
18:00									RIG DOWN INJECTOR, STANDBY
22:00									ARRIVE ON LOCATION, RIG ON INJECTOR
22:30									INJECTOR ON WELL HEAD
23:00									SAFETY MEETING
23:26									FILL COIL
23:44	28	28							PRESSURE TEST
23:52	0	0	0						OPEN WELLHEAD, RIH
0:09	0	0	50	-100			0.035		START PUMP
0:39	0.7	0.2	1210		3300	1200	0.035		PULL TEST
0:59	0.5	0.3	2000	3900	5100	1990	0.035		PULL TEST
1:00	2.1	0.5	2000	4000			0.1		START ACID INTO COIL
1:21	4.4	0	2320				0.1		STOP CT
1:27	4.3	0	2320						ACID TO END OF COIL, STOP
									PUMP, SHUT IN ANNULUS
1:35	0	0.3	2320				0.1		START SQUEEZE
1:45	17	11.4	2320		5400		0.1		PULL UP CT
1:52	26	20	2314		5375		0.1		STOP CT
1:53	27.2	21.7	2314				0		STOP PUMP (2.0M3)
2:05	16.2	16.7	2314				0.05		START PUMP
2:19	25.2	23.9	2314				0.05		DISPLACE ACID WITH H20
2:26	26.5	25.7	2314				0.03		SLOW PUMP (0.35M3 DISPLACED)
2:52	27.8	27.1	2314				0.02		SLOW PUMP
3:07	29	27.6	2314				0		STOP PUMP (1.8M3 DISPLACED)
3:19	25.8	25.9	2314				0.02		START PUMP (NEUTRALIZATION FLUID)
3:46	29.6	27.6	2314		2300		0		STOP PUMP (2.6M3) PULL UP INTO TUBING
3:57	27.2	25.7	2300				0.02		START PUMP
4:08	28.8	26.9	2300				0		STOP PUMP (0.3M3 OVER DISPLACE)
4:12	14.6	2.0	2300	2200					START PUMP, OPEN ANNULUS, RIH
4:15	16	0.8	2323						STOP CT
4:18	1.1	0.6	2323						STOP PUMP
4:21	5.3	0.7	2323					25	START N2, GAS LIFT
4:25	6.3	2.4	2320					10	REDUCE N2 (5.6M3 TO RIG TANK)
4:30	5.9	0.5	2320					25	INCREASE N2
4:32	7.4	1.0	2320		5700	2044		25	PULL UP
4:44	11.7	0	2044					25	STOP CT
5:09	15.8	0.5	2044		5100			25	POOH
5:22	9.3	1.4	1839					15	REDUCE N2
5:36	4.6	0.6	1553					10	REDUCE N2
6:22	2.2	0.3	100		1029			0	STOP N2
6:33	0.3	0	0						SURFACE, RIG DOWN, STANDBY
17:00									LEAVE LOCATION

COMPANY
TICKET No.
1 HR.
DATE
FIELD
OPERATOR
KIND OF JOB
UNIT NO.
W
RGE
TWP
SEC
LSD
LAND LOCATION
NOWSCO WELL SERVICE LTD.
CALGARY
NC 70
1000 kPa SUBDIVISIONS
Printed in Canada
0 kPa
10000 kPa
20000 kPa
30000 kPa
40000 kPa
50000 kPa
60000 kPa
70000 kPa
(1450 psi) 10000 kPa
(2900 psi) 20000 kPa
(4350 psi) 30000 kPa
(5800 psi) 40000 kPa
(7250 psi) 50000 kPa
(8700 psi) 60000 kPa
(10150 psi) 70000 kPa
15MIN
30M
45MIN

11061008

NOWSCO

Nowsco Well Services Ltd.

Coiled Tubing Treatment Report

TYPE OF TREATMENT	ACID WASH			DATE:	13/02/99	SERVICE ORDER #	U-1171
CUSTOMER:	CANADIAN FOREST	WELL NAME			LOCATION (LSD):	YT-1-61	
PROVINCE	NWT	MAILING ADDRESS					
FORMATION		TUBING				PACKER DEPTH	
CASING			VOLUMES			TOTAL DEPTH	
MAXIMUM ALLOWABLE PRESSURE: MPa			28MPA		CASING		COILED TUBING
WELL TYPE:	☐ NEW	☐ WORKOVER		☐ OIL		☐ GAS	☐ INJECTION
COMPLETION:	☐ VERTICAL	☐ DEVIATED		☐ HORIZONTAL		☐ H2S %	☐ CO2 %
KICKOFF DEPTH		m	AVERAGE DEVIATION				DEG/100m
TRUE VERTICAL DEPTH		m	HORIZONTAL LENGTH				m
OPEN HOLE SIZE		mm	SLOTTED LINER				
PERFORATIONS						K.B. HEIGHT	
NIPPLE LOCATIONS		m		m		m	
NIPPLE I.D.		mm		mm		mm	
SLIDING SLEEVES		m		m		m	
SLIDING SLEEVES I.D.		mm		mm		mm	
SUB SURFACE SAFETY VALVE I.D.		mm			WELL HEAD FLANGE SIZE		
PACKER	☐ TENSION		☐ COMPRESSION		TYPE		
COILED TUBING STRING SIZE (mm)			WALL THICKNESS (mm)		LENGTH (m)		REEL I.D.#
TUBING DEPTH AND RUN (m)		1st RUN		ADDITIONAL RUNS			

TREATMENT DESCRIPTION:

TOOLS RUN:		TREATING FLUID	
		ADDITIVES	
		CUSTOMER REP.	
		NOWSCO SUPERVISOR	

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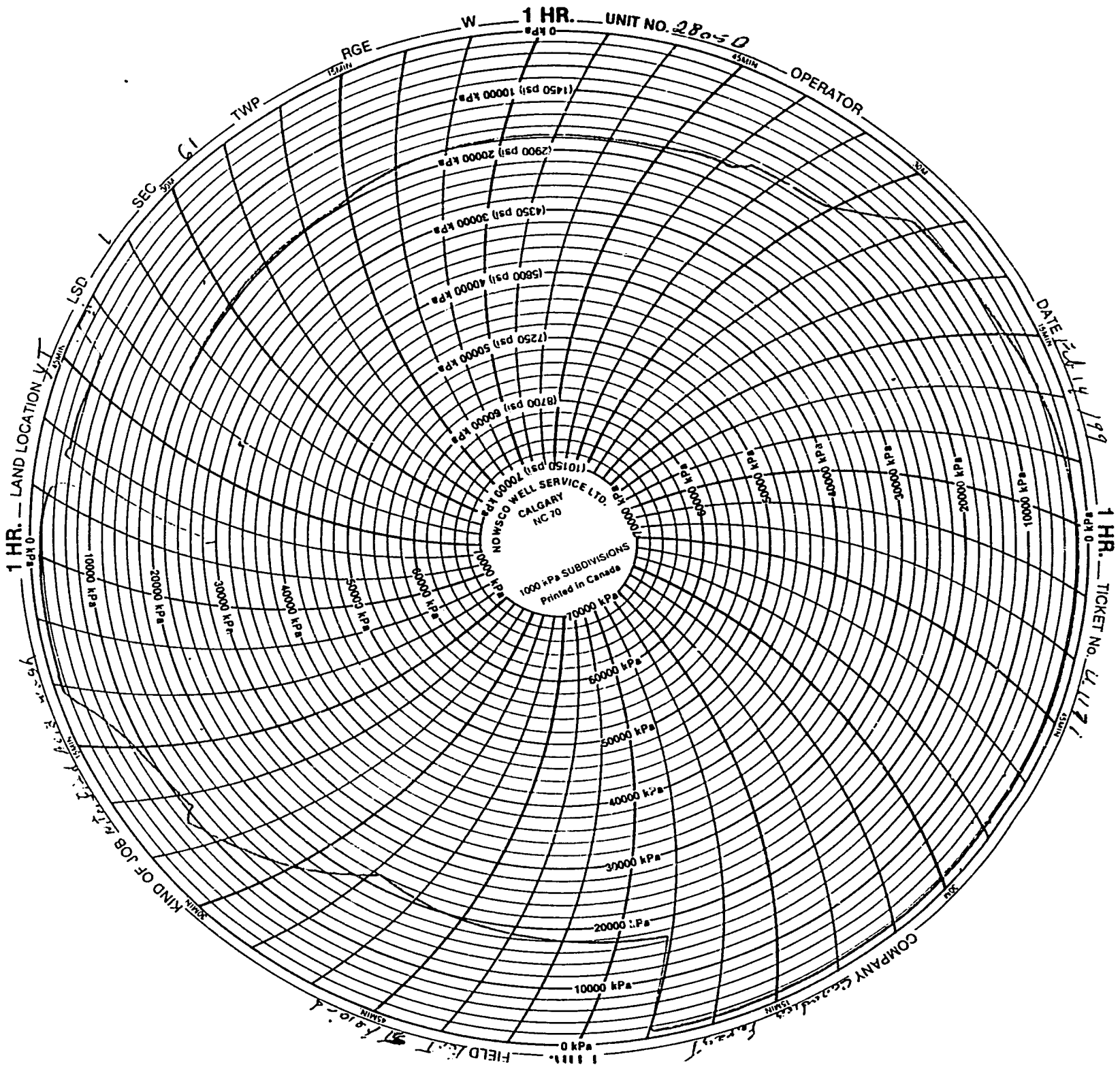
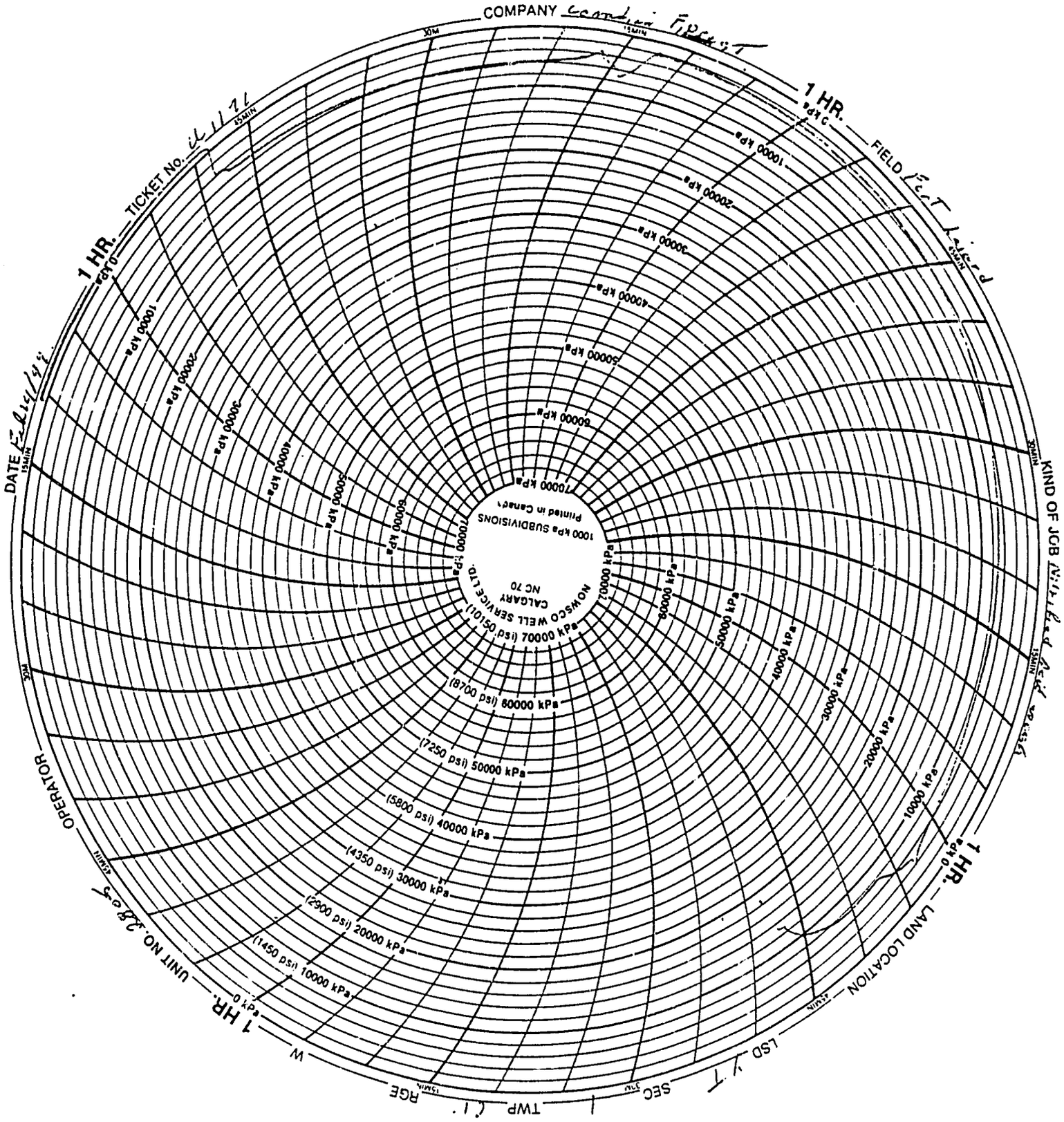
Nowsco Well Services Ltd.

Customer: CANADIAN FOREST Well LSD. YT-1-61 Pg. 1
Service Order No. U-1171
Date: 13/02/99

Coiled Tubing Treatment Report

TIME	PRESSURE		DEPTH	WEIGHT		DEPTH	PUMP RATE		DESCRIPTION
	CTU (MPa)	ANN (MPa)	BEGIN (m)	IN dNa	OUT dNa	END (m)	FLUID (L/min)	N2 (m3/min)	OPERATIONAL DETAILS
8:00									ARRIVED ON LOCATION WAIT ON RIG
0:30									SPOT TRUCKS RIG IN
0:15									FUNCTION TEST BOPS
3:00									INJECTOR ON WELL HEAD
3:30									SAFETY METING
3:50	21	21							PICKLE CT PRESSURE TEST
4:55		2.1							RIH
5:12	.03		540	1200				10	START N2
5:32	1.9		1050	2270	2700	1040		10	PULL TEST
5:34	1.9		1040	2270				10	RIH
6:05	1.8		1840	3800	4500	1830		10	PULL TEST
6:07	1.9		1830	3700				10	RIH
6:25	5.1		2300	4071	5032	2290		10	PULL TEST
6:26	5.8		2290	4226				10	RIH
6:30	6.2		2320	4329				10	STOP CT /BOTTUM OF PERFS
6:34	6.4		2320				150	12	BEGIN ACID INCREASE N2
6:45	14.8		2320		5800	2309		22	ACID AEOCT PULL UP INCREASE N2
6:58	17.4	.8	2309	4397				22	RIH
7:22	19.1	3.0	2320		5400	2309		22	PULL UP
7:41	19.7	3.1	2309	3800				22	RIH
7:48	15.5	3.4	2311	3800				22	STOP ACID /DISPALCE WITH N2
7:59	9.1	2.5	2320					22	ACID DISPLACE STOP CT
8:13	9.8	.3	2320		4800			22	POOH
9:19	3.6	.2	880		2200		100	5	REDUCE N2 PUMP NETRALIZATION
9:22	5.4	.2	800		1880			25	INCREASE N2
9:54	6.2	.2	30		40				STOP N2
10:00	1.5	.2							SURFACE RIG OUT
11:00									LEAVE LOACTION


1 HR.
LAND LOCATION
LSD
SEC
TWP
RGE
W
1 HR.
UNIT NO.
OPERATOR
DATE
1 HR.
TICKET No.
COMPANY
FIELD
KIND OF JOB
NOWSCO WELL SERVICE LTD.
CALGARY
NC 70
1000 kPa SUBDIVISIONS
Printed in Canada
0 kPa
10000 kPa
20000 kPa
30000 kPa
40000 kPa
50000 kPa
60000 kPa
70000 kPa
80000 kPa
90000 kPa
100000 kPa
(1450 psi) 10000 kPa
(2900 psi) 20000 kPa
(4350 psi) 30000 kPa
(5800 psi) 40000 kPa
(7250 psi) 50000 kPa
(8700 psi) 60000 kPa
(10150 psi) 70000 kPa


COMPANY
1 HR.
FIELD
KIND OF JOB
LAND LOCATION
LSD
SEC
TWP
RGE
W
UNIT NO.
OPERATOR
DATE
TICKET No.
1000 kPa SUBDIVISIONS
Printed in Canada
NOWSCO WELL SERVICE LTD.
CALGARY
NC 70
(10150 psi) 70000 kPa
(8700 psi) 60000 kPa
(7250 psi) 50000 kPa
(5800 psi) 40000 kPa
(4350 psi) 30000 kPa
(2900 psi) 20000 kPa
(1450 psi) 10000 kPa
0 kPa
10000 kPa
20000 kPa
30000 kPa
40000 kPa
50000 kPa
60000 kPa
70000 kPa

NOWSCO

CUSTOMER:	SO	T#	P#	DATE:
CANADIAN FOREST OIL	11051127	C1734		1999/02/19 – 1999/02/24

ADDRESS:	PROVINCE	TYPE OF TREATMENT:
	YUKON	

LOCATION:	WELL NAME:	CONTRACTOR:	FORMATION:
YT-I-61	CANADIAN FOREST ET AL FLETT RAPIDS	CENALTA	UPPER NAHANNI

TUBULAR TYPE	SIZE (mm)	LINEAR DENSITY (kg/m)	DEPTH (m)	VOLUME (m3)	ALLOWABLE PRESSURE (MPa)	ARRIVED AT LOCATION 199/02/2/19:00	LEFT LOCATION: 02/24 11:00
TUBING	88.9			9.4			

DOWNHOLE EQUIPMENT	DEPTH (m)	COMMENTS

O.H./PERF/ SANDJET	O.H. SIZE (mm)	SHOTS/m or # of SLOTS	FROM (m)	TO (m)

TREATING FLUID:	m3	TREATING FLUID:	m3
ADDITIVES:	/m3	ADDITIVES:	/m3
	/m3		/m3
	/m3		/m3
	/m3		/m3
	/m3		/m3
	/m3		/m3

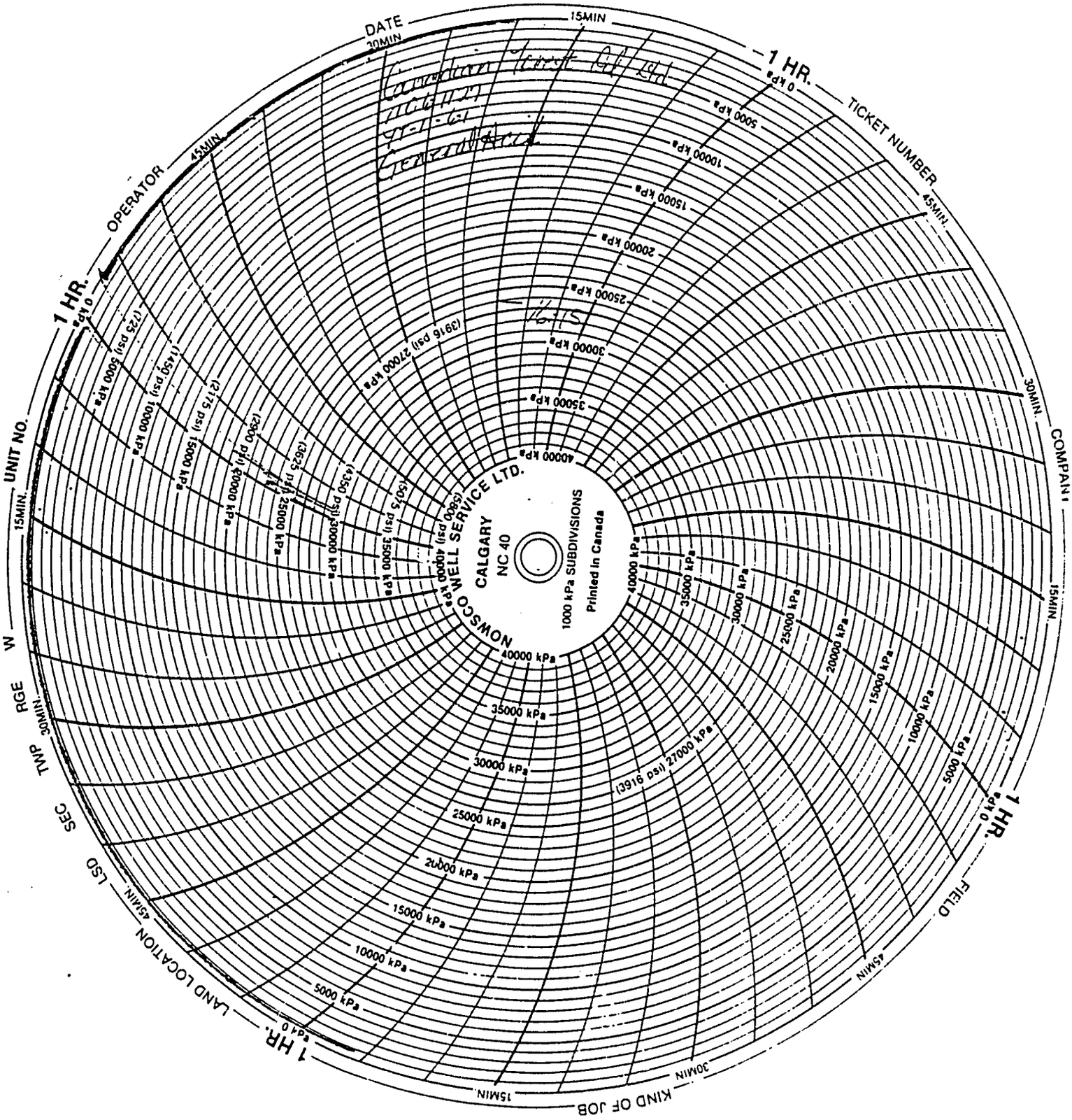
INJECTION RATES (m3/min)	TREATMENT MIN.	TREATMENT MAX.
	DISPLACING	AVERAGE

PRESSURES (MPa)	BREAKDOWN:	MINIMUM:	MAXIMUM:	INSTANTANEOUS SHUTIN: 42
	AVERAGE:	DISPLACING MIN.:	DISPLACING MAX.:	15 MINUTE SHUT IN: 38

TIME	PRESSURE (MPa) CASING	PRESSURE (MPa) TUBING	m3 OF FLUID OUT OF TANKS	m3 OF FLUID PER READING	m3 OF FLUID IN FORMATION	m3 OF FLUID PER MINUTE	m3 OF FLUID MAX RATE / MINUTE	N2 or CO2 RATIO (m3/m3)	COMMENTS
0900.0									RIG IN. SAFETY MEETING
1256.0	17.0								BRING UP ANNULUS PRESSURE
1305.0	17.0		.5						START COOL DOWN
1310.0	17.0	50.0							PRESSURE TEST
1315.0	17.0	1.0							START PUMP CO2
1321.0	17.0	2.0	3.0	3.0		.5			CAUGHT PRESSURE
1329.0	16.0	15.0	9.6	6.6		.83			TUBING VOLUME PUMPED
1340.0	14.5	45.0	15.6	6.0		.55	.7		ESTABLISH FEEDRATE
1350.0	14.0	45.0	16.6	1.0		.2			STOP PUMP

NOWSCO REPRESENTATIVE: JIM HENDERSON	CUSTOMER REPRESENTATIVE:

FIELD
KIND OF JOB
1 HR.
45MIN.
30MIN
15MIN
COMPANY
TICKET NUMBER
LAND LOCATION
SEC
TWP
RGE
W
UNIT NO.
OPERATOR
DATE
0 kPa
5000 kPa
10000 kPa
15000 kPa
20000 kPa
25000 kPa
30000 kPa
35000 kPa
40000 kPa
(725 psi) 5000 kPa
(1450 psi) 10000 kPa
(2175 psi) 15000 kPa
(2900 psi) 20000 kPa
(3625 psi) 25000 kPa
(4350 psi) 30000 kPa
(5075 psi) 35000 kPa
(5800 psi) 40000 kPa
(3916 psi) 27000 kPa
1000 kPa SUBDIVISIONS
Printed in Canada
CALGARY
NC 40
SCHLUMBERGER WELL SERVICE



DATE
15MIN
30MIN
45MIN
1 HR.
TICKET NUMBER
0 kPa
5000 kPa
10000 kPa
15000 kPa
20000 kPa
25000 kPa
30000 kPa
35000 kPa
40000 kPa
COMPANY
15MIN
30MIN
45MIN
1 HR.
FIELD
0 kPa
KIND OF JOB
15MIN
30MIN
45MIN
1 HR.
LAND LOCATION
0 kPa
LSD
SEC
TWP
RGE
W
UNIT NO.
15MIN
30MIN
45MIN
1 HR.
OPERATOR
0 kPa
(725 psi) 5000 kPa
(1450 psi) 10000 kPa
(2175 psi) 15000 kPa
(2900 psi) 20000 kPa
(3625 psi) 25000 kPa
(4350 psi) 30000 kPa
(5075 psi) 35000 kPa
(5800 psi) 40000 kPa
(3916 psi) 27000 kPa
NOWSCO WELL SERVICE LTD.
CALGARY
NC 40
1000 kPa SUBDIVISIONS
Printed in Canada
40000 kPa
35000 kPa
30000 kPa
25000 kPa
20000 kPa
15000 kPa
10000 kPa
5000 kPa
0 kPa
(3916 psi) 27000 kPa

1106206

NOWSCO
An International Company
Well Service Ltd.
Canadian Operations
11-6th Avenue S.W., Calgary, Alberta, Canada, T2P 4E1, Phone (403) 261-2990, Fax (403) 264-7489

FRACTURING TREATMENT REPORT

Well Name	Location	Formation	Province	Date
CDN FOREST FLETT RAPIDS	I-61	UPPER NAHANNI	AB	26-Feb-99

Type of Treatment	Type of Well	Job #	Service Order #	Customer P.O. #
Diverted Acid Frac	Gas Well	P72240 01	C-1763	

Customer	Mailing Address
CANADIAN FOREST OIL LTD.	8TH FLOOR, 800 - 6TH AVENUE S.W. CALGARY AB

Pipe, Perfs, Open Hole or Slots	Size mm	Linear Density kg/m	Grade	Allowable Pressure MPa	Volume m3	Depth of Top m	Depth of Bottom m	Shots Per m
Tubing	88.9	13.84	J-55	65.00	9.44		2082.50	
Casing	244.5	64.74	L-80					
Liner	177.8	43.16	L-80	21.00	0.04			
Perfs						2085.00	2093.00	
Cmt Top						2298.00		

INJECTION RATES (m3/min)		
Treating	Displacing	Average
1.8 / 2.6	2.5	2.5

PRESSURES (MPa)		
Breakdown	Average	Minimum
13.1	2.5	55.6
Maximum	Displacing	15min Shut In
63.2	55.6 / 56.3	41.5
Instantaneous Shut In		48.7

Downhole Equipment	Depth (m)	Remark
PACKER	2061.18	

FLUID #1	m3
WATER	54.00

FLUID #2	m3
28% HCL	32.00

Proppant	Mesh	Tonne	Max kg/m3

Additives	per m3	kg or L
LFC-3B	10	L
CLAYSET-4	2	L
NE-118H	1	L
60% ACETIC ACID	1	L
XLW-60	1.25	L
ENZYME G	1	L

Additives	per m3	kg or L
AI-275	10	L
IF-350	16	L
IS-500	5	kg
NE-118H	1	L

FLUID VOLUMES (m3)		KW Used	Wellhead
Hole Fill	Pad	2458	Working
10.8	N/A	Time	Pres. (MPa)
wt Proppant	Flush	Arrived	T.S.I.
N/A	10.0	8:00	Pop Valve
Overflush	Total Pumped	Left	Set (MPa)
0.5	77.4	13:00	26.0

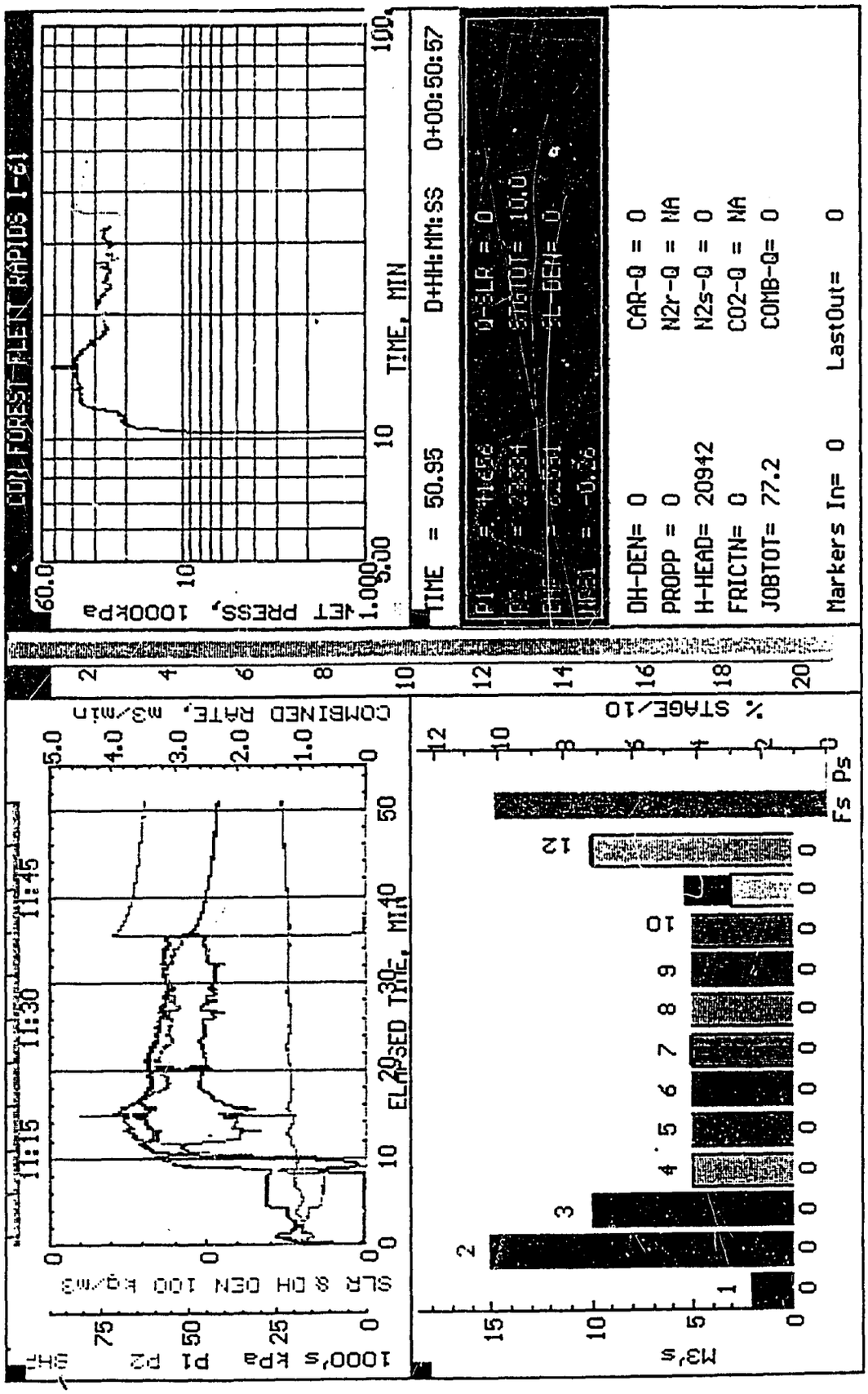
FLUID #3	m3

Additives	per m3	kg or L

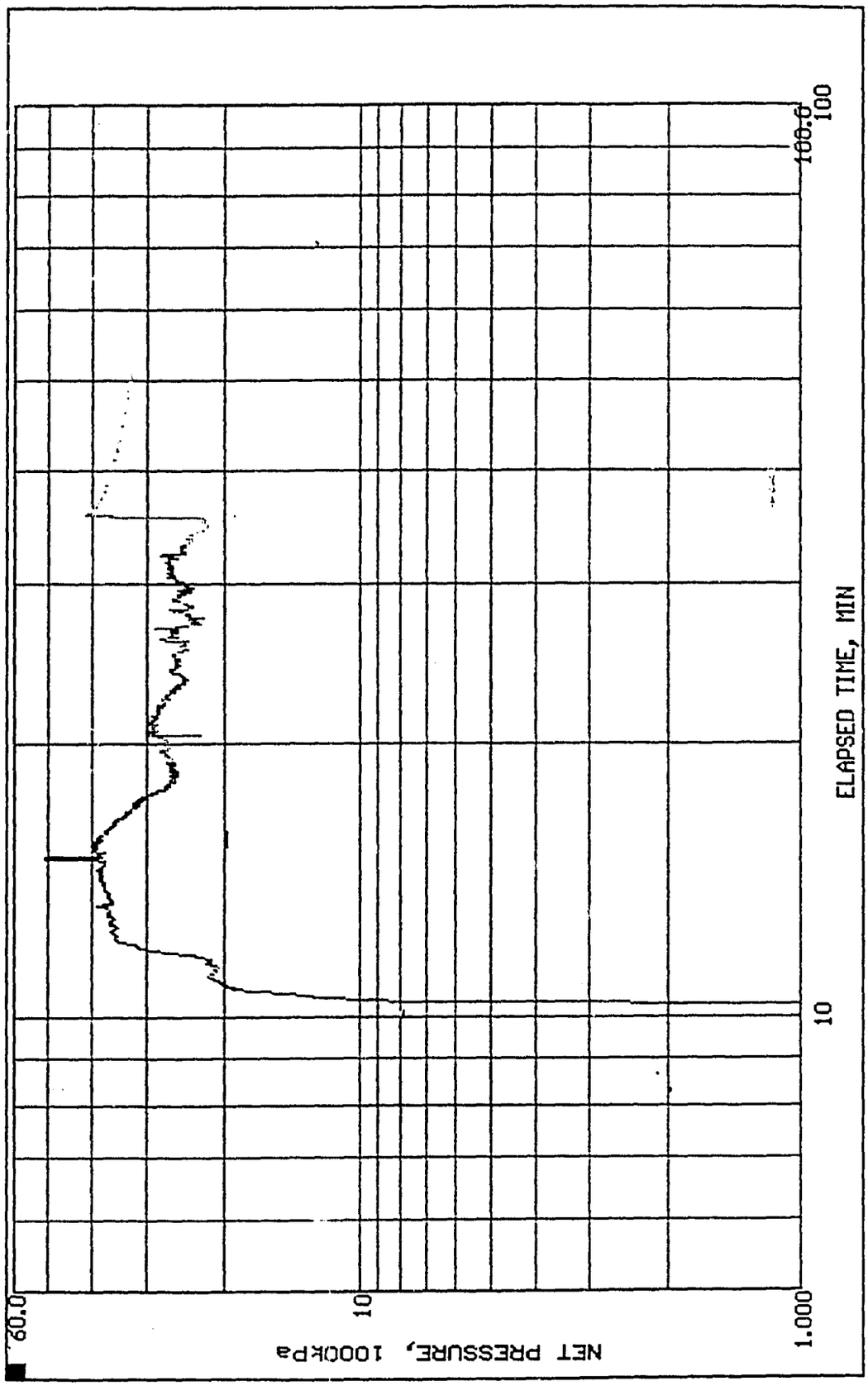
Time	Pressure (MPa) Tubing	Pressure (MPa) Casing	m3 Fluid Out of Tanks	m3 Slurry Per Stage	m3 Slurry Cumulative Total	m3 Slurry Per Minute	Proppant Conc. kg/m3	Comments
								RIG INTO TREESAVER (T.S.I.)
								SAFETY MEETING
								SET POP VALVE AT 26 MPA.
								PRESSURE TEST MAINLINE TO 69 MPA.
11:04.1	0.70	17.90				1.40		START 28% HCL
11:05.9	0.30	17.80	2.10	2.10	2.10	1.8 / 3.2		START MEDALLION HT-4000
11:14.5	57.60	19.50	17.10	15.00	17.10	1.8 / 2.1		START 28% HCL
11:19.0	63.20	20.50	27.10	10.00	27.10	2.40		START MEDALLION HT-4000
11:21.3	62.00	21.00	32.20	5.10	32.20	2.50		START 28% HCL
11:23.2	61.00	20.70	37.10	4.90	37.10	2.50		START MEDALLION HT-4000
11:25.1	61.90	21.50	42.00	4.90	42.00	2.50		START 28% HCL
11:27.2	60.00	21.60	47.10	5.10	47.10	2.50		START MEDALLION HT-4000
11:29.1	58.30	21.10	52.10	5.00	52.10	2.50		START 28% HCL
11:31.1	58.80	20.70	57.00	4.90	57.00	2.5 / 2.6		START FLUSH
11:33.2	55.80	21.90	62.20	5.20	62.20	2.50		START 28% HCL
11:35.5	55.60	21.40	67.50	5.20	67.40	2.50		START FLUSH
11:39.3	56.30	21.30	77.40	10.00	77.40			STOP PUMPS

NOWSCO Representative	Customer Representative
JOE ANDERSON	BLAIR WEISHAAR

FEB.26/99 UPPER NAHANNI "GAS"
C 1762
ACID FRAC
PAGE : 29-G (2/26/1999 11:54:58) Data stored in D:\990226.22



Desc: CDN FOREST FLETT RAPIDS I-61
FEB.26/99 UPPER NAHANNI "GAS"
C 1762
ACID FRAC
PAGE : 27-G (2/26/1999 11:54:58) Data stored in D:\990226.22



FEB.26/99 UPPER NAHANNI "GAS"
C 1762
ACID FRAC
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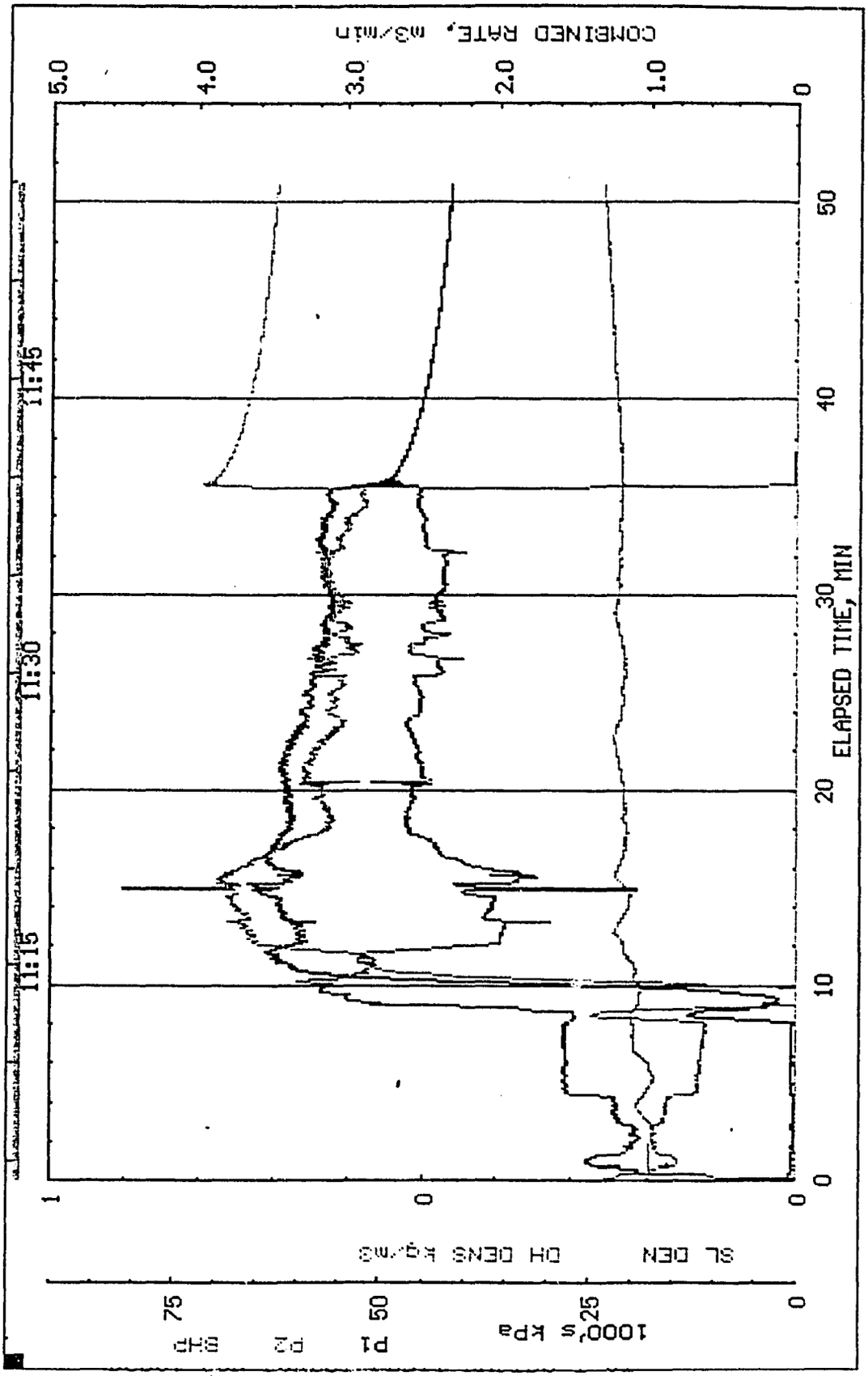


FEB.26/99 UPPER NAHANNI "GAS"
C 1762
ACID FRAC
PAGE : 33-G (2/26/1999 11:54:58) Data stored in D:\990226.22

COMPANY
FIELD
KIND OF JOB
LAND LOCATION
LSD
SEC
TWP
RGE
W
1 HR. UNIT NO.
OPERATOR
DATE
TICKET NUMBER
1 HR.
15MIN
30MIN.
45MIN
0 kPa
10000 kPa
20000 kPa
30000 kPa
40000 kPa
50000 kPa
60000 kPa
70000 kPa
80000 kPa
90000 kPa
100000 kPa
(1450 psi) 10000 kPa
(2900 psi) 20000 kPa
(4350 psi) 30000 kPa
(5800 psi) 40000 kPa
(7250 psi) 50000 kPa
(8700 psi) 60000 kPa
(10150 psi) 70000 kPa
(11600 psi) 80000 kPa
(13050 psi) 90000 kPa
(14500 psi) 100000 kPa
NOVISCO WELL SERVICE LTD.
CALGARY
MC 100
1000 kPa SUBDIVISIONS
Printed in Canada

NOWSCO

CUSTOMER:	Service Order No.	Treatment Report No.	Job No.	Proposal No.	DATE:
CANADIAN FOREST OIL LTD.	A4056		11061526		19990310

ADDRESS:	JOB TYPE:
	ABANDONMENT

LOCATION:	WELL NAME:	CONTRACTOR:	PROVINCE:
B11-27-16-16W3	ATCOR SUCCESS	SAGE	SK

Hole Size (mm):	Total Depth (m):	Mud Type :	Viscosity mPa's	Density kg/m3

Casing or Liner	Size mm 114.3	Density kg/m 14.1	Grade J-55	Depth m 964.4	Type of Plugs	
	Size mm	Density kg/m	Grade	Depth m	Top mm	
				Total : m	Btm mm	
Drill Pipe or Tubing	Size mm	Density kg/m	Grade	Depth m	Type of Head	
	Size mm 603	Density kg/m 6.9	Grade E	Depth m 949	SWAGE	

Perforations	From: (m)	To: (m)	PUMP OUT LINES: NO	RETURNS:	TYPE:
	From: (m)	To: (m)	FLOAT HOLDING: NO		AMT (m3)
	From: (m)	To: (m)	TYPE OF PACKER or SPECIAL TOOL: RETAINER		DEPTH (m) 949

TEMPERATURE (°C) -5	MIXING WATER (°C) 1	DRY CEMENT (°C) 5	SLURRY (°C) 1
TIME ARRIVED AT LOCATION 0800 19990310		TIME LEFT LOCATION 1200 19990310	

CEMENT DATA

	AMOUNT, t	CEMENT BLEND	ADDITIVES	Density kg/m3 SLURRY	Density kg/m3 D.H. FOAMED	Yield, m3/t	Total Yield, m3 SLURRY	Total Yield, m3 D.H. FOAMED
Scavenger								
Fill	3.0	0-1-0 G	.7% NFL 2	1901		.757	2.27	
Tail In								
Fill								
Tail In								

CASING OR LINER DATA

REMARKS	TIME Start	TIME Finish	RATE m3/min	PRESSURE, kPa Max.	PRESSURE, kPa Min.	Volume Pumped m3
PRE-JOB SAFETY MEETING	835	837	.15	100	0	.35
PRESSURE TEST TUBING	837	901		10000		
FEEDRATE	903	915	.01	10000		.15
FLUSH STINGER ON TOOL						
FEEDRATE	933	947	.035	10000	8000	.5
BATCH MIX CEMENT	1000	1023				2.27
PUMP CEMENT	1024	1038	.13	3000	1000	1.9
SQUEEZE – STING INTO RETAINER	1039	1052	.09	12500	1000	1.2
BACKWASH	1129	1137	.50	1500	500	4.0
LEAVE 1.0 m3 CEMENT						
ON TOP OF RETAINER						

PLUG BACK DATA

Plug #	Top (m)	Bottom (m)	Cement (t)	Displacement	Time Plug Down

PREFLUSH TYPE (m3)

1. H2O .30	3.
2.	4.

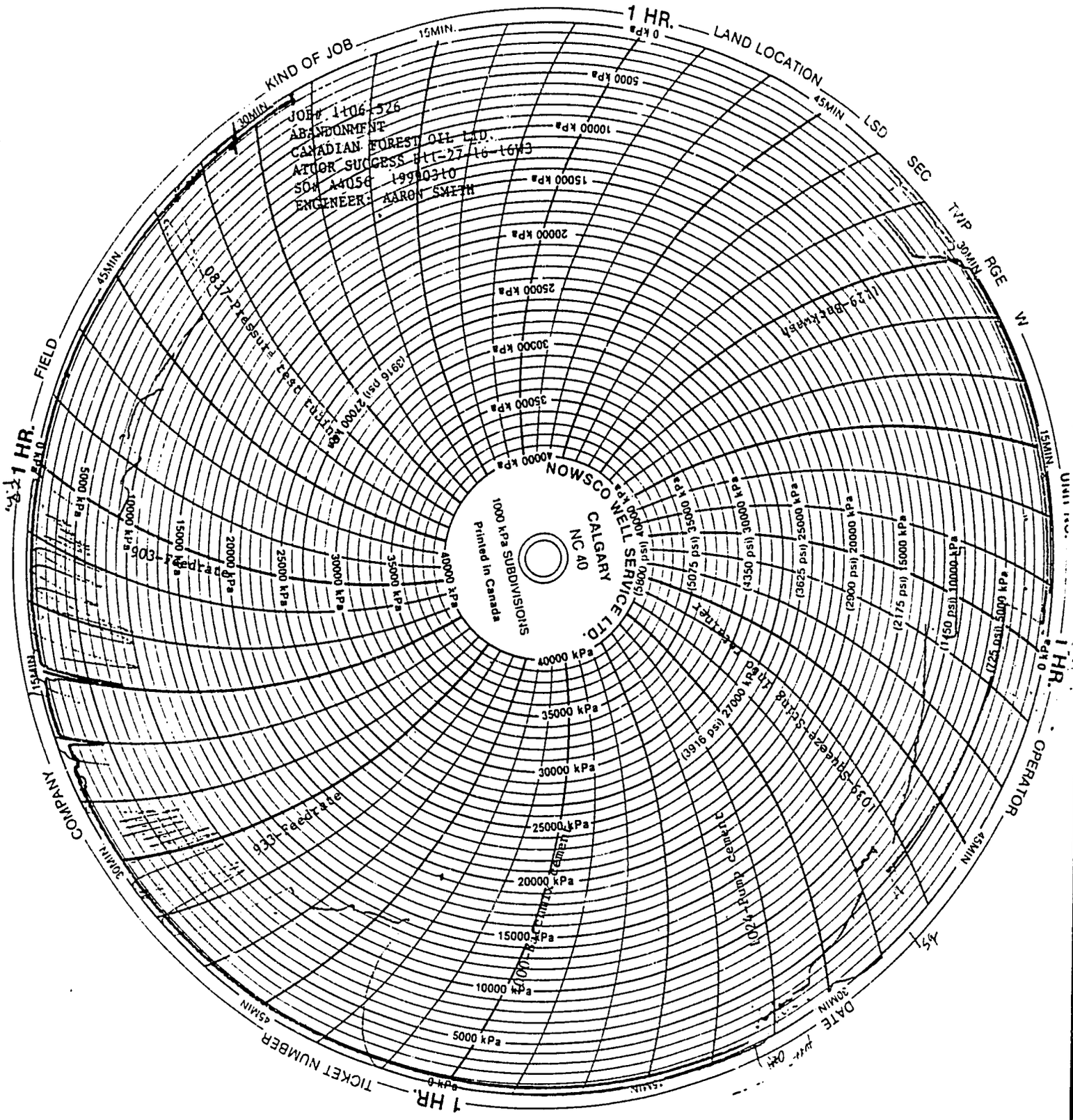
STAGE N2 RATIO (m3/m3)

1.	3.
2.	4.

SQUEEZE DATA (m3)

Total Slurry in Formation
Total Slurry in Casing
Total Backwashed
Total Slurry

NOWSCO REPRESENTATIVE: AARON SMITH	CUSTOMER REPRESENTATIVE: LEN DAY



1 HR.
LAND LOCATION
LSD
SEC
TWP
RGE
W
UNIT NO.
OPERATOR
DATE
TICKET NUMBER
COMPANY
FIELD
KIND OF JOB
15MIN.
30MIN.
45MIN.
0 kPa
5000 kPa
10000 kPa
15000 kPa
20000 kPa
25000 kPa
30000 kPa
35000 kPa
40000 kPa
NOWSCO WELL SERVICE LTD.
CALGARY
NC 40
1000 kPa SUBDIVISIONS
Printed in Canada
(3916 psi) 27000 kPa
(5800 psi) 40000 kPa
(5075 psi) 35000 kPa
(4350 psi) 30000 kPa
(3625 psi) 25000 kPa
(2900 psi) 20000 kPa
(2175 psi) 15000 kPa
(1450 psi) 10000 kPa
(725 psi) 5000 kPa
1029-Backwash
1039-Squeeze-Sting Inlet retainer
1024-Pump cement
1000-Baccamix cement
903-Feedrate
933-Feedrate
0837-Pressure test rupture

PAJAK ENGINEERING LTD.

SWAB REPORT

ATTACHMENT #16

Wellname: CDN FOREST ET AL FLETT RAPIDS I-61 **Location:** 300-I61-6050-12315-0

Date: 99/02/14

Formation: UPPER ARNICA **Perforations:** 2311.00 to 2318.00 mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Formation: **Perforations:** to mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Load Fluid Type: 3% KCL H20. **Tank Coefficient:** 0.0047

NO.	TIME	FLUID LEVEL m	SWAB DEPTH m	TANK GAIN cm	FLUID THIS RUN m3	FLUID TEST CUM. m3	OTHER %	WATER CUT %	WATER THIS RUN m3	WATER TEST CUM. m3	OIL THIS RUN m3	OIL TEST CUM. m3	TUBING PRESS. kPa	CASING PRESS. kPa	REMARKS
1	17:45	1325	1475	86.0	0.40	0.40	0.0	100.0	0.40	0.40		0.00	0	0	PH - 6, SALINITY - 30000 PPM. TBG ON VACUUM AFTER SWAB.
2	18:15	1475	1625	117.0	0.55	0.95	0.0	100.0	0.55	0.95			0	0	PH - 6, SALINITY - 30000 PPM. SLIGHT EVIDENCE OF GAS.
3	18:34	1550	1725	42.0	0.20	1.15	0.0	100.0	0.20	1.15			0	0	PH - 6, SALINITY - 34000 PPM. SLIGHT EVIDENCE OF GAS. CHANGE SWAB CUP.
4	19:00	1200	1350	85.0	0.40	1.55	0.0	100.0	0.40	1.55			0	0	PH - 6, SALINITY - 32000 PPM. SLIGHT EVIDENCE OF GAS.
5	19:30	1200	1200	0.0		1.55	0.0	100.0		1.55			0	0	DRY SWAB. UNABLE TO GET PAST 1200 m. SHIFT CHANGE.
6	21:05	1550	1950	10.0	0.05	1.60	0.0	100.0	0.05	1.60			0	0	PH = 6, SALINITY = 29000 PPM. SLIGHT GAS. NEW CUP.
7	21:30	1550	1950	32.0	0.15	1.75		100.0	0.15	1.75					PH = 6, SALINITY = 29000 PPM. SMALL AMOUNT OF GAS.
8	22:10	1850	2200	127.0	0.60	2.35		100.0	0.60	2.35					PH = 6, SALINITY = 26000 PPM. SMALL AMOUNT OF GAS. NEW CUP.
9	22:30	1850	2200	42.0	0.20	2.55		100.0	0.20	2.55					PH = 7, SALINITY = 26000 PPM. SMALL AMOUNT OF GAS. TUBING ON VACUUM.
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														

	WATER	OIL	OTHER	TOTAL
LOAD FLUID TO RECOVER	4.30 m3	0.00 m3	0.00 m3	4.30 m3
PREVIOUS TOTAL RECOVERED	0.00 m3	0.00 m3	0.00 m3	0.00 m3
THIS REPORT RECOVERED	2.55 m3	0.00 m3	0.00 m3	2.55 m3
TOTAL TEST RECOVERED	2.55 m3	0.00 m3	0.00 m3	2.55 m3
LOAD FLUID LEFT TO RECOVER	1.75 m3	0.00 m3	0.00 m3	

SUPERVISOR:	B.WEISHAAR
PHONE #:	(600) 700-2629
CALLING CARD #:	

CD 06/97

PAJAK ENGINEERING LTD.

SWAB REPORT

Wellname: CDN FOREST ET AL FLETT RAPIDS I-61 **Location:** 300-I61-6050-12315-0 **Page:** 1 of 1

Date: 99/02/21

Formation: UPPER NAHANNI **Perforations:** 2087.00 to 2091.00 mKB | to mKB | to mKB

to mKB | to mKB | to mKB

Formation: **Perforations:** to mKB | to mKB | to mKB

to mKB | to mKB | to mKB

Load Fluid Type: 3% KCL H20. **Tank Coefficient:** 0.0047

NO.	TIME	FLUID LEVEL m	SWAB DEPTH m	TANK GAIN cm	FLUID THIS RUN m3	FLUID TEST CUM. m3	OTHER %	WATER CUT %	WATER THIS RUN m3	WATER TEST CUM. m3	OIL THIS RUN m3	OIL TEST CUM. m3	TUBING PRESS. kPa	CASING PRESS. kPa	REMARKS
1	15:50	750	900	191.0	0.90	0.90		100.0	0.90	0.90		0.00	0	5100	Packer set @ 2061.18 mkb. PH = 6, Salinity = 90,000 ppm.
2	16:10	900	1045	127.0	0.60	1.50		100.0	0.60	1.50			0	5400	PH = 5, Salinity = 60,000 ppm.
3	16:25	970	1115	74.0	0.35	1.85		100.0	0.35	1.85			0	5600	PH = 5, Salinity = 90,000 ppm.
4	16:40	1115	1256	138.0	0.65	2.50		100.0	0.65	2.50			0	5800	PH = 5, Salinity = 74,000 ppm.
5	17:00	1256	1394	148.0	0.70	3.20		100.0	0.70	3.20			0	6000	PH = 5, Salinity = 88,000 ppm.
6	17:15	1394	1530	106.0	0.50	3.70		100.0	0.50	3.70			0	6400	PH = 5, Salinity = 92,000 ppm.
7	17:34	1530	1660	170.0	0.80	4.50		100.0	0.80	4.50			0	6800	PH = 5, Sal.= 86,000 ppm. Csg press is increasing due to heat expansion.
8	17:55	1660	1790	127.0	0.60	5.10		100.0	0.60	5.10			0	6800	PH = 5, Sal.= 90,000 ppm.
9	18:30	1790	1950	85.0	0.40	5.50		100.0	0.40	5.50			0	6900	PH = 5, Sal.= 94,000 ppm.
10	18:50	1850	2033	170.0	0.80	6.30		100.0	0.80	6.30			0	7000	PH = 5, Sal.= 94,000 ppm. "X" nipple @ 2051.21 mkb.
11	19:15	1980	2033	53.0	0.25	6.55		100.0	0.25	6.55			0	7500	PH = 5, Sal.= 96,000 ppm
12	20:00	1980	2033	21.0	0.10	6.65		100.0	0.10	6.65			0	7500	PH = 5, Sal.= 96,000 ppm.
13	22:30	1850	2033	117.0	0.55	7.20		100.0	0.55	7.20			0	6900	PH = 5, Sal.= 84,000 ppm.
14	23:05	1933	2033	85.0	0.40	7.60		100.0	0.40	7.60			0	7000	PH = 6, Sal.= 105,000 ppm.
15	23:05	1973	2033	53.0	0.25	7.85		100.0	0.25	7.85			0	7100	PH = 6, Sal.= 112,000 ppm.
	:														
	:														
	:														
	:														
	:														

	WATER	OIL	OTHER	TOTAL
LOAD FLUID TO RECOVER	9.60 m3	0.00 m3	0.00 m3	9.60 m3
PREVIOUS TOTAL RECOVERED	m3	0.00 m3	0.00 m3	0.00 m3
THIS REPORT RECOVERED	7.85 m3	0.00 m3	0.00 m3	7.85 m3
TOTAL TEST RECOVERED	7.85 m3	0.00 m3	0.00 m3	7.85 m3
LOAD FLUID LEFT TO RECOVER	1.75 m3	0.00 m3	0.00 m3	

SUPERVISOR:	B.WEISHAAR
PHONE #:	(600) 700-2629
CALLING CARD #:	

CD 06/97

PAJAK ENGINEERING LTD.

SWAB REPORT

Wellname: CDN FOREST ET AL FLETT PAPIDS I-61 **Location:** 300-I61-6050-12315-0

Date: 99/02/22

Formation: UPPER NAHANNI **Perforations:** 2085.00 to 2093.00 mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Formation: **Perforations:** to mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Load Fluid Type: 3% KCL H20. **Tank Coefficient:** 0.0047

NO.	TIME	FLUID LEVEL m	SWAB DEPTH m	TANK GAIN cm	FLUID THIS RUN m3	FLUID TEST CUM. m3	OTHER %	WATER CUT %	WATER THIS RUN m3	WATER TEST CUM. m3	OIL THIS RUN m3	OIL TEST CUM. m3	TUBING PRESS. kPa	CASING PRESS. kPa	REMARKS
1	02:05	1973	2033	53.0	0.25	8.10		100.0	0.25	8.10		0.00	0	6300	PH = 6, SALINITY = 102,000 ppm.
2	04:10	1973	2033	74.0	0.35	8.45		100.0	0.35	8.45			0	5750	PH = 6, SAL.=104,000 ppm.
3	04:30	1973	2033	32.0	0.15	8.60		100.0	0.15	8.60			0	5900	PH = 6, SAL.=103,000 ppm. SMALL AMOUNT OF GAS PRESENT IN ALL SWABS.
4	06:10	1983	2033	53.0	0.25	8.85		100.0	0.25	8.85			0	5600	PH = 6, Sal.=102,000 ppm. FLUID WAS A BROWNISH COLOR - SAMPLE TAKEN.
5	06:30	1983	2033	63.0	0.30	9.15		100.0	0.30	9.15			0	5600	PH = 6, Sal.=102,000 ppm.
6	06:45	1983	2033	10.0	0.05	9.20		100.0	0.05	9.20			0	5600	PH = 6, Sal.=103,000 ppm. Rec 1.35 m3 in last 6 swabs. Gasses during swab.
7	09:15	1960	2050	85.0	0.40	9.60	0.0	100.0	0.40	9.60			0	7400	PH = 6, SALINITY = 103,000 ppm, SMALL AMOUNT OF GAS AFTER SWAB.
8	10:15	1930	2050	106.0	0.50	10.10	0.0	100.0	0.50	10.10			0	5600	PH = 6, SALINITY = 112,000 ppm, SMALL AMOUNT OF GAS AFTER SWAB.
9	11:15	1930	2050	106.0	0.50	10.60	0.0	100.0	0.50	10.60			0	5700	PH = 6, SALINITY = 104,000 ppm, SMALL AMOUNT OF GAS AFTER SWAB.
10	12:45	1960	2050	95.0	0.45	11.05	0.0	100.0	0.45	11.05			40	5600	SITP PRIOR TO SWAB @ 40 kpa, PH = 6, SALINITY = 114,000 ppm, TRACE OF GAS.
11	22:10	1995	2040	42.0	0.20	11.25		100.0	0.20	11.25			40	4200	1st SWAB PULLED AFTER RE-PERFORATING. PH = 6, SAL = 114,000 ppm.TRACE OF GAS
12	23:59	1995	2050	42.0	0.20	11.45		100.0	0.20	11.45			60	4400	PH = 6, SAL =110,000 ppm. TRACE OF GAS.
	:														
	:														
	:														
	:														
	:														
	:														
	:														

	WATER	OIL	OTHER	TOTAL
LOAD FLUID TO RECOVER	9.60 m3	0.00 m3	0.00 m3	9.60 m3
PREVIOUS TOTAL RECOVERED	7.85 m3	0.00 m3	0.00 m3	7.85 m3
THIS REPORT RECOVERED	3.60 m3	0.00 m3	0.00 m3	3.60 m3
TOTAL TEST RECOVERED	11.45 m3	0.00 m3	0.00 m3	11.45 m3
LOAD FLUID LEFT TO RECOVER	0.00 m3	0.00 m3	0.00 m3	

SUPERVISOR:	B.WEISHAAR
PHONE #:	(600) 700-2629
CALLING CARD #:	

CD 06/97

PAJAK ENGINEERING LTD.

SWAB REPORT

Wellname: CDN FOREST ET AL FLETT RAPIDS I-61 **Location:** 300-I61-6050-12315-0

Date: 99/02/23

Formation: UPPER NAHANNI **Perforations:** 2085.00 to 2093.00 mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Formation: **Perforations:** to mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Load Fluid Type: 3% KCL H20. **Tank Coefficient:** 0.0047

NO.	TIME	FLUID LEVEL m	SWAB DEPTH m	TANK GAIN cm	FLUID THIS RUN m3	FLUID TEST CUM. m3	OTHER %	WATER CUT %	WATER THIS RUN m3	WATER TEST CUM. m3	OIL THIS RUN m3	OIL TEST CUM. m3	TUBING PRESS. kPa	CASING PRESS. kPa	REMARKS
1	00:30	2005	2050	42.0	0.20	11.65		100.0	0.20	11.65		0.00	100	4400	PH = 6, SALINITY = 110,000 ppm. H2S = 100 ppm.
2	01:00	2005	2050	42.0	0.20	11.85		100.0	0.20	11.85			100	4500	PH= 6, SALINITY = 108,000 ppm. H2S = 60 PPM.
3	03:00		2050	0.0		11.85				11.85			140	4300	NO FLUID RECOVERED. TUBING PRESSURE WAS 140 kpa BEFORE PULLING SWAB.
4	05:00		2050	0.0		11.85				11.85			50	4200	NO FLUID RECOVERED. RIH W/ 2 NEW SWAB CUPS. H2S READINGS = 198 ppm.
5	07:50		2050	0.0		11.85				11.85			6	4000	NO FLUID RECOVERED, SMALL TRACE OF GAS.
6	09:20		2050	0.0		11.85				11.85			6	3600	NO FLUID RECOVERED, SMALL TRACE OF GAS.
7	10:50		2050	10.0	0.05	11.90	0.0	100.0	0.05	11.90			7	3600	LAST SWAB PRIOR TO Co2 JOB. PH = 6, SALINITY = 110,000 ppm, TRACE OF GAS.
8	22:45	1982	2050	64.0	0.30	12.20		100.0	0.30	12.20			0	700	FIRST SWAB AFTER CO2 JOB. PH = 6, SALINITY = 120,000 ppm. TRACE OF GAS.
9	23:45		2050	0.0		12.20		0.0		12.20			140	700	NO FLUID RECOVERED. USED TANDEM SWAB CUPS. H2S = 70 ppm.
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														
	:														

	WATER	OIL	OTHER	TOTAL
LOAD FLUID TO RECOVER	9.60 m3	0.00 m3	0.00 m3	9.60 m3
PREVIOUS TOTAL RECOVERED	11.45 m3	0.00 m3	0.00 m3	11.45 m3
THIS REPORT RECOVERED	0.75 m3	0.00 m3	0.00 m3	0.75 m3
TOTAL TEST RECOVERED	12.20 m3	0.00 m3	0.00 m3	12.20 m3
LOAD FLUID LEFT TO RECOVER	0.00 m3	0.00 m3	0.00 m3	

SUPERVISOR:	B.WEISHAAR
PHONE #:	(600) 700-2629
CALLING CARD #:	

CD 06/97

PAJAK ENGINEERING LTD.

SWAB REPORT

Wellname: CDN FOREST ET AL FLETT RAPIDS I-61 **Location:** 300-I61-6050-12315-0

Date: 99/02/24

Formation: UPPER NAHANNI **Perforations:** 2085.00 to 2093.00 mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Formation: **Perforations:** to mKB | to mKB | to mKB
to mKB | to mKB | to mKB

Load Fluid Type: 3% KCL H20. **Tank Coefficient:** 0.0047

NO.	TIME	FLUID LEVEL m	SWAB DEPTH m	TANK GAIN cm	FLUID THIS RUN m3	FLUID TEST CUM. m3	OTHER %	WATER CUT %	WATER THIS RUN m3	WATER TEST CUM. m3	OIL THIS RUN m3	OIL TEST CUM. m3	TUBING PRESS. kPa	CASING PRESS. kPa	REMARKS
1	06:30	2040	2050	10.0	0.05	12.25		100.0	0.05	12.25		0.00	0	300	PH = 6, SALINITY = 104,000 ppm.
2	07:30		2050	0.0		12.25				12.25			0	400	NO FLUID RECOVERED.
3	10:00		2050	0.0		12.25				12.25			0	400	NO FLUID RECOVERED.
4	10:45		2050	0.0		12.25				12.25			0	450	NO FLUID RECOVERED.
5	12:00		2050	0.0		12.25				12.25			0	500	NO FLUID RECOVERED, CLOSED IN WELL TO OBTAIN PRESSURE FOR GAS/LIQUID SAMPLES

	WATER	OIL	OTHER	TOTAL
LOAD FLUID TO RECOVER	9.60 m3	0.00 m3	0.00 m3	9.60 m3
PREVIOUS TOTAL RECOVERED	12.20 m3	0.00 m3	0.00 m3	12.20 m3
THIS REPORT RECOVERED	0.05 m3	0.00 m3	0.00 m3	0.05 m3
TOTAL TEST RECOVERED	12.25 m3	0.00 m3	0.00 m3	12.25 m3
LOAD FLUID LEFT TO RECOVER	0.00 m3	0.00 m3	0.00 m3	

SUPERVISOR:	B.WEISHAAR
PHONE #:	(600) 700-2629
CALLING CARD #:	

CD 06/97

FieldNotes

ATTACHMENT #17

NORWARD

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

Supervisors R. RUTHORFORD/ M. ALBRECHT
Customer Rep: BLAIR WEISHAAR / ORVILLE KITTELSON.
Start Date: 1998/02/07
Start Time: 07:00 Hrs
Test Unit: PT. 25, LH. 25
Operation: CLEAN UP

Remarks: NO SAMPLES TAKEN.

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Gas Meter 1

Meter Type:	Orifice	
Meter Run Size:	101.6000	mm
Previous Gas Production:	0.000	10^3m3
Tap Type:	Flange	
Tap Location:	Downstream	
Gauge to Absolute Adjustment:	90.0	
Gas Gravity:	0.65	decimal
CO2:	0.00	%
H2S:	0.00	%
N2:	0.00	%
Critical Temperature:	207.8	K
Critical Pressure:	4625.7	kPa
Condensate:	No	

Oil Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Oil Production:	0.000	m3
Previous Water Production:	0.000	m3

Water Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Water Production:	0.000	m3

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
1	1999/02/13	07:00:00	Safety meeting.																			
2		11:00:00	Rig in flow line and pressure test to 28 mpa.																			
3		14:52:00	Drop bar.																			
4		14:53:00	Perforation guns go off and record pressure for 15 min.																			
5		15:00:00	0																			
6		15:05:00	0																			
7		15:10:00	0																			
8		15:10:00	0																			
9	1999/02/13	15:35:00	Shut in well and rig up to swab.																			
10		17:30:00	0	0			0.000	0	0.0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		
11		17:30:00	Run in hole with swab #1.																			
12		17:45:00	Swab #1 fluid level - (1325)m - depth - (1475)m.																			
13		17:45:00				50.80							0.40	100.00	0.40	38.40	0.40	0.00	0.00	0.00	6	28000
14		18:15:00	Swab #2 fluid level - (1475)m - depth - (1625)m.																			
15		18:15:00				50.80							0.55	100.00	0.55	26.40	0.95	0.00	0.00	0.00	6	35000
16		18:34:00	Swab #3 fluid level - (1550)m -depth - (1775)m.																			
17	1999/02/13	18:34:00				50.80							0.20	100.00	0.20	15.16	1.15	0.00	0.00	0.00	6	30000
18		19:00:00	Swab #4 fluid level - (1200)m - depth - (1350)m.																			
19		19:00:00				50.80							0.40	100.00	0.40	22.15	1.55	0.00	0.00	0.00	6	30000
20		19:30:00	Swab #5, unable to go past 1200m.																			
21		19:30:00				0.00							0.00	0.00	0.00	0.00	1.55	0.00	0.00	0.00		
22		21:05:00	Swab #6 fluid level - (1550)m - depth - (1950)m.																			
23		21:05:00				50.80							0.05	100.00	0.05	0.76	1.60	0.00	0.00	0.00	6	29000
24		21:30:00	Swab #7 fluid level - (1550)m - depth - (1950)m.																			
25	1999/02/13	21:30:00				50.80							0.15	100.00	0.15	8.64	1.75	0.00	0.00	0.00	6	29000
26		22:10:00	Swab #8 fluid level - (1850)m - depth - (2200)m.																			
27		22:10:00				50.80							0.60	100.00	0.60	21.60	2.35	0.00	0.00	0.00	6	26000
28		22:30:00	Swab #9 fluid level - (1850)m - depth - (2200)m.																			
29		22:30:00				50.80							0.20	100.00	0.20	14.40	2.55	0.00	0.00	0.00	7	26000
30		22:31:00											0.00	0.00	0.00	0.00	2.55	0.00	0.00	0.00		
31		22:50:00	Rig in wireline.																			
32	1999/02/14	00:00:00	Wireline at surface with perf bar.																			
33		00:45:00	Rig in Nowsco coil tubing unit.																			
34		03:30:00	Hold safety meeting.																			
35		04:00:00	Pickle coil with 0.5m3 of acid.																			
36		04:15:00	Bleed off coil through pressure tank.																			
37		04:30:00	Pressure test coil to 21 mpa.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
38	1999/02/14	04:45:00	Coil running in hole and pumping N2 at a rate of 15 scm/min.																			
39		05:10:00	Decrease N2 to 10 scm/min.																			
40	1999/02/14	06:30:00	Begin acid wash at 150 lts/min, and increase N2 to 12 scm/min.																			
41		06:30:00	Shut in at choke to increase back pressure on well for acid wash.																			
42		06:45:00	Increase N2 to 22scm/min.																			
43		06:50:00	Begin to see pressure increase at surface.																			
44		06:59:00	4.9m3 acid away.																			
45		07:15:00	2200				0.000															
46		07:23:00	Acid away, shut down acid pumper.																			
47		07:30:00	2500																			
48	1999/02/14	07:45:00	2600																			
49		07:59:00	Open choke to 25.4 mm to jet on well.																			
50		08:00:00	Gas lift acid with N2 @ 22scm/min.																			
51		08:00:00	2800			25.40																
52		08:14:00	POOH with coil tubing. Increase choke to 50.8mm.																			
53		08:15:00	1300			50.80							0.00	0.00	0.00	0.00	2.55	0.00	0.00	0.00		
54		08:30:00	1150			50.80							3.98	100.00	3.98	382.08	6.53	0.00	0.00	0.00	1	
55		08:45:00	800			50.80							3.10	100.00	3.10	297.60	9.63	0.00	0.00	0.00	1	
56	1999/02/14	09:00:00	800			50.80							1.80	100.00	1.80	172.80	11.43	0.00	0.00	0.00	1	
57		09:15:00	650			50.80							2.55	100.00	2.55	244.80	13.98	0.00	0.00	0.00	1	
58		09:18:00	Increase N2 to 25 scm/min. Pump 1.0m3 neutralizing fluid																			
59		09:30:00	1200			50.80							0.25	100.00	0.25	24.00	14.23	0.00	0.00	0.00	1	
60		09:45:00	1200			50.80							0.60	100.00	0.60	57.60	14.83	0.00	0.00	0.00	1	
61		09:46:00											0.00	0.00	0.00	0.00	14.83	0.00	0.00	0.00		
62		10:00:00	Shut in top master-valve and rig-out coil tubing																			
63		10:00:00	Fluid recovery from swabbing - 2.55m3																			
64		10:00:00	H20 returned before acid to surface - 2.18m3.																			
65	1999/02/14	10:00:00	Acid returned to surface - 9.25m3.																			
66		10:00:00	Neutralizing solution - 0.85m3.																			
67		11:00:00	Rig-up to swab well.																			
68		12:00:00	Swab #1 (no fluid level) - depth - (2280)m. No fluid recovery																			
69		12:50:00	Swab #2 (no fluid level) - depth - (2280)m. No fluid recovery																			
70		13:50:00	Swab #3 (no fluid level) - depth - (2280)m. No fluid recovery																			
71		14:50:00	Swab #4 (no fluid level) - depth - (2280)m. No fluid recovery																			
72		15:50:00	Swab #5 (no fluid level) - depth - (2280)m. No fluid recovery.																			
73	1999/02/14	16:50:00	Swab #6 (no fluid level) - depth - (2280)m. No fluid recovery.																			
74		17:30:00	Rig-up to pump down tbg. to establish a feed feed rate.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
75	1999/02/14	19:00:00	Pump down tbg at 21 mpa.																			
76		20:00:00	Increase pressure to 24 mpa.																			
77		21:00:00	Bleed off into formation.																			
78		22:00:00	Secure wellhead and record buildups overnight.																			
79		22:00:00	9000				0.000															
80	1999/02/15	00:00:00	8000																			
81		00:00:00	Casing is tstm.																			
82		01:00:00	6800																			
83		02:00:00	6000																			
84		02:00:00	Casing is tstm.																			
85		03:00:00	5300																			
86		04:00:00	4600																			
87		04:00:00	Casing is tstm.																			
88	1999/02/15	05:00:00	4300																			
89		06:00:00	4000																			
90		06:00:00	Casing is tstm.																			
91		07:00:00	3500																			
92		08:00:00	3000																			
93		08:00:00	Casing is tstm.																			
94		08:30:00	Open wing-valve and bleed off tbg. to p.tank.																			
95		09:00:00	Rig-up Nowsco coil tbg. for acid wash																			
96		10:30:00	Hold pre-job safety meeting.																			
97		11:20:00	Pressure test coil to 28mpa.																			
98		12:00:00	SIH with coil tbg.																			
99		12:05:00	Displace kcl water from tbg. to p.tank.																			
100		12:10:00	Acid pumper on line pumping 35L/min.																			
101		13:30:00	8.6m3 kcl recovered, Acid at nozzle,begin wash #1.																			
102		13:30:00											8.60	100.00	8.60	7.44	23.43	0.00	0.00	0.00		
103		13:35:00	Pressure up annulas to 21mpa.																			
104		13:39:00	Begin to squeeze acid,pumping at 35L/min.																			
105		13:45:00	Unable to squeeze,pressured up to 24mpa.																			
106		13:45:00	Work acid over the perforations.																			
107		14:40:00	Bled down pressure from 24mpa to 10mpa. (fresh acid at nozzle).																			
108		14:42:00	Pump acid again at 20L/min.Work acid over perforations with coil.																			
109		15:00:00	Unable to squeeze. bleed off pressure from coil to 7mpa.																			
110		15:10:00	Pump acid again at 10L/min.																			
111		15:45:00	Unsuccesfull attempt to squeeze.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
112	1999/02/15	15:48:00	Bleed off coil pressure.																			
113		15:50:00	POOH leaving a balance plug.(4.0m3).																			
114		15:50:00					0.000						4.00	100.00	4.00	41.14	27.43	0.00	0.00	0.00		
115		15:50:00	Ajust choke accordingly to hold 3mpa. on tbg.																			
116		15:50:00	Pumping at 30L/min to leave acid on bottom. Water displaced to p.tank.																			
117	1999/02/15	18:00:00	Coil tubing at surface, blow out coil to p.tank.(2.6m3)																			
118		18:00:00											2.60	100.00	2.60	28.80	30.03	0.00	0.00	0.00		
119		18:10:00	Rig-off coil tubing injector.																			
120		18:15:00	Rig-up pump to tbg.Pressure test to 35mpa.																			
121		18:22:00	Begin Pumping acid for squeeze at 80 L/min.																			
122		18:26:00	Stop pumping and monitor squeeze.																			
123		18:26:00	35000	18200																		
124		18:35:00	Pump to 34 mpa and 80 L/min of acid.																			
125		18:50:00	Stop pumping and monitor squeeze.																			
126	1999/02/15	18:50:00	30800	18400																		
127		19:00:00	Pump to 34 mpa and 80 L/min of acid.																			
128		19:00:00	34500	18600																		
129		19:35:00	Stop pumping, casing pressure too high.																			
130		19:35:00	34000	21000																		
131		19:40:00	Start pumping at 23 mpa and 60 L/min of acid.																			
132		19:50:00	Increase pump rate to 170 L/min of acid at 30 mpa																			
133		19:53:00	Decrease pump rate to 150 L/min at 32 mpa.																			
134	1999/02/15	19:55:00	Stop pumping due to air in pump system.																			
135		20:10:00	Start pumping at 27 mpa with 200 L/min of acid.																			
136		20:25:00	Decrease pump rate to 80 L/min at 35 mpa.																			
137		20:30:00	Stop pumping and monitor squeeze.																			
138		20:30:00	34000	19500																		
139		20:35:00	31500	19300																		
140		20:40:00	29400	19300																		
141		20:45:00	26600	19300																		
142	1999/02/15	20:50:00	24600	19300																		
143		21:00:00	23300	19300																		
144		21:15:00	22300	19300																		
145		21:30:00	21500	20200																		
146		21:30:00	Shut in master and rig on injector and coil.																			
147		21:45:00		20100																		
148		22:00:00		20100																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
149	1999/02/15	22:15:00		19500			0.000															
150	1999/02/15	22:30:00		19100																		
151		22:30:00	Rig on rig pump to second wing valve.																			
152		22:45:00		19000																		
153		23:00:00		18500																		
154		23:00:00	Attend safety meeting.																			
155		23:15:00		18200																		
156		23:20:00	Open wing valve to rig tank and circulate 150 L/min to fill coil with water.																			
157		23:40:00	Shut in wing valve and pressure test to 28 mpa.																			
158		23:50:00	Open master valve, bleed offf pressure to rig tank.																			
159		23:50:00	17200	17500																		
160	1999/02/16	00:00:00	Coil running in hole at 30 m/min at 30 L/min.																			
161		00:30:00	Pump rate of 35 L/min at 30 m/min.																			
162		00:55:00	Switch to acid through coil at 100 L/min.																			
163		01:00:00	21000	15800																		
164		01:20:00	Shut in wing valve and begin squeeze at 50 L/min.																			
165		01:30:00	21000	14500																		
166		01:50:00	5 m3 of acid away, switch to water at 50 L/min.																			
167	1999/02/16	02:00:00		14500																		
168		02:20:00	Decrease pump rate to 30 L/min.																			
169		02:45:00	Decrease pump rate to 20 L/min.																			
170		02:45:00	26000	13500																		
171		02:50:00	27400	13500																		
172		03:03:00	Shut down coil at max pressure 29 mpa.																			
173		03:15:00	Start pumping at 20 L/min of water.																			
174		03:15:00	25900	13200																		
175	1999/02/16	03:30:00	26700	13200																		
176		03:40:00	Stop pumping coil at max pressure 29 mpa.																			
177		03:55:00	Start pumping at 20 L/min.																			
178		03:55:00	27000	13000																		
179		04:05:00	Open wing valve and displace coil with N2 for gas lift to rig tank.																			
180		04:15:00	Begin jetting on well at 25 scm/min to rig tank.																			
181		04:20:00	Decrease rate to 10 scm/min.																			
182		04:30:00	Increase N2 rate to 25 scm/min.																			
183	1999/02/16	04:35:00	5.7 m3 of fluid recovered to rig tank.																			
184		04:35:00	Divert flow through pressure tank.																			
185		04:40:00	Very slight burnables to surface, no returns of fluid.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
186	1999/02/16	05:00:00	Tubing is tstm.																			
187		05:00:00		14600			0.000															
188		05:05:00	Strong returns of fluid and N2 to surface, no burnable gas.																			
189		05:06:00	Ph = 1.																			
190		05:17:00	Coil running out of hole and decrease N2 rate to 15 scm/min.																			
191	1999/02/16	05:30:00	500	16200																	1	
192		05:32:00	Decrease N2 rate to 10 scm/min.																			
193		06:00:00	500	14600									6.55	100.00	6.55	13.10	38.58	0.00	0.00	0.00	3	
194		06:00:00	Salinity too high too measure.																			
195		06:00:00	5 m3 total of acid pumped away.																			
196		06:00:00	2.9 m3 of water pumped away for displacement.																			
197		06:00:00	1.0 m3 of neutralizing fluid pumped away.																			
198		06:35:00	Coil tubing at surface.																			
199	1999/02/16	06:59:00	Shut in master-valve and rig-off coil. Record csg. pressures.																			
200		07:00:00		10000																		
201		07:15:00		9700																		
202		07:30:00		8800																		
203		07:45:00	Open top master and record tbg. pressures.																			
204		07:45:00	340	7800																		
205		08:00:00	370	7200																		
206		08:15:00	360	6250																		
207	1999/02/16	08:30:00	410	5600																		
208		08:45:00	435	5000																		
209		09:00:00	440	4000																		
210		09:15:00	460	3300																		
211		09:30:00	465	3000																		
212		09:45:00	470	2500																		
213		10:00:00	475	2000																		
214		10:15:00	480	900																		
215		10:30:00	Pressure up annulas to 21mpa.																			
216	1999/02/16	11:00:00	510	19000																		
217		11:00:00	Bleed off tbg. and rig-up T.S.I. stack.																			
218		11:30:00		16000																		
219		12:00:00		12000																		
220		12:30:00		10500																		
221		13:00:00		9000																		
222		13:15:00	Pressure up annulas to 21mpa.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
223	1999/02/16	13:45:00	Hold pre-job safety meeting.																			
224	1999/02/16	14:00:00	Rig up pump to annulas to hold 21mpa for frac.																			
225		14:05:00	Pressure test suraface lines to 60mpa.																			
226		14:20:00	Begin to pump acid 300L/min at 40mpa.																			
227		14:35:00	Pumping at 340L/min at 44mpa. (5.4m3) squeezed away.																			
228		14:45:00	Pumping at 360L/min at 45.5mpa.(8.0)m3 squeezed away																			
229		15:00:00	Acid stimulation complete.																			
230		15:00:00	10.m3 acid away.																			
231		15:00:00	12.50m3 overdisplacement																			
232	1999/02/16	16:00:00	Rig-out T.S.I and Nowsco.																			
233		16:05:00	Bleed off casing to rig-tank.																			
234		16:05:00	32000	0			0.000															
235		16:15:00	25500	0																		
236		16:30:00	25000	0																		
237		16:40:00	Pressure up casing to 21mpa.																			
238		16:45:00	Rig - up to pump 10.0m3 water down the tubing. Pumping at 130L/min.																			
239		16:45:00	24500	21000																		
240	1999/02/16	17:00:00	23600	20800																		
241		17:15:00	27500	20600																		
242		17:30:00	28900	20400																		
243		18:00:00	28500	20250																		
244		18:30:00	30000	20250																		
245		19:00:00	30000	19500																		
246		19:25:00	Shut down rig pump and monitor pressure.																			
247		19:30:00	500	22000																		
248	1999/02/16	20:00:00	4000	23000																		
249		20:30:00	Rig up E-line for logging. Running down hole with gamma-ray and ACLL tool.																			
250		20:45:00	Bleed off casing to rig tank.																			
251		22:00:00	E-line running out hole, problem with tool.																			
252		22:20:00	E-line at surface, cheking tool.																			
253		22:40:00	E-line running back in hole with ACLL tool.																			
254	1999/02/17	00:00:00	E-line at surface and bleed off.																			
255		00:00:00	Rig off wellhead and flow line.																			
256		02:00:00	Rig on bop's.																			
257		04:00:00	Pressure test bop's to 21mpa.																			
258		05:40:00	Unseat packer and pull dognut out.																			
259		05:50:00	Run in two joints of tubing																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: I - 61
Well Location: I - 61
Formation: UPPER ARNICA

FieldNotes

NORWARD

Row	Date	Time	Pt	Pc	WHT	Choke	Orif	Static	Diff	Temp	Gas Rate	Cum Gas	Fld Gain	BSW	H2O Gain	H2O Rate	Cum H2O	Oil Gain	Oil Rate	Cum Oil	pH	Salinity
	yy/mm/dd	clock	kPag	kPag	C	mm	mm	kPag	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
260	1999/02/17	06:00:00	Rig onto flow line and begin to circulate through pressure tank.																			
261		06:05:00	Open choke to 12.7 mm and hold 2000 kpa on well.																			
262	1999/02/17	06:10:00	Heavy returns to surface. ph = 1. Rig tank pumped 2m3 away.																			
263		06:45:00	Stop pumping, shut in at choke and hold 2300 kpa on well.																			
264		07:00:00	Bleed down lines.																			
265		07:00:00	Total fluid returned = 13.1m3.																			
266		07:30:00	Begin to pull pipe.																			
267		12:00:00	Pipe out of the hole. Rig up slickline.																			
268		12:20:00	Run in hole with guage ring.																			
269		12:45:00	Run in hole with bridge plug.																			
270	1999/02/17	15:00:00	Bridge plug landed.																			
271		15:20:00	Fill hole to pressure test bridge plug to 14mpa.(4.0)m3 to fill.																			
272		16:00:00	Run in bailer.																			
273		17:00:00	Wireline at surface.																			
274	1999/02/18	01:00:00	Set perf guns and assemble bottom hole assemply with wireline set permanant packer.																			
275		03:30:00	Wireline running in hole with perf guns and bottom hole assembly.																			
276		06:45:00	Wireliene at surface.																			
277		07:00:00	Space out.																			
278		07:30:00	Start in hole with tbg.																			
279		08:00:00	End of file.																			

CHT

FieldNotes

NORWARD

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

Supervisors R.RUTHERFORD / M.ALBRECHT
Customer Rep: BLAIR WEISHAAR / ORVILLE KITTELSON
Start Date: 1999 / 02 /17
Start Time: 08:00:00 hrs
Test Unit: TU.44 , TK.25 , LH.25
Operation: CLEAN-UP AND TEST

Remarks: Samples taken 2 stock water and 2 gas cylinders

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Gas Meter 1

Meter Type:	Orifice	
Meter Run Size:	101.6000	mm
Previous Gas Production:	0.000	10^3m3
Tap Type:	Flange	
Tap Location:	Downstream	
Gauge to Absolute Adjustment:	90.0	
Gas Gravity:	0.65	decimal
CO2:	100.00	%
H2S:	0.00	%
N2:	0.00	%
Critical Temperature:	304.4	K
Critical Pressure:	7384.3	kPa
Condensate:	No	

Oil Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Oil Production:	0.000	m3
Previous Water Production:	0.000	m3

Water Meter 1

Meter Type:	Produced Volume	
Measurement Type:	Incremental	
Previous Water Production:	0.000	m3

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orf\1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
1	1999/02/18	10:00:00	Await on service rig to run in tbg.																			
2		12:30:00	Pressure test packer to 14mpa.																			
3		13:00:00	Pressure test tubing to 14mpa.																			
4		13:00:00	Rig-up to swab down the tbg. to the rig tank.																			
5		13:35:00	Swab #1 - fluid level at surface and pull from 170m fluid recovered 0.75m3.																			
6		13:41:00	Swab #2 - fluid level at 200m and pull from 370m fluid recovered 0.75m3																			
7		13:50:00	Swab #3 fluid level at 300m and pull from 455m fluid recovered 0.7m3.																			
8		14:05:00	Swab #4 fluid level at 425m and pull from 490m fluid recovered 0.3m3.																			
9	1999/02/18	14:14:00	Swab #5 fluid level at 500m and pull from 700m fluid recovered 0.9m3.																			
10		14:28:00	Swab #6 fluid level at 650m and pull from 785m fluid recovered 0.6m3.																			
11		14:43:00	Swab #7 fluid level at 800m and pull from 980m fluid recovered 0.8m3																			
12		14:52:00	Swab #8 fluid level at 1025m and pull from 1180m fluid recovered 0.7m3.																			
13		15:19:00	Swab #9 fluid level at 1250m and pull from 1405m fluid recovered 0.7m3.																			
14		15:20:00	9 swabs pulled and 6.2m3 recovered.																			
15		15:20:00											0.00	0	0.00	0.00	0.00	0.0	0.00	0.00		
16		15:21:00											6.20	100	6.20	8928.00	6.20	0.0	0.00	0.00		
17	1999/02/18	15:22:00											0.00	0	0.00	0.00	6.20	0.0	0.00	0.00		
18		15:30:00	Rig-off b.o.p stack and install wellhead.																			
19		16:00:00	Rig-up flowline.																			
20		18:00:00	Pressure test flowline to 28mpa.																			
21		18:10:00	Drop bar 85 seconds to detonation. Record build-up pressures.																			
22		18:15:00	10																			
23		18:20:00	20																			
24	1999/02/18	18:25:00	20																			
25		18:30:00	40																			
26		19:00:00	120	350																		
27		19:15:00	250	380																		
28		19:30:00	350	300																		
29		19:35:00	Bleed off casing.																			
30		20:00:00	500	0																		
31		20:30:00	650	0																		
32	1999/02/18	21:00:00	900	0																		
33		21:30:00	1120	0																		
34		21:30:00	Shut in swab valve and rig on swab lubricator.																			
35		21:45:00	1200	0																		
36		21:45:00	Open wing and choke to bleed off well.																			
37		22:10:00	Shut in choke and prepare to swab.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
38	1999/02/18	22:29:00											0.00	0	0.00	0.00	6.20	0.0	0.00	0.00		
39	1999/02/18	22:30:00	Swab #1 - fluid at 822m, depth at 1115m.																			
40		22:30:00	40										0.50	100	0.50	720.00	6.70	0.0	0.00	0.00	5	39000
41		22:55:00	Swab #2 - fluid at 1100m, depth at 1394m.																			
42		22:55:00	45										0.60	100	0.60	34.56	7.30	0.0	0.00	0.00	5	39000
43		23:15:00	Swab #3 - fluid at 1221m, depth at 1496m.																			
44		23:15:00	60										0.40	100	0.40	28.80	7.70	0.0	0.00	0.00	5	36000
45		23:15:00	Change cups.																			
46	1999/02/18	23:30:00	Swab #4 - fluid at 1256m, depth at 1529m.																			
47		23:30:00	35										0.20	100	0.20	19.20	7.90	0.0	0.00	0.00	6	36000
48		23:50:00	Swab #5 - fluid at 1256m, depth at 1529m.																			
49		23:50:00	45										0.30	100	0.30	21.60	8.20	0.0	0.00	0.00	6	36000
50		23:50:00	Change to double cups.																			
51	1999/02/19	00:00:00	Total cum water to date = 8.20 m3.																			
52		00:10:00	Swab #6 - fluid at 1186m, depth at 1529m.																			
53		00:10:00	30										0.00		0.00	0.00	8.20	0.0	0.00	0.00		
54		00:30:00	Swab #7 - fluid at 1394m, depth at 1724m.																			
55		00:30:00	30										0.30	100	0.30	21.60	8.50	0.0	0.00	0.00	6	40000
56		00:30:00	H2S to surface = 5ppm.																			
57		00:45:00	Swab #8 - fluid at 1660m, depth at 1973m.																			
58		00:45:00	40										0.20	100	0.20	19.20	8.70	0.0	0.00	0.00	6	41000
59	1999/02/19	00:45:00	H2S = 0ppm.																			
60		01:15:00	Swab #9 - unable to go past 1529m.																			
61		01:45:00	Swab #10 - fluid at 1788m, depth at 2033m.																			
62		01:45:00	30										0.10	100	0.10	2.40	8.80	0.0	0.00	0.00	6	40000
63		02:05:00	Swab #11 - depth at 2033m.																			
64		02:05:00	30										0.00	0	0.00	0.00	8.80	0.0	0.00	0.00		
65		02:05:00	H2S = 1ppm.																			
66		02:10:00	Total fluid recovered from swabbing 22:30 hrs to 2:05 hrs = 2.6m3.																			
67	1999/02/19	02:15:00	Monitor buildups as follows.																			
68		02:20:00	60	0																		
69		02:25:00	95	0																		
70		02:30:00	125	0																		
71		02:40:00	195	0																		
72		02:50:00	290	0																		
73		03:00:00	325	0																		
74		03:00:00	Shut wing valve, rig up wireline.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yyyymmdd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
75	1999/02/19	03:25:00	Wireline running in hole to drop guns.																			
76		04:10:00	Wireline at surface.																			
77		04:15:00	Rig on swab lubricator.																			
78		04:30:00	960	0																		
79		04:30:00	Open to bleed down.																			
80		05:05:00	Swab #1 - depth at 2033, no returns.																			
81		05:10:00	Lay down lubricator and record buildups as follows.																			
82		05:15:00	90																			
83	1999/02/19	05:20:00	120																			
84		05:25:00	130																			
85		05:30:00	140																			
86		05:45:00	250																			
87		06:00:00	380																			
88		06:30:00	550																			
89		07:00:00	760																			
90		07:30:00	940																			
91	1999/02/19	08:00:00	1090																			
92		08:30:00	1250																			
93		09:00:00	1400																			
94		09:30:00	1560																			
95		10:00:00	1800																			
96		10:00:00	Open choke to 25.4mm to bleed off tbg.																			
97		10:02:00	Flammable gas to surface.																			
98		10:15:00	Shut in master-valve, and fill coil with 0.25m3 acid for pickle.																			
99	1999/02/19	11:00:00	Coil full pressure test coil and all surface lines to 30mpa.																			
100		11:38:00	Pressure testing complete.																			
101		11:50:00	SIH with coil pumping acid at 0.16m3/min. to displace water from coil.																			
102		12:00:00	Open choke to 50.8mm for circulation.																			
103		12:29:00											0.00	0	0.00	0.00	8.80	0.0	0.00	0.00		
104		12:30:00	150			50.80							4.10	100	4.10	5904.00	12.90	0.0	0.00	0.00	3	80000
105		12:45:00	300			50.80							2.40	100	2.40	230.40	15.30	0.0	0.00	0.00	5	74000
106		12:55:00	Adjust choke accordingly to hold 3mpa - 4mpa back pressure.																			
107	1999/02/19	13:00:00	3000										0.00	0	0.00	0.00	15.30	0.0	0.00	0.00		
108		13:00:00	Start acid wash pumping at 40L/min.																			
109		13:20:00	Ajust choke accordingly to hold 6mpa - 7mpa back pressure.																			
110		13:25:00	Flammable gas to surface, H2S by Kitagawa - 35ppm.																			
111		13:29:00											0.00	0	[illegible]	0.00	15.30	0.0	0.00	0.00		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifi	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
112	1999/02/19	13:30:00	6300										1.90	100	1.90	2736.00	17.20	0.0	0.00	0.00	3	30000
113		13:45:00	6400										0.20	100	0.20	19.20	17.40	0.0	0.00	0.00	3	37000
114		14:00:00	6500										0.40	100	0.40	38.40	17.80	0.0	0.00	0.00	3	41000
115	1999/02/19	14:15:00	6400										0.10	100	0.10	9.60	17.90	0.0	0.00	0.00	3	46000
116		14:16:00											0.00	0	0.00	0.00	17.90	0.0	0.00	0.00		
117		14:16:00	Pressure up annulas to 7mpa.																			
118		14:25:00	Shut in at choke to squeeze acid.																			
119		14:30:00	11000	7600																		
120		14:30:00	Pumping acid at 100L/min at 13mpa																			
121		14:35:00	Pressure up annulas to 14mpa.																			
122		14:35:00	Pumping acid at 20L/min.																			
123	1999/02/19	14:40:00	14250	14000																		
124		14:45:00	16600	14000																		
125		14:50:00	21750	14000																		
126		14:55:00	26000	13300																		
127		15:00:00	22800	13500																		
128		15:15:00	Begin to over-displace acid from coil.																			
129		15:30:00	Open choke to 50.8mm to gas lift fluid from well.																			
130		15:44:00											0.00	0	0.00	0.00	17.90	0.0	0.00	0.00		
131	1999/02/19	15:45:00	0	13000		50.80							4.00	100	4.00	5760.00	21.90	0.0	0.00	0.00	1	120400
132		15:50:00	Decrease choke to 25.4mm																			
133		16:00:00	0	15000		25.40							6.10	100	6.10	585.60	28.00	0.0	0.00	0.00	1	124000
134		16:05:00	Shut in to replace needle-valve, run coil back to bottom.																			
135		16:10:00	Open choke on 25.4mm to continue n2 blow-out. (Pooh).																			
136		16:15:00	1500	16200		25.40							1.05	100	1.05	100.80	29.05	0.0	0.00	0.00	3	280000
137		16:20:00	Increase choke to 50.8mm.																			
138		16:30:00	1200	16450		50.80							0.40	100	0.40	38.40	29.45	0.0	0.00	0.00	3	280000
139	1999/02/19	16:45:00	640	13600		50.80							0.10	100	0.10	9.60	29.55	0.0	0.00	0.00	1	250000
140		16:55:00	Traces of flammable gas.																			
141		17:00:00	120	13550		50.80							0.00	0	0.00	0.00	29.55	0.0	0.00	0.00		
142		17:25:00	N2 shut down.																			
143		17:45:00	Bleed off casing to rig-tank.																			
144		17:50:00	Coil at surface,shut in well.																			
145		17:51:00	Bleed off coil.																			
146		18:00:00	Rig-off coil tubing.																			
147	1999/02/19	18:00:00	Total fluid recovered is 20.75m3.																			
148		18:05:00	0	0																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
149	1999/02/19	18:10:00	20	0																		
150		18:15:00	60	0																		
151		18:30:00	110	0																		
152		18:45:00	200	0																		
153		19:00:00	260	0																		
154		19:15:00	280	0																		
155		19:30:00	300	0																		
156	1999/02/19	19:45:00	320	0																		
157		20:00:00	360	0																		
158		20:30:00	390	0																		
159		21:00:00	410	0																		
160		21:30:00	435	0																		
161		22:00:00	450	0																		
162		22:05:00	Rig up swab lubricator.																			
163		22:55:00	Swab #1 pull from 2033m, no trace of fluid.																			
164	1999/02/19	23:00:00	Rig out swab lubricator, shut in wing valve to monitor pressure.																			
165		23:00:00	H2S by Kitagawa- 350ppm.																			
166		23:05:00	60	0																		
167		23:10:00	80	0																		
168		23:15:00	100	0																		
169		23:30:00	130	0																		
170		23:45:00	155																			
171	1999/02/20	00:00:00	160																			
172		00:00:00	Casing on vacum.																			
173		00:30:00	180																			
174		01:00:00	190																			
175		01:30:00	200																			
176		02:00:00	210																			
177		02:30:00	220																			
178		03:00:00	240																			
179	1999/02/20	03:30:00	255																			
180		04:00:00	260																			
181		04:30:00	280																			
182		05:00:00	300																			
183		05:30:00	320																			
184		06:00:00	330																			
185		06:30:00	340																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
186	1999/02/20	07:00:00	360																			
187		07:30:00	370																			
188		08:00:00	380																			
189		08:30:00	390																			
190		09:00:00	400																			
191		09:30:00	420																			
192		10:00:00	430																			
193		10:30:00	445																			
194		11:00:00	455																			
195		11:30:00	475																			
196		12:00:00	480																			
197		12:30:00	490																			
198		13:00:00	510																			
199		13:30:00	515																			
200	1999/02/20	14:00:00	525																			
201		14:30:00	545																			
202		15:00:00	550																			
203		15:30:00	555																			
204		16:00:00	560																			
205		16:00:00	Open choke to 50.8mm to bleed off tbg.																			
206		16:00:00	Flammable gas to surface.																			
207		16:30:00	Shut in well, rig-up to pump down tbg.																			
208		17:00:00	Start pumping 2.0m3 chemical followed by h20.																			
209		17:45:00	Finished pumping.																			
210	1999/02/20	18:00:00	Rig-off Nowsco pumper. Shut in for 24hrs and record pressures.																			
211		18:00:00	Bled off csg.																			
212		18:05:00	Tbg on vacuum.																			
213		18:15:00	Rig-up to tbg. and pump 1.8m3.																			
214		18:30:00	Well on vacuum and monitor.																			
215		18:30:00		360																		
216		18:35:00		400																		
217		18:40:00		560																		
218	1999/02/20	18:45:00		660																		
219		19:00:00		960																		
220		19:15:00		1080																		
221		19:30:00		1520																		
222		20:00:00		2000																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
223	1999/02/20	20:30:00		2200																		
224		21:00:00		2450																		
225		22:00:00		3000																		
226		23:00:00		3400																		
227	1999/02/21	00:00:00		3600																		
228		00:00:00	Tubing on vacuum.																			
229		01:00:00		3900																		
230		02:00:00		4200																		
231		03:00:00		4400																		
232		04:00:00		4600																		
233		05:00:00		4700																		
234		06:00:00		4750																		
235	1999/02/21	06:00:00	Tubing on vacuum.																			
236		06:30:00		4750																		
237		07:00:00		4800																		
238		07:30:00		4800																		
239		08:00:00		4830																		
240		08:30:00		4850																		
241		09:00:00		4950																		
242		09:30:00		5000																		
243	1999/02/21	10:00:00		5000																		
244		10:30:00		5000																		
245		11:00:00		5050																		
246		11:30:00		5050																		
247		12:00:00		5050																		
248		12:00:00	Tubing on vacuum.																			
249		12:30:00		5050																		
250		13:00:00		5050																		
251	1999/02/21	13:30:00		5050																		
252		14:00:00		5100																		
253		14:30:00		5100																		
254		15:00:00		5100																		
255		15:30:00		5100																		
256		15:30:00	Rig-up swab.																			
257		15:49:00											0.00	0	0.00	0.00	29.55	0.0	0.00	0.00		
258		15:50:00	Swab #1 Fluid level at 750m and pull from 900m.																			
259		15:50:00		5100		50.80							0.90	100	0.90	1296.00	30.45	0.0	0.00	0.00	6	90000

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
260	1999/02/21	16:10:00	Swab #2 Fluid level at 900m and pull from 1045m.																			
261		16:10:00		5400		50.80							0.60	100	0.60	43.20	31.05	0.0	0.00	0.00	5	60000
262		16:25:00	Swab #3 Fluid level at 970m and pull from 1115m.																			
263		16:25:00		5600		50.80							0.35	100	0.35	33.60	31.40	0.0	0.00	0.00	5	90000
264		16:40:00	Swab #4 Fluid level at 1115m and pull from 1256m.																			
265		16:40:00		5800		50.80							0.65	100	0.65	62.40	32.05	0.0	0.00	0.00	5	74000
266		17:00:00	Swab #5 Fluid level at 1256m and pull from 1394m.																			
267		17:00:00		6000		50.80							0.70	100	0.70	50.40	32.75	0.0	0.00	0.00	5	88000
268	1999/02/21	17:15:00	Swab #6 Fluid level at 1394m and pull from 1530m.																			
269		17:15:00		6400		50.80							0.50	100	0.50	48.00	33.25	0.0	0.00	0.00	5	92000
270		17:34:00	Swab #7 Fluid level at 1530m and pull from 1660m.																			
271		17:34:00		6800		50.80							0.80	100	0.80	60.63	34.05	0.0	0.00	0.00	5	86000
272		17:55:00	Swab #8 Fluid level at 1660m and pull from 1790m.																			
273		17:55:00		6800		50.80							0.60	100	0.60	41.14	34.65	0.0	0.00	0.00	5	9000
274		18:30:00	Swab #9 Fluid level at 1790m and pull from 1950m.																			
275		18:30:00		6900		50.80							0.40	100	0.40	16.46	35.05	0.0	0.00	0.00	5	94000
276	1999/02/21	18:50:00	Swab #10 fluid level at 1850m and pull from 2033m.																			
277		18:50:00		7000		50.80							0.80	100	0.80	57.60	35.85	0.0	0.00	0.00	5	94000
278		19:15:00	Swab #11 fluid level at 1980m and pull from 2033m.																			
279		19:15:00		7500		50.80							0.25	100	0.25	14.40	36.10	0.0	0.00	0.00	5	96000
280		20:00:00	Swab #12 fluid level at 1980m and pull from 2033m.																			
281		20:00:00		7500		50.80							0.10	100	0.10	3.20	36.20	0.0	0.00	0.00	5	96000
282		20:01:00											0.00	0	0.00	0.00	36.20	0.0	0.00	0.00		
283		20:01:00	Total fluid recovered from swabbing = 6.65m3.																			
284	1999/02/21	20:30:00		7000																		
285		21:00:00		6600																		
286		21:00:00	Tubing on vacuum.																			
287		21:30:00		6800																		
288		22:00:00		6400									0.00	0	0.00	0.00	36.20	0.0	0.00	0.00		
289		22:00:00	Preapare to swab.																			
290		22:30:00	Swab #13 fluid at 1850m and pull from 2033m.																			
291		22:30:00		6900		50.80							0.55	100	0.55	26.40	36.75	0.0	0.00	0.00	6	84000
292	1999/02/21	23:05:00	Swab #14 fluid at 1933m and pull from 2033m																			
293		23:05:00		7000		50.80							0.40	100	0.40	16.46	37.15	0.0	0.00	0.00	6	105000
294		23:25:00	Swab #15 fluid at 1973m and pull from 2033m.																			
295		23:25:00		7100		50.80							0.25	100	0.25	18.00	37.40	0.0	0.00	0.00	6	112000
296	1999/02/22	00:00:00	Tubing on vacuum.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
297	1999/02/22	00:00:00	6900										0.00	0	0.00	0.00	37.40	0.0	0.00	0.00		
298		00:00:00	Total fluid to date = 37.40m3.																			
299		00:00:00	Total fluid recovered from swabbing las' 24 hrs = 7.85m3.																			
300		01:00:00		6500																		
301		01:45:00	Prepare to swab.																			
302		02:05:00	Swab #1 fluid at 1973m and pull from 2033m.																			
303		02:05:00		6300		50.80							0.25	100	0.25	2.88	37.65	0.0	0.00	0.00	6	102000
304	1999/02/22	02:05:00	Tubing on vacuum.																			
305		03:00:00		6000																		
306		03:50:00	Prepare to swab.																			
307		04:10:00	Swab #2 fluid at 1953m and pull from 2033m.																			
308		04:10:00		5750		50.80							0.35	100	0.35	4.03	38.00	0.0	0.00	0.00	6	104000
309		04:30:00	Swab #3 fluid at 2000m and pull from 2033m.																			
310		04:30:00		5900		50.80							0.15	100	0.15	10.80	38.15	0.0	0.00	0.00	6	103000
311		05:00:00		5700																		
312	1999/02/22	05:45:00	Prepare to swab.																			
313		06:10:00	Swab #4 fluid at 1983m and pull from 2033m. H2S 350ppm.																			
314		06:10:00		5600		50.80							0.25	100	0.25	3.60	38.40	0.0	0.00	0.00	6	102000
315		06:10:00	Tubing on vacuum.																			
316		06:30:00	Swab #5 fluid at 1983m and pull from 2033m.																			
317		06:30:00		5600		50.80							0.30	100	0.30	21.60	38.70	0.0	0.00	0.00	6	102000
318		06:45:00	Swab #6 fluid at 1983m and pull from 2033m.																			
319		06:45:00		5600									0.05	100	0.05	4.80	38.75	0.0	0.00	0.00	6	103000
320	1999/02/22	07:30:00		5650																		
321		08:00:00		5450																		
322		08:30:00		5200																		
323		08:30:00	Tubing is on vac.																			
324		09:15:00	Swab #7 fluid at 1960m and pull from 2050m.																			
325		09:15:00		7400		50.80							0.40	100	0.40	3.84	39.15	0.0	0.00	0.00	6	103000
326		10:15:00	Swab #8 fluid at 1930 and pull from 2050m																			
327		10:15:00		5600		50.80							0.50	100	0.50	12.00	39.65	0.0	0.00	0.00	6	112000
328	1999/02/22	11:15:00	Swab #9 no fluid level and pull from 2050m.																			
329		11:15:00		5700		50.80							0.50	100	0.50	12.00	40.15	0.0	0.00	0.00	6	104000
330		12:10:00	40	5600																		
331		12:45:00	Swab #10 no fluid level and pull from 2050m																			
332		12:45:00		5600		50.80							0.45	100	0.45	7.20	40.60	0.0	0.00	0.00	6	114000
333		13:00:00		5300																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
334	1999/02/22	13:00:00	10 swabs pulled From 00:00hrs fluid recovered 3.2m3 Total fluid recovered from swabbing 11.2m3.																			
335		13:15:00	Run in hole with Gamma - Ray.																			
336	1999/02/22	13:30:00	5	5100																		
337		14:00:00	5	5000																		
338		14:15:00	Out of hole, ready perf-guns.																			
339		14:30:00	5	4950																		
340		15:00:00	5	4800																		
341		15:30:00	5	4850																		
342		15:50:00	Run in perf-guns.																			
343		16:00:00	10	4800																		
344	1999/02/22	16:30:00	10	4700																		
345		17:00:00	10	4600																		
346		17:00:00	Guns on bottom, Failed to fire pooh.																			
347		17:20:00	Guns at surface.																			
348		17:30:00	5	4500																		
349		18:00:00	5	4400																		
350		18:05:00	Start in hole with guns.																			
351		18:30:00	5	4200																		
352	1999/02/22	18:45:00	Guns fired.																			
353		18:50:00	6																			
354		18:55:00	6																			
355		19:00:00	6																			
356		19:15:00	7																			
357		19:30:00	7																			
358		19:45:00																				
359		19:50:00	Run in hole with second stage of guns.																			
360	1999/02/22	20:00:00	7	4200																		
361		20:30:00	7	4200																		
362		20:40:00	Guns fired, run out of hole.																			
363		20:45:00	7	4100																		
364		20:50:00	7	4100																		
365		20:55:00	7	4100																		
366		21:00:00	7	4100																		
367		21:10:00	Wireline at surface and rig off wellhead.																			
368	1999/02/22	21:30:00	Rig up to swab.																			
369		22:10:00	Swab #11 fluid at 2005m and pull from 2050m.																			
370		22:10:00	40	4200		50.80							0.20	100	0.20	0.51	40.80	0.0	0.00	0.00	6	114000

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flat Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD ENERGY SERVICES LTD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
371	1999/02/22	22:10:00	H2S = 175 ppm.																			
372		23:00:00	60	4300																		
373	1999/02/23	00:00:00	Swab #12 fluid at 2005m and pull from 2050m.																			
374		00:00:00	100	4400		50.80							0.20	100	0.20	2.62	41.00	0.0	0.00	0.00	6	110000
375		00:00:00	H2S = 100 ppm.																			
376		00:00:00	Total cum fluid to date = 41.0m3.																			
377		00:00:00	Total cum fluid last 24hrs = 3.6m3.																			
378		00:30:00	Swab #1 fluid at 2005m and pull from 2050m.																			
379		00:30:00	100	4500		50.80							0.20	100	0.20	9.60	41.20	0.0	0.00	0.00	6	108000
380		01:00:00	Swab #2 fluid at 20055m and pull from 2050m.																			
381	1999/02/23	01:00:00	80	4600		50.80							0.20	100	0.20	9.60	41.40	0.0	0.00	0.00	6	117000
382		01:00:00	H2S = 60 ppm.																			
383		01:30:00	110	4400																		
384		02:00:00	130	4300																		
385		02:30:00	135	4300																		
386		02:45:00	140																			
387		02:45:00	Bleed off well to swab.																			
388		03:00:00	Swab #3 pull from 2050m, no fluid recovered.																			
389	1999/02/23	03:00:00	25	4300		50.80							0.00	0	0.00	0.00	41.40	0.0	0.00	0.00		
390		03:30:00	30	4200																		
391		04:00:00	40	4200																		
392		04:30:00	50	4200																		
393		04:45:00	Bleed off well to swab.																			
394		05:00:00	Swab #4 pull from 2050m and no fluid recovered.																			
395		05:00:00	10	4200		50.80							0.00	0	0.00	0.00	41.40	0.0	0.00	0.00		
396		05:00:00	H2S by neotox = 198 ppm.																			
397	1999/02/23	05:30:00	Tbg on vacuum.																			
398		05:30:00		4100																		
399		06:00:00	6	4000																		
400		06:30:00	7	4000																		
401		07:00:00	7	4000																		
402		07:30:00	7	3900																		
403		07:50:00	Swab #5 From 2050m and no fluid recovery.																			
404		07:50:00		3900		50.80																
405	1999/02/23	08:00:00	5	3800																		
406		08:30:00	6	3800																		
407		09:00:00	7	3700																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
408	1999/02/23	09:00:00	Tbg. on vacuum.																			
409		09:20:00	Swab #6 From 2050m and no fluid recovery.																			
410		09:20:00		3600		50.80															6	102000
411		09:30:00	4	3600																		
412		10:00:00	5	3600																		
413	1999/02/23	10:30:00	6	3600																		
414		10:30:00	Tbg. on vacuum.																			
415		10:50:00	Swab #7 From 2050 and no fluid level.																			
416		10:50:00	7	3600		50.80							0.05	100	0.05	0.21	41.45	0.0	0.00	0.00	6	110000
417		11:00:00	7 Swabs pulled fluid recovered 0.45m3.																			
418		11:00:00	Rig-out swab lubricator.																			
419		12:00:00	Rig-up T.S.I.																			
420		13:00:00	Safety meeting																			
421	1999/02/23	13:10:00	Pressure test tree saver to 50 mpa.																			
422		13:15:00	Start pumping CO2 at 16 mpa																			
423		13:43:00	Pumping at 0.2m3/min at 43mpa.																			
424		14:30:00	Finished pumping CO2 ,rig-out pumper.																			
425		15:00:00	38000	16800																		
426		15:45:00	32000	16600																		
427		16:00:00	32000	16400																		
428		16:15:00	32000	16350																		
429	1999/02/23	16:15:00	Bleed down tubing to 30,000kpa.																			
430		16:20:00	Rig-off Tree-saver.																			
431		17:00:00	Open wing-valve and pressure up to choke.																			
432		17:00:00	Record S.I.T.P.																			
433		17:00:00	29200	16200			0.00	0	0	0	0.000	0.000	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
434		17:00:00	Open choke to flow on a 6.35mm.																			
435		17:05:00	21100	16200	6	6.35																
436		17:10:00	19000	16200	6	6.35																
437	1999/02/23	17:12:00	Dri-flow meter in service with a 69.85mm. orifice plate.																			
438		17:15:00	16500	16200	6	6.35	69.85	380	31	0	143.192	1.492	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
439		17:24:00	Rock-choke (suspect plugging).																			
440		17:30:00	11150	16600	9	6.35	69.85	150	19	0	78.570	2.647	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
441		17:38:00	Rock-choke and zero dri-flow meter, (suspect plugging).																			
442		17:45:00	9320	16800	9	6.35	69.85	135	15	10	66.962	3.405	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
443		17:53:00	Dri-flow meter out of service to change orifice plate.																			
444		17:58:00	Dri-flow meter back in service with a 47.63mm orifice plate.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tm	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
445	1999/02/23	18:00:00	8360	16800	8	6.35	47.63	50	37	10	36.119	3.941	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
446		18:00:00	No trace of fluid to surface.																			
447		18:15:00	7940	16800	7																	
448		18:18:00	Need off casing.																			
449		18:30:00	7520	0	6	6.35	47.63	20	23	14	25.050	4.579	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
450		18:45:00	7120	0	6																	
451		18:55:00	Rock choke.																			
452		19:00:00	6930	0	9	6.35	47.63	10	14	15	18.282	5.030	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
453		19:00:00	No signs of burnable gas.																			
454	1999/02/23	19:15:00	6720	0	10																	
455		19:30:00	6530	0	10	6.35	47.63	8	12	16	16.759	5.395	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
456		19:35:00	Increase choke to 11.11mm.																			
457		19:45:00	5830	0	11																	
458		20:00:00	5580	0	11	11.11	47.63	550	43	34	77.559	6.377	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
459		20:15:00	5090	0	11																	
460		20:15:00	Meter out of service, change orifice plate to 53.98mm.																			
461		20:20:00	Meter in service.																			
462		20:30:00	4600	0	13	11.11	53.98	110	41	27	56.822	7.777	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
463	1999/02/23	20:45:00	3120	0	12																	
464		20:55:00	Increase choke to 50.8mm.																			
465		21:00:00	720	300	10	50.80	53.98	210	29	25	57.647	8.970	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
466		21:00:00	No signs of burnable gas.																			
467		21:15:00	100	550	10																	
468		21:20:00	Meter out of service, gas rate tstm.																			
469		21:30:00	50	700			0.00	0	0	0	0.000	8.970	0.00	0	0.00	0.00	41.45	0.0	0.00	0.00		
470		21:45:00	15	700																		
471	1999/02/23	22:00:00	8	700																		
472		22:00:00	Rig up to swab.																			
473		22:15:00	2	700																		
474		22:45:00	Swab #8 fluid at 1982m and pull from 2050m.																			
475		22:45:00	80	700		50.80							0.30	100	0.30	5.76	41.75	0.0	0.00	0.00	6	120000
476		23:00:00	140	700																		
477		23:45:00	Swab #9 no fluid recovered and pull from 2050m.																			
478		23:45:00	100	700		50.80							0.00	0	0.00	0.00	41.75	0.0	0.00	0.00		
479		23:45:00	H2S = 70ppm.																			
480	1999/02/24	00:00:00	250	700																		
481		00:00:00	Total cum fluid to date = 41.75 m3.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
482	1999/02/24	00:00:00	Total cum fluid last 24 hrs = 0.75m3.																			
483		00:00:00	Total cum burnable gas = 0.0 10^m3.																			
484		00:00:00	Total cum CO2 to date = 8.97 10^m3.																			
485		00:30:00	430	700			0.00															
486		01:00:00	540	700																		
487		01:30:00	620	700																		
488	1999/02/24	02:00:00	700	650																		
489		02:30:00	765	600																		
490		03:00:00	820	500																		
491		03:30:00	880	500																		
492		04:00:00	925	500																		
493		04:30:00	980	500																		
494		05:00:00	1000	400																		
495		05:30:00	1050	400																		
496	1999/02/24	06:00:00	1080	300																		
497		06:00:00	Bleed off well and rig up to swab.H2S 350ppm.																			
498		06:30:00	Swab #1 No fluid level and pull from 2050m																			
499		06:30:00		300									0.05	100	0.05	0.18	41.80	0.0	0.00	0.00	6	104000
500		06:31:00											0.00	0	0.00	0.00	41.80	0.0	0.00	0.00		
501		07:30:00	Swab #2 No fluid level and pull from 2050m (Dry swab).																			
502		07:30:00		400																		
503		07:35:00	Leave choke open on a 50.8mm choke (slight blow on tbg.).																			
504		08:00:00		400		50.80																
505		08:30:00		400		50.80																
506		09:00:00		400		50.80																
507		09:30:00		400		50.80																
508	1999/02/24	10:00:00		400		50.80																
509		10:00:00	Tubing is t.s.t.m.																			
510		10:00:00	Swab #3 No fluid level pull from 2050m (dry swab).																			
511		10:45:00	Swab #4 No fluid level pull from 2050m (dry swab).																			
512		11:00:00		500		50.80																
513		11:30:00		500		50.80																
514		12:00:00		500		50.80																
515		12:00:00	Tubing is t.s.t.m.																			
516		12:00:00	Swab #5 No fluid level pull from 2050m (dry-swab).																			
517		12:00:00	5 swabs pulled no fluid recovered. Shut-in and record well pressures.																			
518		12:15:00	5	500																		

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flott Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
519	1999/02/24	12:30:00	65	500			0.00															
520		13:00:00	110	500																		
521		14:00:00	205	450																		
522		15:00:00	280	450																		
523		16:00:00	350	400																		
524		17:00:00	390	400																		
525	1999/02/24	18:00:00	440	200																		
526		18:00:00	440	200																		
527		19:00:00	495	200																		
528		20:00:00	540	200																		
529		21:00:00	580	200																		
530		22:00:00	620	200																		
531		23:00:00	680	150																		
532	1999/02/25	00:00:00	700	100																		
533		01:00:00	730	50																		
534		02:00:00	760	100																		
535		03:00:00	800	100																		
536		04:00:00	830	50																		
537		05:00:00	860	50																		
538		06:00:00	890	50																		
539		07:00:00	920	50																		
540		08:00:00	945	50																		
541		09:00:00	975	50																		
542	1999/02/25	10:00:00	990	50																		
543		11:00:00	1035	50																		
544		11:00:00	Open wing-valve and pressure up to choke. Open choke to flow on 50.80mm.																			
545		11:05:00	Traces of flammable gas.																			
546		11:06:00	#1 sample taken at 800kpa H2S - 220ppm.																			
547		11:10:00	#2 sample taken at 300kpa H2S - 375ppm.																			
548		11:15:00	Leave well open to flow on 50.80mm.																			
549		11:30:00				50.80																
550		12:00:00				50.80																
551		12:30:00				50.80																
552		13:00:00				50.80																
553		13:00:00	Rig-up to run in and pull a swab, in order to catch samples.																			
554		13:15:00	Swab #1. No fluid returns at test equipment. 100ml sample caught at swab tee. 2 litre fluid sample taken from pressure tank.																			
555		13:15:00	Shut - in and record pressures.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
556	1999/02/25	13:30:00	5	100			0.00															
557	1999/02/25	14:00:00	80	100																		
558		15:00:00	120	100																		
559		16:00:00	165	100																		
560		17:00:00	205	100																		
561		18:00:00	240	100																		
562		18:10:00	Shut in master-valve, and change both wing valves.																			
563		20:00:00	Rig in flow line and pressure test to 25 mpa.																			
564		22:30:00	Open master valve and monitor bullups as follows.																			
565		23:00:00	370	100																		
566	1999/02/26	00:00:00	395	120																		
567		01:00:00	420	130																		
568		02:00:00	445	150																		
569		03:00:00	470	160																		
570		04:00:00	500	170																		
571		05:00:00	520	190																		
572		06:00:00	550	200																		
573		07:00:00	580	240																		
574	1999/02/26	07:40:00	Shut bottom master to rig in TSI. Nowsco.																			
575		09:10:00	Pump annulus to 21 mpa.																			
576		10:30:00	Start Acid-frac.																			
577		11:40:00	Acid-frac completed.																			
578		12:00:00	41000	25000																		
579		12:30:00	36500	22000																		
580		12:45:00	Bleed off tubing to the rig-tank 2.75m3 recovered.																			
581		12:59:00											0.00	0	0.00	0.00	41.80	0.0	0.00	0.00		
582	1999/02/26	13:00:00	34000	22000									2.75	100	2.75	3960.00	44.55	0.0	0.00	0.00		
583		13:15:00	Bleed off casing.																			
584		14:00:00	30000	0																		
585		14:05:00	Rig-out tree saver.																			
586		14:25:00	Open well and record s.i.t.p.																			
587		14:30:00	31500	2000																		
588		14:30:00	Open choke to flow on 3.17mm.																			
589		14:35:00	31500	2250		3.17																
590	1999/02/26	14:40:00	31000	2500		3.17																
591		14:45:00	30000	3000		3.17							2.30	100	2.30	31.54	46.85	0.0	0.00	0.00	3	12000
592		14:45:00	Increase choke to 3.96mm.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diffl	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
593	1999/02/26	15:00:00	25550	5000	17	3.96	0.00						1.80	100	1.80	172.80	48.65	0.0	0.00	0.00	1	50000
594		15:15:00	23750	6500	17	3.96																
595		15:30:00	24720	7200	16	3.96																
596		15:45:00	23900	7600	16	3.96																
597		16:00:00	23860	8000	16	3.96							2.95	100	2.95	70.80	51.60	0.0	0.00	0.00	1	86000
598	1999/02/26	16:30:00	22520	9000	16	3.96																
599		16:30:00	Increase choke to 4.76mm.																			
600		17:00:00	20270	10500	17	4.76							2.25	100	2.25	54.00	53.85	0.0	0.00	0.00	1	290000
601		17:00:00	Increase choke to 6.35mm. H2S 6ppm.																			
602		17:30:00	20050	11500	17	6.35																
603		17:30:00	Bled off casing to rig-tank.																			
604		18:00:00	19820	1250	17	6.35							4.20	100	4.20	100.80	58.05	0.0	0.00	0.00	4	290000
605		18:30:00	10100	2750	22																	
606	1999/02/26	19:00:00	9490	3500	20	6.35							2.90	100	2.90	69.60	60.95	0.0	0.00	0.00	3	
607		19:00:00	Salinity too high too measure.																			
608		19:30:00	8500	38	20																	
609		20:00:00	6750	4500	20	6.35							2.30	100	2.30	55.20	63.25	0.0	0.00	0.00	4	
610		20:00:00	Salinity too high too measure.																			
611		20:30:00	5120	5250	20																	
612		20:30:00	Increase choke to 8.73mm.																			
613		21:00:00	3970	5550	20	8.73							3.00	100	3.00	72.00	66.25	0.0	0.00	0.00	4	280000
614	1999/02/26	21:30:00	2580	6750	22																	
615		21:30:00	Increase choke to 11.11mm.																			
616		22:00:00	2240	7300	22	11.11							3.74	100	3.74	89.76	69.99	0.0	0.00	0.00	4	276000
617		22:30:00	1660	8000	22																	
618		22:30:00	Increase choke to 14.28mm.																			
619		23:00:00	700	8400	22	14.28							3.30	100	3.30	79.20	73.29	0.0	0.00	0.00	4	275000
620		23:30:00	650	8500	22																	
621		23:30:00	Increase choke to 17.46mm.																			
622	1999/02/27	00:00:00	480	9000	22	17.46							2.40	100	2.40	57.60	75.69	0.0	0.00	0.00	4	278000
623		00:00:00	Total cum fluid to date = 75.69m3.																			
624		00:00:00	Total cum fluid since frac = 33.89m3.																			
625		00:00:00	Total cum fluid left to recover from frac = 43.51m3.																			
626		00:30:00	2300	9800	26	17.46																
627		00:40:00	Bleed down casing.																			
628		01:00:00	3000	0	25	17.46							3.90	100	3.90	93.60	79.59	0.0	0.00	0.00	4	273000
629		01:25:00	Decrease choke 14.29mm.																			

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orif1	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
630	1999/02/27	01:30:00	2120	0	23	14.29	0.00															
631		01:45:00	Increase choke to 50.8mm.																			
632		02:00:00		0	19	50.80							0.65	100	0.65	15.60	80.24	0.0	0.00	0.00	4	268000
633		02:00:00	Tubing too small too measure.																			
634		02:01:00											0.00	0	0.00	0.00	80.24	0.0	0.00	0.00		
635		02:15:00	Shut in at choke and stop cock.																			
636		02:20:00	160	0																		
637		02:25:00	280	0																		
638	1999/02/27	02:30:00	400	0																		
639		02:45:00	700	0																		
640		03:00:00	900	0									0.00	0	0.00	0.00	80.24	0.0	0.00	0.00		
641		03:00:00	Open to flow on a 50.80mm choke.																			
642		03:15:00		0									1.30	100	1.30	124.80	81.54	0.0	0.00	0.00	4	265000
643		03:15:00	Tubing too small too measure, shut in at choke and stop cock.																			
644		03:20:00	145	0																		
645		03:25:00	170	0																		
646	1999/02/27	03:30:00	190	0																		
647		03:45:00	260	0																		
648		04:00:00	340	0																		
649		04:00:00	Open to flow on a 50.80mm choke.																			
650		04:10:00		0																		
651		04:10:00	Prepare to swab.																			
652		04:25:00	Swab #1 fluid at 254m and pull from 515m.																			
653		04:25:00	930	0	26	50.80																
654	1999/02/27	04:30:00	840	0	28																	
655		04:35:00	330	0	22								1.15	100	1.15	20.70	82.69	0.0	0.00	0.00	4	262000
656		05:00:00	Swab #2 fluid at 839m and pull from 896m.																			
657		05:00:00	400	0	20								0.25	100	0.25	14.40	82.94	0.0	0.00	0.00	4	261000
658		05:35:00	Swab #3 fluid at 1418m and pull from 1759m.																			
659		05:35:00	960	0	30	50.80																
660		05:40:00	270	0	23								0.25	100	0.25	9.00	83.19	0.0	0.00	0.00	5	258000
661		06:30:00	Swab #4 fluid at 1779m and pull from 1847m.																			
662	1999/02/27	06:30:00	550	0	24	50.80							0.30	100	0.30	8.64	83.49	0.0	0.00	0.00	5	256000
663		06:50:00	Swab #5 fluid at 1790m and pull from 2040m.																			
664		06:50:00	600	0	28	50.80							1.10	100	1.10	79.20	84.59	0.0	0.00	0.00	5	255000
665		07:50:00	Swab #6 fluid at 1880m and pull from 2050m.																			
666		07:50:00	500	0	26	50.80							0.75	100	0.75	18.00	85.34	0.0	0.00	0.00	6	151000

Job Number: G.P - 99 - 21
Customer: CANADIAN FOREST OIL
Wellname: Flett Rapids
Well Location: I - 61
Formation: Upper Nahanni Dolomite

FieldNotes

NORWARD

Row	Date	Clk Tim	Tbg Pres	Csg Pres	Wht	Choke	Orifl	Static1	Diff1	Temp1	Gas Rate1	Cum Gas1	Fld Gain	BSW1	H20 Gain	H20 Rate	Cum H20	Oil Gain	Oil Rate	Cum Oil	pH	SALINITY
	yy/mm/dd	clock	kPa	kPa	C	mm	mm	kPa	kPa	C	10^3m3/d	10^3m3	m3	%	m3	m3/d	m3	m3	m3/d	m3		ppm
667	1999/02/27	08:00:00	9.65m3 recovered from 00:00.																			
668		08:50:00	Swab #7 fluid at 1892m and pull from 2050m.																			
669		08:50:00	400	0	25	50.80	0.00						0.70	100	0.70	16.80	86.04	0.0	0.00	0.00	5	244000
670		09:40:00	Swab #8 fluid at 2006m and pull from 2050m.																			
671		09:40:00	200	0	24	50.80							0.20	100	0.20	5.76	86.24	0.0	0.00	0.00	5	121000
672		10:30:00	Shut in well and rig-off wellhead.																			
673		11:00:00	Rig-out test equipment.																			

Schlumberger

GeoQuest

MODULAR DYNAMIC FORMATION TESTER

TRANSIENT PRESSURE TEST ANALSYSIS

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS J-61

FIELD: FLETT RAPIDS

PROVINCE: NORTHWEST TERRITORIES

REPORT BY: G. SCHLACHTER

Overview:

A Modular Dynamics Formation Test was ran at a measured depth of 2565.79 mKB with a dual packer.

An initial pump out was performed, with approximately 18 liters of fluid displaced over a time span of 10.75 minutes, at a pumping rate of 1.67 liters per minute. The principle build up of 22.75 minutes duration followed the initial pump out.

A second pump out was performed, with approximately 43 liters of fluid displaced over a time span of 25.68 minutes, at a pumping rate of 1.67 liters per minute. The final build up of 3.6 minutes followed the second pump out with two samples taken at the end of this build up.

Assumptions:

Based on the open hole GR response, a formation vertical layer thickness of 2.0 meters from 2564.8 to 2566.8 mKB measured depth was derived. The well bore was nearly vertical (2.75 degrees) at the test depth of 2528 m true vertical depth.

Based on the pump out resistivity plot included in this report, the produced fluid was considered to be filtrate water with a viscosity at 0.5 centipoise at a formation temperature of 112 degrees C.

The first build up was considered the primary build up for the purposes of this interpretation. Type curve and Horner analysis were performed on this transient and compared to the initial pump out, the second pump out and the final build up pressure transients.

The PAQP (packer quartz gauge) was used for the purposes of this interpretation. The PAQP pressure response compared well to the BSG1 (strain gauge), but the higher resolution and accuracy of the PAQP made it the best candidate for pressure transient analysis.

A partial completion, homogenous, infinite acting formation was considered to be the most appropriate model for this well test interpretation.

Interpretation:

The principal transient, the first build up, built to a final pressure of 26166.15 KPaa. Some packer movement may have occurred near 3100 and 3200 seconds and near the end of the build up, as shown by inflections in the pressure response. These inflections did not prevent a valid interpretation of the data.

The Comparative Diagnostic Plot is a log-log plot that illustrates the repeatability and likely flow regime of the four pressure transients. One and a half log cycles after the unit slope of well bore storage was complete, a flat line region began to develop on all four transients. The flat line region was indicative of infinite acting radial flow.

The scatter in the pressure derivative near the end of the pressure transients was due to the pressure response approaching the gauge resolution. Moderate smoothing was applied to the derivatives to help reduce the scatter, without changing the characteristic shape of the derivative.

The Multi-Rate Type Curve Plot for the first build up showed a good fit with the parameters of permeability of 44.5 md and a mechanical skin of +11.6. The total skin of +38.54 represents the combined mechanical skin and limited entry skin effect of a partial completion.

The Infinite Acting Radial Flow Horner Plot for the first build up compared well with the type curve analysis, with a permeability of 41 md and a total skin effect of +27.8. The Horner plot showed an extrapolated formation pressure of, P*, of 26180 KPaa.

A Pressure History Matching plot illustrates the predicted pressure response of a formation with the properties of the first build up type curve analysis. A good fit resulted, suggesting that the formation properties were valid for all four transients.

Type curves for the pressure transients for the first pump out, second pump out and final build up were overlaid on the predicted type curve of the principal transient, the first build up. The fit was generally good, suggesting that the formation properties determined from the first build up were valid for the other three transients.

Conclusion:

Type curve analysis of the principal transient resulted in a formation permeability of 41 md and a skin effect of +11.6 based on a partial completion, homogenous, infinite acting radial flow model . The extrapolated formation pressure, P*, based on a Horner plot was 26,180 KPaa.

Comparison of the type curve analysis of the principal transient to the other transients added confidence to this interpretation.

File 66

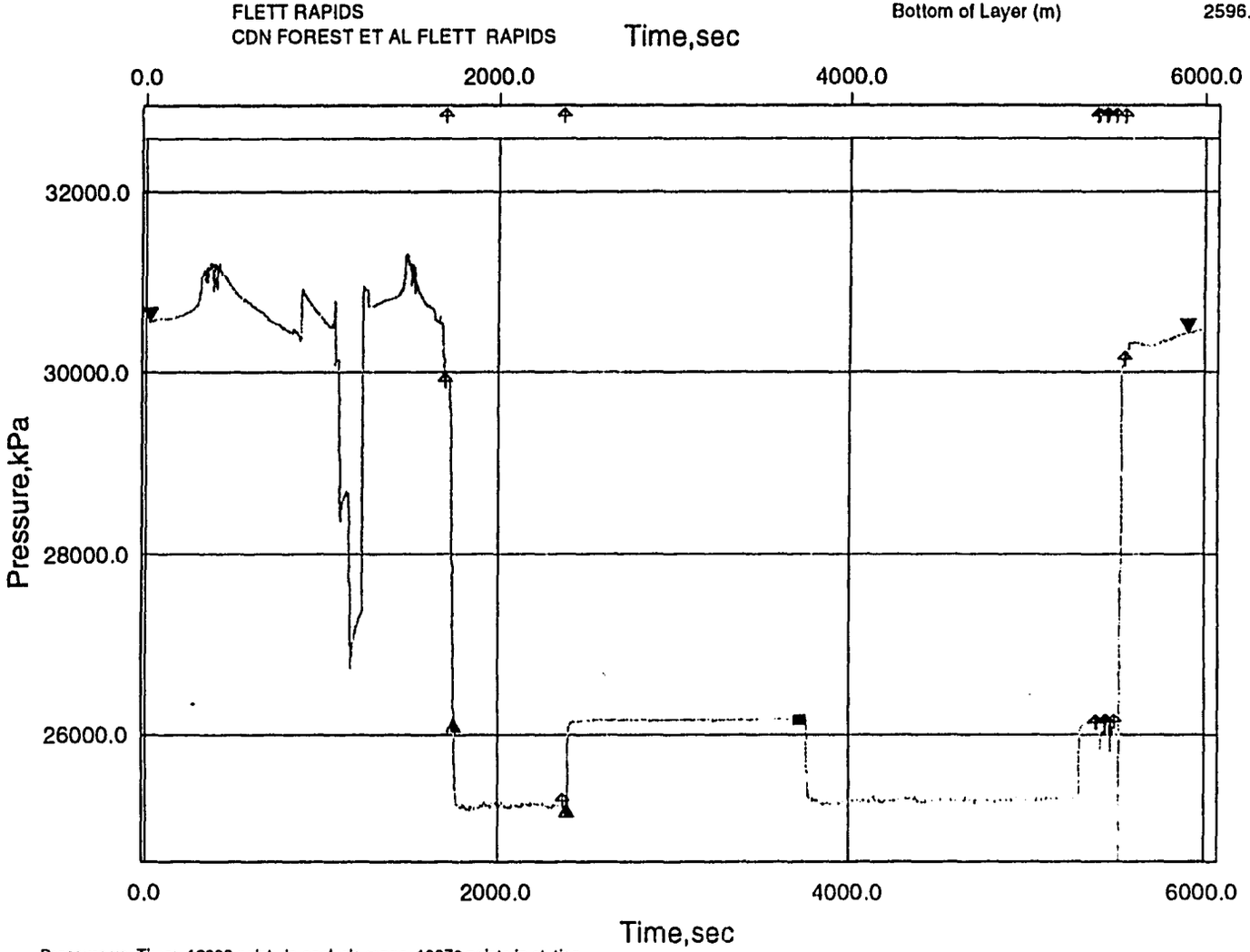
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

CANADIAN FOREST OIL LTD
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26166.15
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate, Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 10:49:17

File 66

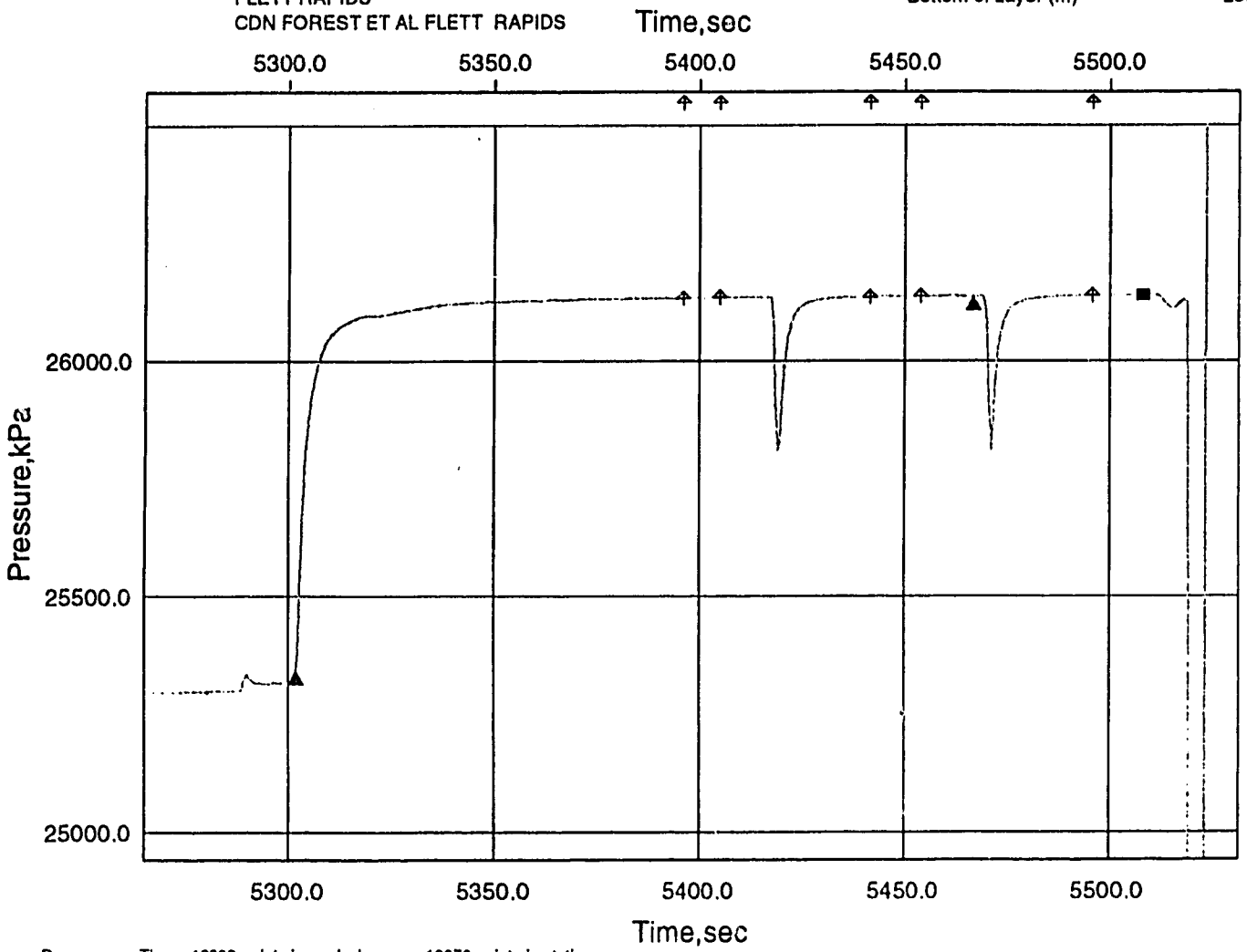
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

CANADIAN FOREST OIL LTD.
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26139.20
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate, Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 11:04:58

File 66

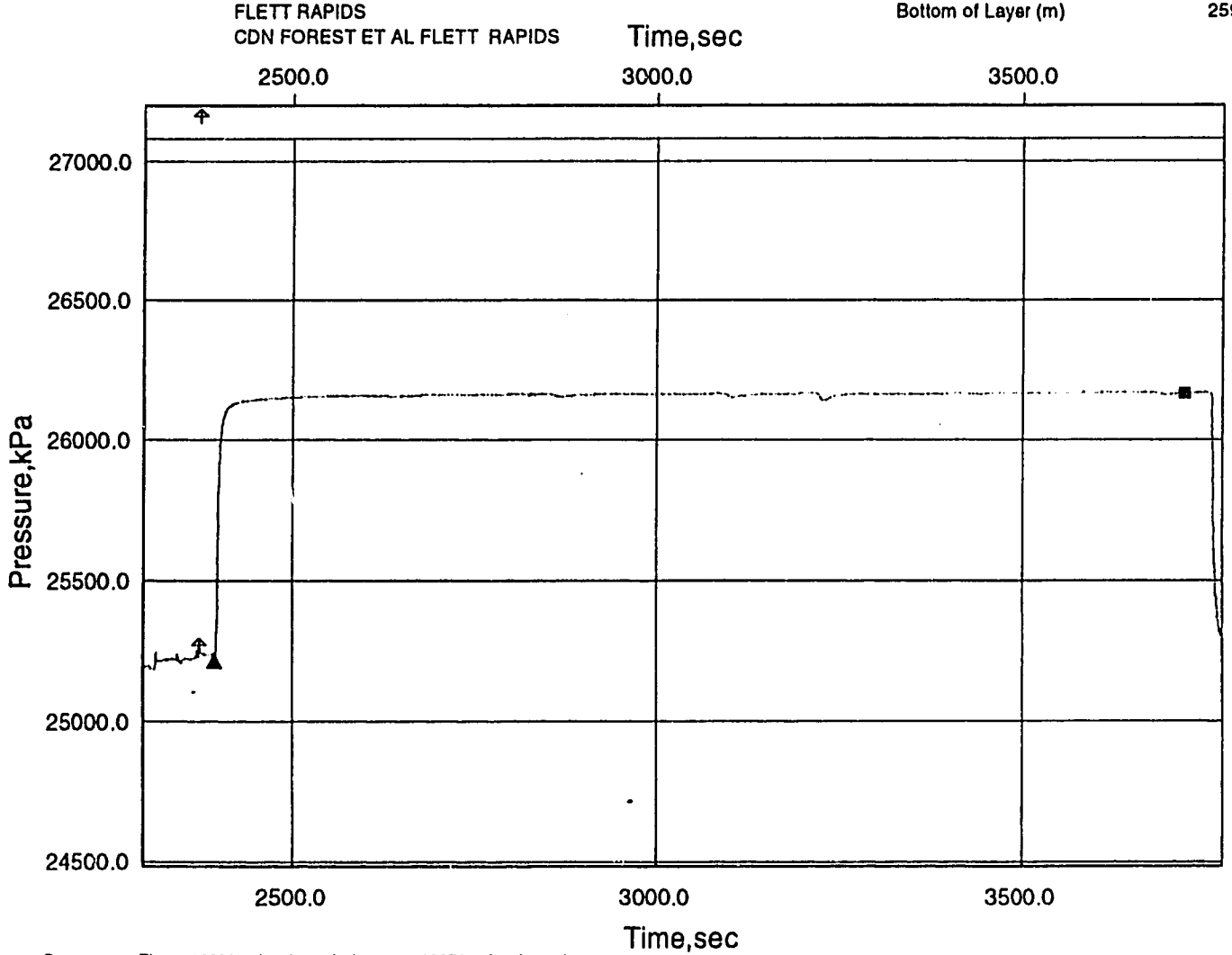
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

CANADIAN FOREST OIL LTD.
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

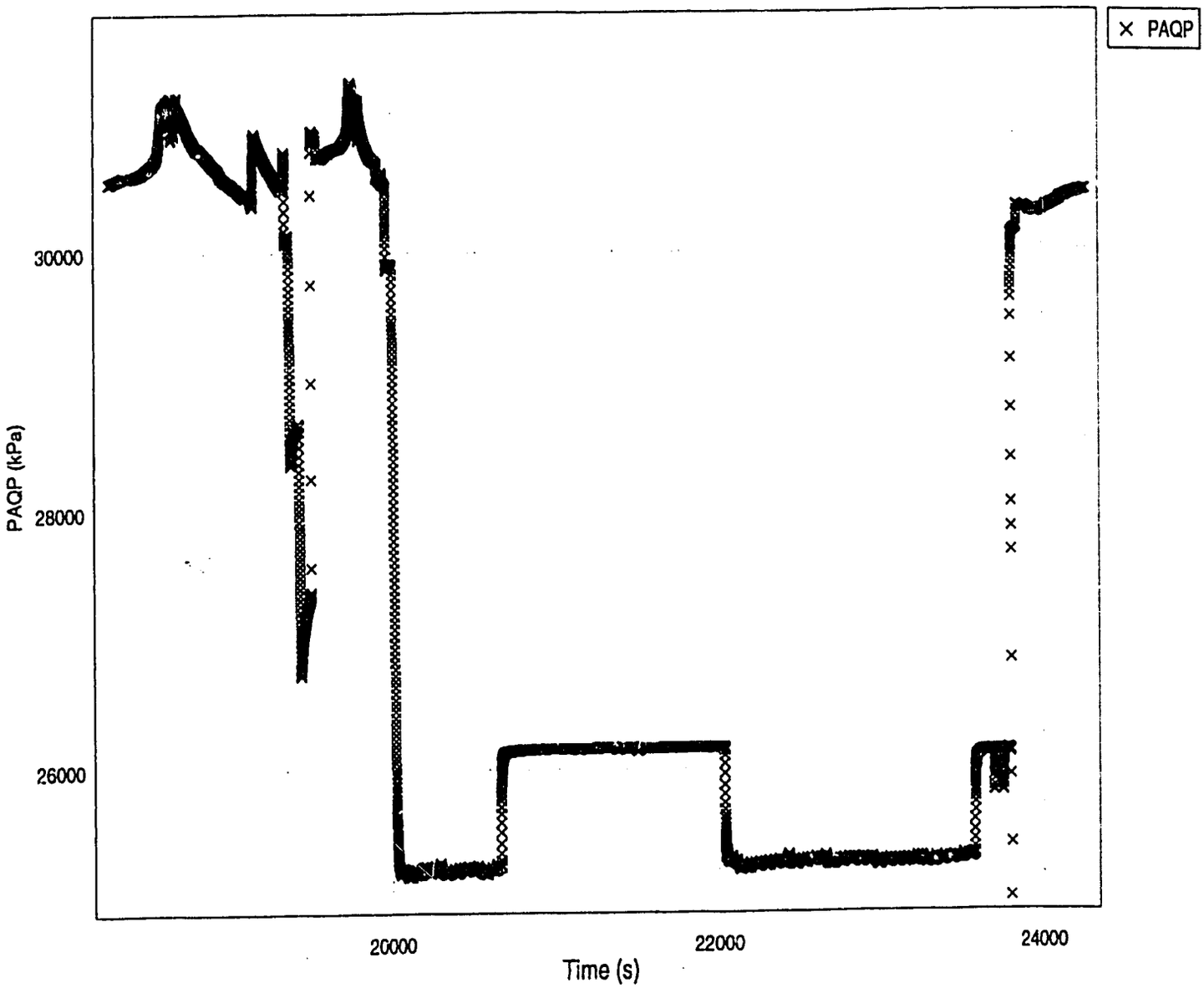
Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26166.15
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



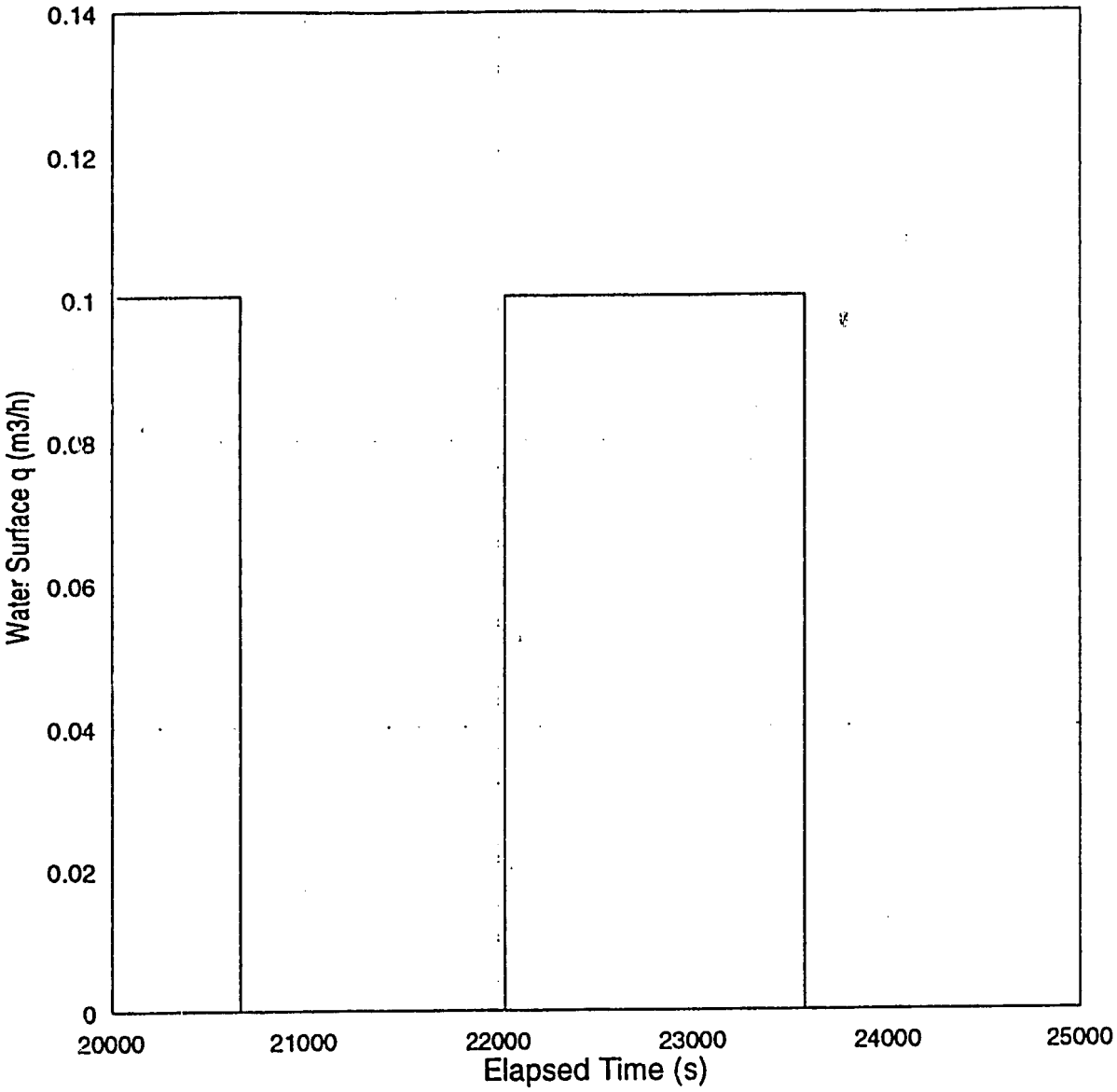
Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate, Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 10:49:17

CDN FOREST ET AL FLETT RAPIDS / INPUT TRANSIENT DATA



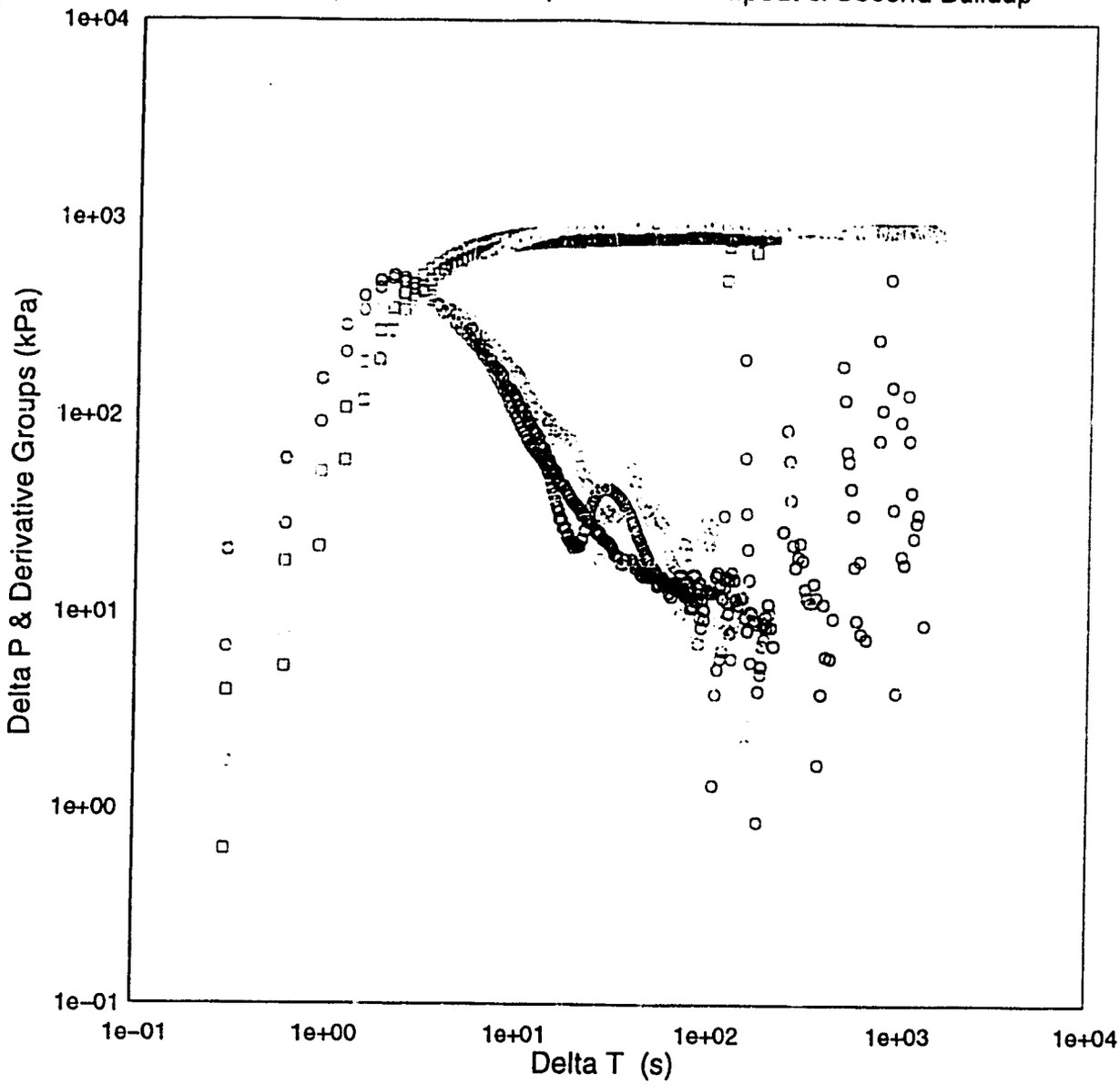
Test History

CDN FOREST ET AL FLETT RAPIDS

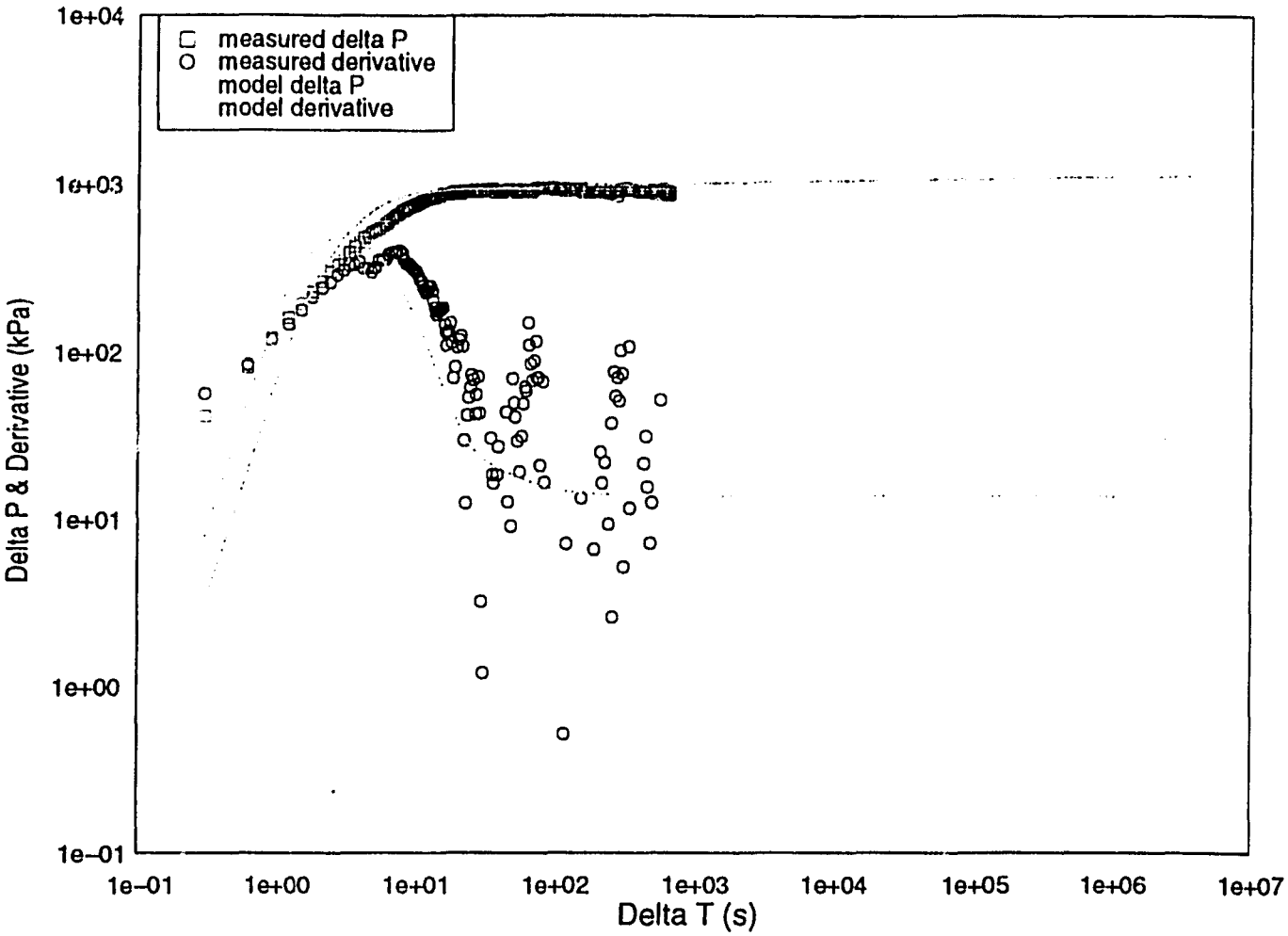


File 66 (2565.8 m): Comparative Diagnostic Plot

First Pumpout, First Buildup, Second Pumpout & Second Buildup



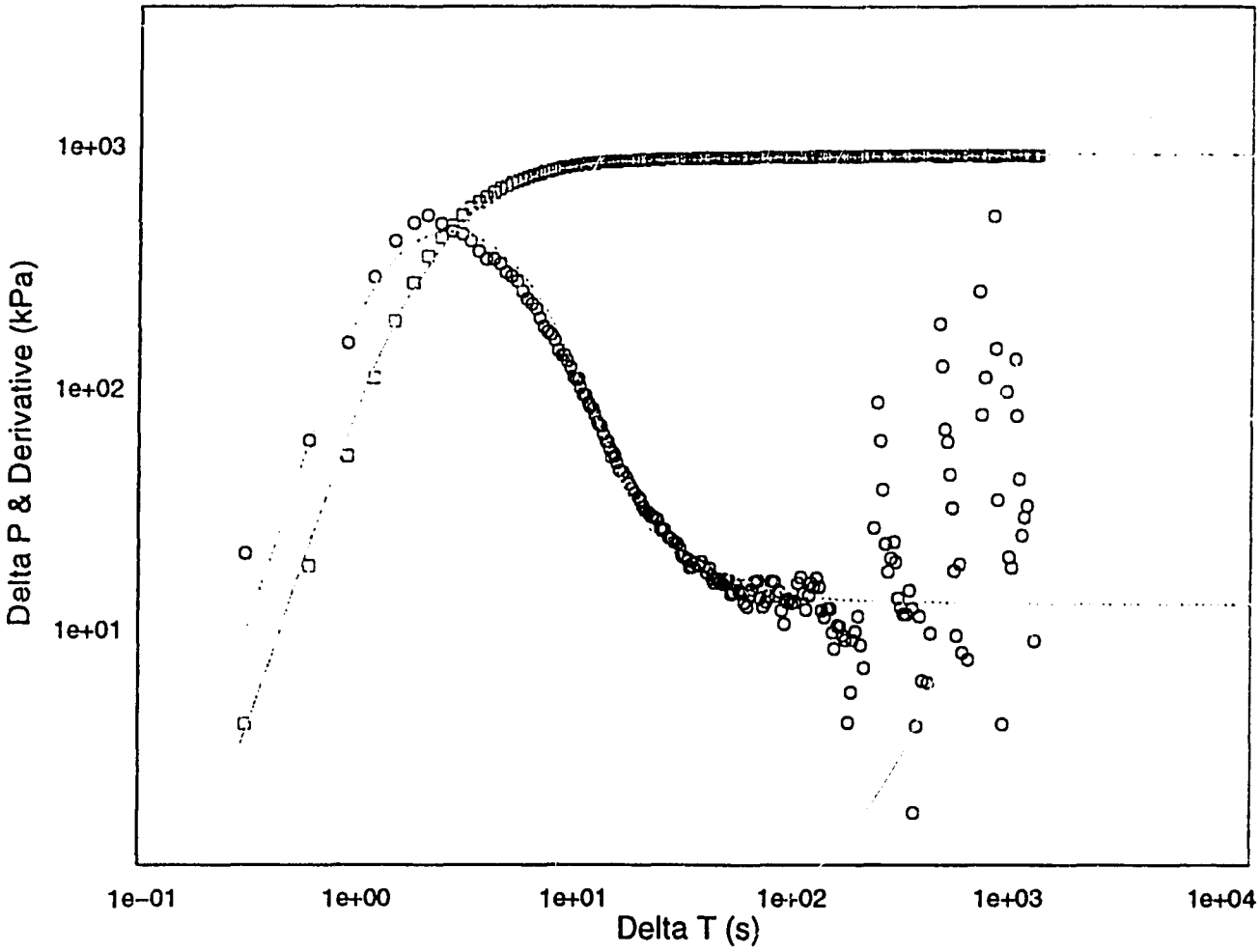
File 66 (2565.8 m): Multi-Rate Type Curve for First Drawdown



Partial_Completion – Homogeneous – Infinite Acting

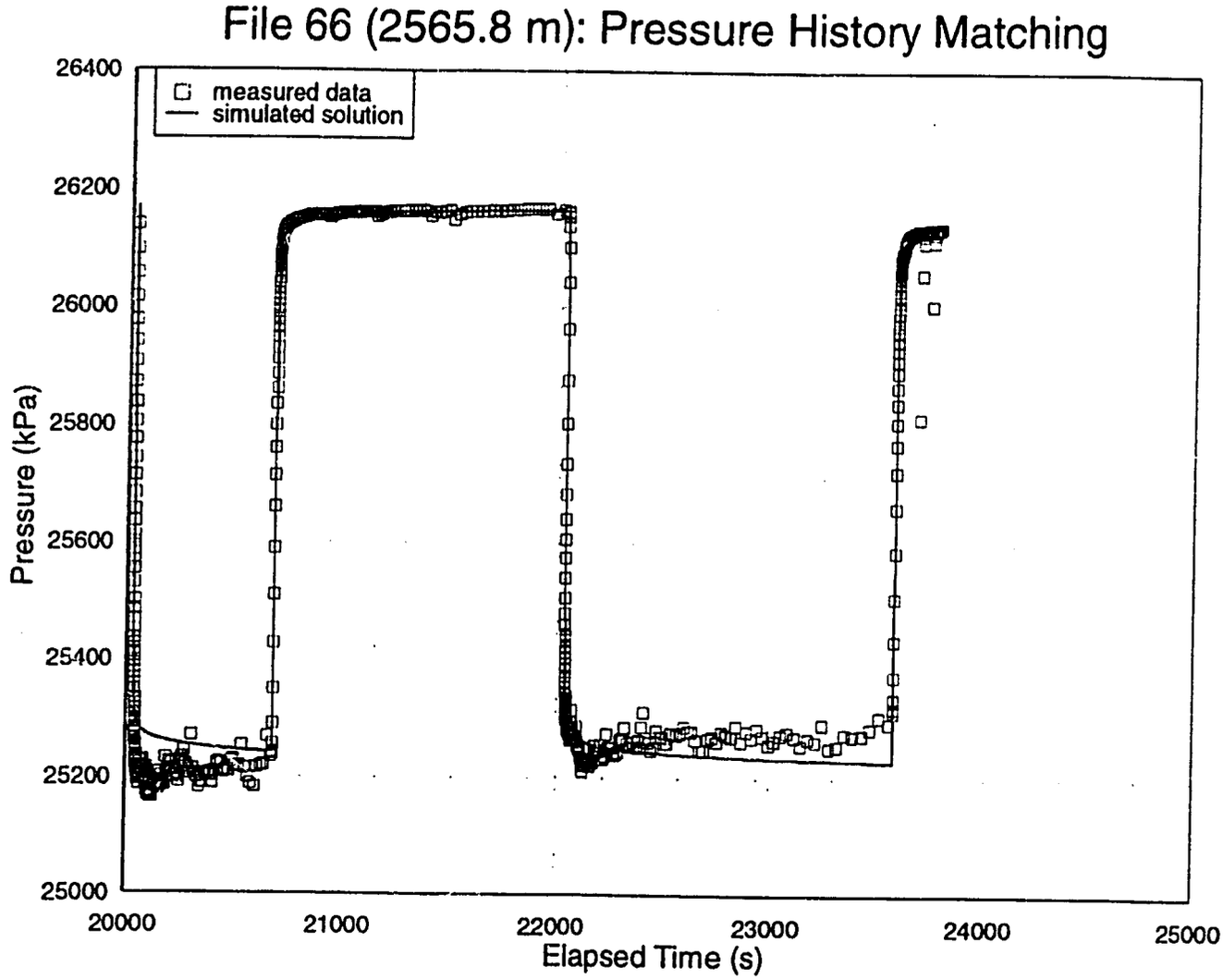
k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

File 66 (2565.8 m): Multi–Rate Type Curve for First Buildup



Partial_Completion – Homogeneous – Infinite Acting

k = 44.5 md Mech. skin = 11.63, Total Skin = 38.54

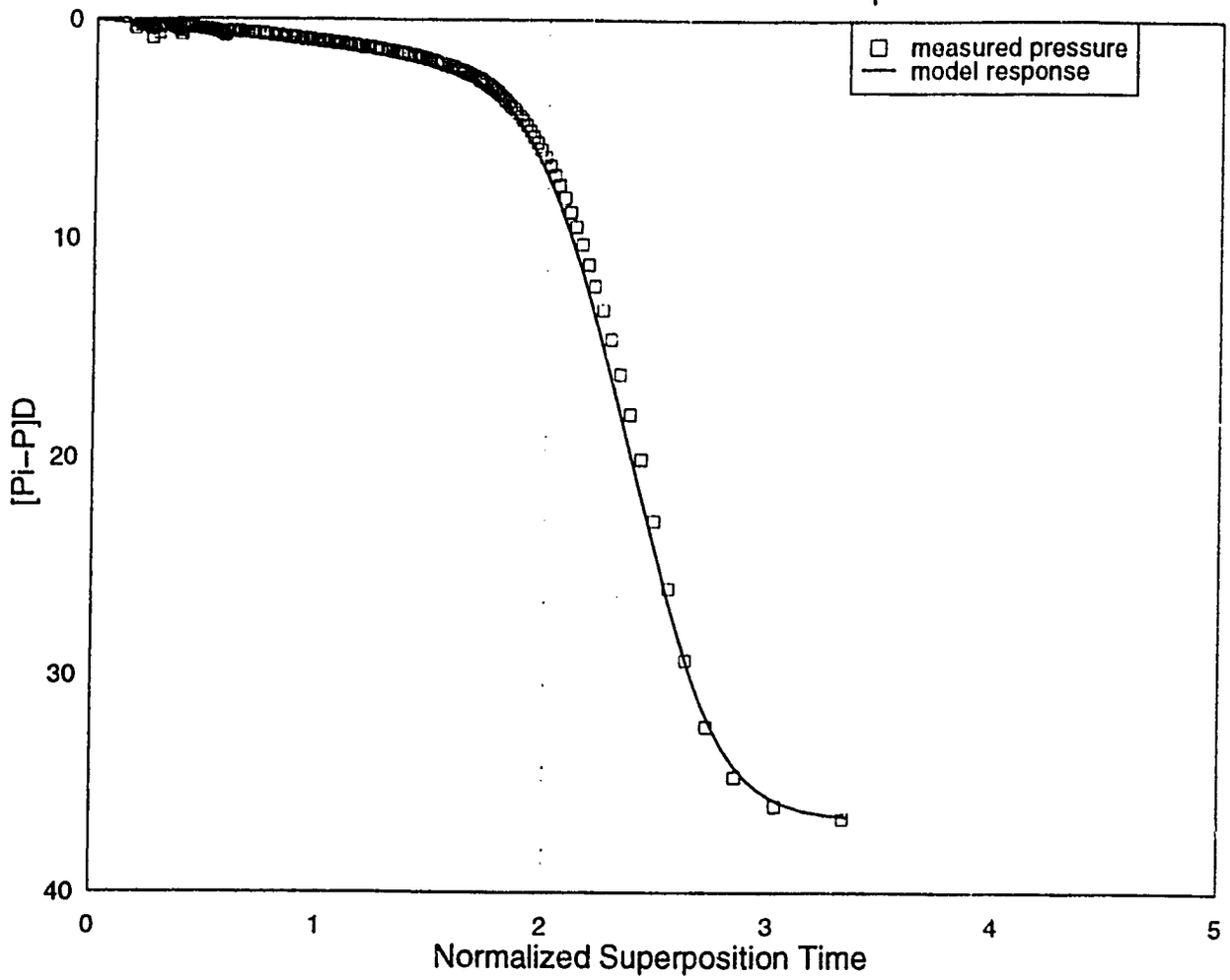


Partial_Completion – Homogeneous – Infinite Acting

Pi = 26170 kPa, k = 44.5 md, Mech. skin = 11.63, Total Skin = 38.54

File 66 (2565.8 m): Dimensionless Superposition

Horner Plot for First Buildup

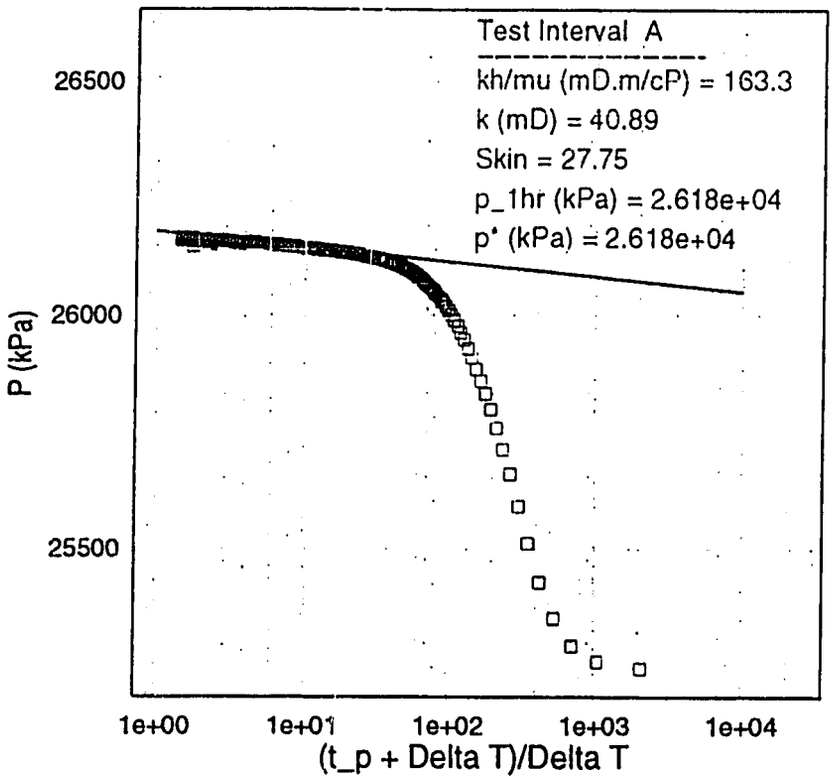


Partial_Completion – Homogeneous – Infinite Acting

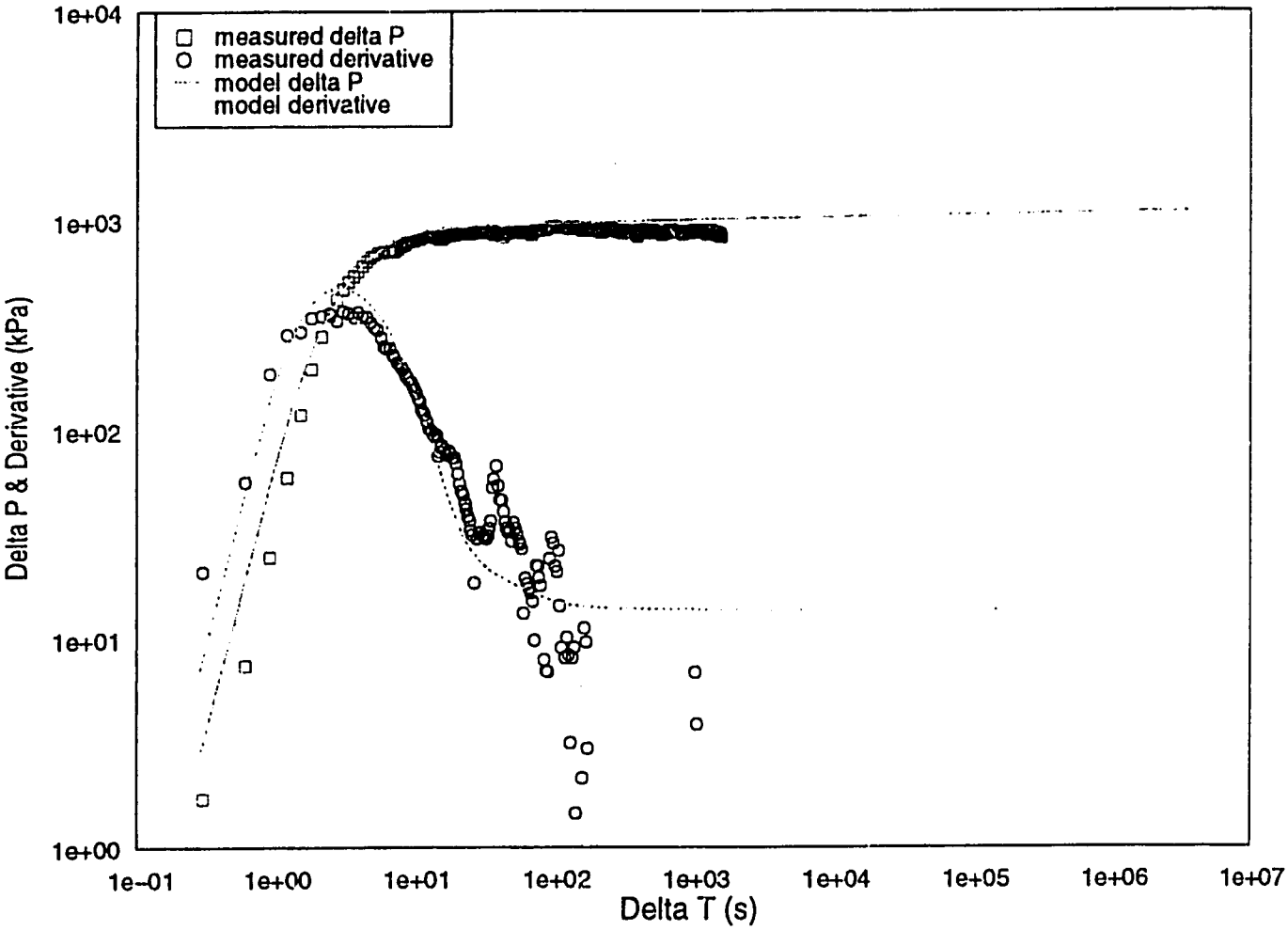
Pi = 26170 kPa, k = 44.5 md, Mech. skin = 11.63, Total Skin = 38.54

Horner Plot for First Buildup

Infinite Acting Radial Flow



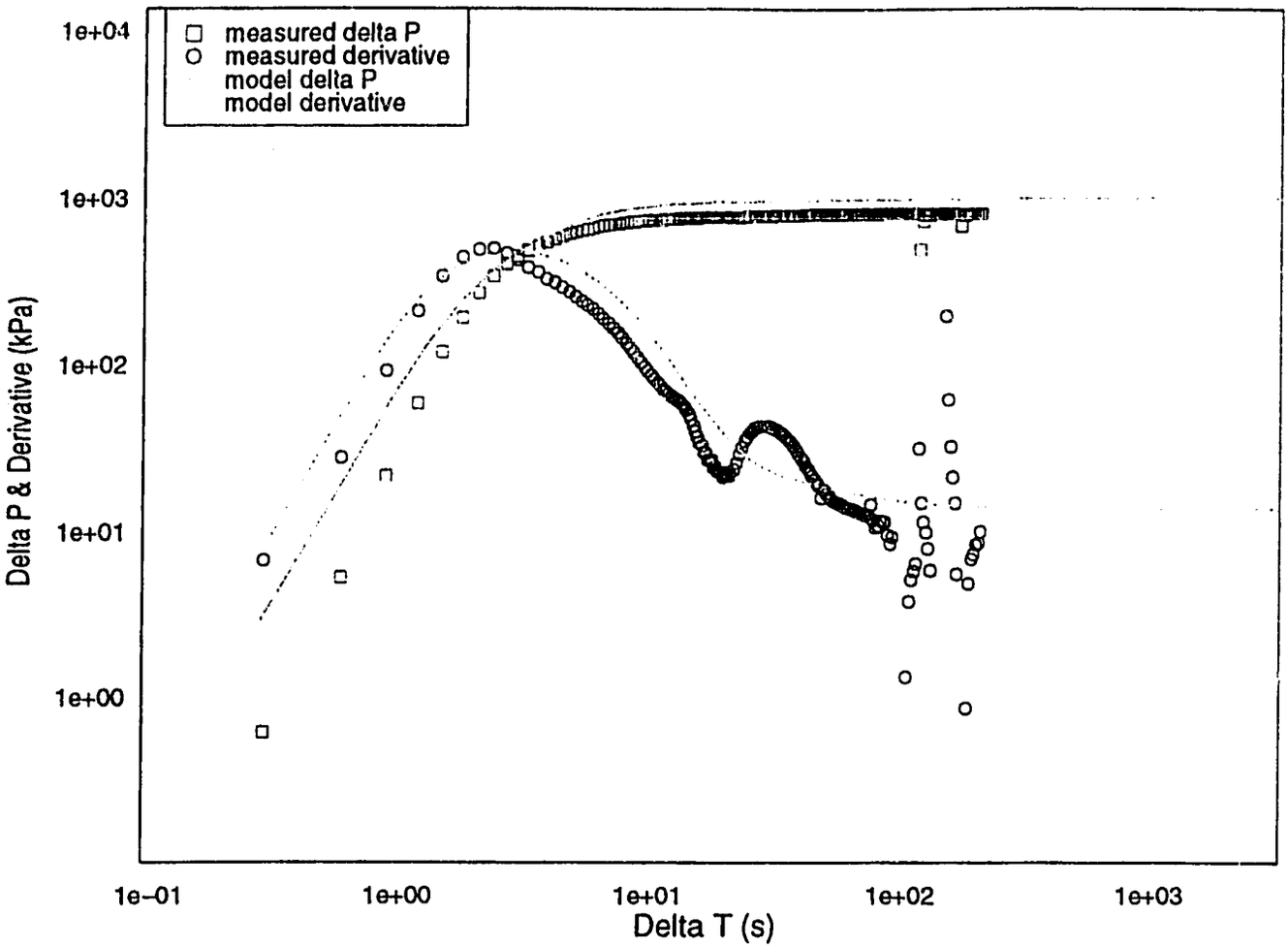
File 66 (2565.8 m): Multi-Rate Type Curve for Second Drawdown



Partial_Completion – Homogeneous – Infinite Acting

k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

File 66: (2565.8 m): Multi-Rate Type Curve for Transient Second Buildup



Partial_Completion – Homogeneous – Infinite Acting

k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

RECEIVED
MAR 12 1999
PAIAK

Core Laboratories Reservoir Fluids Report - Edmonton

Gas/Water Analyses
for

Canadian Forest Oil Ltd.

CdnForest I-61 Flett Rapids

Number of Pages (including cover page): 4

File Number: 52136-99-4199

Date: March 8, 1999

Report Distribution: Larry Thorhaug, Canadian Forest Oil Ltd., Calgary 2 Copies

APPROVED BY: P Bonnet

Pascal Bonnet
Chem Lab Coordinator
Phone: 780-468-2850

Please contact the above person should there be any questions concerning the contents of this report.
Atmospheric samples will be kept a maximum of 30 days.

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CORELAB

Core Laboratories Canada Ltd.

CORELAB

GAS ANALYSIS

AG12772
CONTAINER IDENTITY

52136-99-4199
LABORATORY NUMBER

Canadian Forest Oil Ltd.
OPERATOR

1
PAGE

LOCATION

CdnForest I-61 Flett Rapids
WELL OR SAMPLE LOCATION

262.5
KB ELEV. (m)

255.0
GR ELEV. (m)

FIELD OR AREA

U. Nahanni Dolomite
POOL OR ZONE

Norward Energy
SAMPLER

TEST TYPE & NO.

TEST RECOVERY

Choke Manifold
POINT OF SAMPLE

AMT. & TYPE CUSHION

@ °C
MUD RESISTIVITY

2085.0 - 2093.0
TEST INTERVAL (meters)

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

Pressures, kPa (gauge)

SEPARATOR | RESERVOIR | 300 | @ °C CONTAINER WHEN SAMPLED | 210 @ 22 °C CONTAINER WHEN RECEIVED

Temperatures, °C

SEPARATOR | 15

99 02 25	99 03 03	99 03 03	MG	
DATE SAMPLED (Y/M/D)	DATE RECEIVED (Y/M/D)	DATE ANALYZED (Y/M/D)	ANALYST	SIGNATURE

COMPONENT	MOLE FRACTION AIR FREE AS RECEIVED	MOLE FRACTION AIR FREE ACID GAS FREE	mL/m³ AIR FREE AS RECEIVED
H_2	0.0017	0.0041	
He	0.0005	0.0012	
N_2	0.0255	0.0621	
CO_2	0.5893	0.0000	
H_2S	0.0004	0.0000	
C_1	0.3820	0.9312	
C_2	0.0005	0.0012	1.8
C_3	0.0001	0.0002	0.4
iC_4	Trace	Trace	Trace
C_4	Trace	Trace	Trace
iC_5	Trace	Trace	Trace
C_5	0.0000	0.0000	0.0
C_6	0.0000	0.0000	0.0
C_{7+}	0.0000	0.0000	0.0
Total	1.0000	1.0000	2.1

CALCULATED GROSS HEATING VALUE
MJ/m³ @ 15°C & 101.325 kPa (abs.)

14.53	35.38
MOISTURE FREE	MOISTURE & ACID GAS FREE

CALCULATED VAPOR PRESSURE
kPa (abs.) @ 40.0°C

0.0
PENTANES PLUS

CALCULATED TOTAL SAMPLE PROPERTIES (AIR=1) @ 15°C & 101.325 kPa
MOISTURE FREE AS SAMPLED

1.389 kg/m³	1.133	32.8
DENSITY	RELATIVE DENSITY	RELATIVE MOLECULAR MASS

CALCULATED PSEUDOCRITICAL PROPERTIES

AS SAMPLED		ACID GAS FREE	
6203.1 kPa (abs)	255.7 K	kPa (abs)	K
pPc	pTc	pPc	pTc

REMARKS:

The H2S value of 357 ppm was determined in the field.

NOTE: THE GROSS HEATING VALUE HAS BEEN CALCULATED IN ACCORDANCE TO AGA REPORT #5 AND ALL PROPERTIES HAVE BEEN CALCULATED UTILIZING GPA 2145-88 PHYSICAL CONSTANTS.

CORELAB

Core Laboratories Canada Ltd.

CORELAB

WATER ANALYSIS

P388
CONTAINER IDENTITY

52136-99-4199
LABORATORY NUMBER

Canadian Forest Oil Ltd.
OPERATOR

2
PAGE

LOCATION

CdnForest I-61 Flett Rapids
WELL OR SAMPLE LOCATION

262.5
KB ELEV. (m)

255.0
GR ELEV. (m)

FIELD OR AREA

U. Nahanni Dolomite
POOL OR ZONE

Norward Energy
SAMPLER

TEST TYPE & NO.

TEST RECOVERY

Norward Pressure Tank
POINT OF SAMPLE

AMT. & TYPE CUSHION

@ °C
MUD RESISTIVITY

2085.0 - 2093.0
TEST INTERVAL (meters)

PUMPING | FLOWING | GAS LIFT | SWAB

WATER m³/d | OIL m³/d | GAS m³/d

SEPARATOR | RESERVOIR | @ °C CONTAINER WHEN SAMPLED | @ °C CONTAINER WHEN RECEIVED

Pressures, kPa (gauge)

SEPARATOR

Temperatures, °C

99 02 25	99 03 03	99 03 04	MF	
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	6300	0.0754	274.0
K	11333	0.1363	291.4
Ca	15459	0.1850	771.4
Mg	1452	0.0174	119.5
Ba			
Sr			
Fe	Pres.		
Mn			

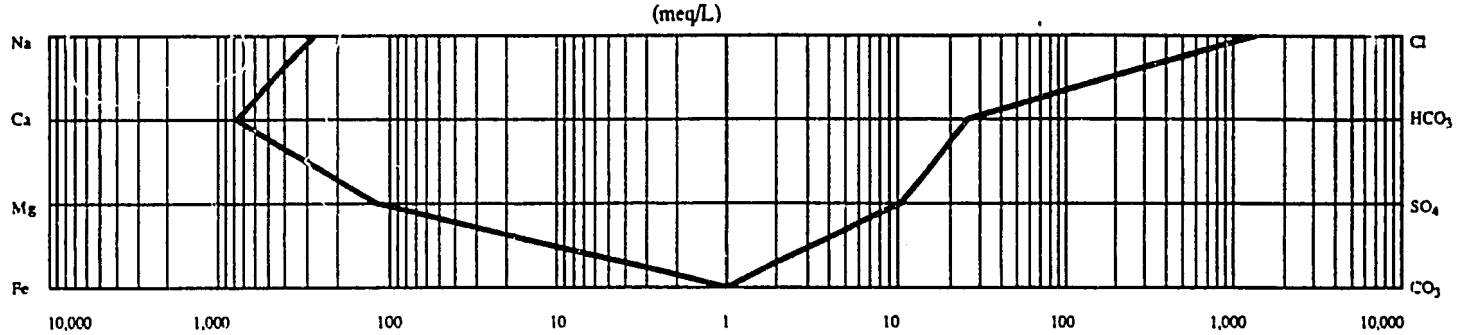
ANIONS

ION	mg/L	mg Fraction	meq/L
Cl	46917	0.5614	1323.4
Br			
I			
HCO_3	1545	0.0185	25.3
SO_4	500	0.0060	10.4
CO_3	0	0.0000	0.0
OH	0	0.0000	0.0
H_2S	N.D.		

Total Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C
At Ignition	83566 Calculated
1.0652 @ 15.6 °C Specific Gravity	1.3509 @ 20 °C Refractive Index
6.0 pH	0.101 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS
(meq/L)



Remarks: N.D. - Not Detected Pres. - Present

CORELAB

Core Laboratories Canada Ltd.

CORELAB

WATER ANALYSIS

CONTAINER IDENTITY: P389	LABORATORY NUMBER: 52136-99-4199
OPERATOR: Canadian Forest Oil Ltd.	PAGE: 3
LOCATION:	WELL OR SAMPLE LOCATION: CdnForest I-61 Flett Rapids
KB ELEV. (m): 262.5	GR ELEV. (m): 255.0
FIELD OR AREA:	POOL OR ZONE: U. Nahanni Dolomite
SAMPLER: Norward Energy	
TEST TYPE & NO.:	TEST RECOVERY:
POINT OF SAMPLE: Norward Test Tank	AMT. & TYPE CUSHION:
MUD RESISTIVITY: @ °C	
TEST INTERVAL (meters): 2085.0 - 2093.0	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
99 02 25	99 03 03	99 03 04	MF	

CATIONS

ION	mg/L	mg Fraction	meq/L
Na	6899	0.0811	300.1
K	11626	0.1367	297.4
Ca	15461	0.1818	771.5
Mg	1430	0.0168	117.7
Ba			
Sr			
Fe	Pres.		
Mn			

ANIONS

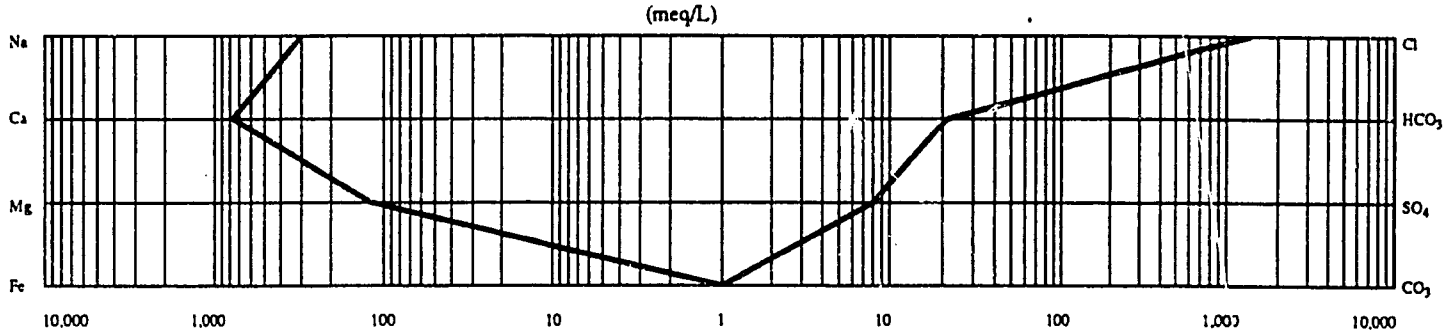
ION	mg/L	mg Fraction	meq/L
Cl	47931	0.5637	1352.0
Br			
I			
HCO_3	1303	0.0153	21.4
SO_4	383	0.0045	8.0
CO_3	0	0.0000	0.0
OH	0	0.0000	0.0
H_2S	N.D.		

Total Solids (mg/L)

By Evaporation @ 110 °C	By Evaporation @ 180 °C
At Ignition	85033 Calculated
1.0653 @ 15.6 °C Specific Gravity	1.3509 @ 20 °C Refractive Index
6.0 pH	0.102 @ 25 °C Resistivity (Ohm-Meters)

LOGARITHMIC PATTERNS OF DISSOLVED IONS

(meq/L)



Remarks: N.D. - Not Detected Pres. - Present

ATTACHMENT #19

99/01/25
99-035

Location: I-61

CANADIAN FORREST OIL LTD

Acid Solubility

NOWSCO Representative: Kirk Haines

Prepared by: Trevor Palmer

NOWSCO Well Service Ltd.
Chemical Technology Centre
6820 - 36th Street S.E.
Calgary, Alberta, Canada T2C 2G4
Phone (403) 531-5454 Fax (403) 279-8433

SUMMARY

Samples of drill cuttings were received for acid solubility analysis and scanning electron microscope analysis.

CONCLUSION

- The samples ranged from 82.2% to 94.1% soluble in 15% hydrochloric acid after 30 minutes at room temperature
- The samples consist primarily of calcium with magnesium, potassium, aluminum, silicates sulfur and iron present

Lab Sample No.	Sample Description
P6022-A	drill cuttings 2085-2105
P6022-B	drill cuttings 2205-2225
P6022-C	drill cuttings 2260-2275
P6022-D	drill cuttings 2310-2325

ACID SOLUBILITY ANALYSIS

The solubility of two gram portions of each of the submitted drill cutting samples were determined gravimetrically using 200 ml of 15% hydrochloric acid. Testing was conducted over a 30 minute time period at room temperature (22° C).
The acid filtrate from the 15% hydrochloric acid solubility was then analyzed to determine the soluble species present. Results are summarized in Table #1 along with the molar carbonate ratio (Mg/Ca). The ratio gives a measure of the degree of dolomitization of the carbonate. Pure limestone ($CaCO_3$) = 0.0, pure dolomite ($CaCO_3.MgCO_3$) = 1.0, and the presence of magnesite (Mg,CO_3) => 1.0.

Table #1

Sample #	Analyzed Element (wt%)				Calculated Composition (wt%)				Molar Ratio (Mg/Ca)	Soluble (wt%)
	Ca	*Mg*	*Fe*	*SO_4*	*$CaCO_3$*	*$MgCO_3$*	*$FeCO_3$*	*$CaSO_4$*		
P6022-A	*31.6*	*0.6*	*0.7*	*0.2*	*78.6*	*1.9*	*1.4*	*0.3*	*0.03*	*82.2*
P6022-B	*35.2*	*2.3*	*0.2*	*<0.1*	*87.9*	*8.0*	*0.4*	*<0.1*	*0.11*	*96.2*
P6022-C	*25.6*	*7.2*	*0.1*	*0.2*	*63.8*	*24.9*	*0.1*	*0.3*	*0.46*	*89.1*
P6022-D	*27.6*	*7.3*	*<0.1*	*<0.1*	*68.8*	*25.3*	*<0.1*	*<0.1*	*0.44*	*94.1*

NOTICE: THE INTENT OF THIS REPORT IS TO PROVIDE INFORMATION ON THE SAMPLES TESTED. WHILE THE RECOMMENDATIONS ARE MADE IN GOOD FAITH AND REASONABLE EFFORTS HAVE BEEN MADE TO ENSURE THEIR RELIABILITY, NOWSCO WELL SERVICE LTD. ACCEPTS NO LIABILITY FOR DAMAGE ARISING FROM THE USE OF THIS REPORT.

SCANNING ELECTRON MICROSCOPE ANALYSIS

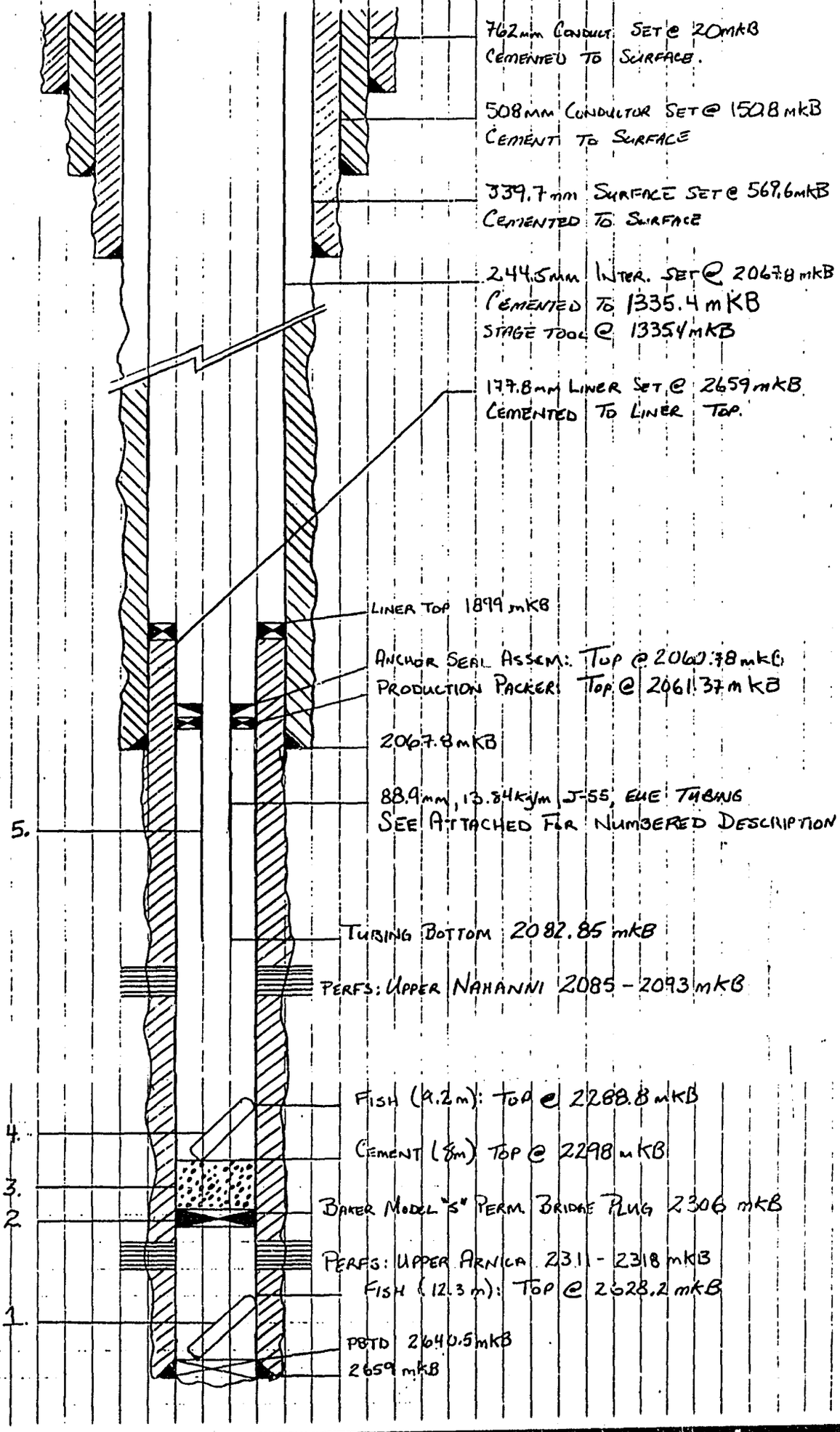
Drill cuttings from sample P6022-A were examined using a scanning electron microscope (S.E.M.) equipped with an energy dispersive x-ray probe to determine elemental composition.

Sample P6022-A consists primarily of calcium with magnesium, potassium, aluminum, silicates, sulfur and iron present. Samples P6022-B, C and D all show similar spectrums

NOTICE: THE INTENT OF THIS REPORT IS TO PROVIDE INFORMATION ON THE SAMPLES TESTED. WHILE THE RECOMMENDATIONS ARE MADE IN GOOD FAITH AND REASONABLE EFFORTS HAVE BEEN MADE TO ENSURE THEIR RELIABILITY, NOWSCO WELL SERVICE LTD. ACCEPTS NO LIABILITY FOR DAMAGE ARISING FROM THE USE OF THIS REPORT.

ATTACHMENT #20

99.05.15



CDN FOREST ET AL FLETT RAPIDS I-61

DOWNHOLE SUSPENSION DIAGRAM
AS PER DIAGRAM - FROM BOTTOM UP

1. FISH. TOP AT 2628.2mKB.
   FISH CONSISTS OF:
   7 METRES OF GUN
   FIRING HEAD
   PUP JOINT WITH DROP BAR
   CROSSOVER SUB
   FLOW SUB
   BOTTOM HALF OF SEPARATION TOOL
   TOTAL LENGTH OF FISH - 12.3 METRES

2. BAKER MODEL "S" PERMANENT BRIDGE PLUG
   BRIDGE PLUG SET AT 2306.0mKB

3. CEMENT - 8 LINEAR METRES
   TOP OF CEMENT AT 2298.0mKB

4. FISH. TOP AT 2288.8mKB
   FISH CONSISTS OF:
   4 METRES OF GUN
   FIRING HEAD
   PUP JOINT WITH DROP BAR
   CROSSOVER SUB
   FLOW SUB
   BOTTOM HALF OF SEPARATION TOOL
   TOTAL LENGTH OF FISH - 9.2 METRES

5. TUBING STRING
   BOTTOM OF TUBING AT 2082.5mKB
   TUBING STRING FROM BOTTOM UP:

   1 - 88.9mm SEPARATION TOOL (0.52m). TOP AT 2082.33mKB.
   1 - 88.9mm, 13.84 kg/m, J-55, EUE PUP JOINT (1.26m). TOP AT 2081.07mKB.
   1 - 88.9mm, OTIS "XN" NIPPLE WITH 69.85mm PROFILE AND 66.93mm NO-GO (0.41m). TOP AT 2080.66mKB.
   2 - 88.9mm, 13.84 kg/m, J-55, EUE PUP JOINTS (6.16m). TOP AT 2074.50mKB.
   1 - 88.9mm, 13.84 kg/m, J-55, EUE PERFORATED PUP JOINT (3.09m). TOP AT 2071.41mKB.
   1 - 88.9mm NSCT BOX x EUE PIN OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.34m). TOP AT 2071.07mKB. NOTE: 69.85mm OD "PX" PLUG SET IN "X" NIPPLE.
   1 - 88.9mm, 13.84 kg/m, L-80, NSCT PUP JOINT (3.10m). TOP AT 2067.97mKB.
   1 - 88.9mm INCOLONY NSCT OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.32m). TOP AT 2067.65mKB.
   1 - 88.9mm, 13.84 kg/m, L-80, NSCT PUP JOINT (3.10m). TOP AT 2064.55mKB.
   1 - 88.9mm CROSSOVER SUB FROM SEAL BORE TO 88.9mm NSCT (0.17m). TOP AT 2064.38mKB.

DOWNHOLE SUSPENSION DIAGRAM - Cont'd
AS PER DIAGRAM - FROM BOTTOM UP

1 - 101.6mm ID SEAL BORE EXTENSION (2.84m). TOP AT 2061.54mKB.
1 - CROSSOVER SUB FROM PACKER TO SEAL BORE (0.17m). TOP AT 2061.37mKB.
1 - 177.8mm x 149.23mm BAKER "FB-1" RETRIEVABLE PRODUCTION PACKER (0.59m). TOP AT 2060.78mKB.
1 - 177.8mm x 149.23mm BAKER "E-22" ANCHOR SEAL ASSEMBLY. TOP AT 2060.78mKB.
1 - JOINT 88.9mm, 13.84 kg/m, J-55, EUE TUBING (9.20m). TOP AT 2051.58mKB.
1 - 88.9mm, J-55, EUE OTIS "X" NIPPLE WITH 69.85mm PROFILE (0.37m). TOP AT 2051.21mKB.
215 - JOINTS, 88.9mm, 13.84 kg/m, J-55, EUE TUBING (2037.53m). TOP AT 13.68mKB.
2 - 88.9mm, J-55, EUE NIPPLES (0.42m). TOP AT 13.26mKB.
1 - JOINT, 88.9mm, 13.84 kg/m, J-55, EUE TUBING (9.23m). TOP AT 4.03mKB.
1 - 88.9mm, J-55, EUE NIPPLE PIN x PIN (0.17m). TOP AT 3.86mKB.
1 - ABB "WP-1" EUE TUBING HANGER WITH 76.2mm BPVT (0.24m). TOP AT 3.62mKB.

MODULAR DYNAMIC FORMATION TESTER REPORT

N.E.B. COPY

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ENG[illegible] CH
JAN 2 6 1999

Schlumberger
GeoQuest

MODULAR DYNAMIC FORMATION TESTER

TRANSIENT PRESSURE TEST ANALSYSIS

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS I-61

FIELD: FLETT RAPIDS

PROVINCE: NORTHWEST TERRITORIES

REPORT BY: G. SCHLACHTER

9211-C131-1-1

Overview:

A Modular Dynamics Formation Test was ran at a measured depth of 2565.79 mKB with a dual packer.

An initial pump out was performed, with approximately 18 liters of fluid displaced over a time span of 10.75 minutes, at a pumping rate of 1.67 liters per minute. The principle build up of 22.75 minutes duration followed the initial pump out.

A second pump out was performed, with approximately 43 liters of fluid displaced over a time span of 25.68 minutes, at a pumping rate of 1.67 liters per minute. The final build up of 3.6 minutes followed the second pump out with two samples taken at the end of this build up.

Assumptions:

Based on the open hole GR response, a formation vertical layer thickness of 2.0 meters from 2564.8 to 2566.8 mKB measured depth was derived. The well bore was nearly vertical (2.75 degrees) at the test depth of 2528 m true vertical depth.

Based on the pump out resistivity plot included in this report, the produced fluid was considered to be filtrate water with a viscosity at 0.5 centipoise at a formation temperature of 112 degrees C.

The first build up was considered the primary build up for the purposes of this interpretation. Type curve and Horner analysis were performed on this transient and compared to the initial pump out, the second pump out and the final build up pressure transients.

The PAQP (packer quartz gauge) was used for the purposes of this interpretation. The PAQP pressure response compared well to the BSG1 (strain gauge), but the higher resolution and accuracy of the PAQP made it the best candidate for pressure transient analysis.

A partial completion, homogenous, infinite acting formation was considered to be the most appropriate model for this well test interpretation.

Interpretation:

The principal transient, the first build up, built to a final pressure of 26166.15 KPaa. Some packer movement may have occurred near 3100 and 3200 seconds and near the end of the build up, as shown by inflections in the pressure response. These inflections did not prevent a valid interpretation of the data.

The Comparative Diagnostic Plot is a log-log plot that illustrates the repeatability and likely flow regime of the four pressure transients. One and a half log cycles after the unit slope of well bore storage was complete, a flat line region began to develop on all four transients. The flat line region was indicative of infinite acting radial flow.

The scatter in the pressure derivative near the end of the pressure transients was due to the pressure response approaching the gauge resolution. Moderate smoothing was applied to the derivatives to help reduce the scatter, without changing the characteristic shape of the derivative.

The Multi-Rate Type Curve Plot for the first build up showed a good fit with the parameters of permeability of 44.5 md and a mechanical skin of +11.6. The total skin of +38.54 represents the combined mechanical skin and limited entry skin effect of a partial completion.

The Infinite Acting Radial Flow Horner Plot for the first build up compared well with the type curve analysis, with a permeability of 41 md and a total skin effect of +27.8. The Horner plot showed an extrapolated formation pressure of, P*, of 26180 KPaa.

A Pressure History Matching plot illustrates the predicted pressure response of a formation with the properties of the first build up type curve analysis. A good fit resulted, suggesting that the formation properties were valid for all four transients.

Type curves for the pressure transients for the first pump out, second pump out and final build up were overlaid on the predicted type curve of the principal transient, the first build up. The fit was generally good, suggesting that the formation properties determined from the first build up were valid for the other three transients.

Conclusion:

Type curve analysis of the principal transient resulted in a formation permeability of 41 md and a skin effect of +11.6 based on a partial completion, homogenous, infinite acting radial flow model . The extrapolated formation pressure, P*, based on a Horner plot was 26,180 KPaa.

Comparison of the type curve analysis of the principal transient to the other transients added confidence to this interpretation.

File 66

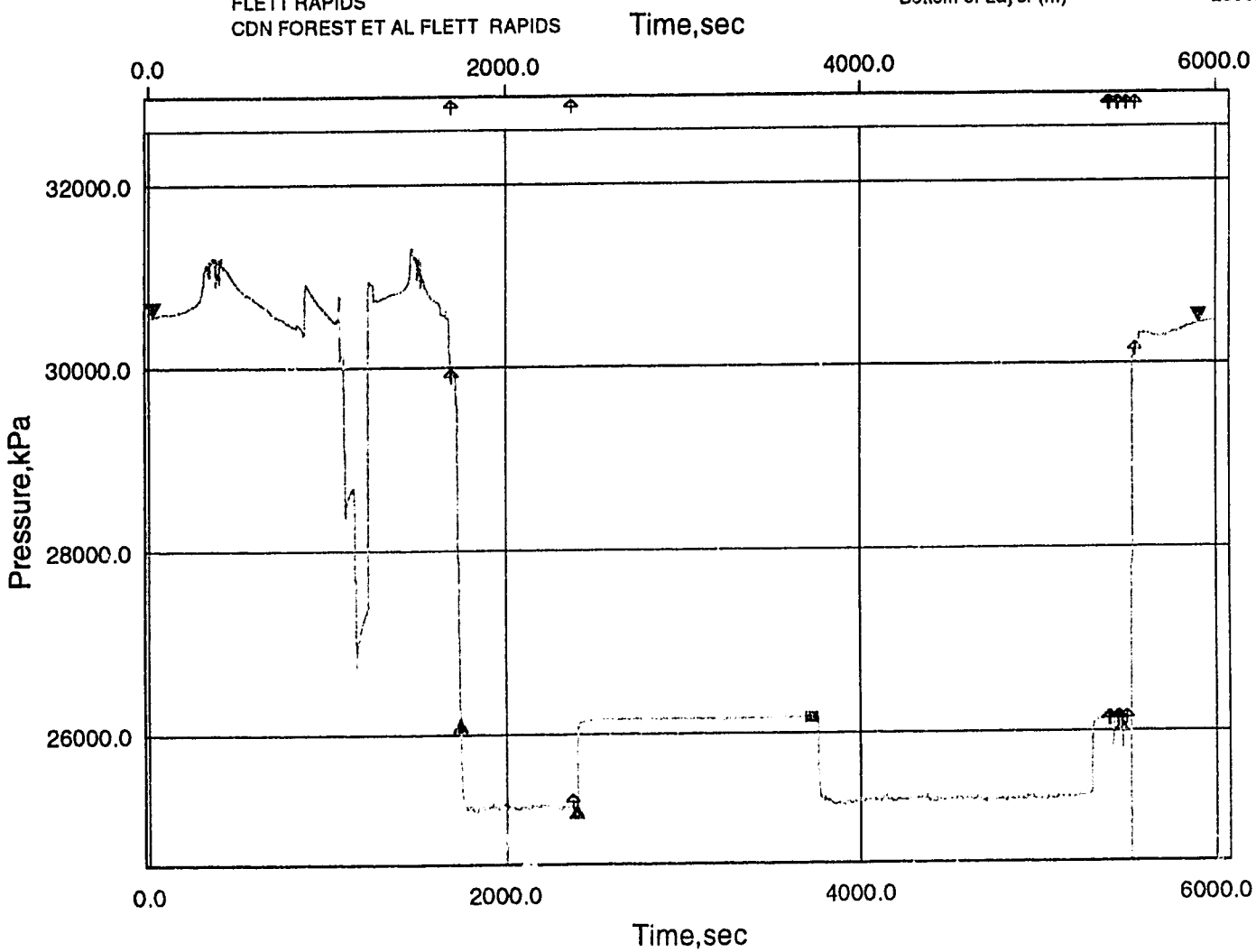
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

CANADIAN FOREST OIL LTD.
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26166.15
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate. Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 10:49:17

File 66

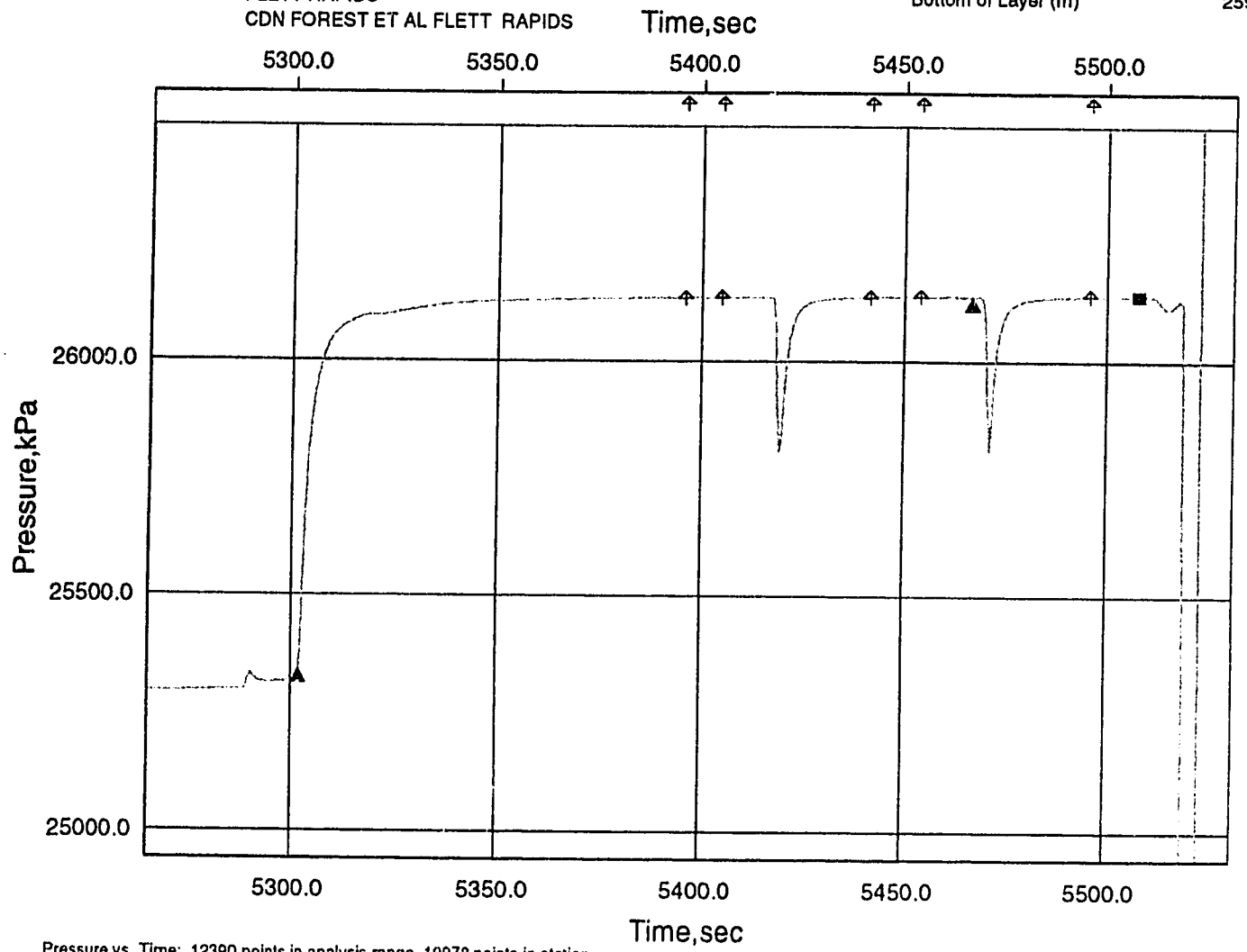
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

CANADIAN FOREST OIL LTD.
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26139.20
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate, Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 11:04:58

File 66

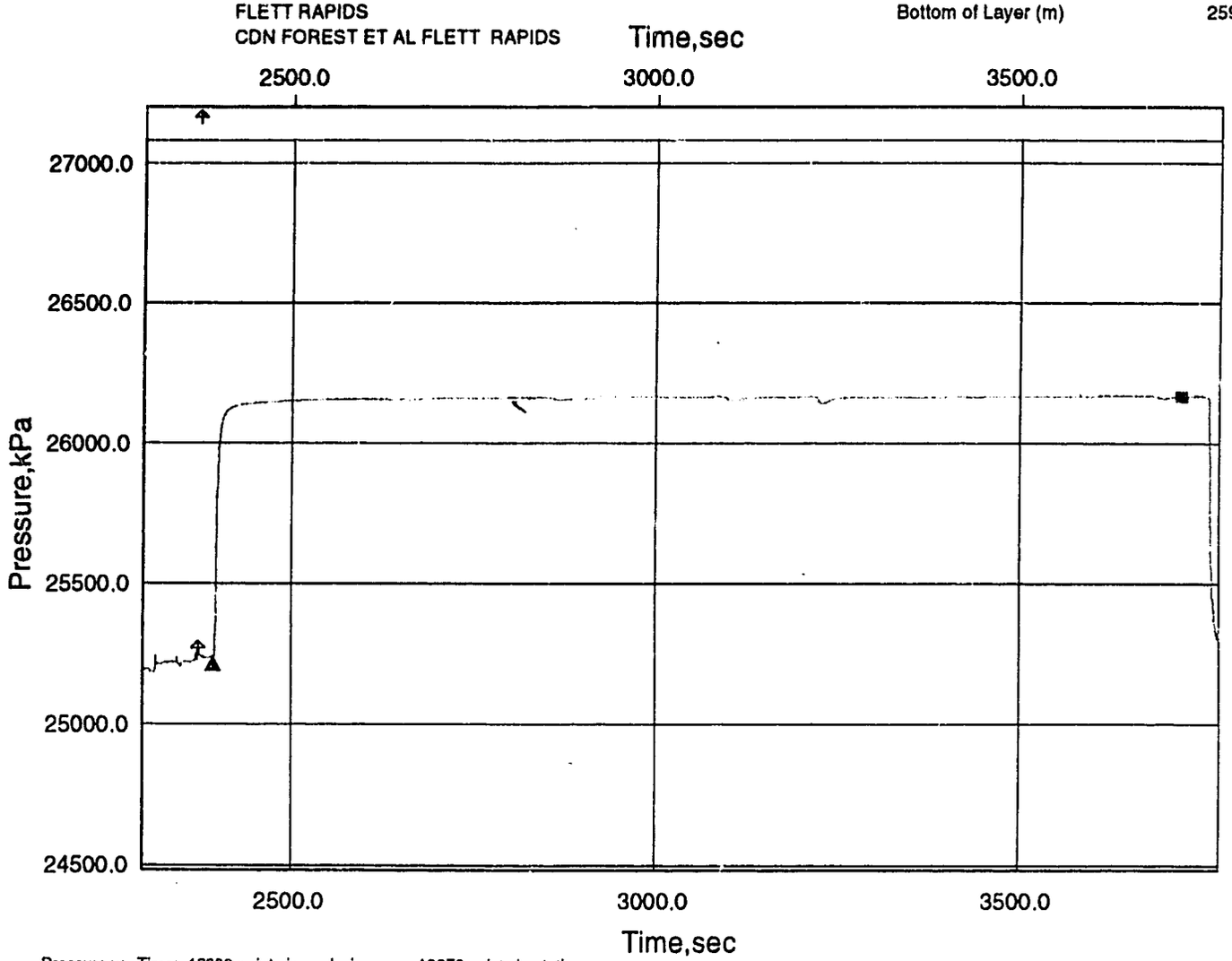
9-JAN-1999

Packer Station 66 (Run Number 0)
Depth, m: 2565.79

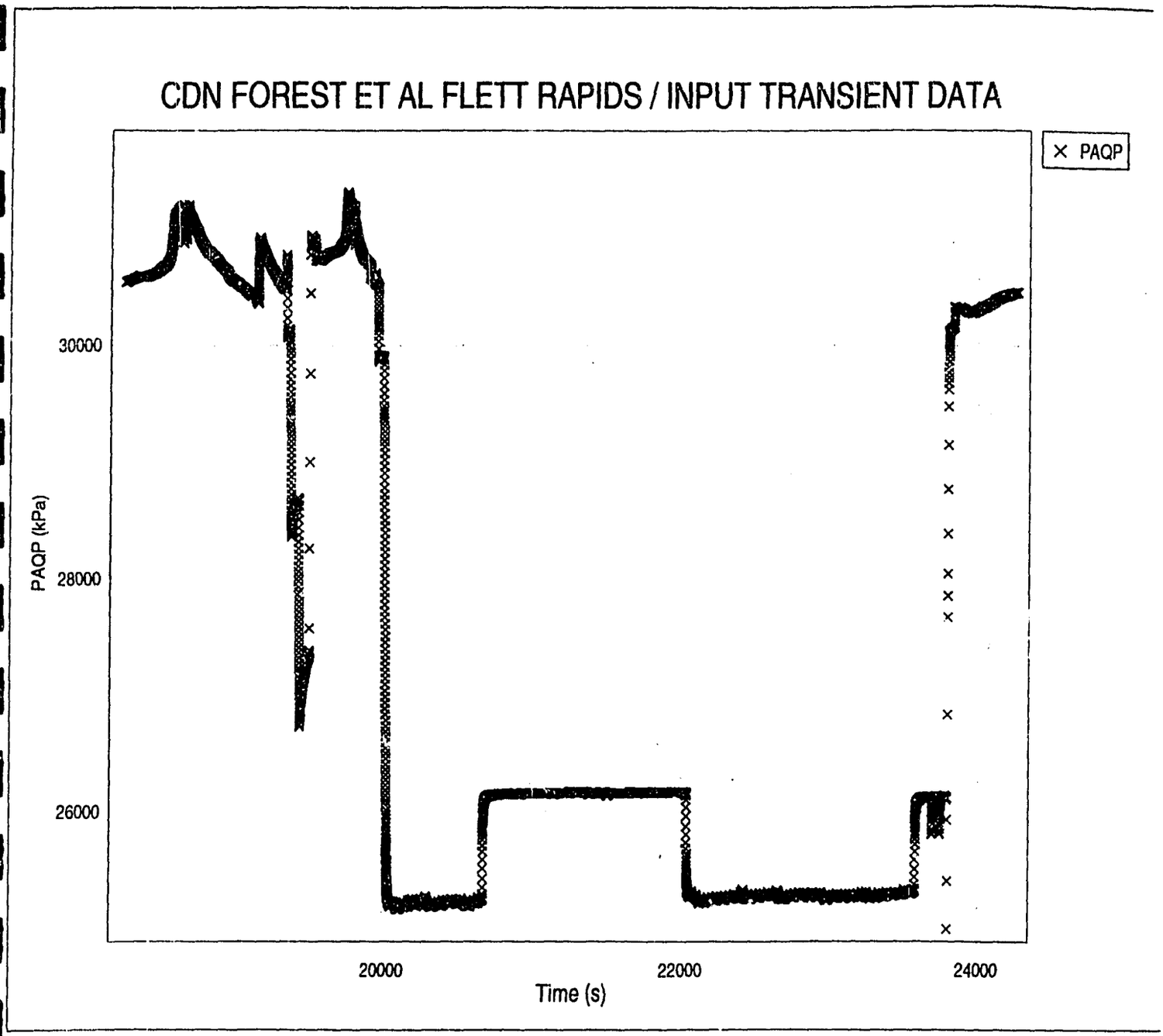
CANADIAN FOREST OIL LTD.
FLETT RAPIDS
CDN FOREST ET AL FLETT RAPIDS

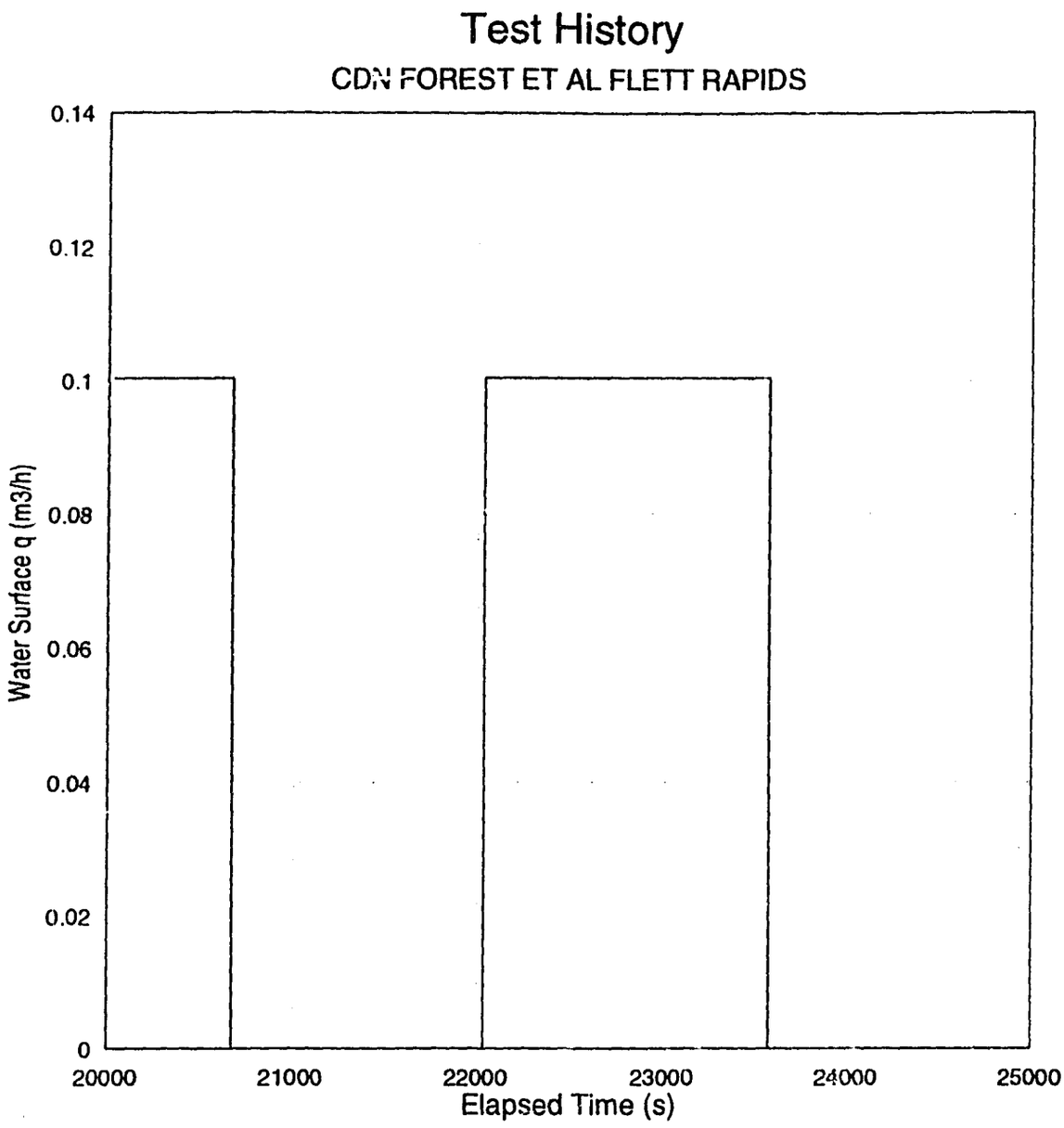
Pressure vs. Time Analysis

Packer Form. Press. (kPa)	26166.15
Probe Form. Press. (kPa)	0.00
Top of Layer (m)	2535.3
Bottom of Layer (m)	2596.3



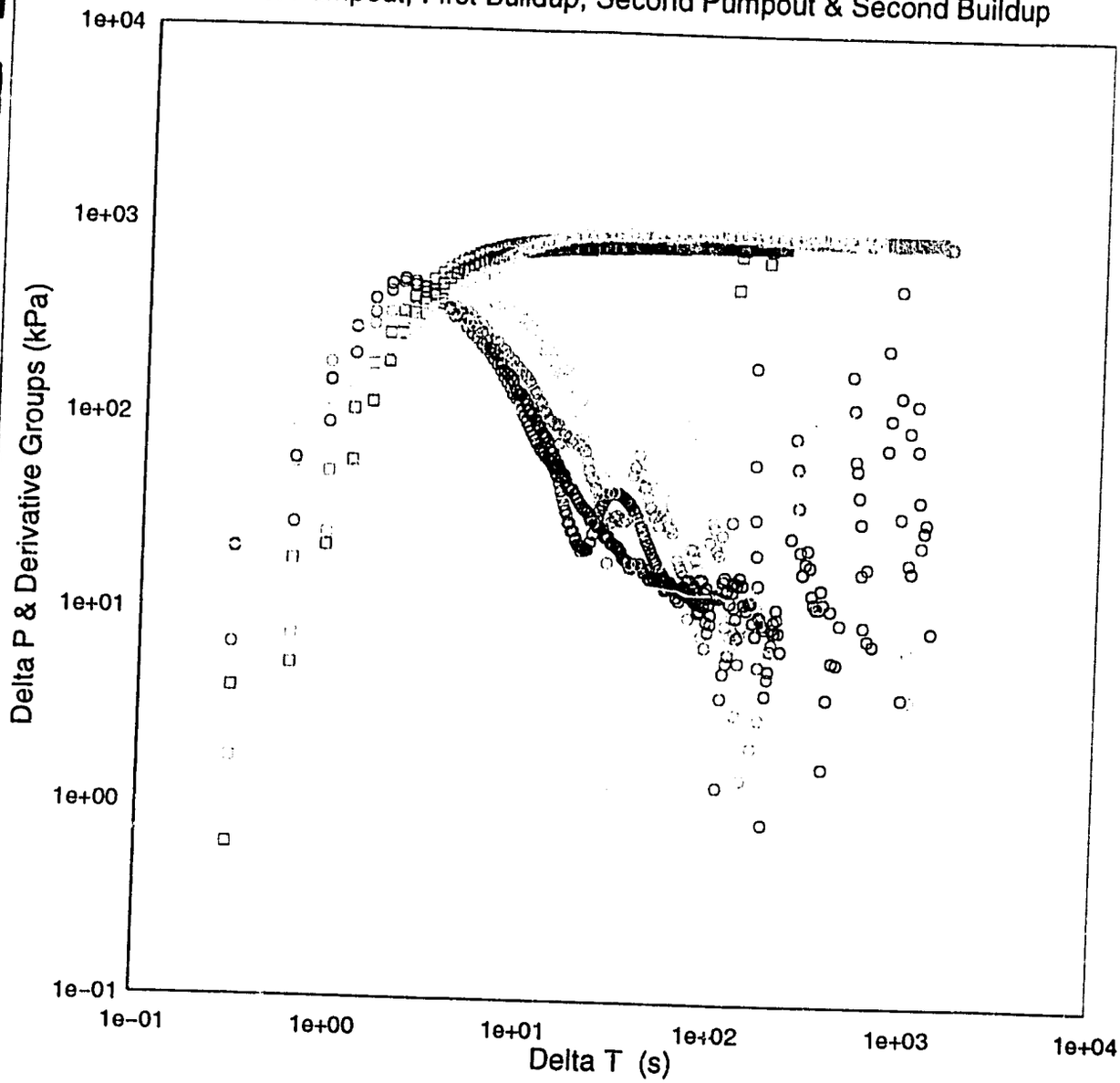
Pressure vs. Time: 12390 points in analysis range, 19978 points in station.
Unknown Rate, Packer (PAQP) + Vertical (BSG1) Polaris version 3.90 19-Jan-1999 10:49:17

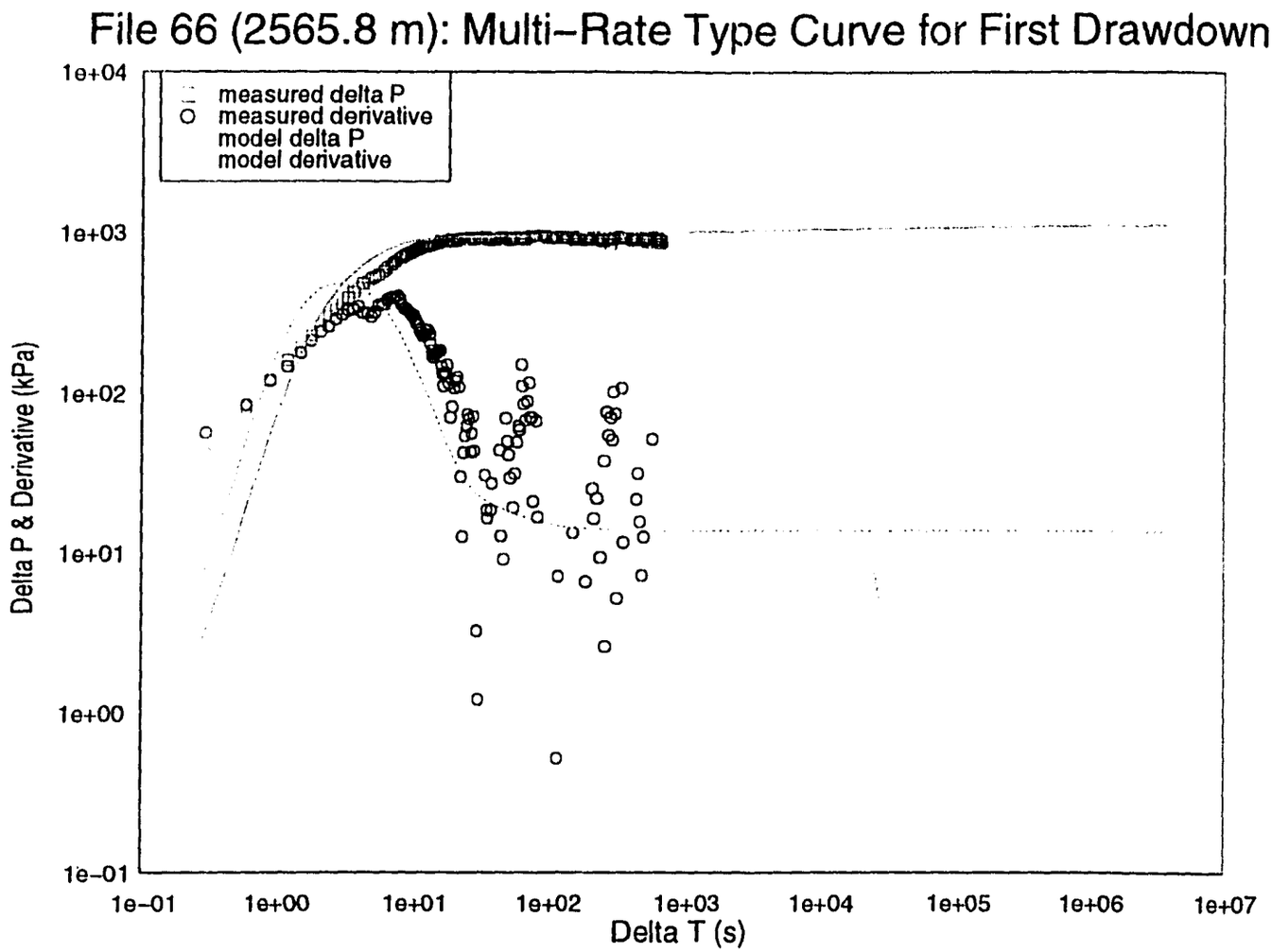

CDN FOREST ET AL FLETT RAPIDS / INPUT TRANSIENT DATA
× PAQP
PAQP (kPa)
30000
28000
26000
20000
22000
24000
Time (s)


Test History
CDN FOREST ET AL FLETT RAPIDS
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
Water Surface q (m3/h)
20000
21000
22000
23000
24000
25000
Elapsed Time (s)

File 66 (2565.8 m): Comparative Diagnostic Plot

First Pumpout, First Buildup, Second Pumpout & Second Buildup

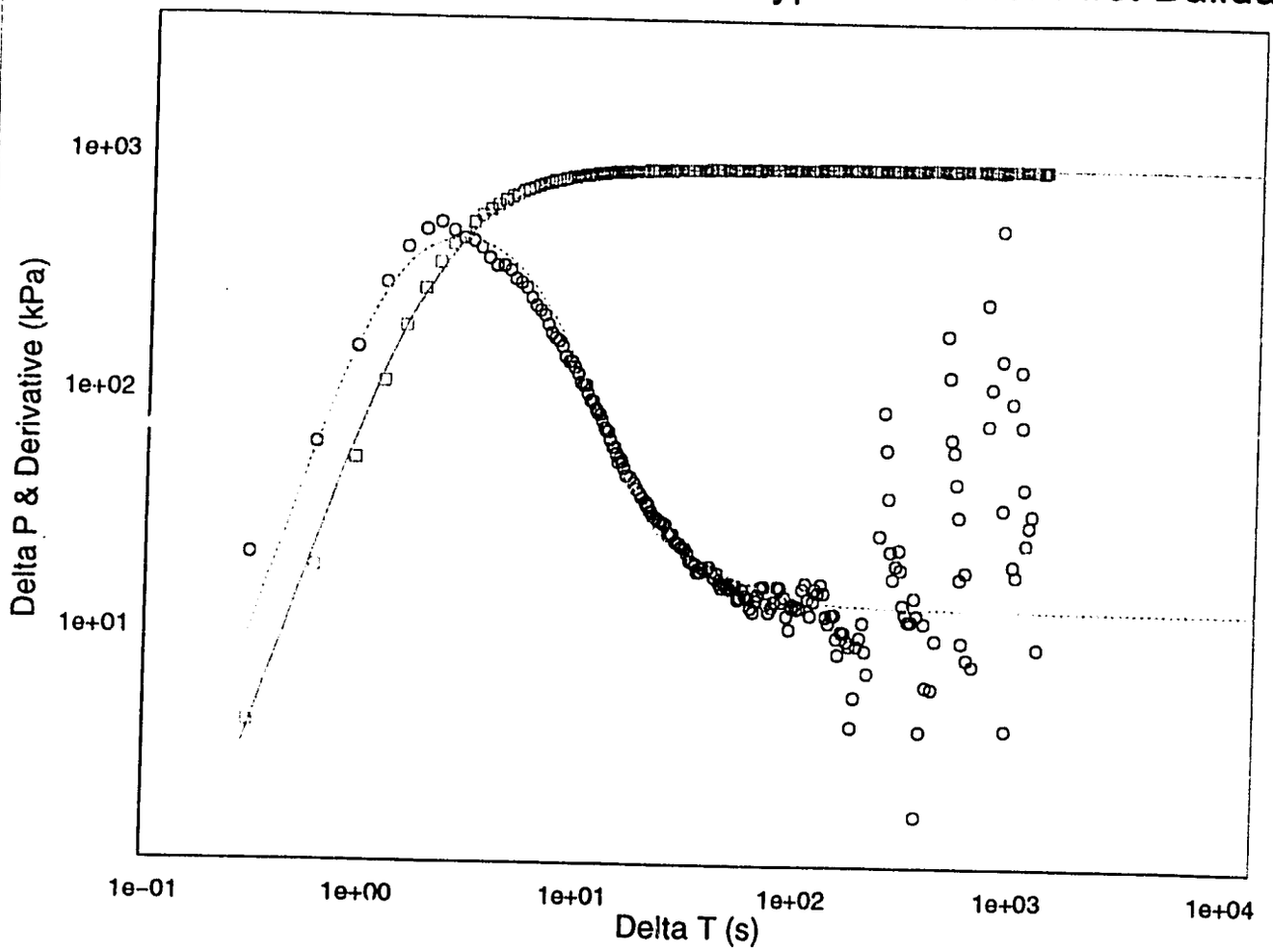




Partial_Completion – Homogeneous – Infinite Acting

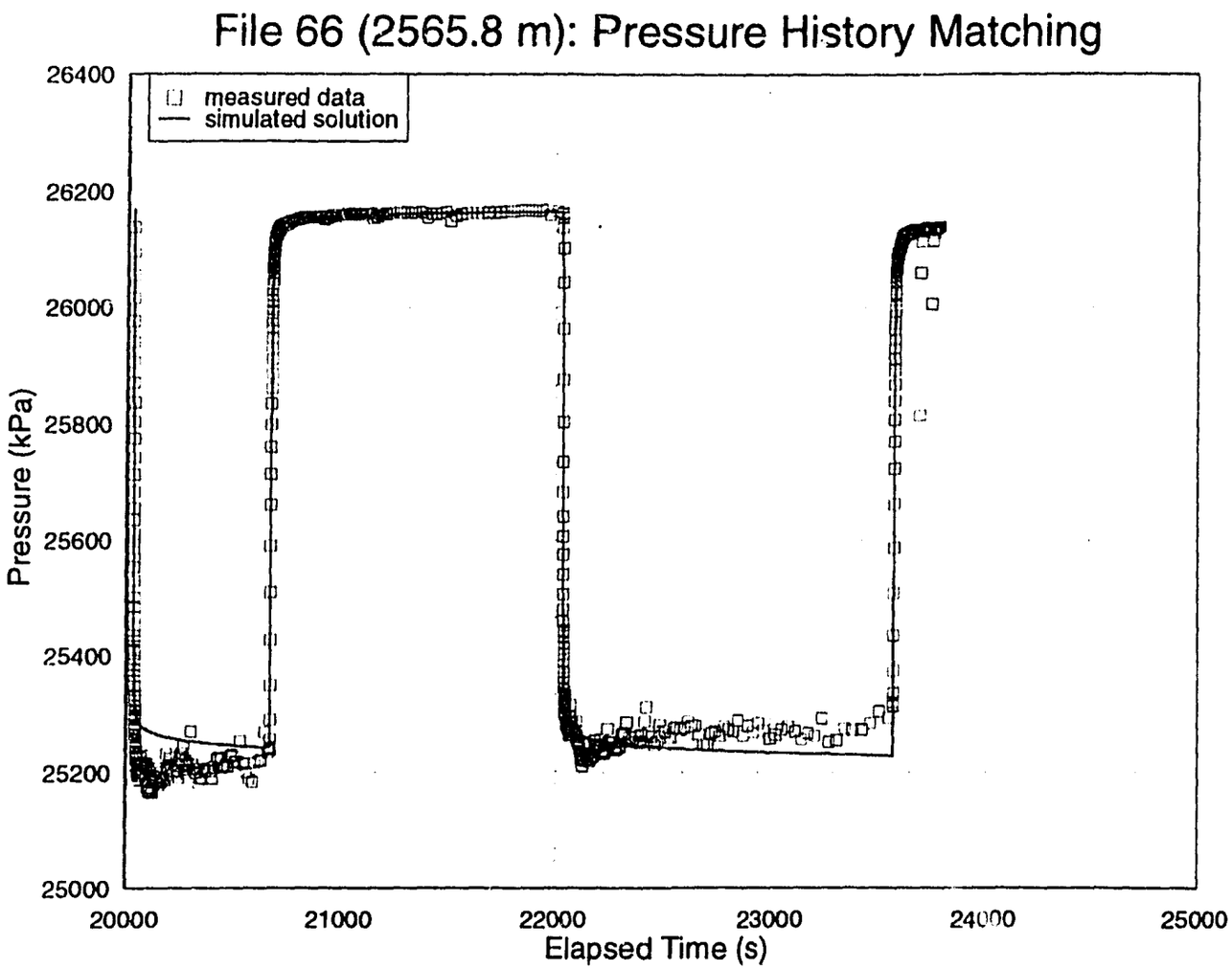
k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

File 66 (2565.8 m): Multi–Rate Type Curve for First Buildup



Partial_Completion – Homogeneous – Infinite Acting

k = 44.5 md Mech. skin = 11.63, Total Skin = 38.54

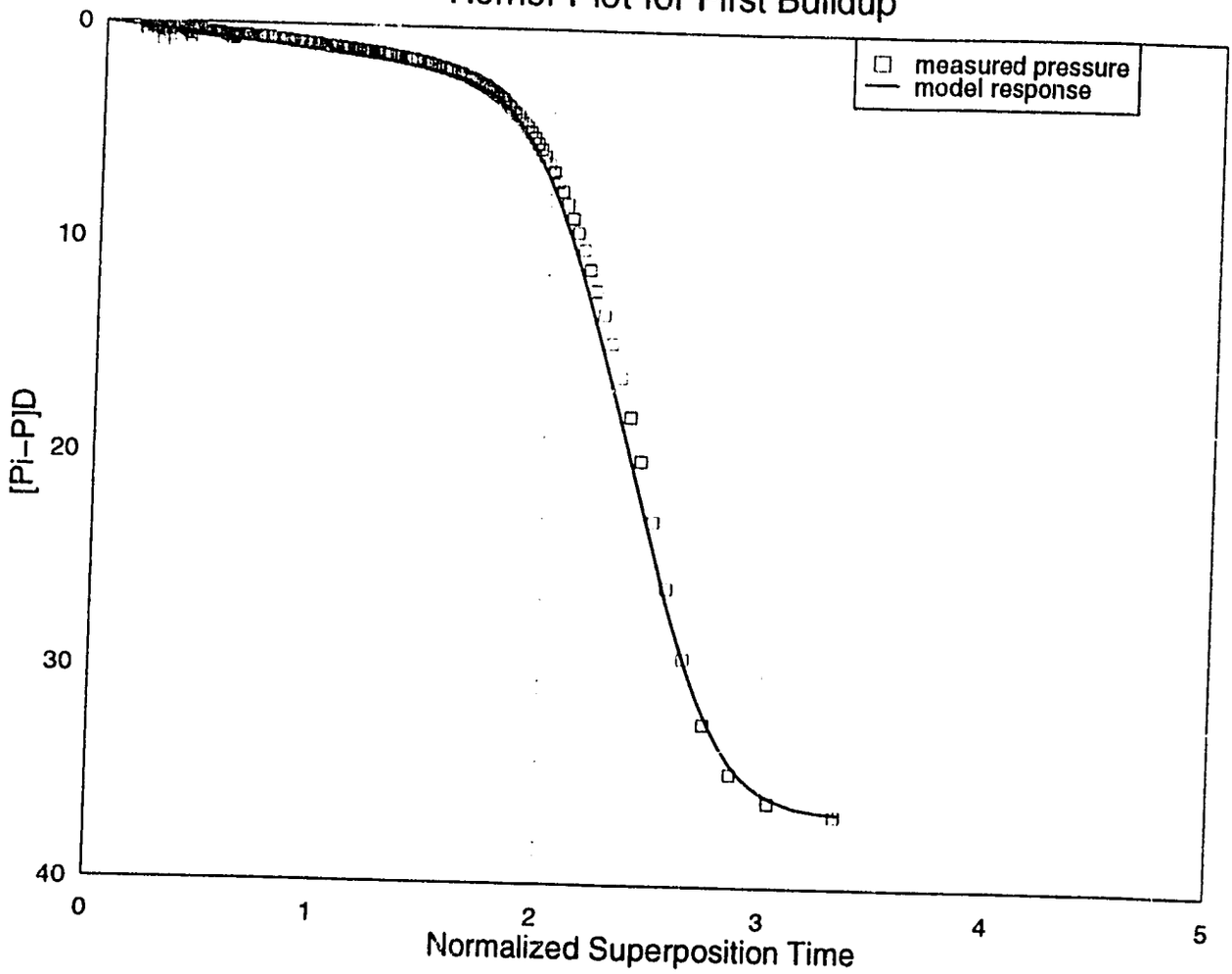


Partial_Completion – Homogeneous – Infinite Acting

Pi = 26170 kPa, k = 44.5 md, Mech. skin = 11.63, Total Skin = 38.54

File 66 (2565.8 m): Dimensionless Superposition

Horner Plot for First Buildup

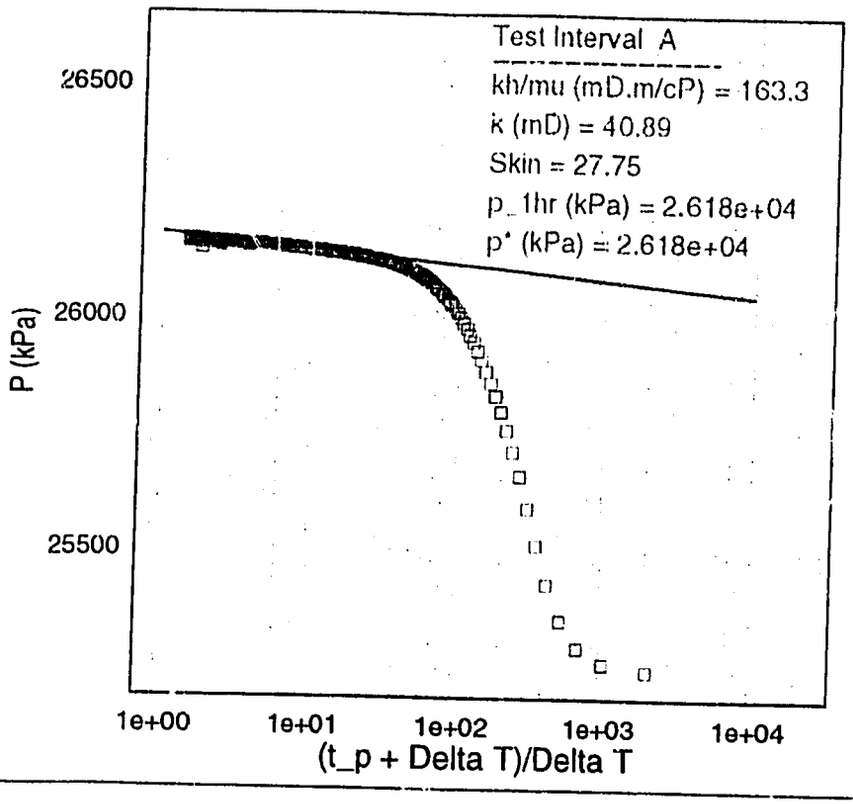


Partial_Completion – Homogeneous – Infinite Acting

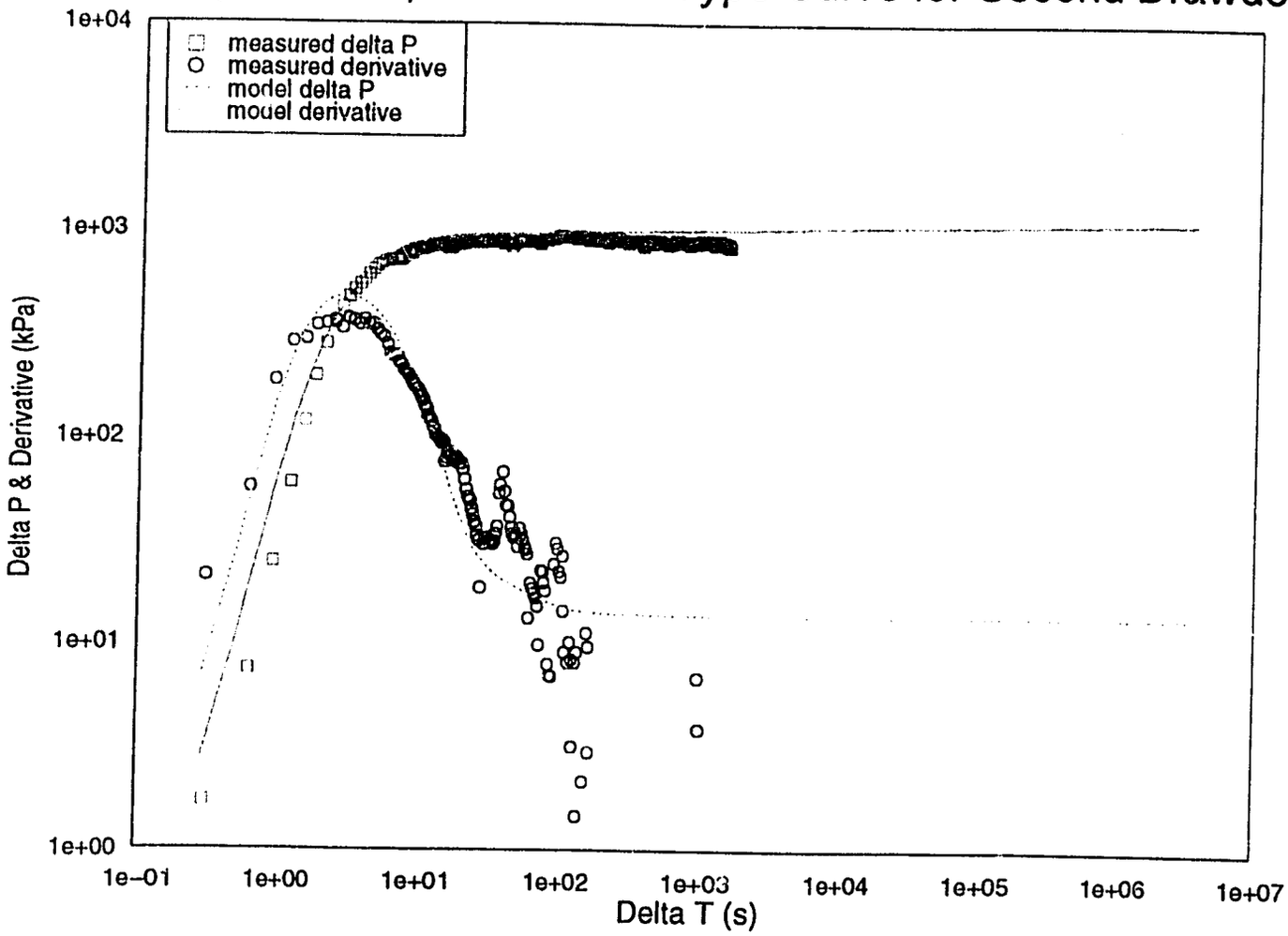
Pi = 26170 kPa, k = 44.5 mD, Mech. skin = 11.63, Total Skin = 38.54

Horner Plot for First Buildup

Infinite Acting Radial Flow



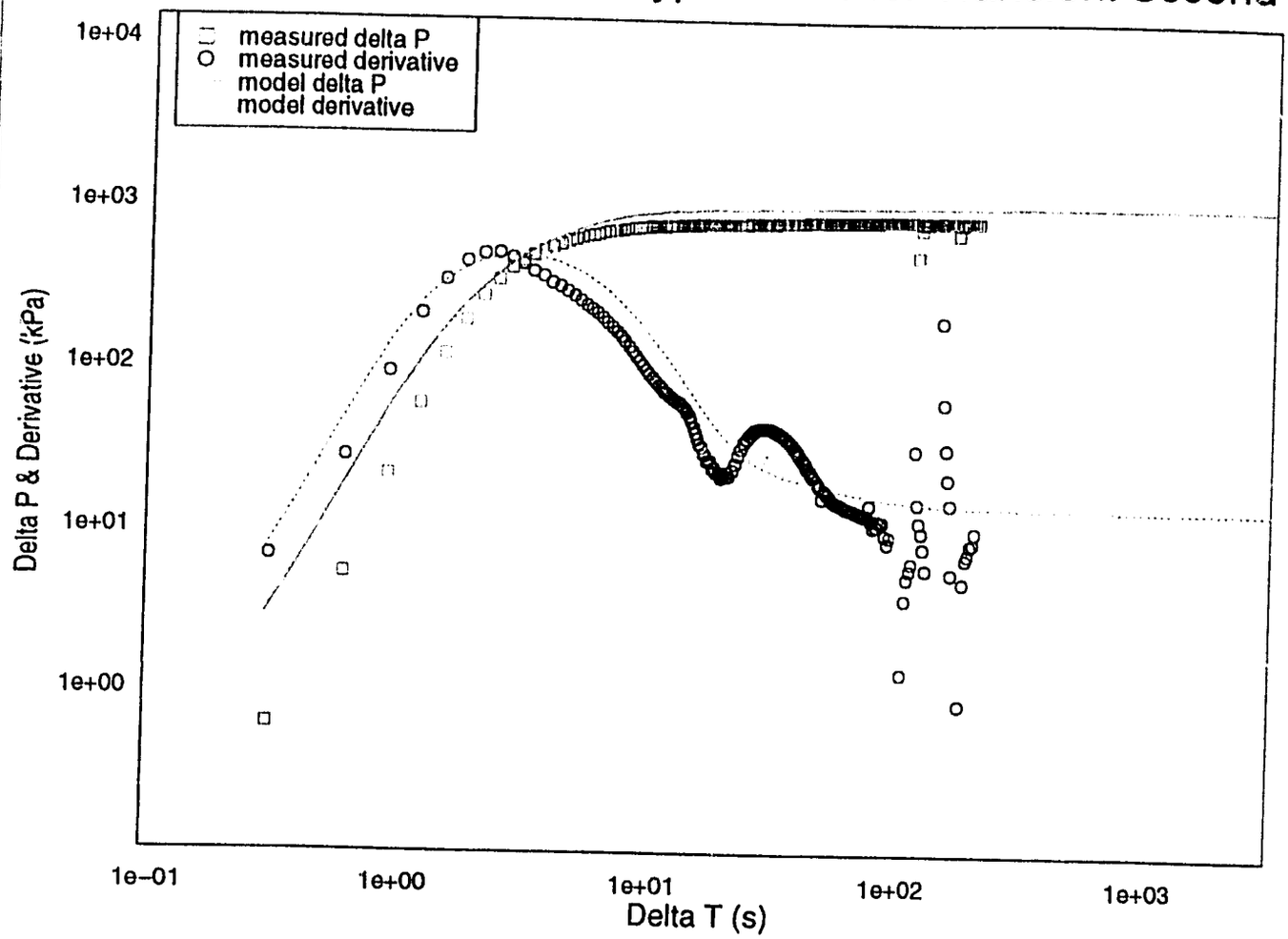
File 66 (2565.8 m): Multi-Rate Type Curve for Second Drawdown



Partial_Completion – Homogeneous – Infinite Acting

k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

File 66: (2565.8 m): Multi-Rate Type Curve for Transient Second Buildup



Partial_Completion – Homogeneous – Infinite Acting

k = 40.89, Mech. skin = 11.63, Total Skin = 38.5

Schlumberger

GEOFRAME PROCESSED INTERPRETATION

PUMP OUT RESISTIVITY AND TEMPERATURE

Using the following logs: DLL-LDT-CNL-EDAC-GR DSI-NGT FMI-GR

*Mark of Schlumberger

COMPANY:	CANADIAN FOREST OIL LTD.
WELL:	CDN FOREST ET AL FLETT RAPIDS
FIELD:	FLETT RAPIDS
PROVINCE:	NORTH WEST TERRITORIES
COUNTRY:	
Date Logged:	9-JAN-1999 Date Processed: 19-JAN-1999
Well Location:	I-61-60-50-123-15 3001616050123150 (UWI)
Elevations:	KB: DF: GL:
API Number:	N/A Job Number:

FOLD HERE The well name, location and borehole reference data were furnished by the customer.

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 willful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretations 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.

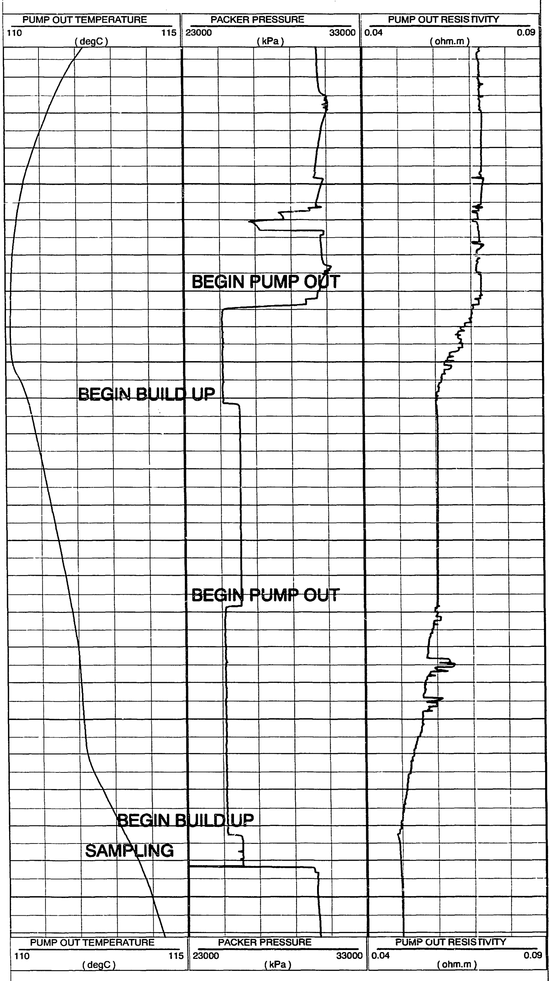
Field Recording:	Location: GRANDE PRAIRIE	Software Version: 9C0-413	Engineer: TONY DANIEL/SEBAS		
Office Recording:	ICS Center:	Baseline:	Log Analyst:		

Mud and Borehole Measurements:

Rm @ Measured Temperature: 0.24ohm.m @ 20.5556degC	BHT:	Bitsize 216mm	
Rmf @ Measured Temperature: 0.21ohm.m @ 14.4444degC	Type Fluid in Hole:	GEL CHEM	
Rmc @ Measured Temperature: 0.17ohm.m @ 12.2222degC	Mud Density: 1160kg/m3		

Remarks:

ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST.
DLL-LDT-CNL-EDAC-GR-SP FIRST PASS, DSI-NGT SECOND PASS AND FMI-GR THIRD PASS.
BRIDGED WITH FIRST PASS 12:00 9-JAN-1999, 2510M, BROKE THE EDAC.
RAN FIRST PASS WITH NO EDAC.



Company:	CANADIAN FOREST OIL LTD.		
Well:	CDN FOREST ET AL FLETT RAPIDS		
FIELD:	FLETT RAPIDS		
PROVINCE:	NORTH WEST TERRITORIES		
Date Logged:	9-JAN-1999	Date Processed:	19-JAN-1999
Well Location:	I-61-60-50-123-15 3001616050123150 (UWI)		
Elevations:	KB:	DF:	GL:
API Number:	N/A	Job Number:	

Schlumberger

SURVEY PLAN

OVERSIZED

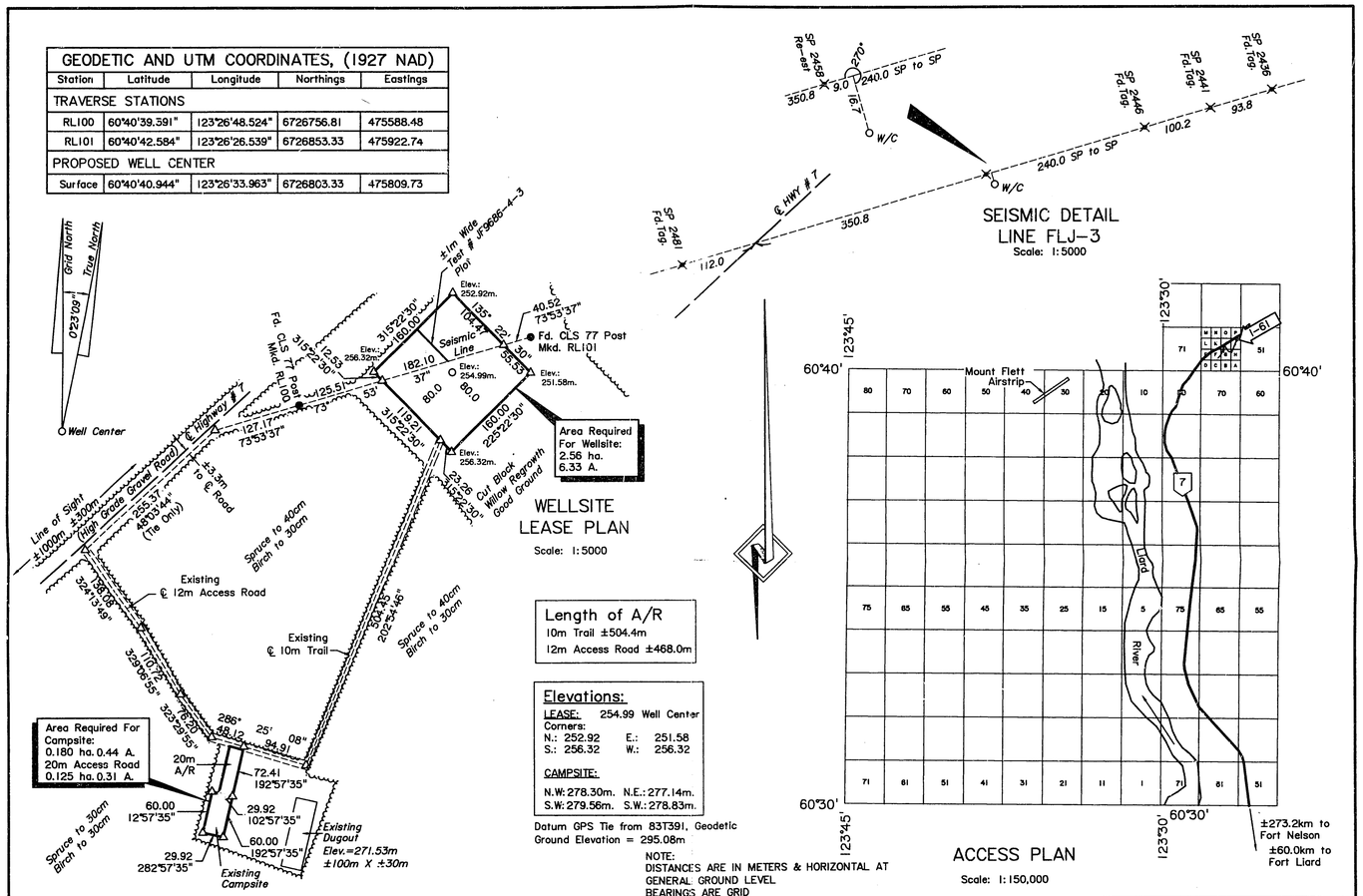
DOCUMENT

FILMED

ON

35mm

GEODETIC AND UTM COORDINATES, (1927 NAD)				
Station	Latitude	Longitude	Northings	Eastings
TRAVERSE STATIONS				
RL100	60°40'39.391"	123°26'48.524"	6726756.81	475588.48
RL101	60°40'42.584"	123°26'26.539"	6726853.33	475922.74
PROPOSED WELL CENTER				
Surface	60°40'40.944"	123°26'33.963"	6726803.33	475809.73



OPERATOR:
CANADIAN FOREST OIL LTD.

I CURTIS E. HENRIE, CERTIFY THAT THE SURVEY REPRESENTED BY THIS PLAN IS CORRECT AND TRUE TO THE BEST OF MY KNOWLEDGE AND WAS COMPLETED ON THE 9th DAY OF JULY , 1998.

P.ENG.

CANADA LANDS SURVEYOR

16 JULY, 1998

CDN FOREST et al FLETT RAPIDS I-61
IN UNIT I, SECTION 61
GRID AREA 60°50' , 123°15'

SESL

Surveyor: JT Calculator: MK
Draftsperson: DB
Job No.: 98N009A

No.	Revision	Date

STUART ENGINEERING & SURVEYING LTD. 200, 517 - 10TH AVENUE S.W. CALGARY, ALBERTA, CANADA T2R 0A8 (403) 234-9018 FAX. (403) 266-2919

RESISTIVITY/ CONDUCTIVITY

NEW COPY

1831

COMPUTALOG

SIMULTANEOUS TRIPLE INDUCTION SFL LOG

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CON FOREST ET AL FLETT RAP 1-61
COMPANY	CANADIAN FOREST OIL LTD.

CANADIAN FOREST OIL LTD.
...MEASURED DEPTH LOG...
WELL CON FOREST ET AL FLETT RAP 1-61
FIELD FLETT RAPIDS
PROVINCE NORTH WEST TERRITORIES

92 H/14 C/3 H-4

Log Interval 0.0 - 1414.0 m
Casing Driller 0.0 - 0.0 m
Casing Logger 0.0 - 0.0 m
Bit Size 0.0 mm
Type Fluid in Hole
Density / Viscosity
pH / Fluid Loss
Source of Sample
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

Equipment	Serial No.	Type	Location
Dual Induction SFL	1365		
Sonic Waveform	1365		
Gamma Ray	1365		
Caliper	1365		
Temperature	1365		
Cartridge	1365		
Sonde	1365		
Mud Resistivity	1365		
Sonde Type	1365		
Calibration Type	1365		
Calibration Date	1365		
Logging Unit	1365		
Recorded By	1365		
Witnessed By	1365		

Equipment Location: GR TO SURFACE
Recorded Live: Yes
Run Number: ONE
Depth Driller: 1414.0
Depth Logger: 1414.0
Bottom Logged Interval: 1414.0
Top Log Interval: 0.0
Open Hole Size: 216 mm
Drill Collar Size: 216 mm
Drill Pipe Size: 114 mm
Drill Pipe Weight: 14.0 kg/m
Drill Pipe Length: 1414.0 m
Drill Collar Length: 0.0 m
Max Rec. Temp.: 0 °C
Equipment Number: 1365
Location: Yellowknife
Recorded By: K. HILL
Witnessed By: K. HILL

Permanent Datum: GL Elev.: 0.0 m
Log Measured from: KB 4.0 m Above Permanent Datum
Drilling Measured from: KB

Other Services: DIPMETER, SONIC WAVEFORM, GEOPHARM, & BBC-GR & VIT-GR

Date: 21-Mar-92
Run No.: ONE
Depth Driller: 1414.0
Depth Logger: 1414.0
Bottom Log Interval: 1414.0
Top Log Interval: 0.0
Casing Driller: 0.0 @ 0.0 m
Casing Logger: 0.0 @ 0.0 m
Bit Size: 0.0 mm
Type Fluid in Hole:
Density / Viscosity:
pH / Fluid Loss:
Source of Sample:
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

Equipment Number: 1365
Location: Yellowknife
Recorded By: K. HILL
Witnessed By: K. HILL

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 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS — Rig: NABORS #246 — Service Order # 14160

Drilling Stopped 21/03/18 Circulation Stopped 18:15/21 Tool on Bottom 04:23/22 BHT 86 °C
UNIT 1. SECTION 61. GRID AREA 60-50-123-15
STI-SPEC-CNT-DE-BCS-DAC LOGGED IN COMBINATION.
MAXIMUM DEVIATION OF 21.4°
TD NOT REACHED. LOGGED FROM BRIDGE.
TD WAS REACHED AT 21:40 ON 1991-03-21

CHANGES IN MUD TYPE OR NEW SAMPLE
Date: Sample No. 13/23/88
Depth Interval
Type Fluid in Hole
Mud Density
Visc.
pH / Water Loss
Source of Sample
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

SCALE CHANGES		
Type Log	Interval	Scale

EQUIPMENT DATA				
Run No.	Tool Type	Tool No.		Other
ONE	STI	103103	38mm STANDOFFS	
	USR	134	AA-BCS-DBS	

Prints: 2

REMARKS

MAIN PASS
1:600 SCALE

VERSION: 2.0a

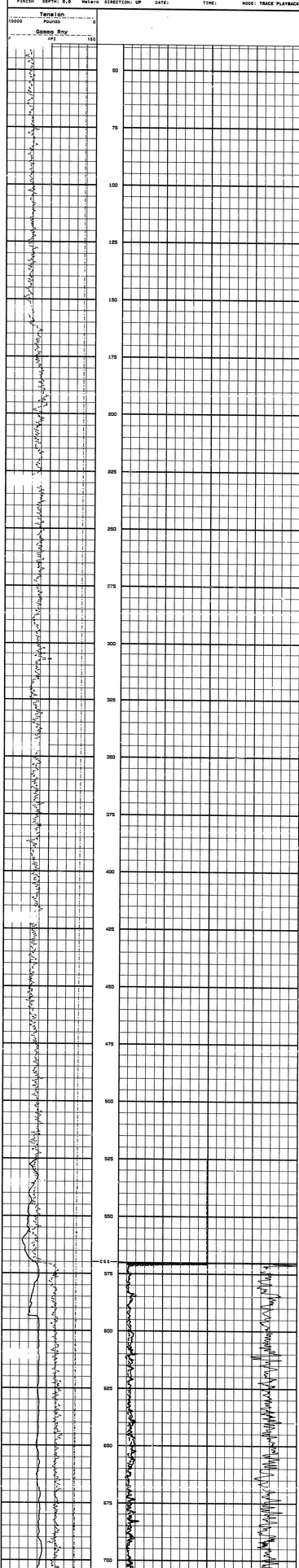
MAIN PASS

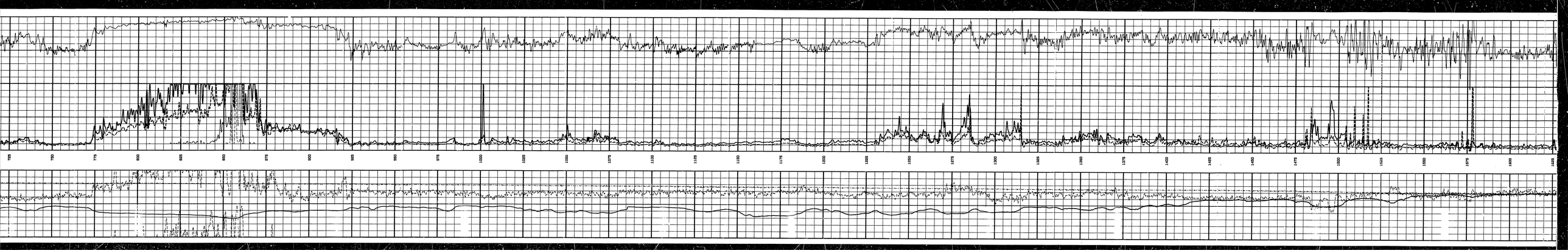
14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension
10000 Pounds 0

Gamma Ray
API 150

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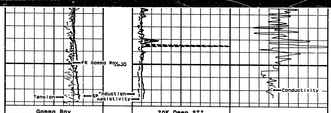


START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 13/3/98 TIME:08:18 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 3.0b

REMARKS

MAIN PASS
1:200 SCALE

MAIN PASS

VERSION: 3.0b

14150 STI9

START DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Tension
10000 Pounds 0

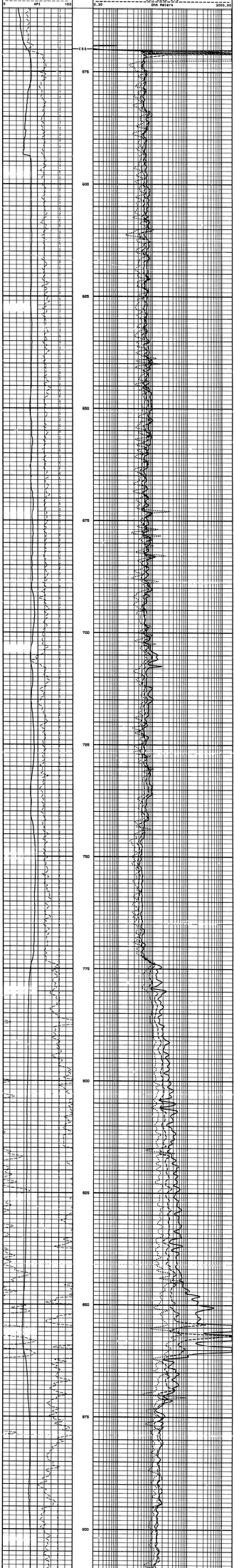
SP
-80 Millivolts 20

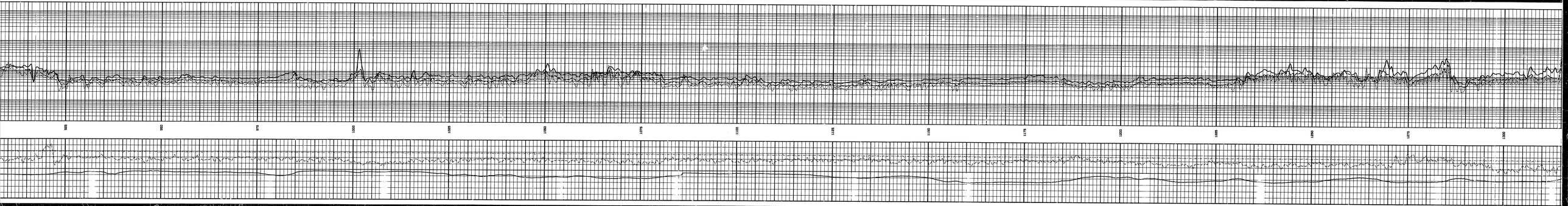
Gamma Ray
0 API 150

SFL Resistivity
0.20 Ohm Meters 2000.00

20K Medium STI
0.20 Ohm Meters 2000.00

20K Deep STI
0.20 Ohm Meters 2000.00

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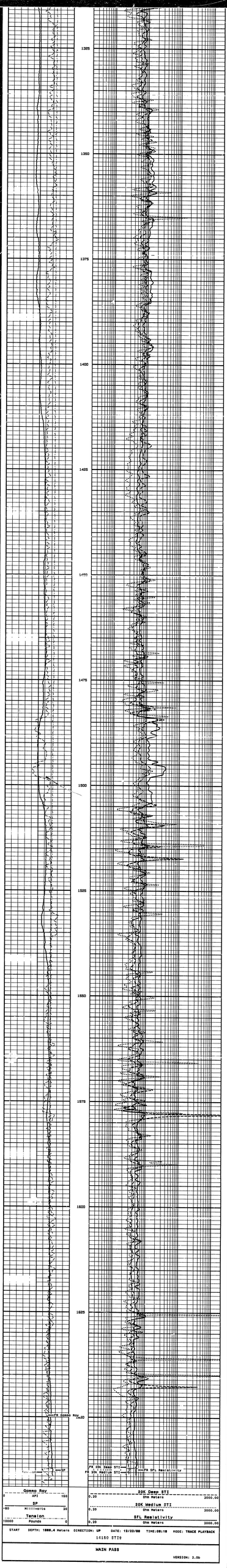
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FB Gamma Ray
FB 30K Deep STI
FB 20K Medium STI
FB SFL Resistivity
Gamma Ray
0 API 150
SP
-80 Millivolts 20
Tension
10000 Pounds 0
20K Deep STI
0.20 Ohm Meters 2000.00
20K Medium STI
0.20 Ohm Meters 2000.00
SFL Resistivity
0.20 Ohm Meters 2000.00
START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 12/22/88 TIME:08:18 MODE: TRACE PLAYBACK
14150 STIO
MAIN PASS
VERSION: 2.00

12/22/88 03:08 0.0 M Ver 2.0b-2.0b JOB 14150

Gamma Ray Before Survey Calibration

Tool Type: USS-AA
Calibrator No: 086 Serial No: 134

Background	Calibrator	Standard	Units
196.5	692.2	140.0	API

Delta Counts Per Sec: 496.7 CPS/API = 3.541

11/27/88 14:54 0.0 M Ver 2.0b-2.0b JOB SHOP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHz DEEP	10KHz MEDIUM	20KHz DEEP	20KHz MEDIUM	40KHz DEEP	40KHz MEDIUM
Gain:	1.013	0.998	1.026	1.010	1.035	1.008
Upper Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Lower Limit:	0.900	0.900	0.900	0.900	0.900	0.900
Phase Error(degrees):	0.93	0.61	1.06	0.68	0.87	0.49
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:	-9.8	-34.0	1.5	-16.1	3.6	-18.9
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:	-8.2	-3.9	2.2	-27.1	2.3	-56.3
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

SHOP ELECTRONICS CALIBRATION:

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	-2.8	7.5	1.8	5.3	3.6	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:	0.993	0.997	0.997	0.998	1.001	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):	-0.40	0.51	0.23	-0.10	0.73	-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):	2.9	7.8	10.1	6.6	3.6	9.6
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:	0.994	0.997	0.994	0.993	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):	-0.39	0.48	0.03	-0.11	0.48	-0.10
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:	-3.0	-100.0	100.0	uV	1.013	0.800	1.200
Current:	-0.3	-20.0	20.0	uA	1.000	0.800	1.200

12/22/88 03:49 319.0 M Ver 2.0b-2.0b JOB 14150

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	17.4	4.4	10.8	8.3	7.2	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:	0.993	0.994	0.994	0.987	0.993	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):	-0.36	0.48	0.16	-0.14	0.73	-0.22
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):	17.7	4.0	13.1	6.4	6.9	11.1
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:	0.993	0.994	0.993	0.987	0.993	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):	-0.35	0.47	-0.07	-0.10	0.37	-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:	-3.0	-100.0	100.0	uV	1.016	0.800	1.200
Current:	-0.3	-20.0	20.0	uA	0.998	0.800	1.200

12/22/88 07:46 38.0 M Ver 2.0b-2.0b JOB 14150

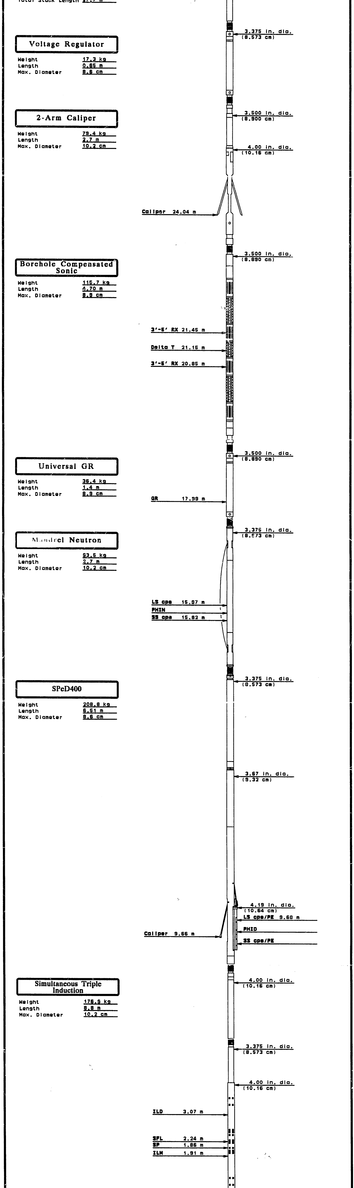
SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

	10KHz R	10KHz X	20KHz R	20KHz X	40KHz R	40KHz X
			DEEP			
Zero Error(mmho/m):	62.2	6.4	3.8	9.4	7.7	11.1
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:	0.990	0.995	0.995	0.987	0.995	0.986
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):	-0.43	-0.24	0.26	-0.08	0.80	-0.17
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):	48.8	4.1	4.4	9.8	7.5	11.6
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:	0.978	0.995	0.994	0.987	0.993	0.986
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):	-0.41	-0.36	-0.00	-0.09	0.48	-0.16
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:	-3.0	-100.0	100.0	uV	1.037	0.800	1.200
Current:	-0.3	-20.0	20.0	uA	1.000	0.800	1.200



COMPANY CANADIAN FOREST OIL LTD.

WELL CON FOREST ET AL FLETT RAPIDS w1

FIELD FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

DEC 2 4 1988

N.E.B. COPY 1351

COMPUTALOG

CS400

SIMULTANEOUS TRIPLE INDUCTION SFL LOG

COMPANY	CANADIAN FOREST OIL LTD.
	TRUE VERTICAL DEPTH
WELL	CON FOREST ET AL FLETT RAPIDS I-61
	921-C121-1-1
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION: 60NF&NL M.60°-40'- W.123°-38' — Other Services: BHC-GR-CAL-DIPMET-DIL-SONIC

Perm. Datum: Schwat Level Elev. 205.0 — Log measured from K.B., 14.0 m above Permanent Datum. — ELEV.K.B. 219.0, D.F. 215.0, GSP

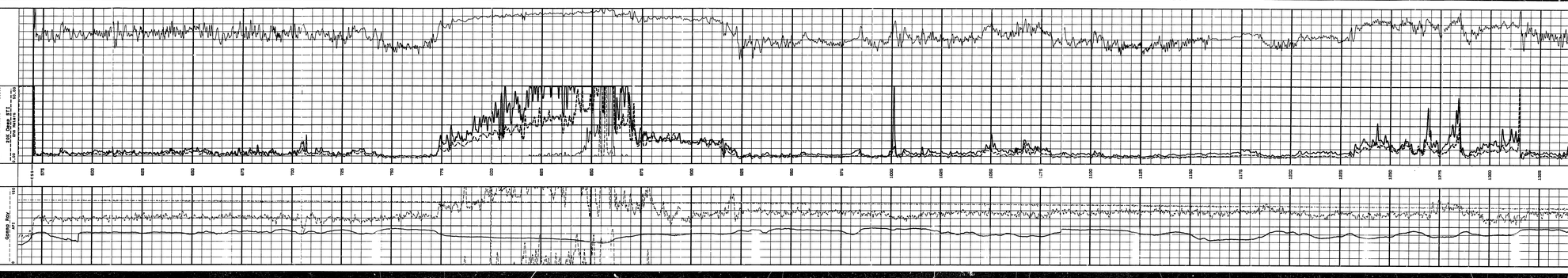
DATE	DECEMBER 23, 1986
Run No.	ONE
First Reading	1601.5
Last Reading	589.0
Meters Meas.	1012.5
Depth Reached	1601.5
Hole Size	203.2
Csg. Length	589.0
Csg. Driller	508.6
Fluid Type	POLYMER
Dens. L Visc.	1370 100
Mud pH	9.4
Mud Motor Loss	7.7
Mud Res.	0.24 @ 13 °C
Mud Res. @ BHT	0.09 @ 85 °C
Rmf	0.20 @ 13 °C
Rmc	0.20 @ 13 °C
Rmf @ BHT	0.05 @ °C
Bit Size	311mm
Centralizers	N/A
Date of Log Time	DEC 24/86
Location	ORANGE 20/ -E
Recorded By	J. GRUBB
Witnessed By	B.L. BELL

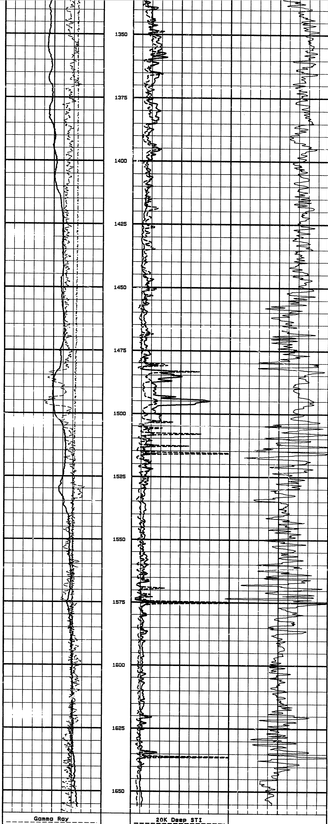
TYPE LOG	SDSF
BOREHOLE RECORD	
Run No.	ONE
Bit No.	1
Type	311HC
From	203.2
To	1601.5
CASING RECORD	
Size	244.5
Wgt.	59.5
Grade	K55
From	0.0
To	589.0

Driller: 244.5 @ 59.5 K55 0.0 589.0 — Logger: 244.5 @ 59.5 K55 0.0 589.0

REMARKS: Sonde Type: 1.25 Sonde Serial No. 1 Sonde Centralized: Yes Tool Zero Check: Yes Calibration Run: Yes Calibration Run Type: Air Calibration Run Time: 1 Hr. Calibration Run Date: Dec 23/86 Tool Zero Check Time: 1 Hr. Tool Zero Check Date: Dec 23/86 Tool Type: 1.25 Sonde Serial No. 1 Sonde Centralized: Yes Tool Zero Check: Yes Calibration Run: Yes Calibration Run Type: Air Calibration Run Time: 1 Hr. Calibration Run Date: Dec 23/86 Tool Zero Check Time: 1 Hr. Tool Zero Check Date: Dec 23/86

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 OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF ITS OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.





START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 12/22/88 TIME:08:33 MODE: TRACE PLAYBACK

14150 STI10

TVD PASS

VERSION: 2.0b

REMARKS

MAIN PASS
1:240 SCALE

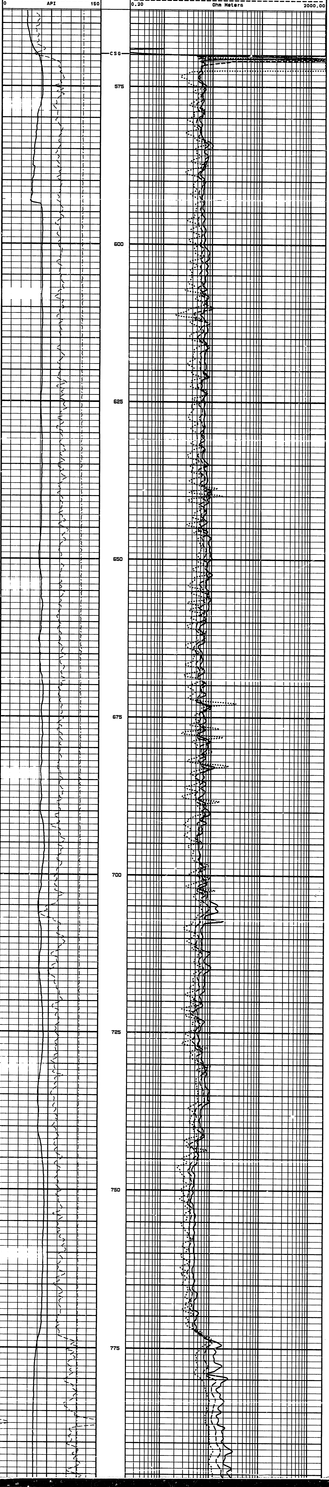
TRUE VERTICAL DEPTH LOG

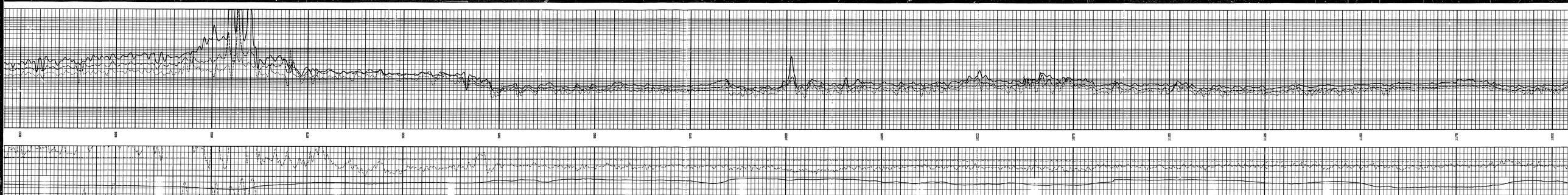
TVD PASS

VERSION: 2.0b

14150 STI10

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

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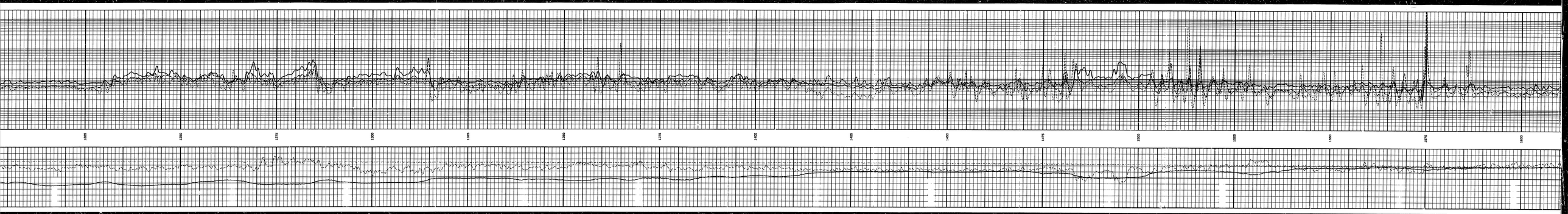
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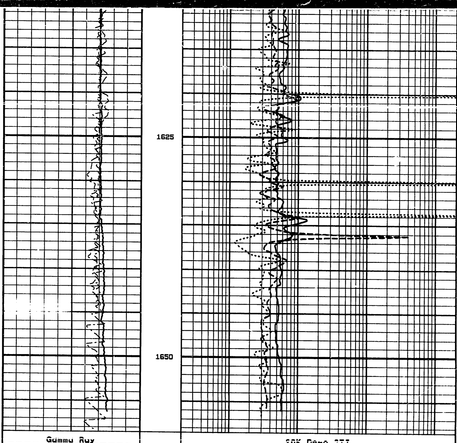


START DEPTH: 1650.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:03:32 MODE: TRACE PLAYBACK

14150 STI10

TVD PASS

VERSION: 2.0b

12/22/98 03:06 0.0 M Ver 2.0b-2.0b Job 14150

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 124
Calibrator No: 086

Background	Calibrator	Standard	Units
156.5	692.2	140.0	API

Delta Counts Per Sec: 495.7 CPS/API = 3.541

11/27/98 14:54 0.0 M Ver 2.0b-2.0b Job SHOP

SIMULTANEOUS TRIPLE INDUCTION SHOP CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

LOOP CALIBRATION: Gain and Phase Error of Internal Reference

	10KHZ DEEP	10KHZ MEDIUM	20KHZ DEEP	20KHZ MEDIUM	40KHZ DEEP	40KHZ MEDIUM
Gain:	1.013	0.999	1.035	1.010	1.038	1.008
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	0.61	1.06	0.69	0.87	0.49
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:	-6.8	-24.0	4.5	-18.1	3.6	-18.9
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:	-8.1	-3.6	3.2	-27.1	3.2	-64.2
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 R	10KHZ X	20KHZ R	20KHZ X	40KHZ R	40KHZ X
			DEEP			
Zero Error(mmho/m):	2.8	7.5	4.6	5.3	3.6	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:	0.993	0.997	0.997	0.988	1.001	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):	-0.40	0.51	0.23	-0.10	0.75	-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):	2.9	7.9	2.1	8.6	3.6	9.5
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:	0.994	0.997	0.994	0.989	0.994	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):	-0.39	0.48	0.02	-0.11	0.48	-0.10
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:	-2.2	-100.0	100.0	uV	1.017	0.800	1.200
Current:	-0.2	-25.0	25.0	uA	1.000	0.800	1.200

12/22/98 03:49 319.0 M Ver 2.0b-2.0b Job 14150

SIMULTANEOUS TRIPLE INDUCTION BEFORE SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

	10KHZ R	10KHZ X	20KHZ R	20KHZ X	40KHZ R	40KHZ X
			DEEP			
Zero Error(mmho/m):	17.4	4.4	4.8	8.2	7.2	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:	0.993	0.994	0.995	0.997	0.998	0.986
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):	-0.36	0.48	0.18	-0.14	0.73	-0.22
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):	17.7	4.0	5.1	8.4	6.9	11.1
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:	0.993	0.994	0.993	0.997	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):	-0.35	0.47	-0.07	-0.15	0.37	-0.21
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:	-2.0	-100.0	100.0	uV	1.015	0.800	1.200
Current:	-0.3	-25.0	25.0	uA	0.999	0.800	1.200

12/22/98 07:46 38.0 M Ver 2.0b-2.0b Job 14150

SIMULTANEOUS TRIPLE INDUCTION AFTER SURVEY CALIBRATION

TOOL TYPE: STI-AC SONDE SERIAL NO: 102
ELECTRONICS SERIAL NO: 102

	10KHZ R	10KHZ X	20KHZ R	20KHZ X	40KHZ R	40KHZ X
			DEEP			
Zero Error(mmho/m):	42.2	4.4	2.8	8.4	7.7	11.1
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:	0.980	0.995	0.995	0.987	0.998	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):	-0.43	-0.24	-0.24	-0.08	0.50	-0.17
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):	46.8	4.1	4.1	9.8	7.5	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:	0.976	0.995	0.994	0.987	0.992	0.986
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):	-0.41	-0.35	-0.00	-0.09	0.48	-0.16
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	uV	1.037	0.800	1.200
Current:	-0.3	-25.0	25.0	uA	1.020	0.800	1.200

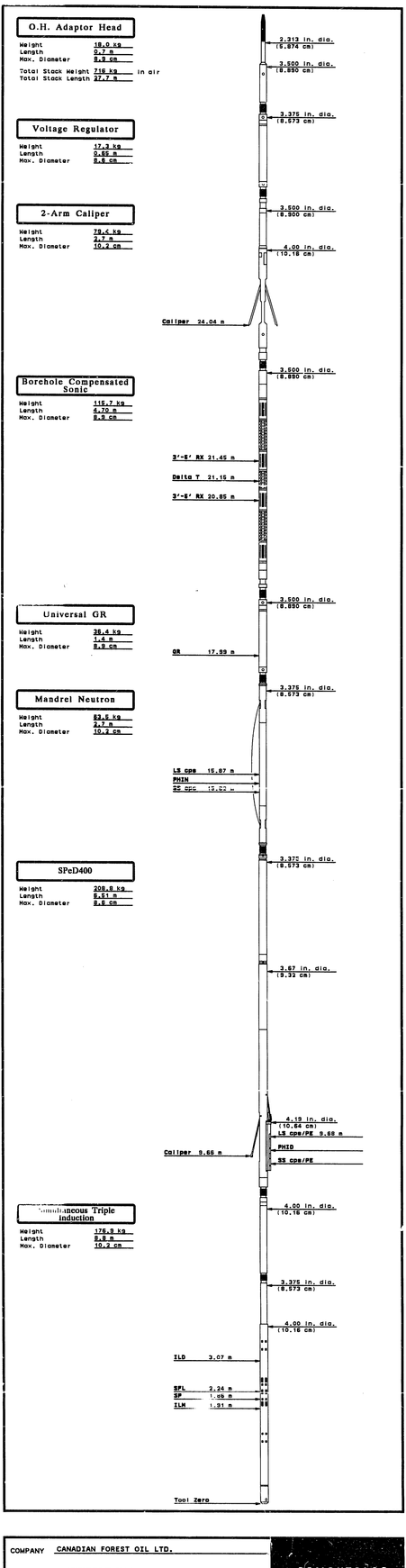
TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature VERSION : 1.0
TVD DATA FILE : SURVEY

COMPANY : CANADIAN FOREST OIL LTD. DRILLED DEPTH : 2073.60 m
WELL : CDN FOREST ET AL FLETT RAPIDS I-BITRUE VERTICAL DEPTH : 2041.08 m
LOCATION : SURFACE: N 55°-40'-W 123°-28' BOTTOM HOLE DISPLACEMENT : N 203.37 m W 34.73 m
DATE : DECEMBER 22, 1998 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	0.00	0.00	0.00	0.00	0.00	0.00
1	21.30	0.00	0.00	21.30	0.00	0.00
2	569.60	0.00	0.00	569.60	0.00	0.00
3	588.00	0.75	355.00	588.00	0.12	-0.01
4	599.00	0.50	7.00	599.00	0.24	-0.01
5	618.00	0.25	2.00	618.00	0.36	0.00
6	667.00	0.25	39.00	667.00	0.55	0.07
7	714.00	1.00	32.00	713.99	0.98	0.35
8	724.00	1.00	322.00	723.99	1.12	0.35
9	743.00	1.00	17.00	742.99	1.41	0.29
10	764.00	1.25	347.00	763.99	1.81	0.29
11	783.00	1.25	335.00	782.98	2.20	0.16
12	792.00	1.25	7.00	791.98	2.39	0.13
13	802.00	1.25	352.00	801.98	2.60	0.13
14	821.00	1.50	337.00	820.97	3.04	0.00
15	839.00	1.50	7.00	838.97	3.49	-0.06
16	866.00	1.25	4.00	865.96	4.13	0.00
17	893.00	1.00	0.00	892.95	4.65	0.02
18	940.00	1.00	37.00	939.95	5.40	0.27
19	992.00	1.00	339.00	991.94	6.19	0.38
20	1048.00	3.00	17.00	1048.90	8.08	0.64
21	1067.00	3.25	15.00	1066.88	9.02	0.91
22	1087.00	3.13	21.00	1086.85	10.08	1.25
23	1102.00	3.25	29.00	1101.82	10.83	1.60
24	1126.00	3.00	37.00	1125.79	11.93	2.31
25	1146.00	2.75	39.00	1145.76	12.72	2.93
26	1175.00	2.10	35.00	1174.74	13.69	3.67
27	1211.00	1.60	49.00	1210.72	14.57	4.43
28	1233.00	1.50	59.00	1232.71	14.91	4.91
29	1281.00	1.50	132.00	1280.70	14.82	5.91
30	1367.80	1.50	131.00	1367.47	13.30	7.60
31	1380.90	1.30	122.60	1380.56	13.11	7.86
32	1390.70	1.00	119.10	1390.36	13.00	8.03
33	1400.30	0.90	120.50	1399.96	12.93	8.16
34	1409.90	0.80	103.80	1409.56	12.87	8.29
35	1419.70	1.20	48.20	1419.36	[illegible]	[illegible]
36	1429.50	2.10	18.00	1429.15	13.16	8.57
37	1439.10	3.50	3.90	1438.74	13.62	8.64
38	1448.80	5.10	357.90	1448.42	14.35	8.65
39	1458.40	6.60	355.30	1457.97	15.33	8.59
40	1468.10	7.80	354.50	1467.59	16.54	8.48
41	1477.90	8.70	354.30	1477.29	17.94	8.34
42	1487.70	9.60	354.00	1486.96	19.49	8.18
43	1497.40	10.40	353.10	1496.51	21.15	7.99
44	1507.00	11.30	351.00	1505.94	22.95	7.74
45	1516.80	12.00	350.80	1515.54	24.90	7.43

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	24.90	7.43
47	1536.20	13.10	350.80	1534.48	29.05	6.74
48	1545.00	13.40	351.20	1544.02	31.27	6.39
49	1555.60	14.20	350.30	1553.34	33.53	6.02
50	1568.40	15.30	349.70	1565.72	36.74	5.46
51	1578.20	16.20	349.30	1575.15	39.36	4.97
52	1587.90	17.00	349.20	1584.45	42.08	4.45
53	1597.50	17.60	349.60	1593.61	44.88	3.93
54	1607.20	18.10	348.70	1602.85	47.80	3.37
55	1616.90	18.50	348.90	1612.06	50.79	2.78
56	1626.60	19.00	348.50	1621.24	53.85	2.17
57	1636.40	19.50	348.70	1630.49	57.02	1.53
58	1646.00	20.00	349.10	1639.53	60.20	0.91
59	1655.60	20.60	349.30	1648.53	63.47	0.28
60	1665.20	21.20	349.40	1657.50	66.84	-0.35
61	1674.80	21.20	349.80	1666.45	70.25	-0.98
62	1684.50	21.10	350.30	1675.50	73.70	-1.58
63	1694.20	21.00	350.40	1684.55	77.13	-2.17
64	1703.80	21.10	349.50	1693.51	80.53	-2.76
65	1713.00	21.30	349.10	1702.09	83.80	-3.37
66	1722.80	21.40	348.70	1711.21	87.30	-4.06
67	1732.50	21.30	348.90	1720.25	90.77	-4.74
68	1751.90	21.10	348.10	1738.33	97.64	-6.14
69	1761.60	21.00	347.70	1747.39	101.05	-6.87
70	1771.30	20.90	348.10	1756.45	104.44	-7.60
71	1780.90	20.70	348.50	1765.42	107.78	-8.29
72	1790.60	20.50	348.20	1774.50	111.12	-8.98
73	1800.10	20.40	347.80	1783.40	114.37	-9.67
74	1809.90	20.20	347.20	1792.59	117.69	-10.40
75	1819.60	20.30	347.40	1801.69	120.96	-11.14
76	1829.30	20.20	346.90	1810.79	124.23	-11.89
77	1839.00	20.00	346.90	1819.90	127.48	-12.64
78	1848.70	19.90	348.00	1829.02	130.71	-13.36
79	1858.30	20.20	348.00	1838.04	133.93	-14.05
80	1868.30	20.40	348.70	1847.42	137.33	-14.75
81	1877.30	20.10	348.90	1855.86	140.38	-15.35
82	1887.10	20.00	347.70	1865.07	143.67	-16.03
83	1896.60	20.00	345.50	1874.00	146.83	-16.79
84	1906.30	19.80	344.50	1883.12	150.02	-17.64
85	1916.00	19.80	343.60	1892.24	153.18	-18.55
86	1925.70	19.80	342.80	1901.37	156.33	-19.49
87	1935.40	19.90	342.80	1910.49	159.47	-20.47
88	1945.20	19.80	342.50	1919.71	162.65	-21.46
89	1954.80	19.90	342.30	1928.74	165.76	-22.45
90	1964.50	19.90	341.70	1937.86	168.90	-23.47
91	1974.30	19.90	340.90	1947.08	172.06	-24.54
92	1983.90	19.90	340.50	1956.10	175.14	-25.61
93	1993.70	19.60	341.20	1965.33	178.27	-26.70
94	2003.50	19.30	341.20	1974.57	181.36	-27.75
95	2013.20	19.30	341.20	1983.72	184.40	-28.78
96	2022.90	18.90	341.10	1992.89	187.40	-29.81
97	2032.50	18.50	341.40	2001.98	190.31	-30.80
98	2042.20	18.30	341.20	2011.18	193.21	-31.78
99	2051.30	18.10	341.40	2019.83	195.91	-32.69
100	2055.60	18.00	341.90	2023.92	197.17	-33.11
101	2073.60	17.20	343.50	2041.08	202.37	-34.73



COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	N.W.T.

COMPUTALOG

NATIONAL ENERGY BOARD
EXAMINED
DEC 24 1998

N.E.B. COPY 9211-C131-1-1 1851

COMPUTALOG

CS400

DUAL LATEROLOG
MICRO SPHERICALLY FOCUS
MEASURED DEPTH

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION
SURFACE: N 60°-40' W 123° 26'

Other Services:
SPeD/CNS/GR/DAC
BCT/EMI

Perm. Datum GROUND LEVEL Elev. 255.0 m
Log measured from K.B. , 7.5 m above Perm. Datum.

ELEV. K.B. 262.5 m
G.L. 255.0 m
CBF

Date	DECEMBER 22, 1998	JANUARY 2, 1999	
Run No.	ONE	TWO	
First Reading		2394.0 m	
Last Reading		2066.7 m	
Meters Meas.		328.3 m	
Depth Reached	1665.0 m	2394.6 m	
Bt. Driller	2073.6 m	2395.7 m	
Eg. Logger	569.8 m	2066.7 m	
Eg. Driller	569.6 m	2067.7 m	244.5mm, 64.73kg/m
Mud Type		POLYMER	
Dens. & Visc.		1140 60	
Mud pH		10.0	
Mud Water Loss		7.8	
Mud Res.	@ °C	0.32 @ 17 °C	@ °C
Mud Res. @ BHT	@ °C	0.10 @ 100 °C	@ °C
Mf	@ °C	0.35 @ 18 °C	@ °C
Mf @ BHT	@ °C	0.30 @ 16 °C	@ °C
Mf Size	311.0 mm	216.0 mm	
Mf Acing		N/A	
Operating Time		6.0 hrs.	
Unit #	363	358	
Location	GRANDPRAIRIE	EDMONTON	OPERATORS:
Recorded By	J.	C. SCOTT	K. SCOTT
Witnessed By		B. BELLMAN	L. ROULSTON

FOLD

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: NABORS # 24 E Service Order # 20366

Drilling Stopped 17:00/01st Circulation Stopped 09:30/02nd Tool on Bottom 04:40/03rd BHT 100 °C
UNIT I, SECTION 61, GRID AREA 60-50-123-15
SURFACE LOCATION; N 60°-40' W 123°-26'
MAXIMUM DEVIATION OF 21.4° @ 1722.8 m Prints: 2
MSFL RESISTIVITY AFFECTED BY HOLE RUGOSITY

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
TWO	DLL-FA	194	
TWO	MSFL-AA	100	
TWO	UGR-JA	104	RA-20S-569

REMARKS

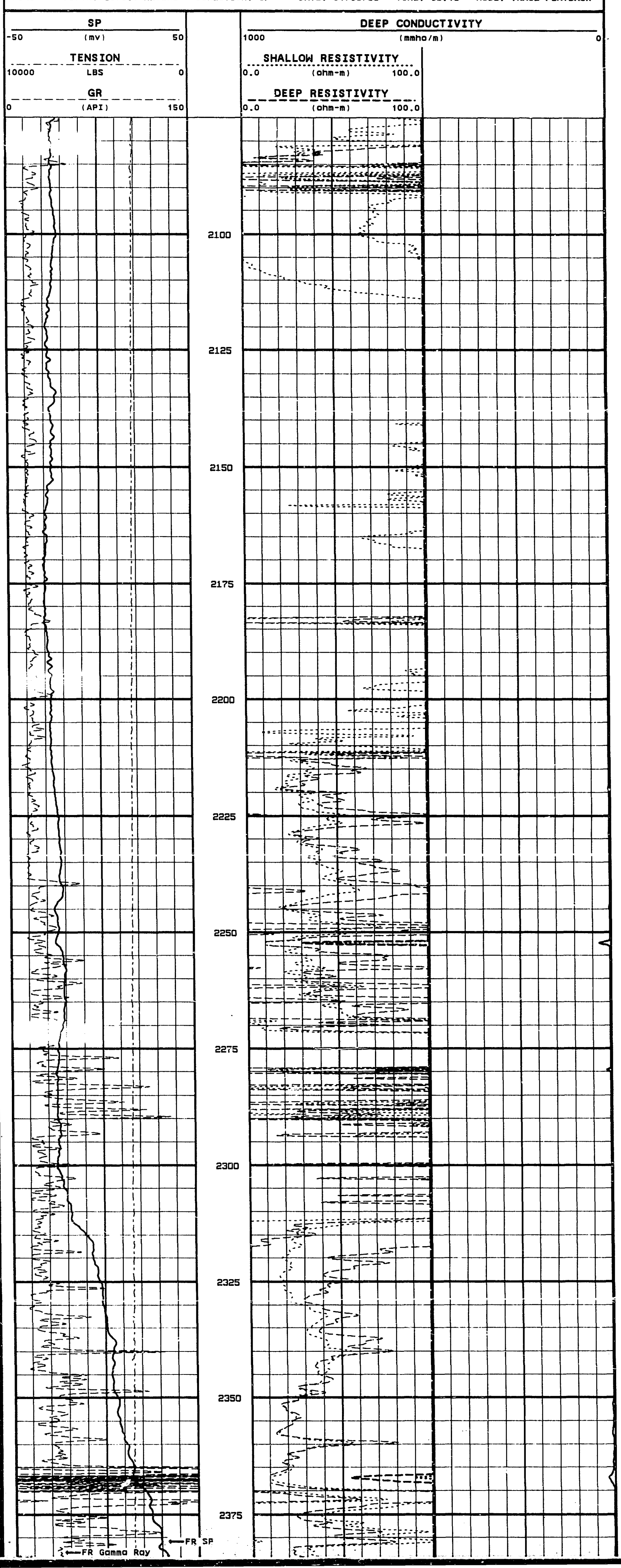
MAIN PASS
1:600 SCALE
CONDUCTIVITY PRESENTATION

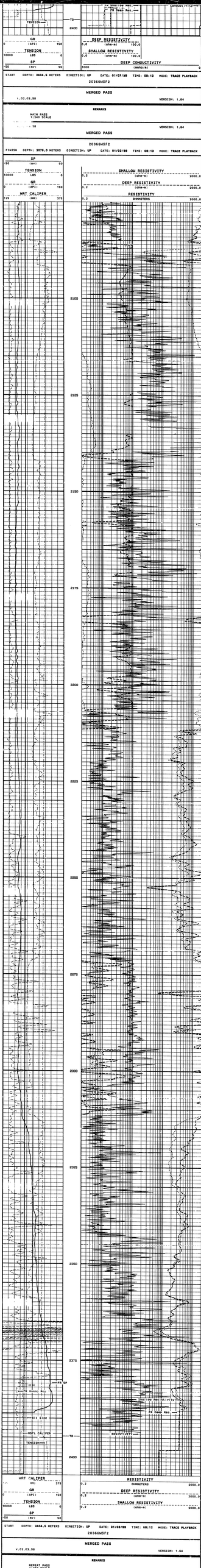
v.02.03.98 VERSION: 1.54

MERGED PASS

20366MSF2

FINISH DEPTH: 2075.0 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:13 MODE: TRACE PLAYBACK




FR SHALLOW Res.
FR Deep Res.
CONDUCTIVITY
TENSION
TD
2400
DEEP RESISTIVITY
(OHM-M)
0.2
100.0
SHALLOW RESISTIVITY
(OHM-M)
0.2
100.0
GR
(API)
0
150
TENSION
LBS
10000
0
SP
(MV)
-50
50
DEEP CONDUCTIVITY
(MMHO/M)
1000
0
START DEPTH: 2404.6 METERS DIRECTION: UP DATE: 01/03/98 TIME: 08:13 MODE: TRACE PLAYBACK
20364MSF2
MERGED PASS
1.02.03.98
VERSION: 1.64
REMARKS
MAIN PASS
1:240 SCALE
- 38
VERSION: 1.64
MERGED PASS
20364MSF2
FINISH DEPTH: 2076.0 METERS DIRECTION: UP DATE: 01/03/98 TIME: 08:13 MODE: TRACE PLAYBACK
SP
(MV)
-50
50
TENSION
LBS
10000
0
GR
(API)
0
150
MRT CALIPER
(MM)
125
375
SHALLOW RESISTIVITY
(OHM-M)
0.2
2000.0
DEEP RESISTIVITY
(OHM-M)
0.2
2000.0
RESISTIVITY
OHMMETERS
0.2
2000.0
2100
2125
2150
2175
2200
2225
2250
2275
2300
2325
2350
2375
FR SP
FR Deep Res
FR SHALLOW Res
BIT SIZE
MRT CALIPER
TENSION
TD
2400
MRT CALIPER
(MM)
125
375
GR
(API)
0
150
TENSION
LBS
10000
0
SP
(MV)
-50
50
RESISTIVITY
OHMMETERS
0.2
2000.0
DEEP RESISTIVITY
(OHM-M)
0.2
2000.0
SHALLOW RESISTIVITY
(OHM-M)
0.2
2000.0
START DEPTH: 2404.6 METERS DIRECTION: UP DATE: 01/03/98 TIME: 08:13 MODE: TRACE PLAYBACK
20364MSF2
MERGED PASS
1.02.03.98
VERSION: 1.64
REMARKS
REPEAT PASS
1:240 SCALE

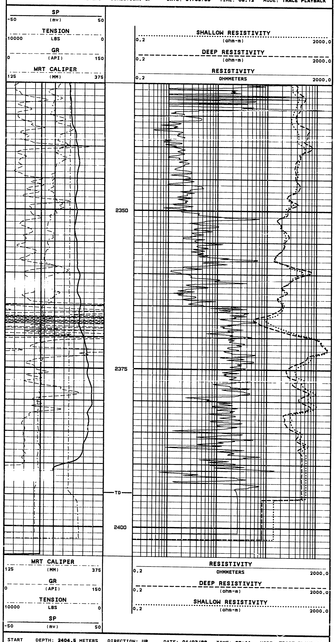
1:240 SCALE

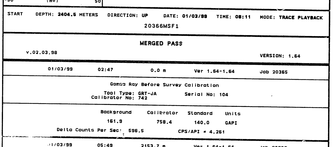
v.02.03.98 VERSION: 1.64

MERGED PASS

2036GMSF1

START DEPTH: 2329.0 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:12 MODE: TRACE PLAYBACK





START DEPTH: 2404.5 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:11 MODE: TRACE PLAYBACK

2036GMSF1

MERGED PASS

v.02.03.98 VERSION: 1.64

01/03/99 02:47 0.0 m Ver 1.64-1.64 Job 20365

Gamma Ray Before Survey Calibration

Tool Type: GRT-AA
Calibrator No: 742

Background	Calibrator	Standard	Units
161.9	758.4	140.2	GAPI

Delta Counts Per Sec: 598.5 CPS/API = 4.261

01/03/99 05:49 2153.7 m Ver 1.64-1.64 Job 20365

Dual Laterolog Before Survey Calibration

Tool Type: DLL-DLL Serial No: FA194

100 OHM-Meter Cal

	Measured	Calibrated	Units
LLD	93	100	ohm-m
LLS	102	100	ohm-m

REFERENCE DATA

	LLD	LLS	Units
Zero Offset	+0.59	-0.74	ohm-m
Calibration Ratio	0.964	0.979	
Drive Reference	6900	6700	
Drive Output	3924	1712	
Channel Offsets V(d)	-4	2	mv
Channel Offsets I(d)	-1	2	mv
Channel Offsets I(s)	-1	-1	mv
Channel Offsets I(50)	-2	-1	mv
Target Vector Voltage	75 mv		

01/03/99 08:08 2084.3 m Ver 1.64-1.64 Job 20365

Dual Laterolog After Survey Calibration

Tool Type: DLL-DLL Serial No: FA194

100 OHM-Meter Cal

	Before	After	Units
LLD	100	103	ohm-m
LLS	100	100	ohm-m

REFERENCE DATA

	LLD	LLS	Units
Drive Output	3972	1708	
Channel Offsets V(d)	-1	2	mv
Channel Offsets I(d)	-1	2	mv
Channel Offsets I(s)	-2	-1	mv
Channel Offsets I(50)	-2	-1	mv

01/03/99 04:21 2082.7 m Ver 1.64-1.64 Job 20365

MSFL Before Survey Calibration

Tool Type: MSX-MSFL (Sleeve) Sonde SN: 100
Firmware Version: 2.00 Electronics SN: 100

	OFFSET		
Voltage:	0.0 (0.0 +/- 100)	2101.4 (2200.0 +/- 440)	
Voltage:	+0.5 (0.0 +/- 100)	2101.2 (2200.0 +/- 440)	
Calculated Value:		13.85 OHMM	

Calibration Constant: 16.37 *(13.85 +/- 4)

01/03/99 08:07 2084.3 m Ver 1.64-1.64 Job 20365

MSFL After Survey Check

Tool Type: MSX-MSFL (Sleeve) Sonde SN: 100
Firmware Version: 2.00 Electronics SN: 100

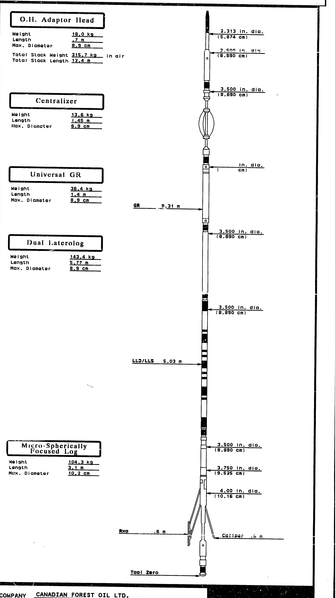
	OFFSET		
	BEFORE	AFTER	13.85 OHMM CAL
Voltage:	0.0	1.0	BEFORE AFTER
Voltage:	+0.5	0.0	2101.2 2098.1
Calibration Value:			225.1 225.1
			13.89 13.85 OHMM

01/03/99 02:07 0.0 m Ver 1.64-1.64 Job 14650

Aux. Caliper Before Survey Calibration

Tool Type: VCA-MST-AA Serial No: 100

	Measured Short	Measured Large	Units	Calibrated Short	Calibrated Large	Units
Aux. CAL	1557.6	3520.6	mv	178	357	mm



COMPANY CANADIAN FOREST OIL LTD.

WELL CFN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N. W. T.

COMPUTALOG

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CS400

COMPUTALOG

DUAL LATEROLOG
MICRO SPHERICALLY FOCUS
TRUE VERTICAL DEPTH

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS

PROVINCE NORTH WEST TERRITORIES

LOCATION
SURFACE: N 60°-40' W 123° 26'

Other Services: SPeD/CNS/GR/DAC BCT/EMI

Perm. Datum GROUND LEVEL Elev. 255.0 m
Log measured from K.B., 7.5 m above Permanent Datum.

ELEV. K.B. 262.5 m
G.L. 255.0 m
CBF --------

Date	DECEMBER 22, 1998	JANUARY 2, 1999	
Run No.	ONE	TWO	
First Reading	**ALL DEPTHS ARE**	2356.8 m	
Last Reading	**TRUE VERTICAL**	2034.0 m	
Meters Meas.		322.8 m	
Depth Reached		2357.2 m	
Bot. Driller		2395.7 m	
Csg. Logger		2034.0 m	
Csg. Driller		2034.8 m	244.5mm, 64.73kg
Fluid Type		POLYMER	
Dens. & Visc.		1140 60	
Mud pH		10.0	
Mud Water Loss		7.8	
Mud Res.	@ °C	0.32 @ 17 °C	°C
Mud Res. @ BHT	@ °C	0.10 @ 100 °C	°C
Rmc	@ °C	0.35 @ 18 °C	@ °C
Rmf	@ °C	0.30 @ 16 °C	@ °C
Rmf @ BHT	@ °C	0.09 @ 100 °C	@ °C
Bit Size	311.0 mm	216.0 mm	
Spacing		N/A	
Operating Time		6.0 hrs.	
Unit #	363	358	
Location	GRANDE PRAIR	EDMONTON	OPERATORS:
Recorded By	J. GRUBB	C. SCUTCHINGS	K. SCOTT
Witnessed By		B. BELLMAN	L. ROULSTON

FOLD

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REMARKS Rig: NABORS # 24 E Service Order # 20366 Prints: 2

Drilling Stopped 17:00/01st Circulation Stopped 09:30/02nd Tool on Bottom 04:40/03rd BHT 100 °C

UNIT I, SECTION 61, GRID AREA 60-50-123-15

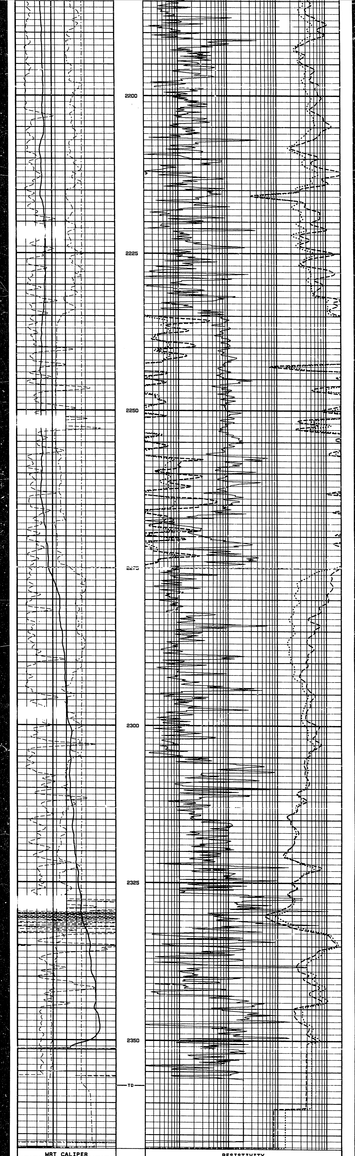
SURFACE LOCATION: N 60°-40' W 123°-26'

MAXIMUM DEVIATION OF 21.4° @ 1722.8 m

MSFL RESISTIVITY AFFECTED BY HOLE RUGOSITY

SCALE CHANGES

CHANGES IN MUD TYPE OR NEW SAMPLE



START DEPTH: 2287.1 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:15 MODE: TRACE PLAYBACK

20366MSFIT

TVD PASS

V.02.03.98 VERSION: 1.64

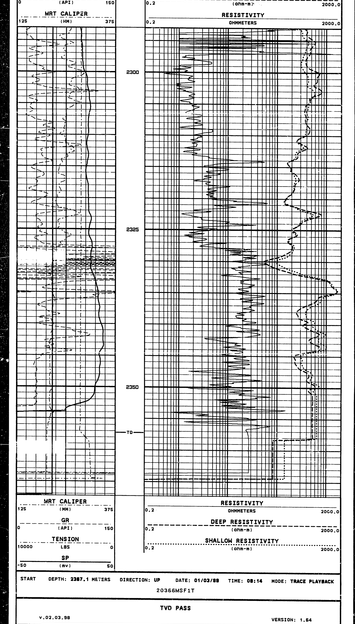
REMARKS

TRUE VERTICAL DEPTH
REPEAT PASS
1:240 SCALE

V.02.03.98 VERSION: 1.64

TVD PASS

FINISH DEPTH: 2392.8 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:16 MODE: TRACE PLAYBACK



START DEPTH: 2287.1 METERS DIRECTION: UP DATE: 01/03/99 TIME: 08:14 MODE: TRACE PLAYBACK

20366MSFIT

TVD PASS

V.02.03.98 VERSION: 1.64

01/03/99 02:47 0.0 m Ver 1.64:1.64 Job 20366

Gamma Ray Before Survey Calibration

Tool Type: SRT-JA Serial No: 104
Calibrator No: 743

Background	Calibrator	Standard	Units
161.9	759.4	140.0	GAPI

Delta Counts Per Sec: 598.5 CPS/API = 4.351

01/03/99 06:49 2153.7 m Ver 1.64:1.64 Job 20366

Dual Laterolog Before Survey Calibration

Tool Type: DLL-DLL Serial No: FA154

100 OHM-Meter Cal

	Measured	Calibrated	Units
LLD	93	100	ohm-m
LLS	103	100	ohm-m

REFERENCE DATA

	LLD	LLS	Units
Zero Offset	0.000	0.000	Ohm-m
Calibration Ratio	1.074	0.878	
Power Reference	6350	6700	
Power Actual	3918	3712	
Channel Offsets V(0):	-1	2	mv
Channel Offsets V(90):	-1	2	mv
Channel Offsets I(0):	-1	-1	mv
Channel Offsets I(90):	-2	-1	mv
Target Vector Voltage 75 mv			

01/03/99 08:09 2084.3 m Ver 1.64:1.64 Job 20366

Dual Laterolog After Survey Calibration

Tool Type: DLL-DLL Serial No: FA154

100 OHM-Meter Cal

	Before	After	Units
LLD	100	103	ohm-m
LLS	100	100	ohm-m

REFERENCE DATA

	LLD	LLS	Units
Drive Output	20.0	10.0	Ma
Channel Offsets V(0):	-2	2	mv
Channel Offsets V(90):	-0	2	mv
Channel Offsets I(0):	-0	-1	mv
Channel Offsets I(90):	-2	-1	mv

01/03/99 04:21 2052.7 m Ver 1.64:1.64 Job 20366

MSFL Before Survey Calibration

Tool Type: MUX-MSFL (S)ound: Sonde SN: 100
Firmware Version: 2.00 Electronics SN: 100

	OFFSET	13.89 OHMM CAL	
		BEFORE	AFTER
Voltage:	0.000 (0.0 +/- 100)	3101.0 (3200.0 +/- 440)	
Current:	-0.0 (0.0 +/- 100)	2283.0 (2200.0 +/- 440)	
Calculated Value:		13.89 OHMM	
Calibration Constant:		14.37 (13.89 +/- 4)	

01/03/99 06:27 2084.3 m Ver 1.64:1.64 Job 20366

MSFL After Survey Check

Tool Type: MUX-MSFL (S)ound: Sonde SN: 100
Firmware Version: 2.00 Electronics SN: 100

	OFFSET	13.89 OHMM CAL	
	BEFORE	BEFORE	AFTER

Voltage:	-0.9	1.2	2101.2	2095.1	
Surveys:	-0.2	0.0	2283.8	2281.5	
Calibration Value:			13.89	13.85	OHMM

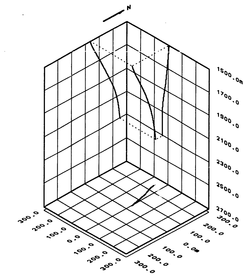
01/29/90 02:07 0.0 m Ver 1.64-1.64 Job 14659

Aux. Caliper Before Survey Calibration

Tool Type: VCA-MRT-AA Serial No: 100

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
Aux. CAL	1557.6	3523.6	MV	178	357	MM

TVD - 3D PLOT



pany - CANADIAN FOREST OIL LTD.
- CDN FOREST ET AL FLETT RAPIDS I-81
ation - UNIT 2, SECTION 81, GRID AREA 60-50-123-15
d - JANUARY 2, 1990

Drilled Depth - 2395.70 m
True Vertical Depth - 2358.43 m
Bottom Hole Displacement - N 252.49 m K 39.9
Target Displacement Loc - N 0.00 m E 0.0
Dot

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature
TVD DATA FILE : 30368TVD 4M 0301 VERSION : 400.78

COMPANY : CANADIAN FOREST OIL LTD. DRILLED DEPTH : 2395.70 m
WELL : CDN FOREST ET AL FLETT RAPIDS I-81 TRUE VERTICAL DEPTH : 2358.43 m
LOCATION : UNIT 2, SECTION 81, GRID AREA 60-50-123-15 BOTTOM HOLE DISPLACEMENT : N 252.49 m H 39.93
DATE : JANUARY 2, 1990 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	1555.60	14.20	350.30	1553.35	33.65	5.85
1	1568.40	15.30	349.70	1565.72	36.85	5.30
2	1578.20	16.20	349.30	1575.15	39.47	4.80
3	1587.90	17.00	349.20	1584.45	42.20	4.30
4	1597.50	17.60	349.60	1593.63	45.00	3.78
	1607.20	18.10	348.70	1602.85	47.92	3.20
6	1616.90	18.50	348.90	1612.05	50.90	2.60
7	1626.60	19.00	348.50	1621.25	53.97	2.00
8	1636.40	19.50	348.70	1630.50	57.13	1.35
9	1646.00	20.00	349.10	1639.53	60.33	0.75
10	1655.60	20.60	349.30	1648.55	63.60	0.13
11	1665.20	21.20	349.40	1657.50	66.95	-0.53
12	1674.80	21.20	350.30	1666.45	70.38	-1.13
13	1684.50	21.10	350.30	1675.50	73.82	-1.73
14	1694.20	21.00	350.40	1684.55	77.25	-2.30
15	1703.80	21.10	349.80	1693.53	80.65	-2.90
16	1713.00	21.30	349.10	1702.10	83.93	-3.50
17	1722.80	21.40	348.70	1711.22	87.43	-4.20
18	1732.50	21.30	348.90	1720.25	90.90	-4.88
19	1751.90	21.10	348.10	1738.35	97.78	-6.28
20	1761.30	21.00	347.70	1747.13	101.07	-6.97
21	1771.30	20.90	348.10	1756.45	104.55	-7.72
22	1780.90	20.70	348.50	1765.43	107.90	-8.43
23	1790.60	20.50	348.20	1774.50	111.25	-9.13
24	1800.10	20.40	347.80	1783.40	114.50	-9.80
25	1809.90	20.20	347.20	1792.60	117.80	-10.55
26	1819.60	20.30	347.40	1801.70	121.07	-11.27
27	1829.30	20.20	346.90	1810.80	124.35	-12.02
	1839.00	20.00	346.90	1819.93	127.60	-12.77
	1848.70	19.90	348.00	1829.03	130.82	-13.50
30	1858.30	20.20	348.00	1838.05	134.05	-14.20
31	1868.30	20.40	348.70	1847.43	137.45	-14.90
32	1877.30	20.10	348.90	1855.88	140.50	-15.50
33	1887.10	20.00	347.70	1865.07	143.80	-16.17
34	1896.60	20.00	345.50	1874.00	146.95	-16.92
35	1916.00	19.80	343.60	1892.25	153.32	-18.67
36	1925.70	19.80	342.80	1901.38	156.48	-19.63
37	1945.20	19.80	342.50	1919.72	162.77	-21.60
38	1954.80	19.90	342.50	1928.75	165.88	-22.58
39	1974.30	19.90	340.90	1947.10	172.18	-24.57
40	1983.90	19.90	340.60	1956.13	175.27	-25.75
41	1993.70	19.60	341.20	1965.35	178.40	-26.83
42	2003.50	19.30	341.20	1974.57	181.50	-27.88
43	2013.20	19.30	341.20	1983.72	184.52	-28.90
44	2022.90	18.90	341.10	1992.90	187.52	-29.95
45	2042.20	18.30	341.20	2011.20	193.35	-31.92
46	2051.30	18.10	341.10	2019.82	196.05	-33.85
47	2055.60	18.00	341.80	2023.93	197.30	-33.28
48	2080.00	16.50	343.00	2047.22	204.20	-35.45
49	2091.00	15.50	343.00	2057.87	207.10	-36.35
50	2130.00	13.10	347.00	2095.57	216.40	-38.85
51	2160.00	12.00	349.00	2124.88	222.77	-40.22
52	2207.00	9.75	353.00	2171.02	231.52	-41.63
53	2246.00	7.88	357.00	2209.55	237.48	-42.17
54	2284.00	6.75	359.00	2247.25	242.30	-42.35
55	2320.00	5.25	6.00	2283.05	246.05	-42.22
56	2359.00	5.25	20.00	2321.90	249.50	-41.42
57	2395.70	5.25	32.92	2358.43	252.50	-39.92

O.H. Adaptor Head

Weight 18.0 kg
Length 27 m
Max. Diameter 8.9 cm
Total Stock Weight 316.7 kg in air
Total Stock Length 13.4 m

Centralizer

Weight 13.6 kg
Length 1.45 m
Max. Diameter 8.9 cm

Universal GR

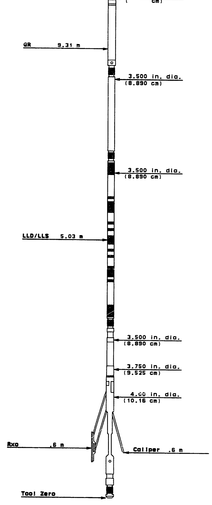
Weight 38.4 kg
Length 4.6 m
Max. Diameter 8.9 cm

Laterolog

Weight 143.4 kg
Length 5.77 m
Max. Diameter 8.9 cm

Micro-Spherically Focused Log

Weight 184.3 kg
Length 3.1 m
Max. Diameter 10.2 cm



COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-81

FIELD FLETT RAPIDS PROVINCE N. W. T.

COMPUTALOG

N.E.B. COPY 1851

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

Schlumberger

DUAL LATEROLOG

Company: CANADIAN FOREST OIL LTD.
Well: CDN FOREST ET AL FLETT RAPIDS
Location: I-61-60-50-123-15
Field: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

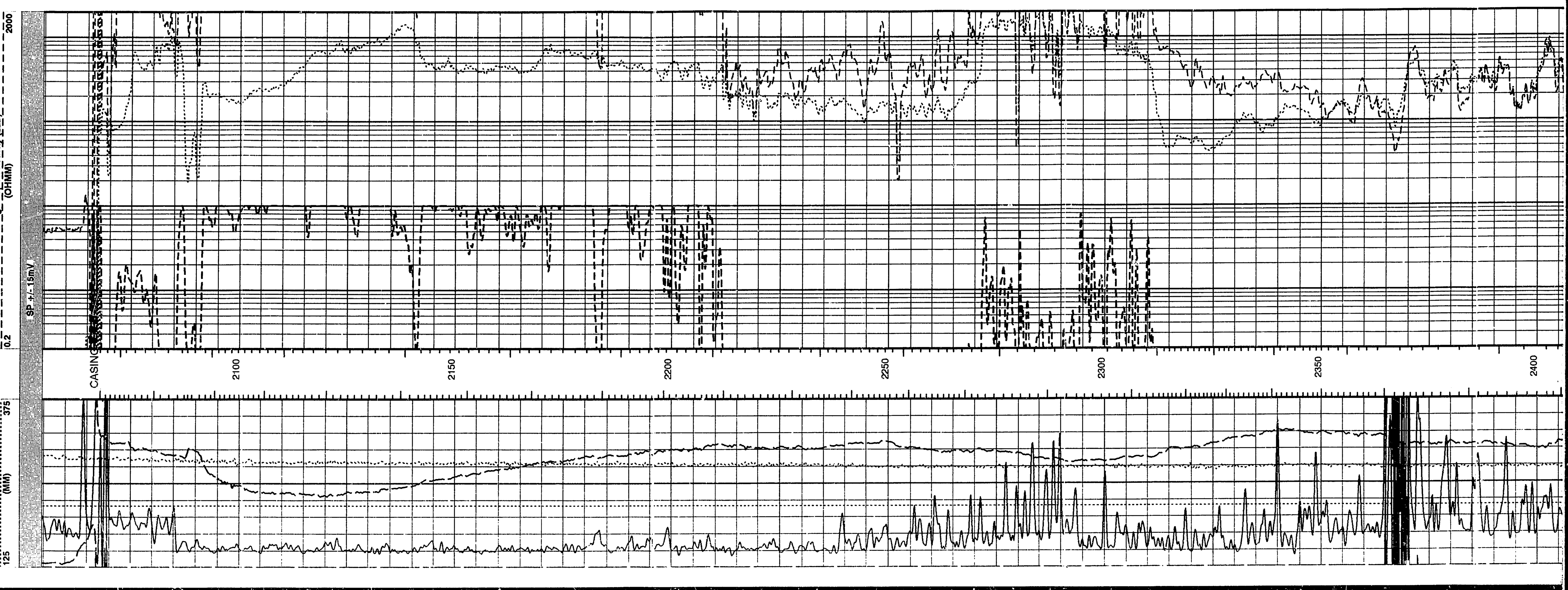
LOCATION: I-61-60-50-123-15
300I616050123150 (UWI)

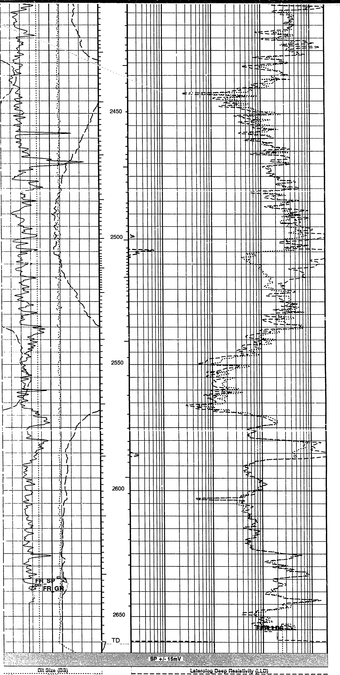
Elev.: K.B. 262.5 m; G.L. 255 m; D.F. 262.2 m

Permanent Datum: GROUND LEVEL — Elev.: 255 m
Log Measured From: KELLY BUSHING — 7.5 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

Logging Date	9-JAN-1999	
Run Number	THREE	
Depth Driller	2660 m	
Schlumberger Depth	2660 m	
Bottom Log Interval	2655.1 m	
Top Log Interval	2067 m	
Casing Driller Size @ Depth	244.500 mm @ 2067.7 m	@
Casing Schlumberger	2067 m	
Bit Size	216.000 mm	
Type Fluid In Hole	GEL CHEM	
MUD Density / Viscosity	1160 kg/m3 / 62 s	
MUD Fluid Loss / PH	8.2 cm3 / 10.2	
MUD Source Of Sample	FLOWLINE	
RM @ Measured Temperature	0.240 ohm.m @ 21 degC	@
RMF @ Measured Temperature	0.210 ohm.m @ 14 degC	@
RMC @ Measured Temperature	0.170 ohm.m @ 12 degC	@
Source RMF / RMC	MEASURED / MEASURED	
RM @ MRT / RMF @ MRT	0.069 @ 125 / 0.052 @ 125	@ / @
Maximum Recorded Temperatures	125 degC / 125 / 125	
Circulation Stopped / Time	10-JAN-1999 / 1:00	
Logger On Bottom / Time	9-JAN-1999 / 8:10	
Unit Number / Location	2025 / GRANDE PRAIRIE	
Recorded By	TONY DANIEL/SEBASTION KIRSTEIN	
Witnessed By	BRIAN BELLMAN	





Bit Size (BIS) 125 (MM) 375
Gamma Ray (GR) 0 (GAPI) 150
SP (SP) -120 (MV) 30
Tension (TENS) 20000 (N) 0
Latencing Deep Resistivity (LLD) 2000 (OHMM) 200000
Latencing Shallow Resistivity (LLS) 2000 (OHMM) 200000

PIP SUMMARY
→ Integrated Cement Volume Major Pip Every 1 M3
→ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
DFD	Drilling Fluid	0.0	M
DCRL	Depth Offset Repeat Analysis	0.0	M
AFAC	ALAT K Factor	SONDE	
LSFR	Trigger for MAXIS Fixt Reading Label	511	
SPFN	SP Filter Processing	NONE	
SPNV	SP Neut Value	20	MV
SPVD	TVD of Starting Point	0	M
TDD	Total Depth - Driller	1,524	M
TDC	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TMD	Measured depth of Tie-In Point	2080	M
TVD	TVD of Tie-In Point	2047.2	M

Format: ALAT_2 Vertical Scale: 1:500 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNTH-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2064.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.019	FN:30	PRODUCER	10-Jan-1999 09:21	

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2064.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.019	FN:30	PRODUCER	10-Jan-1999 09:21	2064.6 M	2054.7 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3
Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.6 M using data channel(s) CALI

OP System Version: 9C0-413

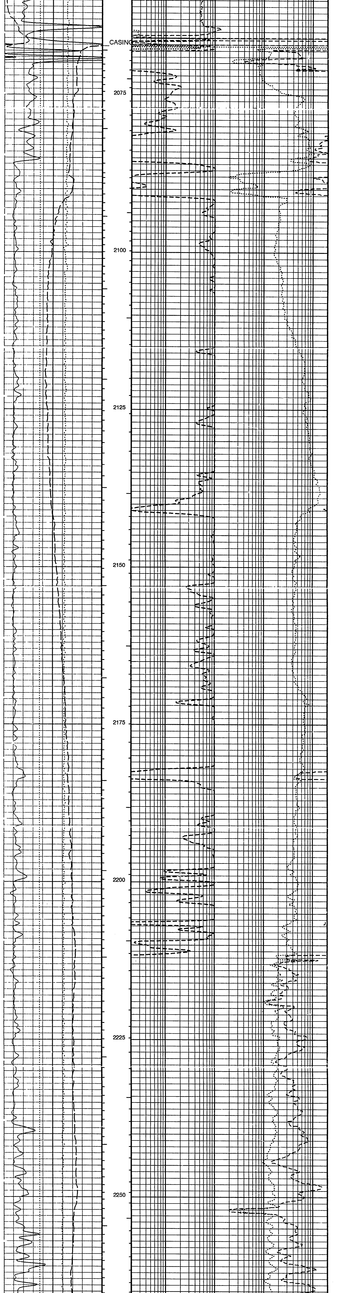
MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNTH-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

PIP SUMMARY
→ Integrated Cement Volume Major Pip Every 1 M3
→ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Tension (TENS) 20000 (N) 0
SP (SP) -120 (MV) 30
Gamma Ray (GR) 0 (GAPI) 150
Bit Size (BIS) 125 (MM) 375
Latencing Shallow Resistivity (LLS) 2000 (OHMM) 200000
Latencing Deep Resistivity (LLD) 2000 (OHMM) 200000
Latencing Shallow Resistivity (LLS) 0.2 (OHMM) 2000
Latencing Deep Resistivity (LLD) 0.2 (OHMM) 2000



2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625
2650
TD
FR LLDS
MAIN PASS SP +/- 15mV
Laterolog Deep Resistivity (LLD)
(OHMM)
0.2
2000
Laterolog Shallow Resistivity (LLS)
(OHMM)
0.2
2000
Bit Size (BS)
(MM)
125
375
Gamma Ray (GR)
(GAPI)
0
150

Curve	Left	Unit	Right
SP (SP)	-120	(MV)	30
Tension (TENS)	25000	(N)	0
Laterolog Deep Resistivity (LLD)	2000	(OHMM)	200000
Laterolog Shallow Resistivity (LLS)	2000	(OHMM)	200000

PIP SUMMARY

⊣ Integrated Cement Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	1.0	M
KFAC	ALAT K Factor	SONDE	
LBFR	Trigger for MAXIS First Reading Label	STI	
PP	Playback Processing	NORMAL	
SPNV	SP Next Value	-30	MV
SPVD	TVD of Starting Point	0	M
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M

Format: ALAT_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M
DEFAULT	ALATB .013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2584.6 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

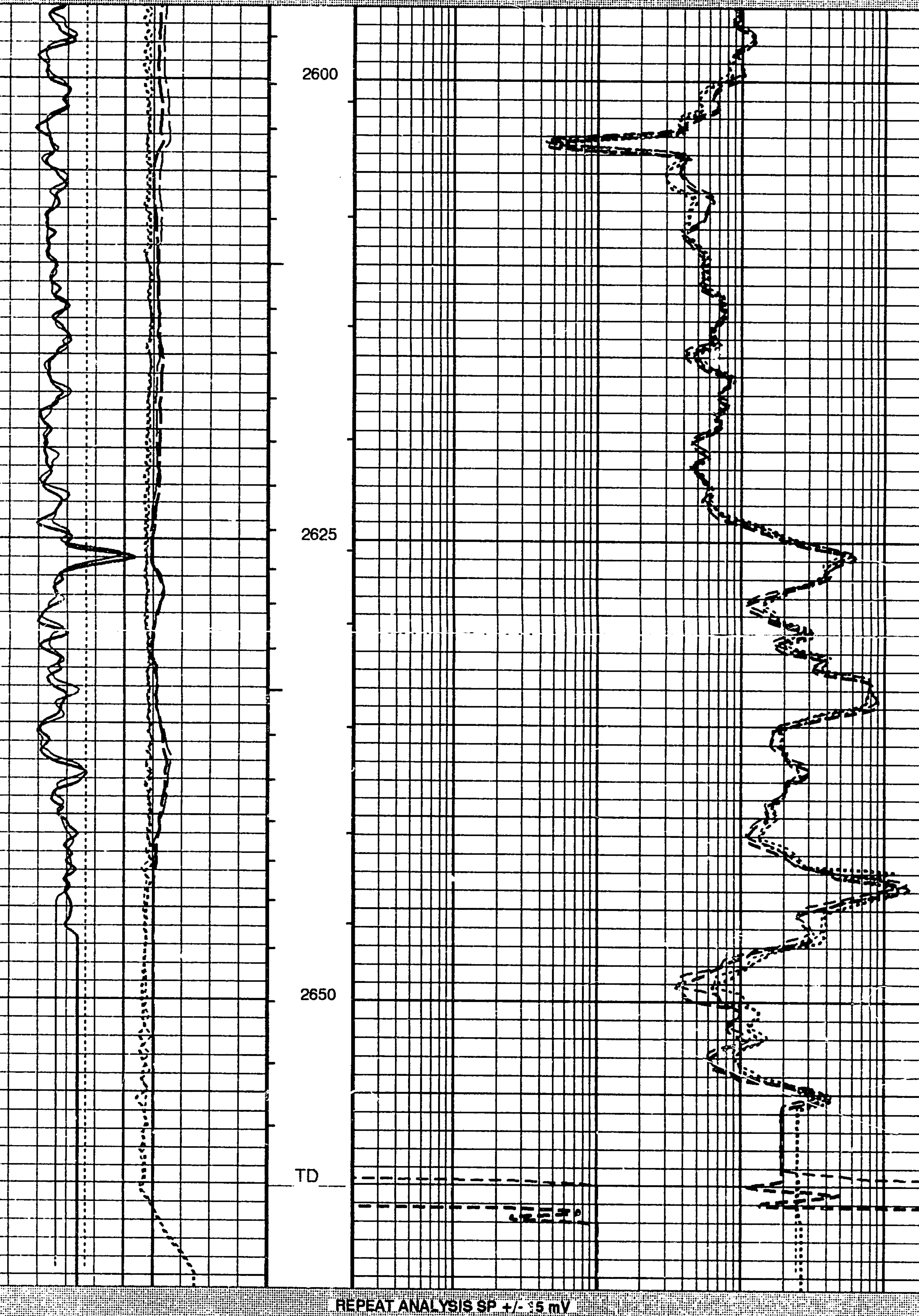
PIP SUMMARY

⊣ Integrated Cement Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Curve	Left	Unit	Right
LLS_1_REP Curve (LLS_REP)	2000	(OHMM)	200000
TENS_REP Curve (TENS_REP)	25000	(N)	0
LLD_1_REP Curve (LLD_REP)	2000	(OHMM)	200000
Tension (TENS)	25000	(N)	0
LLS_REP Curve (LLS_REP)	0.2	(OHMM)	2000
SP_REP Curve (SP_REP)	-120	(MV)	30
LLD_REP Curve (LLD_REP)	0.2	(OHMM)	2000
GR_REP Curve (GR_REP)	0	(GAPI)	150
Laterolog Shallow Resistivity (LLS)	2000	(OHMM)	200000
SP (SP)	-120	(MV)	30
Laterolog Deep Resistivity (LLD)	2000	(OHMM)	200000
Gamma Ray (GR)	0	(GAPI)	150
Laterolog Shallow Resistivity (LLS)	0.2	(OHMM)	2000
Bit Size (BS)	125	(MM)	375
Laterolog Deep Resistivity (LLD)	0.2	(OHMM)	2000

REPEAT ANALYSIS SP +/- 15 mV



REPEAT ANALYSIS SP +/- 15 mV

Curve	Left	Unit	Right
Bit Size (BS)	125	(MM)	375
Laterolog Deep Resistivity (LLD)	0.2	(OHMM)	2000
Gamma Ray (GR)	0	(GAPI)	150
Laterolog Shallow Resistivity (LLS)	0.2	(OHMM)	2000
SP (SP)	-120	(MV)	30
Laterolog Deep Resistivity (LLD)	2000	(OHMM)	200000
GR_REP Curve (GR_REP)	0	(GAPI)	150
Laterolog Shallow Resistivity (LLS)	2000	(OHMM)	200000
SP_REP Curve (SP_REP)	-120	(MV)	30
LLD_REP Curve (LLD_REP)	0.2	(OHMM)	2000
Tension (TENS)	25000	(N)	0
LLS_REP Curve (LLS_REP)	0.2	(OHMM)	2000
TENS_REP Curve (TENS_REP)	25000	(N)	0
LLD_1_REP Curve (LLD_REP)	2000	(OHMM)	200000
LLS_1_REP Curve (LLS_REP)	2000	(OHMM)	200000

PIP SUMMARY

⊣ Integrated Cement Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	1.0	M
KFAC	ALAT K Factor	SONDE	
PP	Playback Processing	NORMAL	
SPNV	SP Next Value	-30	MV
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M

Format: ALAT_REP Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M
DEFAULT	ALATB .013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2584.6 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Azimuthal Laterolog Wellsite Calibration - El. StandOff Current - Checking - (Modulus and Phase)							
Before: 9-JAN-1999 8:26							
El. StandOff Current	197.0	N/A	207.7	N/A	N/A	N/A	UA
El. StandOff Current	0	N/A	-4.124	N/A	N/A	N/A	DEG
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Modulus Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	66.83	N/A	68.26	N/A	N/A	0.8800	MV
DLT Shallow Voltage	-56.84	N/A	-57.00	N/A	N/A	0.2900	MV
DLT Groningen Voltage	66 83	N/A	65.97	N/A	N/A	0.8800	MV
DLT Deep Current	2115	N/A	2149	N/A	N/A	13.91	UA
DLT Shallow Current	-1799	N/A	-1797	N/A	N/A	9.270	UA
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Phases Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	0	N/A	0.6649	N/A	N/A	2.800	DEG
DLT Shallow Voltage	0	N/A	-2.244	N/A	N/A	4.000	DEG
DLT Groningen Voltage	0	N/A	-1.301	N/A	N/A	2.800	DEG
DLT Deep Current	0	N/A	2.376	N/A	N/A	2.800	DEG
DLT Shallow Current	0	N/A	-1.088	N/A	N/A	4.000	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Voltages (Modulus and Phase) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Voltage	66.83	N/A	64.73	N/A	N/A	0.8800	MV
Az. Laterolog Voltage	0	N/A	-1.378	N/A	N/A	2.800	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Currents (Modulus and Phases) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Current - 0	-45.46	N/A	-45.75	N/A	N/A	0.6000	UA
Az. Laterolog Current - 1	-45.46	N/A	-44.12	N/A	N/A	0.6000	UA
Az. Laterolog Current - 2	-45.48	N/A	-42.77	N/A	N/A	0.6000	UA
Az. Laterolog Current - 3	-45.48	N/A	-43.95	N/A	N/A	0.6000	UA
Az. Laterolog Current - 4	-45.46	N/A	-46.85	N/A	N/A	0.6000	UA
Az. Laterolog Current - 5	-45.46	N/A	-44.11	N/A	N/A	0.6000	UA
Az. Laterolog Current - 6	-45.46	N/A	-46.10	N/A	N/A	0.6000	UA
Az. Laterolog Current - 7	-45.46	N/A	-45.97	N/A	N/A	0.6000	UA
Az. Laterolog Current - 8	-45.46	N/A	-46.09	N/A	N/A	0.6000	UA
Az. Laterolog Current - 9	-45.48	N/A	-45.24	N/A	N/A	0.6000	UA
Az. Laterolog Current - 10	-45.46	N/A	-43.96	N/A	N/A	0.6000	UA
Az. Laterolog Current - 11	-45.46	N/A	-43.73	N/A	N/A	0.6000	UA
Az. Laterolog Current - 0	0	N/A	1.019	N/A	N/A	2.800	DEG
Az. Laterolog Current - 1	0	N/A	-1.742	N/A	N/A	2.800	DEG
Az. Laterolog Current - 2	0	N/A	-2.926	N/A	N/A	2.800	DEG
Az. Laterolog Current - 3	0	N/A	-1.899	N/A	N/A	2.800	DEG
Az. Laterolog Current - 4	0	N/A	2.504	N/A	N/A	2.800	DEG
Az. Laterolog Current - 5	0	N/A	-2.331	N/A	N/A	2.800	DEG
Az. Laterolog Current - 6	0	N/A	0.5241	N/A	N/A	2.800	DEG
Az. Laterolog Current - 7	0	N/A	0.1780	N/A	N/A	2.800	DEG
Az. Laterolog Current - 8	0	N/A	1.226	N/A	N/A	2.800	DEG
Az. Laterolog Current - 9	0	N/A	0.2502	N/A	N/A	2.800	DEG
Az. Laterolog Current - 10	0	N/A	-1.422	N/A	N/A	2.800	DEG
Az. Laterolog Current - 11	0	N/A	-2.691	N/A	N/A	2.800	DEG
Litho Density - D Wellsite Calibration - Background Measurement							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LL Background	20.00	19.58	19.41	N/A	N/A	1.000	CPS
LU Background	76 00	75 86	75 49	N/A	N/A	1.000	CPS
LS Background	57.00	57.51	57.16	N/A	N/A	1.000	CPS
LITH Background	5.500	5.558	5.545	N/A	N/A	0.3000	CPS
SS1 Background	16.00	16.79	16.65	N/A	N/A	0.5000	CPS
SS2 Background	11.00	11.50	11.48	N/A	N/A	0.5000	CPS
Litho Density - D Wellsite Calibration - Tool Quality Control Information HV							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LSHV Background	1500	1293	1292	N/A	N/A	N/A	V
SSHV Background	1500	1362	1364	N/A	N/A	N/A	V
Litho Density - D Wellsite Calibration - Detectors Resolution From BKG Measurments							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LS Resolution Background	8.000	9.267	9.374	N/A	N/A	N/A	
SS Resolution Background	8.000	9.284	9.068	N/A	N/A	N/A	
Litho Density - D Wellsite Calibration - Caliper Calibration							
Before: 9-JAN-1999 8:46							
Caliper Small Ring	203.2	N/A	228.4	N/A	N/A	N/A	MM
Caliper Large Ring	304.8	N/A	330.6	N/A	N/A	N/A	MM
Litho Density - D Master Calibration - Aluminum Measurement							
Master: 12-DEC-1998 16:17							
LL Aluminum	90.00	89.03	--	--	--	--	CPS
LU Aluminum	135.0	134.4	--	--	--	--	CPS
LS Aluminum	155.0	156.2	--	--	--	--	CPS
LITH Aluminum	50.00	55.51	--	--	--	--	CPS
SS1 Aluminum	175.0	168.8	--	--	--	--	CPS
SS2 Aluminum	260.0	253.5	--	--	--	--	CPS
Litho Density - D Master Calibration - Litholog Measurement							
Master: 12-DEC-1998 16.02							
LL Iron	80.00	79.07	--	--	--	--	CPS
LU Iron	120.0	118.6	--	--	--	--	CPS
LS Iron	135.0	138.3	--	--	--	--	CPS
LITH Iron	30.00	35.29	--	--	--	--	CPS
SS1 Iron	155.0	148.2	--	--	--	--	CPS
SS2 Iron	245.0	228.6	--	--	--	--	CPS

Litho Density - D Master Calibration - Spectrum Quality Ratios
Master: 12-DEC-1998 16:34

QRLS Calculated	0.6500	0.6624	--	--	--	--	
QRSS Calculated	0.7200	0.6658	--	--	--	--	
QRLI Calculated	0.3900	0.3554	--	--	--	--	
QLIR Calculated	1.390	1.393	--	--	--	--	
QR Calculated	1.000	0.9911	--	--	--	--	

Compensated Neutron - H Wellsite Calibration - Zero Measurement
Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23

CNTC Background	27.89	27.89	27.54	N/A	N/A	4.183	CPS
CFTC Background	29.16	29.16	30.26	N/A	N/A	4.374	CPS

Compensated Neutron - H Master Calibration - Tank Measurement
Master: 8-JAN-1999 0:33

Thermal Near Corr. (Tank)	6031	6518	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2749	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.372	--	--	--	--	

Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration
Before: 9-JAN-1999 8:38

Gamma Ray (Jig - Bkg)	162.3	N/A	162.3	N/A	N/A	14.76	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCT-B Water Temperature 16.3 DEGC.
Thermal Housing Size 85.613 MM.

Azimuthal Laterolog / Equipment Identification

Primary Equipment:

Azimuthal Laterolog Standard Sub	ALSS - A	

Auxiliary Equipment:

Dual Laterolog Electrode	DLE - H	719
Dual Laterolog Sonde	DLS - H	813
Azimuthal Laterolog Housing	ALAH - A	
Azimuthal Laterolog Sonde Cartridge	ALSC - B	
Azimuthal Laterolog Controller Cartridge	ALCC - B	725
Laterolog Control Module	LCM - AA	724

Azimuthal Laterolog Wellsite Calibration
El. StandOff Current - Checking - (Modulus and Phase)

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	El StandOff Current UA	207.7	157.6	197.0	236.4
Before	El. StandOff Current DEG	-4.124	-18.00	0	18.00

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In Phase DLT Currents and Voltages Zero Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	DLT Deep Voltage {P} Zero MV	0.0002012	-0.02470	0	0.02470
Before	DLT Shallow Voltage {P} Zero MV	0.005491	-0.02470	0	0.02470
Before	DLT Groningen Voltage {P} Zero MV	-0.0004845	-0.02470	0	0.02470
Before	DLT Deep Current {P} Zero UA	0.005772	-0.08800	0	0.08800
Before	DLT Shallow Current {P} Zero UA	0.02588	-0.1760	0	0.1760

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Out Of Phase DLT Currents and Voltages Zero Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	DLT Deep Voltage {Q} Zero MV	-0.0007873	-0.02470	0	0.02470
Before	DLT Shallow Voltage {Q} Zero MV	-0.001725	-0.02470	0	0.02470
Before	DLT Groningen Voltage {Q} Zero MV	0.0009256	-0.02470	0	0.02470
Before	DLT Deep Current {Q} Zero UA	-0.002085	-0.08800	0	0.08800
Before	DLT Shallow Current {Q} Zero UA	-0.05064	-0.1760	0	0.1760

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Modulus Plus Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	DLT Deep Voltage MV	68.26	60.15	66.83	73.51
Before	DLT Shallow Voltage MV	-57.00	-61.39	-58.84	-52.29
Before	DLT Groningen Voltage MV	65.97	60.15	66.83	73.51
Before	DLT Deep Current UA	2149	2009	2115	2221
Before	DLT Shallow Current UA	-1797	-1943	-1799	-1655

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Phases Plus Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	DLT Deep Voltage DEG	0.6649	-10.00	0	10.00
Before	DLT Shallow Voltage DEG	-2.244	-15.00	0	15.00
Before	DLT Groningen Voltage DEG	-1.301	-10.00	0	10.00
Before	DLT Deep Current DEG	2.376	-10.00	0	10.00
Before	DLT Shallow Current DEG	-1.088	-15.00	0	15.00

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages Zero Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	Az. Laterolog Voltage {P} Zero MV	-0.0006216	-0.02470	0	0.02470
Before	Az. Laterolog Voltage {Q} Zero MV	-0.001095	-0.02470	0	0.02470

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages (Modulus and Phase) Plus Measurements

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	Az. Laterolog Voltage MV	64.73	60.15	66.83	73.51
Before	Az. Laterolog Voltage DEG	-1.378	-10.00	0	10.00

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In and Out Of Phase Azimuthal Currents Zero Measurements

Phase	Az. Laterolog Current {P} Zero UA Value	Phase	Az. Laterolog Current {Q} Zero UA Value
Before	-0.0001850	Before	-1.121E-00
Before	-0.0006922	Before	0.0001941
Before	0.0003246	Before	0.0001833
Before	0.0006009	Before	-0.0002004
Before	0.0001004	Before	-0.0002452
Before	-9.675E-00	Before	-0.0001606
Before	0.0001745	Before	0.0003708
Before	-0.0001427	Before	0.0003453
Before	-0.0006144	Before	-0.0004346
Before	0.0002321	Before	0.0004988
Before	0.0001558	Before	0.0003296
Before	0.0002317	Before	-4.660E-00
Minimum / Nominal / Maximum	-0.006560 / 0 / 0.006560	Minimum / Nominal / Maximum	-0.006560 / 0 / 0.006560

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Currents (Modulus and Phases) Plus Measurements

Phase	Az. Laterolog Current UA Value	Phase	Az. Laterolog Current DEG Value
Before	-45.75	Before	1.019
Before	-44.12	Before	-1.742
Before	-42.77	Before	-2.926
Before	-43.95	Before	-1.899
Before	-46.85	Before	2.504
Before	-44.11	Before	-2.331
Before	-46.10	Before	0.5241
Before	-45.97	Before	0.1780
Before	-46.09	Before	1.226
Before	-45.24	Before	0.2502
Before	-43.96	Before	1.422
Before	-43.73	Before	-2.691
Minimum / Nominal / Maximum	-50.01 / -45.46 / -40.91	Minimum / Nominal / Maximum	-10.00 / 0 / 10.00

Before: 9-JAN-1999 8:26

Litho Density - D / Equipment Identification

Primary Equipment:

Nuclear Services Cartridge	NSC E	1993
Powered Gamma Detector	PGD - G	
Gamma Source Radioactive	GSR - J	2044

Auxiliary Equipment:

Density Resistivity Sonde	DRS - C	722
Electronics Cartridge Housing	ECH - MKA	756
Powered Detector Housing	PDH - L	881

Litho Density - D Wellsite Calibration
Background Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	LL Background CPS	19.58	15.00	20.00	25.00
Before	LL Background CPS	19.41	15.00	20.00	25.00
Master	LU Background CPS	75.86	58.00	76.00	94.00
Before	LU Background CPS	75.49	58.00	76.00	94.00
Master	LS Background CPS	57.51	43.00	57.00	72.00
Before	LS Background CPS	57.16	43.00	57.00	72.00
Master	LITH Background CPS	5.556	4.000	5.500	7.000
Before	LITH Background CPS	5.545	4.000	5.500	7.000
Master	SS1 Background CPS	16.79	12.00	16.00	19.50
Before	SS1 Background CPS	16.65	12.00	16.00	19.50
Master	SS2 Background CPS	11.50	8.000	11.00	13.50
Before	SS2 Background CPS	11.48	8.000	11.00	13.50

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Wellsite Calibration
Detectors Resolution From BKG Measurments

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	LS Resolution Background	9.267	5.000	8.000	11.50
Before	LS Resolution Background	9.374	5.000	8.000	11.50
Master	SS Resolution Background	9.284	5.000	8.000	11.50
Before	SS Resolution Background	9.068	5.000	8.000	11.50

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Master Calibration
Aluminum Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	LL Aluminum CPS	89.03	70.00	90.00	125.0
Master	LU Aluminum CPS	134.4	100.0	135.0	194.0
Master	LS Aluminum CPS	156.2	120.0	155.0	217.0
Master	LITH Aluminum CPS	55.51	35.00	50.00	74.00
Master	SS1 Aluminum CPS	168.8	125.0	175.0	256.0
Master	SS2 Aluminum CPS	253.5	210.0	260.0	353.0

Master: 12-DEC-1998 16:17

Litho Density - D Master Calibration
Litholog Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	LL Iron CPS	79.07	60.00	80.00	114.0
Master	LU Iron CPS	118.6	85.00	120.0	177.0
Master	LS Iron CPS	138.3	100.0	135.0	193.0
Master	LITH Iron CPS	35.29	15.00	30.00	51.00
Master	SS1 Iron CPS	148.2	105.0	155.0	234.0
Master	SS2 Iron CPS	228.6	190.0	245.0	325.0

Master: 12-DEC-1998 16:02

Litho Density - D Master Calibration
Spectrum Quality Ratios

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	QRLS Calculated	0.6624	0.6000	0.6500	0.7000
Master	QRSS Calculated	0.6658	0.6200	0.7200	0.8200
Master	QRLI Calculated	0.3554	0.2900	0.3900	0.4500
Master	QLIR Calculated	[illegible]	1.290	1.390	1.450
Master	QR Calculated	[illegible]	0.9800	1.000	1.020

Master: 12-DEC-1998 16:34

Compensated Neutron - H / Equipment Identification

Primary Equipment:

Compensated Neutron Cartridge	CNC - HA	1240
Neutron Logging Source	NLS - KL	
Neutron Source Radioactive	NSR - F	2438
Neutron Detector with Alpha Source	CND - A	

Auxiliary Equipment:

Compensated Neutron Housing	CNH - A	4466
Neutron Calibration Tank	NCT - B	

Compensated Neutron - H Wellsite Calibration
Zero Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	CNTC Background CPS	27.89	5.000	27.89	40.00
Before	CNTC Background CPS	27.54	5.000	27.89	40.00
Master	CFTC Background CPS	29.16	5.000	29.16	40.00
Before	CFTC Background CPS	30.26	5.000	29.16	40.00

Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23

Compensated Neutron - H Master Calibration
Tank Measurement

Phase	Measurement	Value	Minimum	Nominal	Maximum
Master	Thermal Near Corr. (Tank) CPS	6518	5000	6031	7200
Master	Thermal Far Corr. (Tank) CPS	2749	2075	2793	3125
Master	CNTC/CFTC (Tank)	2.372	2.120	2.159	2.540

Master: 8-JAN-1999 0:33

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge	SGC - SA	9588
Scintillation Gamma Detector	SGD - TAA	21097

Auxiliary Equipment:

Scintillation Gamma Housing	SGH - K	2439
Gamma Source Radioactive	GSR - U/Y	1237

Scintillation Gamma-Ray - N Wellsite Calibration
Detector Calibration

Phase	Measurement	Value	Minimum	Nominal	Maximum
Before	Gamma Ray Background GAPI	23.46	0	30.00	120.0
Before	Gamma Ray (Jig - Bkg) GAPI	162.3	147.6	162.3	177.1
Before	Gamma Ray (Calibrated) GAPI	162.0	147.0	162.0	177.0

Before. 9-JAN-1999 8.38

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2655.1 m
		SCHLUMBERGER DEPTH	2660 m
WELL:	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD:	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE:	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

DUAL LATEROLOG

N.E.B. COPY 1857

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

Schlumberger

DUAL LATEROLOG
TRUE VERTICAL DEPTH

PROVINCE: NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: I-81-60-50-123-15
Well: CDN FOREST ET AL FLETT RA
Company: CANADIAN FOREST OIL LTD.

LOCATION
I-61-60-50-123-15
300I616050123150 (UWI)

Elev.: K.B. 262.5 m
G.L. 255 m
D.F. 262.2 m

Permanent Datum: GROUND LEVEL Elev.: 255 m
Log Measured From: KELLY BUSHING 7.5 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

	Run 1	Run 2	Run 3	Run 4
Logging Date	9-JAN-1999			
Run Number	THREE			
Depth Driller	2660 m			
Schlumberger Depth	2660 m			
Bottom Log Interval	2655.1 m			
Top Log Interval	2067 m			
Casing Driller Size @ Depth	244.500 mm @ 2067.7 m			
Casing Schlumberger	2067 m			
Bit Size	216.000 mm			
MUD Type Fluid In Hole	GEL CHEM			
MUD Density / Viscosity	1160 kg/m3 / 62 s			
MUD Fluid Loss / PH	8.2 cm3 / 10.2			
MUD Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.240 ohm.m @ 21 degC			
RMF @ Measured Temperature	0.210 ohm.m @ 14 degC			
RMC @ Measured Temperature	0.170 ohm.m @ 12 degC			
Source RMF / RMC	MEASURED / MEASURED			
RM @ MRT / RMF @ MRT	0.069 @ 125 / 0.052 @ 125			
Maximum Recorded Temperatures	125 degC / 125 / 125			
Circulation Stopped / Time	10-JAN 1999 / 1:00			
Logger On Bottom / Time	9-JAN-1999 / 8:10			
Unit Number / Location	2025 / GRANDE PRAIRIE			
Recorded By	TONY DANIEL/SEBASTION KIRSTEIN			
Witnessed By	BRIAN BELLMAN			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth		@	@	
Casing Schlumberger				
Bit Size				
MUD Type Fluid In Hole				
MUD Density / Viscosity				
MUD Fluid Loss / PH				
MUD Source Of Sample				
RM @ Measured Temperature		@	@	
RMF @ Measured Temperature		@	@	
RMC @ Measured Temperature		@	@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@ / @	@ / @	@ / @	@ / @
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATIONS, AND WE SHALL NOT, EXCEPT IN THE CASE OF GROSS OR WILLFUL NEGLIGENCE ON OUR PART, BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COSTS, DAMAGES OR EXPENSES INCURRED OR SUSTAINED BY ANYONE RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR OFFICERS, AGENTS OR EMPLOYEES. THESE INTERPRETATIONS ARE ALSO SUBJECT TO CLAUSE 4 OF OUR GENERAL TERMS AND CONDITIONS AS SET OUT IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES1
OS1: DLL-LDT-CNL-EDAC-GR
OS2: DSI-NGT
OS3: FMI-GR
OS4: LOGNETS
OS5:

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST.
DLL-LDT-CNL-EDAC-GR-SP FIRST PASS, DSI-NGT SECOND PASS AND FMI-GR THIRD PASS.
BRIDGED WITH FIRST PASS 12:00 9-JAN-1999, 2510M, BROKE THE EDAC.
RAN FIRST PASS WITH NO EDAC.

REMARKS: RUN NUMBER 2

RIG: NABORS 24E
PRINTS: ? FIELD AND ? FINALS
OPERATORS: GREG "HOT HEAD" BOYD AND MARK "TEENY WEENY" PURCELL

	RUN 1	RUN 2
SERVICE ORDER #:	1055787	
PROGRAM VERSION:	9C0-413	
FLUID LEVEL:		
LOGGED INTERVAL START		
LOGGED INTERVAL STOP		

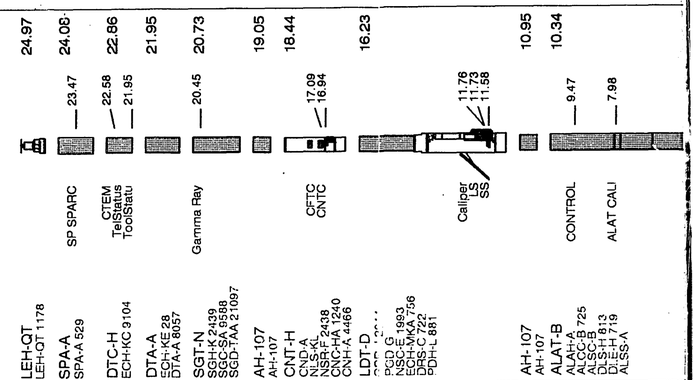
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT
W/TM (DTS):A

LCM-AA 724
NCT-B
NCS-Vb
GSR-U/1 1237

DOWNHOLE EQUIPMENT



LLD LLS — 4.69

AH-169 Tension HV DF 0.00 0.41

TOOL ZERO

MAXIMUM STRING DIAMETER 114 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	ALATB.015	FN:25 PRODUCER	10-Jan-1999 08:24	2064.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FN:32 PRODUCER	10-Jan-1999 09:35	2026.8 M	2023.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3

Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)

Computed from 2060.0 M to 2067.8 M using data channel(s): CALI

OP System Version: 9C0-413

MCM

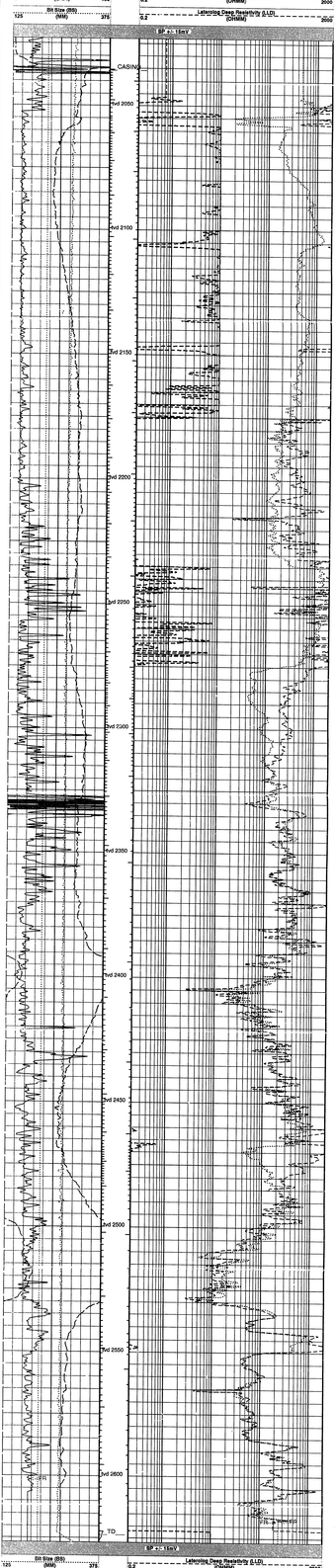
ALAT-B	9C0-413	LDT-C	9C0-413
CNT-H	9C0-413	DST-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

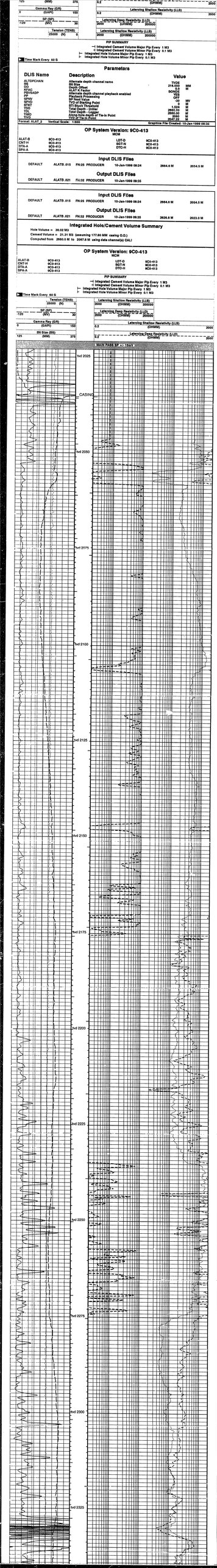
PIP SUMMARY

Integrated Cement Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Tension (TENS)	Latersing Shallow Resistivity (LLS)
200000 (N) 0	2000 (OHMM) 200000
SP (SP)	Latersing Deep Resistivity (LLD)
-120 (MV) 20	2000 (OHMM) 200000
Gamma Ray (GR)	Latersing Shallow Resistivity (LLS)
0 (GAPI) 150	0.2 (OHMM) 2000
Bit Size (BS)	Latersing Deep Resistivity (LLD)
125 (MM) 375	0.2 (OHMM) 2000





Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BS	Bit Size	216.000	MM
CS	Depth Offset	0.000	M
DPAC	Depth Accept	SONIC	
PBYEADP	Alternate depth channel playback enabled	YES	
PP	Playback Processing	YES	
SPNV	SP Neut Value	-25	MV
SPVO	TVD at Starting Point	0	M
STKT	TVD at Stopping Point	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TMD	Measured Depth at Tie-In Point	0.000	M
TVD	TVD at Tie-In Point	0.000	M

Format: ALAT_2 Vertical Scale: 1:600 Graphics File Created: 10-Jan-1999 09:35

OP System Version: 9C0-413

MCM			
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M 2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FN:32	PRODUCER	10-Jan-1999 08:35

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M 2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FN:32	PRODUCER	10-Jan-1999 08:35	2626.8 M 2023.0 M

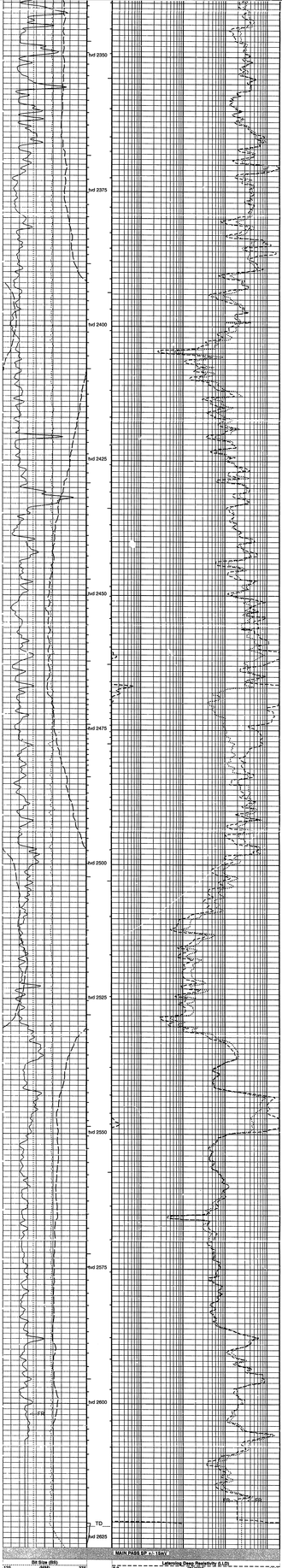
Integrated Hole/Cement Volume Summary

Hole Volume = 38.02 M3
Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.8 M using data channel(s) CALI

OP System Version: 9C0-413

MCM			
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

PIP SUMMARY
Integrated Cement Volume Major Pip Every 1 M3
Integrated Cement Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Hole Volume Minor Pip Every 0.1 M3



MAIN PASS SP vs TENV

Bit Size (BS) (MM) 125 — 375

Gamma Ray (GR) (GAPI) 0 — 150

SP (SP) (MV) -120 — 30

Tension (TENS) (N) 25000 — 0

Laterolog Deep Resistivity (LLD) (OHMM) 0.2 — 2000

Laterolog Shallow Resistivity (LLS) (OHMM) 0.2 — 2000

Laterolog Deep Resistivity (LLD) (OHMM) 2000 — 200000

Laterolog Shallow Resistivity (LLS) (OHMM) 2000 — 200000

PIP SUMMARY

⊣ Integrated Cement Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BS	Bit Size	216.000	MM
DO	Depth Offset	0.0	M
KFAC	Mud Filtrate Factor	SONIC	
PBVSADP	Alternate depth channel playback enabled	YES	
PBW	Playback Processing	OFF	
SPHV	SP Hinge	-30	MV
SPVO	TVD of Starting Point	0	M
STHT	STI Block Threshold	1.934	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-In Point	2600	M
TIVE	TVD of Tie-In Point	2047.22	M

Format: ALAT_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:36

OP System Version: 9C0-413

		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2660.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FN:32	PRODUCER	10-Jan-1999 09:35	

Input DLIS Files

DEF^^LT	ALATB.013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2504.6 M

Output DLIS Files

DEFAULT	ALATB.020	FN:31	PRODUCER	10-Jan-1999 09:30	2620.7 M	2547.8 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3
Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)
Computed from 2600.0 M to 2097.8 M using data channel(s) CALI

OP System Version: 9C0-413

		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

PIP SUMMARY

⊣ Integrated Cement Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊢ Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Tension (TENS) (N) 25000 — 0

SP (SP) (MV) -120 — 30

Gamma Ray (GR) (GAPI) 0 — 150

Bit Size (BS) (MM) 125 — 375

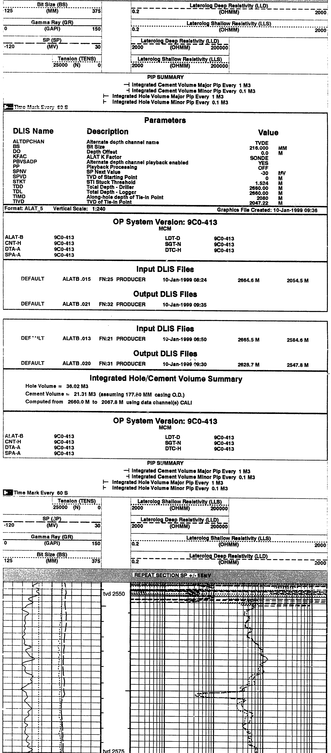
Laterolog Deep Resistivity (LLD) (OHMM) 0.2 — 2000

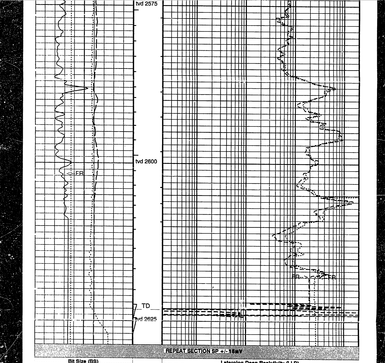
Laterolog Shallow Resistivity (LLS) (OHMM) 0.2 — 2000

Laterolog Deep Resistivity (LLD) (OHMM) 2000 — 200000

Laterolog Shallow Resistivity (LLS) (OHMM) 2000 — 200000

REPEAT SECTION SP vs TENV





REPEAT SECTION SP = 1886V

Sit Size (SIS) 125 (MM) 375
Gamma Ray (GR) 0 (GAPI) 100
SP (SP) -125 (MV) 30
Tension (TENS) 0 (LB) 2000
Hole Diameter (HDIA) 6.0 (IN) 20.0
Lateral Resistivity (LLS) 0.2 (OHMM) 2000
Lateral Resistivity (LLD) 0.2 (OHMM) 2000
Lateral Resistivity (LLS) 0 (OHMM) 200000
Lateral Resistivity (LLD) 0 (OHMM) 200000

PIP SUMMARY
- Integrated Caliper Volume Major Pip Every 1 M3
- Integrated Caliper Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Hole Volume Minor Pip Every 0.1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
ALTOPCHAN	Alternate depth channel name	TVDE
BS	Bit Size	216.000 MM
DCI	Depth Offset	0.000 M
KFAC	ALAT K Factor	SONIC
PBYEMP	Alternate depth channel playback enabled	YES
SHV	Surface Hole Value	1000
SPHV	SP Neut Value	-20 MV
SPKD	TVD of Starting Point	0 M
TDD	Total Depth - Driller	1,504 M
TDL	Total Depth - Logger	2665.00 M
TCL	Total Cable Length Tie-In Point	2665 M
TWO	Time of Flash Point	0000 M

Format: ALAT_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 00:30

OP System Version: 9C0-413

		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.013	FN:21	PRODUCER	10-Jan-1999 00:50	2665.5 M	2594.6 M

Output DLIS Files

DEFAULT	ALATB.020	FN:31	PRODUCER	10-Jan-1999 00:30		

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Aimuthal Laterolog Waveform Calibration - B1 StandOff Current - Checking - (Modulus and Phase)							
Before: 9-Jan-1999 8:26							
B1 StandOff Current	197.0	N/A	207.7	N/A	N/A	N/A	UA
B1 StandOff Current	0	N/A	-4.124	N/A	N/A	N/A	DEG
Aimuthal Laterolog Waveform Calibration - DLT Currents and Voltages Modulus Plus Measurements							
Before: 9-Jan-1999 8:26							
DLT Deep Voltage	48.83	N/A	48.06	N/A	N/A	0.9800	MV
DLT Shallow Voltage	48.84	N/A	48.06	N/A	N/A	0.9800	MV
DLT Groningen Voltage	89.03	N/A	89.87	N/A	N/A	0.9800	MV
DLT Deep Current	3115	N/A	3149	N/A	N/A	13.91	UA
DLT Shallow Current	1000	N/A	1000	N/A	N/A	9.970	UA
Aimuthal Laterolog Waveform Calibration - DLT Currents and Voltages Phase Plus Measurements							
Before: 9-Jan-1999 8:26							
DLT Deep Voltage	0	N/A	0.6508	N/A	N/A	2.800	DEG
DLT Shallow Voltage	0	N/A	-0.294	N/A	N/A	2.800	DEG
DLT Groningen Voltage	0	N/A	-1.301	N/A	N/A	2.800	DEG
DLT Deep Current	0	N/A	2.378	N/A	N/A	2.800	DEG
DLT Shallow Current	0	N/A	-1.068	N/A	N/A	4.000	DEG
Aimuthal Laterolog Waveform Calibration - Aimuthal Voltages (Modulus and Phase) Pt a Measurements							
Before: 9-Jan-1999 8:26							
Aa Laterolog Voltage	48.93	N/A	48.13	N/A	N/A	0.8802	MV
Aa Laterolog Voltage	0	N/A	-1.978	N/A	N/A	2.800	DEG
Aimuthal Laterolog Waveform Calibration - Aimuthal Currents (Modulus and Phase) Plus Measurements							
Before: 9-Jan-1999 8:26							
Aa Laterolog Current - 0	-45.48	N/A	-45.76	N/A	N/A	0.6000	UA
Aa Laterolog Current - 1	-45.48	N/A	-44.12	N/A	N/A	0.6000	UA
Aa Laterolog Current - 2	-45.48	N/A	-45.76	N/A	N/A	0.6000	UA
Aa Laterolog Current - 3	-45.48	N/A	-46.85	N/A	N/A	0.6000	UA
Aa Laterolog Current - 4	-45.48	N/A	-46.85	N/A	N/A	0.6000	UA
Aa Laterolog Current - 5	-45.48	N/A	-45.11	N/A	N/A	0.6000	UA
Aa Laterolog Current - 6	-45.48	N/A	-46.10	N/A	N/A	0.6000	UA
Aa Laterolog Current - 7	-45.48	N/A	-45.76	N/A	N/A	0.6000	UA
Aa Laterolog Current - 8	-45.48	N/A	-46.09	N/A	N/A	0.6000	UA
Aa Laterolog Current - 9	-45.48	N/A	-45.24	N/A	N/A	0.6000	UA
Aa Laterolog Current - 10	-45.48	N/A	-45.76	N/A	N/A	0.6000	UA
Aa Laterolog Current - 11	-45.48	N/A	-45.73	N/A	N/A	0.6000	UA
Aa Laterolog Current - 0	0	N/A	1.019	N/A	N/A	2.800	DEG
Aa Laterolog Current - 1	0	N/A	-1.742	N/A	N/A	2.800	DEG
Aa Laterolog Current - 2	0	N/A	-0.589	N/A	N/A	2.800	DEG
Aa Laterolog Current - 3	0	N/A	-0.588	N/A	N/A	2.800	DEG
Aa Laterolog Current - 4	0	N/A	-2.504	N/A	N/A	2.800	DEG
Aa Laterolog Current - 5	0	N/A	-0.331	N/A	N/A	2.800	DEG
Aa Laterolog Current - 6	0	N/A	-0.588	N/A	N/A	2.800	DEG
Aa Laterolog Current - 7	0	N/A	0.1760	N/A	N/A	2.800	DEG
Aa Laterolog Current - 8	0	N/A	1.228	N/A	N/A	2.800	DEG
Aa Laterolog Current - 9	0	N/A	-0.2202	N/A	N/A	2.800	DEG
Aa Laterolog Current - 10	0	N/A	-1.691	N/A	N/A	2.800	DEG
Aa Laterolog Current - 11	0	N/A	-1.691	N/A	N/A	2.800	DEG
Ultra Density - D Matrix Calibration - Background Measurement							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LL Background	50.00	12.35	18.41	N/A	N/A	1.000	CPS
LU Background	78.00	75.88	75.49	N/A	N/A	1.000	CPS
LTH Background	30.00	36.29	36.29	N/A	N/A	1.000	CPS
LTH Background	5.500	5.550	5.550	N/A	N/A	0.5000	CPS
SS1 Background	16.00	16.79	16.85	N/A	N/A	0.5000	CPS
SS2 Background	11.50	11.45	11.48	N/A	N/A	0.5000	CPS
Ultra Density - U Matrix Calibration - Test Quality Control Information HV							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
USHV Background	1500	1293	1292	N/A	N/A	V	
SSHV Background	1500	1292	1292	N/A	N/A	V	
Ultra Density - D Matrix Calibration - Detectors Resolution From BKG Measurements							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LS Resolution Background	8.000	8.397	8.074	N/A	N/A		
SS Resolution Background	8.000	9.294	9.088	N/A	N/A		
Ultra Density - D Matrix Calibration - Calipers Calibration							
Before: 9-JAN-1999 8:25							
Caliper Small Ring	203.2	N/A	205.4	N/A	N/A	MM	
Caliper Large Ring	304.8	N/A	305.6	N/A	N/A	MM	
Ultra Density - D Matrix Calibration - Aluminum Measurement							
Master: 12-DEC-1998 16:17							
LL Aluminum	90.00	89.03	--	--	--	--	CPS
LU Aluminum	135.0	134.4	--	--	--	--	CPS
LS Aluminum	90.00	90.31	--	--	--	--	CPS
LTH Aluminum	50.00	55.31	--	--	--	--	CPS
SS1 Aluminum	175.0	168.8	--	--	--	--	CPS
SS2 Aluminum	250.0	253.3	--	--	--	--	CPS
Ultra Density - D Matrix Calibration - Unbolus Measurement							
Master: 12-DEC-1998 16:02							
LL Unbolus	90.00	79.97	--	--	--	--	CPS
LU Unbolus	120.0	118.6	--	--	--	--	CPS
LS Unbolus	135.0	138.3	--	--	--	--	CPS
LTH Unbolus	30.00	35.29	--	--	--	--	CPS
SS1 Unbolus	175.0	168.8	--	--	--	--	CPS
SS2 Unbolus	245.0	228.6	--	--	--	--	CPS
Ultra Density - D Matrix Calibration - Spectrum Quality Ratios							
Master: 12-DEC-1998 16:34							
GRJS Calculated	0.8500	0.8824	--	--	--	--	
GRFS Calculated	0.7200	0.6889	--	--	--	--	
GRKD Calculated	0.3900	0.3554	--	--	--	--	
GRTH Calculated	0.2000	0.1811	--	--	--	--	
GR Calculated	0.0000	0.0811	--	--	--	--	
Compensated Neutron - N Matrix Calibration - Zero Measurement							
Before: 9-JAN-1999 8:25 Before: 9-JAN-1999 8:03							
CNTC Background	27.68	27.69	27.54	N/A	N/A	4.193	CPS
CFTC Background	28.18	28.18	30.28	N/A	N/A	4.274	CPS
Compensated Neutron - N Matrix Calibration - Tank Measurement							
Thermal Near Count (Tank)	6031	6016	--	--	--	--	CPS
Thermal Near Count (Air Tank)	2.000	2.000	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.158	2.372	--	--	--	--	
Scintillation Gamma Ray - N Matrix Calibration - Detector Calibration							
Before: 9-JAN-1999 8:25							
Gamma Ray (Jig - Bkg)	162.3	N/A	162.3	N/A	N/A	14.76	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCTB Water Temperature 18.3 DEGC
Thermal Hoding Site 15.613 MM.

Aimuthal Laterolog / Equipment Identification

Primary Equipment:
- Aimuthal Laterolog Standard Sub — ALSS - A

Auxiliary Equipment:

Aimuthal Laterolog Electrode	CLE - H	719
Dual Laterolog Sonde	DLS - A	910
Aimuthal Laterolog Housing	ALAH - A	
Aimuthal Laterolog Electronics Cartridge	ALEC - B	
Aimuthal Laterolog Controller Cartridge	ALCC - B	725
Laterolog Current Module	CNM - AA	704

Aimuthal Laterolog Waveform Calibration
B1 StandOff Current - Checking - (Modulus and Phase)

Phase	B1 StandOff Current UA	Value	Phase	B1 StandOff Current DEG	Value
Before	197.0	207.7	Before	0	-4.124
	197.0 Nominal	208.0 Maximum	0 Nominal	0 Minimum	-16.00 Maximum

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
DLT Currents and Voltages Modulus Plus Measurements

Phase	DLT Deep Voltage (P) Zero MV	Value	Phase	DLT Shallow Voltage (P) Zero MV	Value	Phase	DLT Groningen Voltage (P) Zero MV	Value
Before	0.00870	48.06	Before	0.00870	48.06	Before	0.00870	0.0000
	0.00870 Minimum	0 Nominal	0.00870 Minimum	0 Nominal	0.0000 Maximum	0.00870 Minimum	0 Nominal	0.0000 Maximum

Phase	DLT Deep Current (P) Zero UA	Value	Phase	DLT Shallow Current (P) Zero UA	Value
Before	0.00860	0.00870	Before	0	0.0760
	0.00860 Minimum	0 Nominal	0.00860 Minimum	0 Nominal	0.0760 Maximum

Before: 9-JAN-1999 8:32

Aimuthal Laterolog Waveform Calibration
DLT Deep Phase Plus Measurements

Phase	DLT Deep Voltage MV	Value	Phase	DLT Shallow Voltage MV	Value	Phase	DLT Groningen Voltage MV	Value
Before	0.00870	48.06	Before	0.00870	48.06	Before	0.00870	0.0000
	0.00870 Minimum	0 Nominal	0.00870 Minimum	0 Nominal	0.0000 Maximum	0.00870 Minimum	0 Nominal	0.0000 Maximum

Phase	DLT Deep Current (P) Zero UA	Value	Phase	DLT Shallow Current (P) Zero UA	Value
Before	0.00860	0.00870	Before	0	-0.00760
	0.00860 Minimum	0 Nominal	0.00860 Minimum	0 Nominal	-0.00760 Maximum

Before: 9-JAN-1999 8:32

Aimuthal Laterolog Waveform Calibration
DLT Currents and Voltages Modulus Plus Measurements

Phase	DLT Deep Voltage MV	Value	Phase	DLT Shallow Voltage MV	Value	Phase	DLT Groningen Voltage MV	Value
Before	48.83	48.06	Before	48.84	48.06	Before	89.03	89.87
	48.83 Minimum	48.83 Nominal	48.83 Maximum	48.84 Minimum	48.84 Nominal	48.84 Maximum	89.03 Minimum	89.03 Nominal

Phase	DLT Deep Current UA	Value	Phase	DLT Shallow Current UA	Value
Before	3115	3149	Before	1000	1000
	3115 Minimum	3115 Nominal	1000 Minimum	1000 Nominal	1000 Maximum

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
DLT Currents and Voltages Phase Plus Measurements

Phase	DLT Deep Voltage DEG	Value	Phase	DLT Shallow Voltage DEG	Value	Phase	DLT Groningen Voltage DEG	Value
Before	0	0.6508	Before	0	-0.294	Before	0	-1.301
	0 Minimum	0 Nominal	0 Maximum	0 Minimum	0 Nominal	0 Maximum	0 Minimum	0 Nominal

Phase	DLT Deep Current DEG	Value	Phase	DLT Shallow Current DEG	Value
Before	0	2.378	Before	0	-1.068
	0 Minimum	0 Nominal	0 Maximum	0 Minimum	0 Nominal

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
Aimuthal Voltages Zero Measurements

Phase	Aa Laterolog Voltage (P) Zero MV	Value	Phase	Aa Laterolog Voltage (Q) Zero MV	Value
Before	0	0.00002	Before	0	-0.00138
	0.00870 Minimum	0 Nominal	0.00870 Minimum	0 Nominal	-0.00138 Maximum

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
Aimuthal Voltages Modulus and Phase Plus Measurements

Phase	Aa Laterolog Voltage MV	Value	Phase	Aa Laterolog Voltage DEG	Value
Before	48.13	48.13	Before	0	-1.978
	48.13 Minimum	48.13 Nominal	0 Minimum	0 Nominal	-1.978 Maximum

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
In and Out Of Phase Aimuthal Currents Zero Measurements

Phase	Aa Laterolog Current (P) Zero UA	Value	Phase	Aa Laterolog Current (Q) Zero UA	Value
Before	0	-0.00018	Before	0	-0.01010
	0 Minimum	-0.00860 Maximum	0 Minimum	-0.01010 Maximum	0.00860 Maximum
Before	0	-0.00002	Before	0	0.00194
	0 Minimum	-0.00860 Maximum	0 Minimum	0.00194 Maximum	0.00860 Maximum
Before	0	-0.00004	Before	0	-0.00194
	0 Minimum	-0.00860 Maximum	0 Minimum	-0.00194 Maximum	0.00860 Maximum
Before	0	0.00018	Before	0	-0.00008
	0 Minimum	-0.00860 Maximum	0 Minimum	-0.00008 Maximum	0.00860 Maximum
Before	0	0.00027	Before	0	-4.90E-05
	0 Minimum	-0.00860 Maximum	0 Minimum	-4.90E-05 Maximum	0.00860 Maximum

Before: 9-JAN-1999 8:26

Aimuthal Laterolog Waveform Calibration
Aimuthal Currents (Modulus and Phase) Plus Measurements

Phase	Aa Laterolog Current UA	Value	Phase	Aa Laterolog Current DEG	Value
Before	-45.76	-45.76	Before	0	1.019
	-45.76 Minimum	-45.76 Nominal	0 Minimum	0 Nominal	1.019 Maximum
Before	-44.12	-44.12	Before	0	-1.742
	-44.12 Minimum	-44.12 Nominal	0 Minimum	0 Nominal	-1.742 Maximum
Before	-45.77	-45.76	Before	0	-0.589
	-45.77 Minimum	-45.76 Nominal	0 Minimum	0 Nominal	-0.589 Maximum
Before	-46.85	-46.85	Before	0	-0.588
	-46.85 Minimum	-46.85 Nominal	0 Minimum	0 Nominal	-0.588 Maximum
Before	-45.11	-45.11	Before	0	-2.504
	-45.11 Minimum	-45.11 Nominal	0 Minimum	0 Nominal	-2.504 Maximum
Before	-46.10	-46.10	Before	0	-0.331
	-46.10 Minimum	-46.10 Nominal	0 Minimum	0 Nominal	-0.331 Maximum
Before	-45.76	-45.76	Before	0	-0.588
	-45.76 Minimum	-45.76 Nominal	0 Minimum	0 Nominal	-0.588 Maximum
Before	-46.09	-46.09	Before	0	0.1760
	-46.09 Minimum	-46.09 Nominal	0 Minimum	0 Nominal	0.1760 Maximum
Before	-45.24	-45.24	Before	0	1.228
	-45.24 Minimum	-45.24 Nominal	0 Minimum	0 Nominal	1.228 Maximum
Before	-45.76	-45.76	Before	0	-0.2202
	-45.76 Minimum	-45.76 Nominal	0 Minimum	0 Nominal	-0.2202 Maximum
Before	-45.73	-45.73	Before	0	-1.691
	-45.73 Minimum	-45.73 Nominal	0 Minimum	0 Nominal	-1.691 Maximum

Before: 9-JAN-1999 8:26

Ultra Density - D Matrix Calibration - Background Measurement
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Phase	LL Background CPS	Value	Phase	LU Background CPS	Value	Phase	LS Background CPS	Value
Master	50.00	12.35	Master	78.00	75.88	Master	30.00	36.29
Before	19.41	18.41	Before	76.49	75.49	Before	37.18	36.29
	19.41 Minimum	19.41 Nominal	76.49 Minimum	76.49 Nominal	76.49 Maximum	37.18 Minimum	37.18 Nominal	37.18 Maximum

Phase	LTH Background CPS	Value	Phase	SS1 Background CPS	Value	Phase	SS2 Background CPS	Value
Master	5.550	5.550	Master	16.00	16.79	Master	11.50	11.45
Before	5.550	5.550	Before	16.85	16.85	Before	11.48	11.48
	5.550 Minimum	5.550 Nominal	16.85 Minimum	16.85 Nominal	16.85 Maximum	11.48 Minimum	11.48 Nominal	11.48 Maximum

Master: 12-DEC-1998 15:50

Ultra Density - D Matrix Calibration
Detectors Resolution From BKG Measurements

Phase	LS Resolution Background	Value	Phase	SS Resolution Background	Value
Master	8.000	8.397	Master	8.000	9.294
Before	8.074	8.074	Before	9.088	9.088
	8.000 Minimum	8.074 Nominal	8.000 Minimum	9.088 Nominal	9.088 Maximum

Master: 12-DEC-1998 15:50

Ultra Density - D Matrix Calibration
Aluminum Measurement

Phase	LL Aluminum CPS	Value	Phase	LU Aluminum CPS	Value	Phase	LS Aluminum CPS	Value
Master	90.00	89.03	Master	135.0	134.4	Master	90.00	90.31
Before	89.03	89.03	Before	134.4	134.4	Before	90.31	90.31
	89.03 Minimum	89.03 Nominal	134.4 Minimum	134.4 Nominal	134.4 Maximum	90.31 Minimum	90.31 Nominal	90.31 Maximum

Phase	LTH Aluminum CPS	Value	Phase	SS1 Aluminum CPS	Value	Phase	SS2 Aluminum CPS	Value
Master	50.00	55.31	Master	175.0	168.8	Master	250.0	253.3
Before	55.31	55.31	Before	168.8	168.8	Before	253.3	253.3
	55.31 Minimum	55.31 Nominal	168.8 Minimum	168.8 Nominal	168.8 Maximum	253.3 Minimum	253.3 Nominal	253.3 Maximum

Master: 12-DEC-1998 16:17

Ultra Density - D Matrix Calibration
Unbolus Measurement

Phase	LL Unbolus CPS	Value	Phase	LU Unbolus CPS	Value	Phase	LS Unbolus CPS	Value
Master	90.00	79.97	Master	120.0	118.6	Master	135.0	138.3
Before	79.97	79.97	Before	118.6	118.6	Before	138.3	138.3
	79.97 Minimum	79.97 Nominal	118.6 Minimum	118.6 Nominal	118.6 Maximum	138.3 Minimum	138.3 Nominal	138.3 Maximum

Phase	LTH Unbolus CPS	Value	Phase	SS1 Unbolus CPS	Value	Phase	SS2 Unbolus CPS	Value
Master	30.00	35.29	Master	175.0	168.8	Master	245.0	228.6
Before	35.29	35.29	Before	168.8	168.8	Before	228.6	228.6
	35.29 Minimum	35.29 Nominal	168.8 Minimum	168.8 Nominal	168.8 Maximum	228.6 Minimum	228.6 Nominal	228.6 Maximum

Master: 12-DEC-1998 16:02

Ultra Density - D Matrix Calibration
Spectrum Quality Ratios

Phase	GRJS Calculated	Value	Phase	GRFS Calculated	Value	Phase	GRKD Calculated	Value
Master	0.8500	0.8824	Master	0.7200	0.6889	Master	0.3900	0.3554
Before	0.8824	0.8824	Before	0.6889	0.6889	Before	0.3554	0.3554
	0.8824 Minimum	0.8824 Nominal	0.6889 Minimum	0.6889 Nominal	0.6889 Maximum	0.3554 Minimum	0.3554 Nominal	0.3554 Maximum

Phase	GRTH Calculated	Value	Phase	GR Calculated	Value
Master	0.2000	0.1811	Master	0.0000	0.0811
Before	0.1811	0.1811	Before	0.0811	0.0811
	0.1811 Minimum	0.1811 Nominal	0.0811 Minimum	0.0811 Nominal	0.0811 Maximum

Master: 12-DEC-1998 16:34

Compensated Neutron - N Matrix Calibration
Zero Measurement

Phase	CNTC Background	Value	Phase	CFTC Background	Value
Master	27.68	27.69	Master	28.18	28.18
Before	27.54	27.54	Before	30.28	30.28
	27.54 Minimum	27.54 Nominal	30.28 Minimum	30.28 Nominal	30.28 Maximum

Before: 9-JAN-1999 8:03

Compensated Neutron - N Matrix Calibration
Tank Measurement

Phase	Thermal Near Count (Tank)	Value	Phase	CNTC/CFTC (Tank)	Value
Master	6031	6016	Master	2.158	2.372
Before	6016	6016	Before	2.372	2.372
	6016 Minimum	6016 Nominal	2.372 Minimum	2.372 Nominal	2.372 Maximum

Master: 12-DEC-1998 16:34

Scintillation Gamma Ray - N Matrix Calibration
Detector Calibration

Phase	Gamma Ray (Jig - Bkg)	Value	Phase	Gamma Ray (Calibrated)	Value
Master	162.3	N/A	Master	162.0	N/A
Before	162.3	N/A	Before	162.0	N/A
	162.3 Minimum	N/A Nominal	162.0 Minimum	N/A Nominal	15.00 Maximum

Before: 9-JAN-1999 8:25

Ultra Density - D / Equipment Identification

Primary Equipment:

Nuclear Services Cartridge	NSC - E	1893
Powered Gamma Detector	PGD - A	
Gamma Source Radioactive	GSR - J	2044

Auxiliary Equipment:

Density Reliability Sonde	DRS -	722
Density Reliability Cartridge	DRC - SRA	756
Powered Detector Housing	PDH -	561

Ultra Density - D Matrix Calibration
Background Measurement

Phase	LL Background CPS	Value	Phase	LU Background CPS	Value	Phase	LS Background CPS	Value
Master	50.00	12.35	Master	78.00	75.88	Master	30.00	36.29
Before	19.41	18.41	Before	76.49	75.49	Before	37.18	36.29
	19.41 Minimum	19.41 Nominal	76.49 Minimum	76.49 Nominal	76.49 Maximum	37.18 Minimum	37.18 Nominal	37.18 Maximum

Phase	LTH Background CPS	Value	Phase	SS1 Background CPS	Value	Phase	SS2 Background CPS	Value
Master	5.550	5.550	Master	16.00	16.79	Master	11.50	11.45
Before	5.550	5.550	Before	16.85	16.85	Before	11.48	11.48
	5.550 Minimum	5.550 Nominal	16.85 Minimum	16.85 Nominal	16.85 Maximum	11.48 Minimum	11.48 Nominal	11.48 Maximum

Master: 12-DEC-1998 15:50

Ultra Density - D Matrix Calibration
Detectors Resolution From BKG Measurements

Phase	LS Resolution Background	Value	Phase	SS Resolution Background	Value
Master	8.000	8.397	Master	8.000	9.294
Before	8.074	8.074	Before	9.088	9.088
	8.000 Minimum	8.074 Nominal	8.000 Minimum	9.088 Nominal	9.088 Maximum

Master: 12-DEC-1998 15:50

Ultra Density - D Matrix Calibration
Aluminum Measurement

Phase	LL Aluminum CPS	Value	Phase	LU Aluminum CPS	Value	Phase	LS Aluminum CPS	Value
Master	90.00	89.03	Master	135.0	134.4	Master	90.00	90.31
Before	89.03	89.03	Before	134.4	134.4	Before	90.31	90.31
	89.03 Minimum	89.03 Nominal	134.4 Minimum	134.4 Nominal	134.4 Maximum	90.31 Minimum	90.31 Nominal	90.31 Maximum

Phase	LTH Aluminum CPS	Value	Phase	SS1 Aluminum CPS	Value	Phase	SS2 Aluminum CPS	Value
Master	50.00	55.31	Master	175.0	168.8	Master	250.0	253.3
Before	55.31	55.31	Before	168.8	168.8	Before	253.3	253.3
	55.31 Minimum	55.31 Nominal	168.8 Minimum	168.8 Nominal	168.8 Maximum	253.3 Minimum	253.3 Nominal	253.3 Maximum

Master: 12-DEC-1998 16:17

Litho Density - D Master Calibration

Litholog Measurement

Phase	LL Iron CPS	Value	Phase	LU Iron CPS	Value	Phase	LS Iron CPS	Value
Master		79.07	Master		118.6	Master		138.3
60.00 (Minimum)	80.00 (Nominal)	114.0 (Maximum)	85.00 (Minimum)	120.0 (Nominal)	177.0 (Maximum)	100.0 (Minimum)	135.0 (Nominal)	193.0 (Maximum)
Phase	LITH Iron CPS	Value	Phase	SS1 Iron CPS	Value	Phase	SS2 Iron CPS	Value
Master		35.29	Master		148.2	Master		228.6
15.00 (Minimum)	30.00 (Nominal)	51.00 (Maximum)	105.0 (Minimum)	155.0 (Nominal)	234.0 (Maximum)	190.0 (Minimum)	245.0 (Nominal)	325.0 (Maximum)

Master: 12-DEC-1998 16:02

Litho Density - D Master Calibration

Spectrum Quality Ratios

Phase	QRLS Calculated	Value	Phase	QRSS Calculated	Value	Phase	QRLI Calculated	Value
Master		0.6624	Master		0.6658	Master		0.3554
0.6000 (Minimum)	0.6500 (Nominal)	0.7000 (Maximum)	0.6200 (Minimum)	0.7200 (Nominal)	0.8200 (Maximum)	0.2900 (Minimum)	0.3900 (Nominal)	0.4500 (Maximum)
Phase	QLIR Calculated	Value	Phase	QR Calculated	Value			
Master		1.393	Master		0.9911			
1.290 (Minimum)	1.390 (Nominal)	1.450 (Maximum)	0.9800 (Minimum)	1.000 (Nominal)	1.020 (Maximum)			

Master: 12-DEC-1998 16:34

Compensated Neutron - H / Equipment Identification

Primary Equipment:		
Compensated Neutron Cartridge	CNC - HA	1240
Neutron Logging Source	NLS - KL	
Neutron Source Radioactive	NSR - F	2438
Neutron Detector with Alpha Source	CND - A	
Auxiliary Equipment:		
Compensated Neutron Housing	CNH - A	4466
Neutron Calibration Tank	NCT - B	

Compensated Neutron - H Wellsite Calibration

Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.89	Master		29.16
Before		27.54	Before		30.28
5.000 (Minimum)	27.89 (Nominal)	40.00 (Maximum)	5.000 (Minimum)	29.16 (Nominal)	40.00 (Maximum)

Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23

Compensated Neutron - H Master Calibration

Tank Measurement

Phase	Thermal Near Corr. (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		6518	Master		2749	Master		2.372
5000 (Minimum)	6031 (Nominal)	7200 (Maximum)	2075 (Minimum)	2793 (Nominal)	3125 (Maximum)	2.120 (Minimum)	2.159 (Nominal)	2.540 (Maximum)

Master: 8-JAN-1999 0:33

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:		
Scintillation Gamma Cartridge	SGC - SA	9588
Scintillation Gamma Detector	SGD - TAA	21097
Auxiliary Equipment:		
Scintillation Gamma Housing	SGH - K	2439
Gamma Source Radioactive	GSR - U/Y	1237

Scintillation Gamma-Ray - N Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		23.46	Before		162.3	Before		162.0
0 (Minimum)	30.00 (Nominal)	120.0 (Maximum)	147.6 (Minimum)	162.3 (Nominal)	177.1 (Maximum)	147.0 (Minimum)	162.0 (Nominal)	177.0 (Maximum)

Before: 9-JAN-1999 8:38

Directional Survey Manually-Entered Inclinometry Summary

Tie In Point : Measured Depth True Vertical Depth

2080.00 M 2047.22 M

Depth	Deviation	True Vertical Depth	Depth	Deviation	True Vertical Depth
0.00 M	0.00 DEG	0.01 M	1655.60 M	20.60 DEG	1648.53 M
569.60 M	0.00 DEG	569.61 M	1665.20 M	21.20 DEG	1657.50 M
588.00 M	0.75 DEG	588.01 M	1674.80 M	21.20 DEG	1666.45 M
599.00 M	0.50 DEG	599.01 M	1684.50 M	21.10 DEG	1675.50 M
618.00 M	0.25 DEG	618.01 M	1694.20 M	21.00 DEG	1684.55 M
667.00 M	0.25 DEG	667.01 M	1703.80 M	21.10 DEG	1693.51 M
714.00 M	1.00 DEG	714.01 M	1713.00 M	21.30 DEG	1702.08 M
724.00 M	1.00 DEG	724.00 M	1722.80 M	21.40 DEG	1711.21 M
743.00 M	1.25 DEG	743.00 M	1732.50 M	21.30 DEG	1720.25 M
764.00 M	1.25 DEG	764.00 M	1751.90 M	21.10 DEG	1738.33 M
783.00 M	1.25 DEG	782.99 M	1761.60 M	21.00 DEG	1747.39 M
792.00 M	1.25 DEG	791.99 M	1771.30 M	20.90 DEG	1756.44 M
802.00 M	1.25 DEG	801.99 M	1780.90 M	20.70 DEG	1765.42 M
821.00 M	1.50 DEG	820.98 M	1790.60 M	20.50 DEG	1774.50 M
839.00 M	1.50 DEG	838.97 M	1800.10 M	20.40 DEG	1783.40 M
866.00 M	1.25 DEG	865.97 M	1809.90 M	20.20 DEG	1792.59 M
893.00 M	1.00 DEG	892.96 M	1819.60 M	20.30 DEG	1801.69 M
940.00 M	1.00 DEG	939.95 M	1829.30 M	20.20 DEG	1810.79 M
992.00 M	1.00 DEG	991.95 M	1839.00 M	20.00 DEG	1819.90 M
1049.00 M	3.00 DEG	1048.91 M	1848.70 M	19.90 DEG	1829.02 M
1067.00 M	3.25 DEG	1066.88 M	1858.30 M	20.20 DEG	1838.04 M
1087.00 M	3.13 DEG	1086.85 M	1868.30 M	20.40 DEG	1847.42 M
1102.00 M	3.25 DEG	1101.83 M	1877.30 M	20.10 DEG	1855.86 M
1126.00 M	3.00 DEG	1125.79 M	1887.10 M	20.00 DEG	1865.07 M
1146.00 M	2.75 DEG	1145.77 M	1896.60 M	20.00 DEG	1873.99 M
1175.00 M	2.10 DEG	1174.74 M	1906.30 M	19.80 DEG	1883.11 M
1211.00 M	1.60 DEG	1210.72 M	1916.00 M	19.80 DEG	1892.24 M
1233.00 M	1.50 DEG	1232.71 M	1925.70 M	19.80 DEG	1901.37 M
1281.00 M	1.50 DEG	1280.70 M	1945.20 M	19.80 DEG	1919.71 M
1367.80 M	1.50 DEG	1367.47 M	1954.80 M	19.90 DEG	1928.74 M
1380.90 M	1.30 DEG	1380.56 M	1974.30 M	19.90 DEG	1947.08 M
1390.70 M	1.00 DEG	1390.36 M	1983.90 M	19.90 DEG	1956.11 M
1400.30 M	0.90 DEG	1399.96 M	1993.70 M	19.60 DEG	1965.33 M
1409.09 M	0.80 DEG	1408.75 M	2003.50 M	19.30 DEG	1974.57 M
1419.70 M	1.20 DEG	1419.36 M	2013.20 M	19.30 DEG	1983.73 M
1429.50 M	2.10 DEG	1429.15 M	2022.90 M	18.90 DEG	1992.89 M
1439.10 M	3.50 DEG	1438.74 M	2034.50 M	18.50 DEG	2003.88 M
1448.80 M	5.10 DEG	1448.41 M	2042.20 M	18.30 DEG	2011.19 M
1458.40 M	6.60 DEG	1457.96 M	2051.30 M	18.10 DEG	2019.83 M
1468.10 M	7.80 DEG	1467.59 M	2055.60 M	18.00 DEG	2023.92 M
1477.90 M	8.70 DEG	1477.29 M	2080.00 M	16.50 DEG	2047.22 M
1487.70 M	9.60 DEG	1486.96 M	2091.00 M	15.50 DEG	2057.79 M
1497.40 M	10.40 DEG	1496.51 M	2130.00 M	13.10 DEG	2095.58 M
1507.00 M	11.30 DEG	1505.94 M	2160.00 M	12.00 DEG	2124.87 M
1516.80 M	12.00 DEG	1515.54 M	2207.00 M	9.75 DEG	2171.02 M
1526.60 M	12.50 DEG	1525.12 M	2246.00 M	7.88 DEG	2209.56 M
1536.20 M	13.10 DEG	1534.48 M	2284.00 M	6.75 DEG	2247.25 M
1546.00 M	13.40 DEG	1544.02 M	2320.00 M	5.25 DEG	2283.05 M
1555.60 M	14.20 DEG	1553.34 M	2359.00 M	5.25 DEG	2321.88 M
1568.40 M	15.30 DEG	1565.72 M	2399.00 M	5.00 DEG	2361.72 M
1578.20 M	16.20 DEG	1575.15 M	2436.00 M	4.50 DEG	2398.60 M
1587.90 M	17.00 DEG	1584.45 M	2475.00 M	4.00 DEG	2437.49 M
1597.50 M	17.60 DEG	1593.61 M	2513.00 M	4.00 DEG	2475.40 M
1607.20 M	18.10 DEG	1602.84 M	2522.00 M	3.50 DEG	2484.38 M
1616.90 M	18.50 DEG	1612.05 M	2561.00 M	2.75 DEG	2523.32 M
1626.60 M	19.00 DEG	1621.24 M	2600.00 M	2.75 DEG	2562.27 M
1636.40 M	19.50 DEG	1630.49 M	2648.00 M	1.50 DEG	2610.24 M
1646.00 M	20.00 DEG	1639.53 M	2660.00 M	1.19 DEG	2622.24 M

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

BOTTOM LOG INTERVAL	2618.1 m
SCHLUMBERGER DEPTH	2622.4 m
DEPTH DRILLER	2660 m
KELLY BUSHING	262.5 m
DRILL FLOOR	262.2 m
GROUND LEVEL	255 m

Schlumberger

DUAL LATEROLOG
TRUE VERTICAL DEPTH

SONIC

NEUTRON

DENSITY

NEB COPY 1851

COMPUTALOG

CS400

BOREHOLE COMPENSATED SONIC LOG

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD. ***MEASURED DEPTH LOG***

COMPANY	CANADIAN FOREST OIL LTD.
	MEASURED DEPTH LOG
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
	9211C131-1-1
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION
SURFACE: N 60°-40' W 123°-26'

Other Services: STI/SP SPED/CNS/GR DAC

Perm. Datum Ground Level Elev. 255.0
Log measured from K.B. , 7.5 m above Permanent Datum.

ELEV. K.B. 262.5
G.L. 255.0
CBF

Date	DECEMBER 22, 1998		
Run No.	ONE		
First Reading	1611.2		
Last Reading	569.8		
Meters Meas.	1041.4		
Depth Reached	1665.0		
Bot. Driller	2073.6		
Csg. Logger	569.8		
Csg. Driller	569.6	339.7mm@101.2kg/m	
Fluid Type	POLYMER		
Dens. & Visc.	1270 | 100		
Mud pH	10.4		
Mud Water Loss	7.7		
Mud Res.	0.24 @ 13 °C	@ °C	@ °C
Mud Res. @ BHT	0.08 @ 85 °C	@ °C	@ °C
Rmc	0.29 @ 16 °C	@ °C	@ °C
Rmf	0.20 @ 14 °C	@ °C	@ °C
Rmf @ BHT	0.05 @ 85 °C	@ °C	@ °C
Bit Size	311mm		
Spacing	0.61m		
Operating Time	7.5 hrs.		
Unit #	363		
Location	GRANDE PRAIRIE		
Recorded By	J. GRUBB		
Witnessed By	B.L. BELLMAN		

FOLD

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: NABORS #24E Service Order # 14150

Drilling Stopped 22:00/18 Circulation Stopped 19:15/21 Tool on Bottom 04:35/22 BHT 85 °C
UNIT I, SECTION 61, GRID AREA 60-50-123-15
STI-SPED-CNT-GR-BCS-DAC LOGGED IN COMBINATION.
MAXIMUM DEVIATION OF 21.4° Prints: 2
TD NOT REACHED, LOGGED FROM BRIDGE.
SURFACE LOCATION: N 60°-40' W 123°-26'

CHANGES IN MUD TYPE OR NEW SAMPLE			
Date | Sample No.	12/22/98		
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	BCT	13111	CENTRALIZED	
	UGR	124	RA-205-085	
	CAL	9140		

REMARKS

MAIN PASS
1:600 SCALE

MAIN PASS

VERSION: 2.0b

14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

Pens: Green

Y Caliper
225 Millimeters 475

X Caliper
225 Millimeters 475

Gamma Ray
0 API 150

Tension
10000 Pounds 0

BCS Delta Time
900.0 Microsec/Meter 100.0

START DEPTH: 1028.4 Meters DIRECTION: UP DATE: 12/22/88 TIME:08:16 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 2.00

REMARKS

MAIN PASS
TI340 SCALE

VERSION: 2.00

MAIN PASS

14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

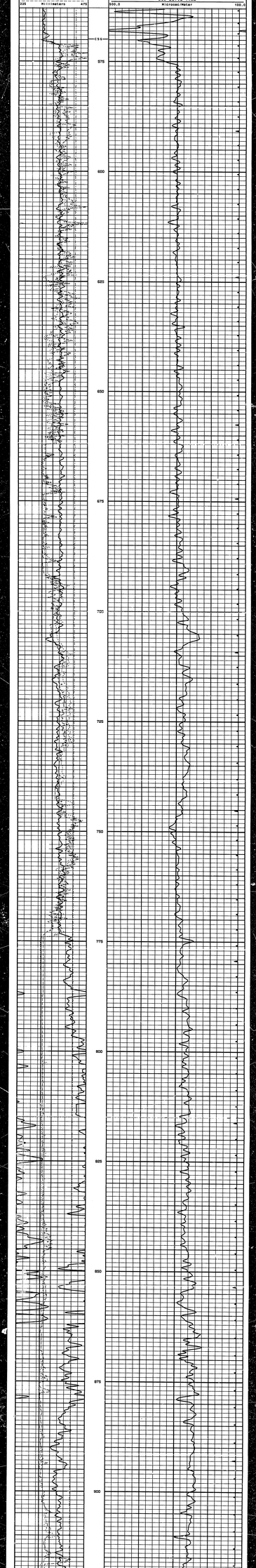
Tension
10000 Pounds 0

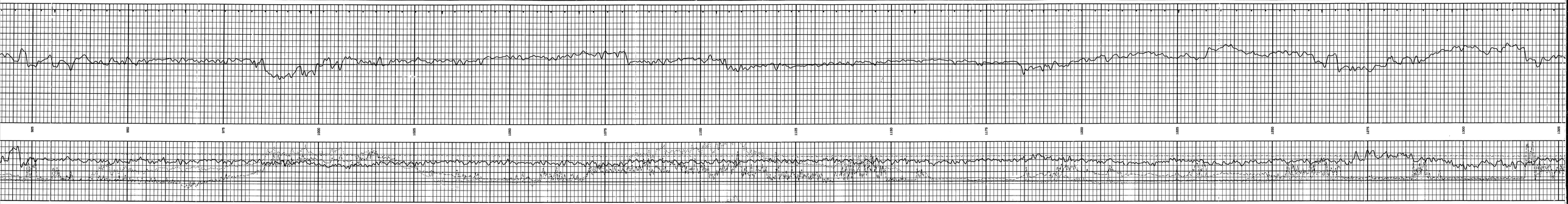
Gamma Ray
0 API 150

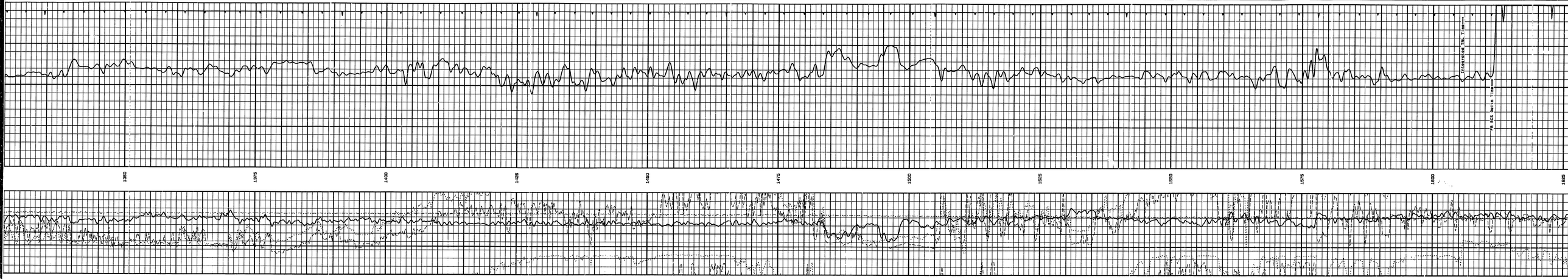
X Caliper
225 Millimeters 475

Y Caliper
225 Millimeters 475

BCS Delta Time
900.0 Microsec/Meter 100.0



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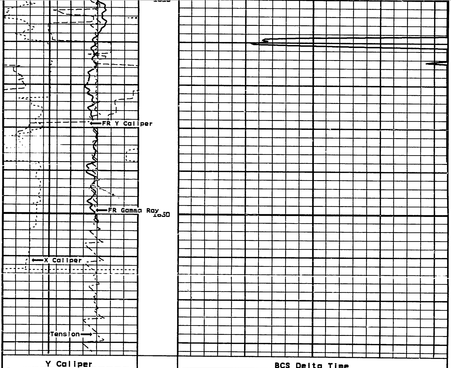
Fa 605 Mrlo Tmm
Fa 605 Mrlo Tmm



Y Caliper 225 Millimeters 475	BCS Delta Time 500.0 Microsec/Meter 100.0
X Caliper 225 Millimeters 475	
Gamma Ray 0 API 150	
Tension 10000 Pounds 0	

START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 12/22/88 TIME:09:18 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 2.0b

11/16/88	13:25	0.0 M	Ver 2.0b-2.0b	Job SHOP	

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9140

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	3617.3	6129.5	mv	177.8	355.6	mm

12/22/88	02:06	0.0 M	Ver 2.0b-2.0b	Job 14150	

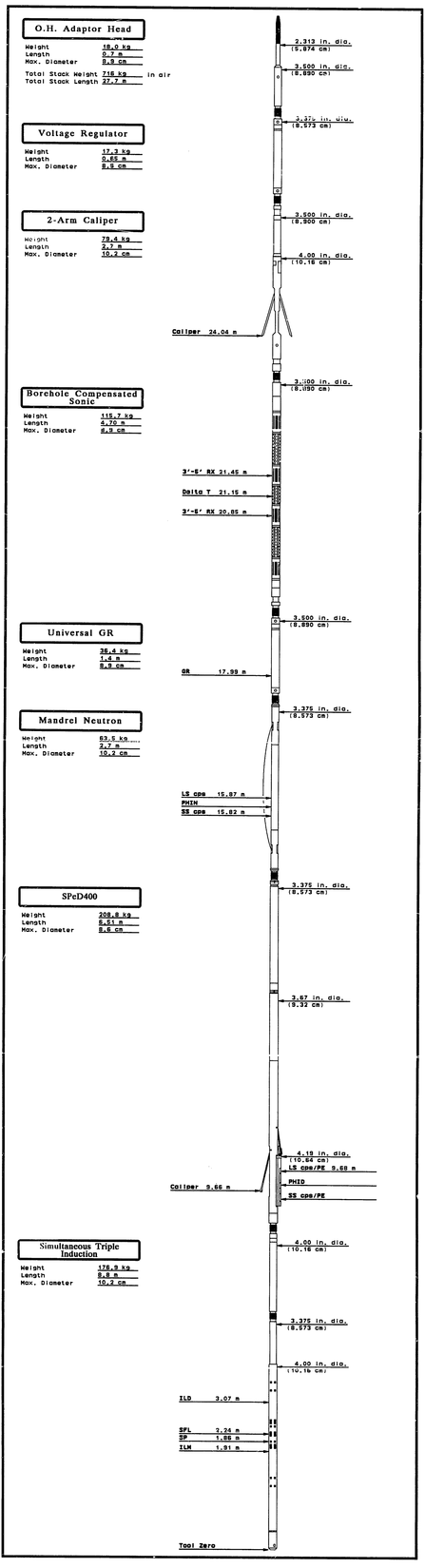
Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 124

Calibrator No: 085

Background	Calibrator	Standard	Units
196.5	692.2	140.0	API

Delta Counts Per Sec: 495.7 CPS/API = 3.541



COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

N.E.B. COPY

1851

COMPUTALOG

CS400

BOREHOLE COMPENSATED SONIC LOG

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

TRUE VERTICAL DEPTH

COMPANY	CANADIAN FOREST OIL LTD.
	TRUE VERTICAL DEPTH
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
	92H-C/31-I-1
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION
SURFACE: N 60°-40' W 123°-26'

Other Services:
STI/SP
SPED/CNS/GR/DAC

Perm. Datum Ground Level Elev. 255.0
Log measured from K.B. 7.5 m above Permanent Datum.

ELEV. K.B. 262.5
G.L. 255.0
CBF

Date	DECEMBER 22, 1998	TVD MEASUREMENTS
Run No.	ONE	1606.7
First Reading	1611.2	569.8
Last Reading	569.8	1036.9
Meters Meas.	1041.4	
Depth Reached	1665.0	
Bot. Driller	2073.6	
Csg. Logger	569.8	
Csg. Driller	569.6	339.7mm@101.2kg/m
Fluid Type	POLYMER	
Dens. & Visc.	1270 | 100	
Mud pH	10.4	
Mud Water Loss	7.7	
Mud Res.	0.24 @ 13 °C	@ °C
Mud Res. @ BHT	0.08 @ 85 °C	@ °C
Rmc	0.29 @ 16 °C	@ °C
Rmf	0.20 @ 14 °C	@ °C
Rmf @ BHT	0.05 °C	@ °C
Bit Size	311mm	
Spacing	0.61m	
Operating Time	7.5 hrs.	
Unit #	363	
Location	GRANDE PR	
Recorded By	J. GRUBB	
Witnessed By	B.L. BELL	

FOLD

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: NABORS #24E Service Order # 14150

Drilling Stopped 22:00/18 Circulation Stopped 19:15/21 Tool on Bottom 04:35/22 BHT 85 °C
UNIT I, SECTION 61, GRID AREA 60-50-123-15
STI-SPED-CNT-GR-BCS-DAC LOGGED IN COMBINATION,
MAXIMUM DEVIATION OF 21.4° Prints: 2
TD NOT REACHED, LOGGED FROM BRIDGE
SURFACE LOCATION: N 60°-40' W 123°-15'

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date | Sample No.	12/22/98	
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	BCT	13111	CENTRALIZED
	UGR	124	RA-20S-085
	CAL	9140	

REMARKS

MAIN PASS
1:600 SCALE

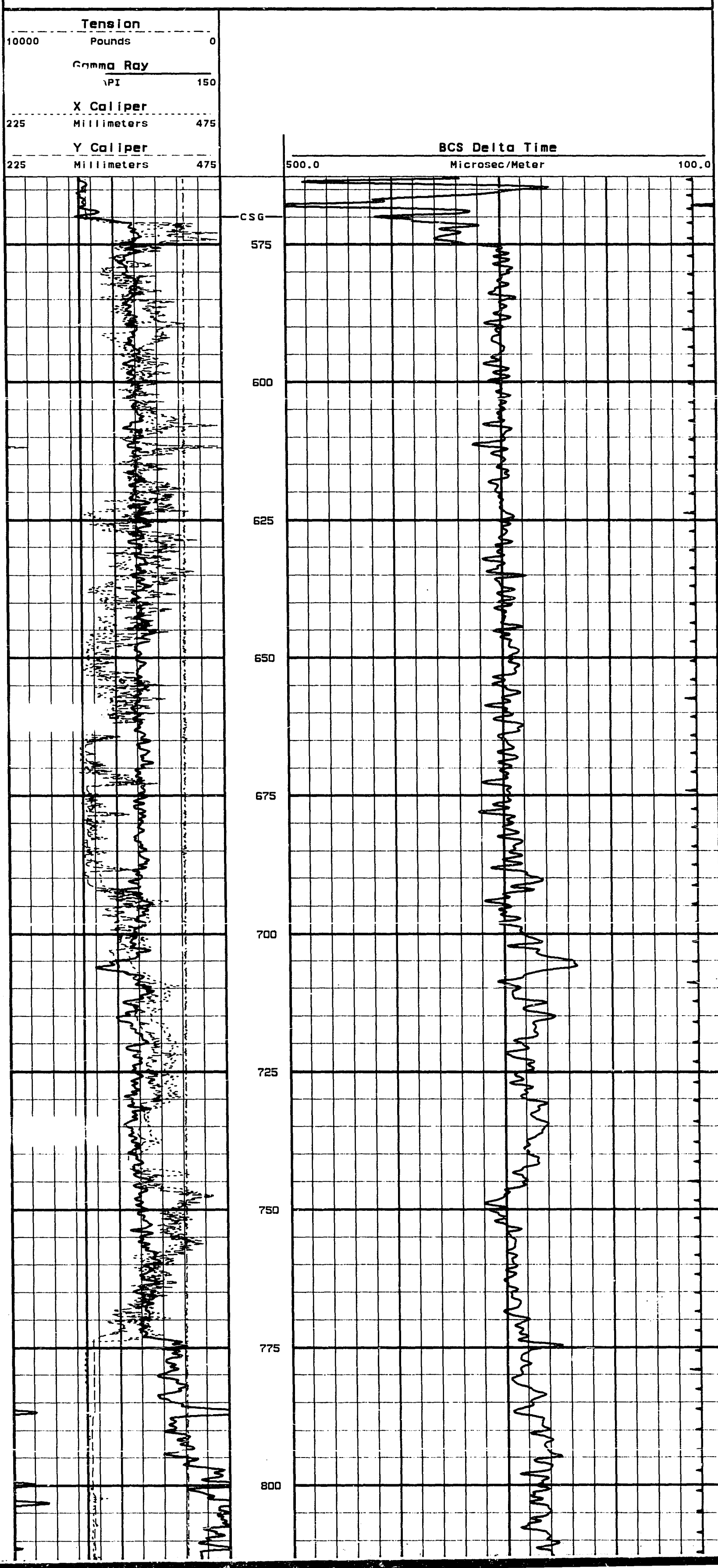
TRUE VERTICAL DEPTH LOG

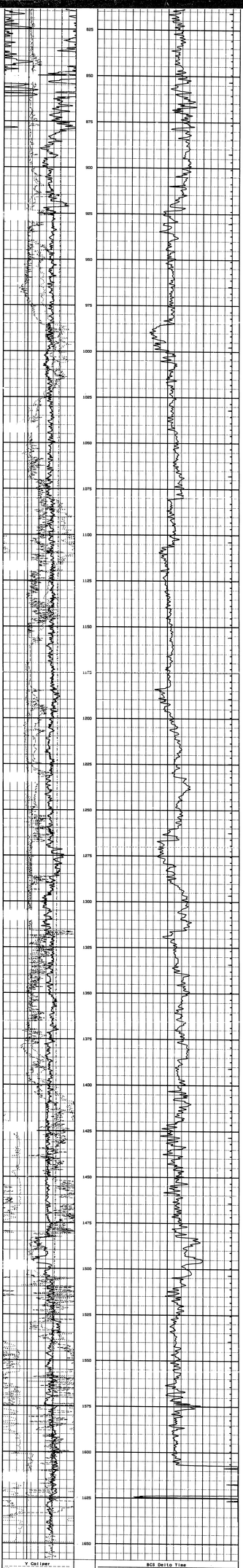
VERSION: 2.0b

TVD PASS

14150 STI10

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK





REMARKS

MAIN PASS
1:240 SCALE

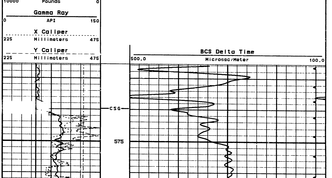
TRUE VERTICAL DEPTH LOG

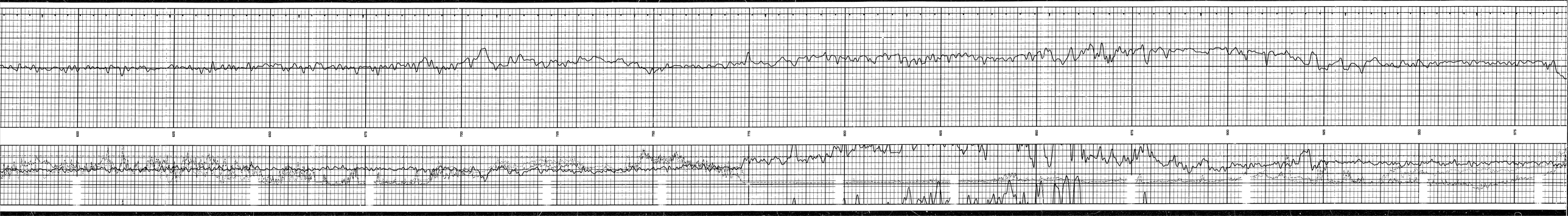
VERSION: 2.0b

TVD PASS

14150 STI10

FINISH: DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

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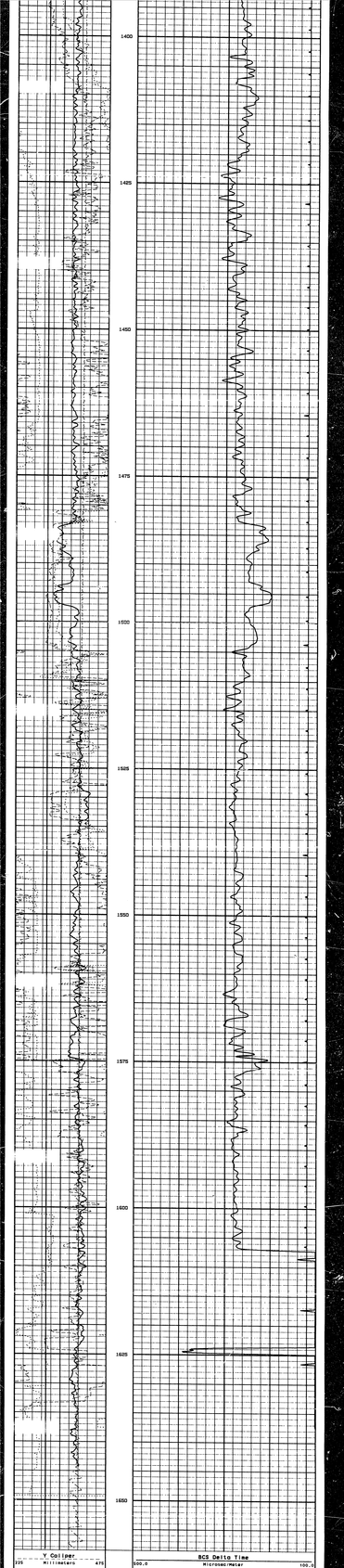


START DEPTH: 1500.4 Meters DIRECTION: UP DATE: 12/23/88 TIME:08:32 MODE: TRACE PLAYBACK

14150 STIIO

TVD PASS

VERSION: 2.00

11/18/88 13:25 0.0 M Ver 2.00-2.00 JOB SHOP

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9140

	Measured Smallest	Measured Largest	Units	Calibrated Smallest	Calibrated Largest	Units
CAL2	3617.3	6125.5	mv	177.8	355.6	mm

12/22/88 03:06 0.0 M Ver 2.00-2.00 JOB 14150

Gamma Ray Before Survey Calibration

Tool Type: GGG-JA Serial No: 134

Calibrator No: 085

Background	Calibrator	Standard	Units
196.5	692.2	140.0	API

Delta Counts Per Sec: 495.7 CPS/API = 3.541

TVD CALCULATION SUMMARY

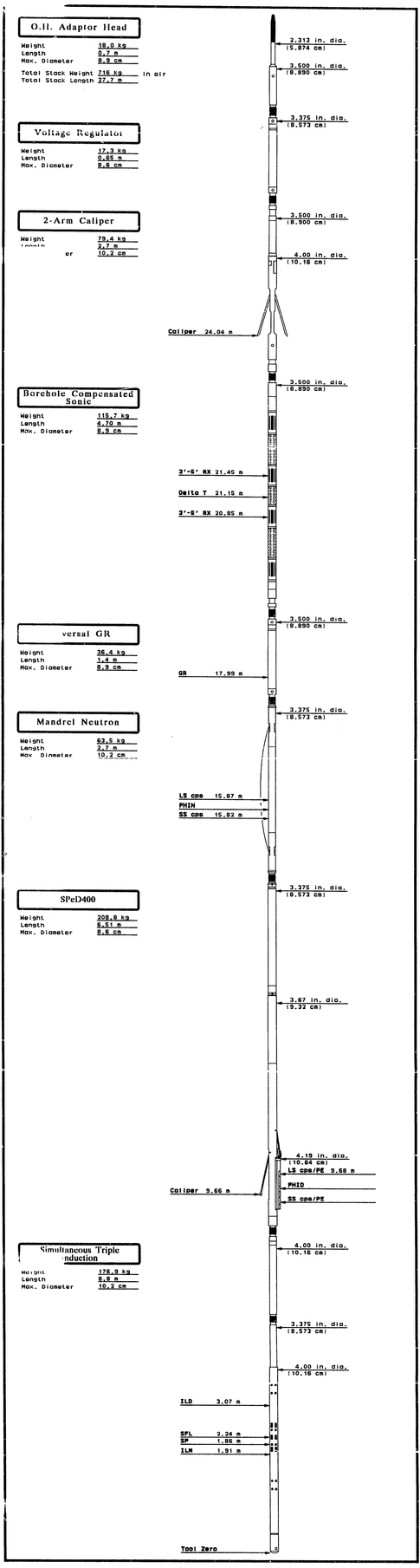
CALCULATION METHOD : Minimum Curvature VERSION : 1.0
TVD DATA FILE : SURVEY

COMPANY : CANADIAN FOREST OIL LTD.
WELL : CON FOREST ET AL FLETT RAPIDS
LOCATION : 60 DEGREES 00 MIN N 122°-36 DEGREES 00 MIN W
DATE : DECEMBER 23, 1988

DRILLED DEPTH : 3073.60 m
VERTICAL SECTION : 2041.08 m
RELATIVE COORDINATES : N 1322.20 m W 34.73 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	0.00	0.00	0.00	0.00	0.00	0.00
1	21.30	0.00	0.00	21.30	0.00	0.00
2	569.60	0.00	0.00	569.60	0.00	0.00
3	588.00	0.75	355.00	588.00	0.12	-0.01
4	599.00	0.50	7.00	599.00	0.24	-0.01
5	618.00	0.25	2.00	618.00	0.36	0.00
6	667.00	0.25	39.00	667.00	0.55	0.07
7	714.00	1.00	32.00	713.99	0.98	0.35
8	724.00	1.00	322.00	723.99	1.12	0.35
9	743.00	1.00	17.00	742.99	1.41	0.29
10	764.00	1.25	347.00	763.99	1.81	0.29
	783.00	1.25	339.00	782.98	2.20	0.16
	792.00	1.25	7.00	791.98	2.39	0.13
13	802.00	1.25	352.00	801.98	2.60	0.13
14	821.00	1.50	337.00	820.97	3.04	0.00
15	839.00	1.50	7.00	838.97	3.49	-0.06
16	866.00	1.25	4.00	865.96	4.13	0.00
17	893.00	1.00	0.00	892.95	4.66	0.02
18	940.00	1.00	37.00	939.95	5.40	0.27
19	992.00	1.00	339.00	991.94	6.19	0.38
20	1049.00	3.00	17.00	1048.90	8.08	0.64
21	1067.00	3.25	15.00	1066.88	9.02	0.91
22	1087.00	3.13	21.00	1086.85	10.08	1.25
23	1102.00	3.25	29.00	1101.82	10.83	1.60
24	1126.00	3.00	37.00	1125.79	11.93	2.31
25	1146.00	2.75	39.00	1145.76	12.72	2.93
26	1175.00	2.10	35.00	1174.74	13.69	3.67
27	1211.00	1.60	49.00	1210.72	14.57	4.43
28	1233.00	1.50	59.00	1232.71	14.91	4.91
29	1281.00	1.50	132.00	1280.70	14.82	5.91
30	1287.80	1.50	131.80	1287.47	13.20	/.40
31	1380.90	1.30	122.60	1380.56	13.11	7.86
32	1390.70	1.00	119.10	1390.36	13.00	8.03
33	1400.30	0.90	120.50	1399.96	12.93	8.16
34	1409.90	0.80	103.80	1409.56	12.87	8.28
35	1419.70	1.20	48.20	1419.36	12.92	8.44
36	1429.50	2.10	18.00	1429.15	13.16	8.57
37	1439.10	3.50	3.90	1438.74	13.62	8.64
38	1448.80	5.10	357.90	1448.42	14.35	8.65
39	1458.40	6.60	355.30	1457.97	15.33	8.59
40	1468.10	7.80	354.50	1467.59	16.54	8.48
41	1477.80	8.70	354.30	1477.29	17.94	8.34
42	1487.70	9.60	354.00	1486.96	19.49	8.18
43	1497.40	10.40	353.10	1496.51	21.16	7.99
44	1507.00	11.30	351.00	1505.94	22.95	7.74
45	1516.80	12.00	350.80	1515.54	24.90	7.43
46	1526.60	12.80	350.50	1525.12	26.95	7.09
	1536.20	13.10	350.80	1534.48	29.05	6.74
	1546.00	13.40	351.20	1544.02	31.27	6.38
49	1555.60	14.20	350.30	1553.34	33.53	6.02
50	1568.40	15.30	349.70	1565.72	36.74	5.46
51	1578.20	16.20	349.30	1575.18	39.26	4.97
52	1587.90	17.00	349.20	1584.45	42.08	4.46
53	1597.50	17.60	349.60	1593.61	44.88	3.93
54	1607.20	18.10	349.70	1602.85	47.80	3.37
55	1616.90	18.50	348.90	1612.06	50.79	2.78

56	1626.60	19.00	348.50	1621.24	53.85	2.17
57	1636.40	19.50	348.70	1630.49	57.02	1.53
58	1646.00	20.00	349.10	1639.53	60.20	0.91
59	1655.60	20.60	349.30	1648.53	63.47	0.28
60	1665.20	21.20	349.40	1657.50	66.84	-0.35
61	1674.80	21.20	349.80	1666.45	70.25	-0.98
62	1684.50	21.10	350.30	1675.50	73.70	-1.58
63	1694.20	21.00	350.40	1684.55	77.13	-2.17
64	1703.80	21.10	349.80	1693.51	80.53	-2.76
65	1713.00	21.30	349.10	1702.09	83.80	-3.37
66	1722.80	21.40	348.70	1711.21	87.30	-4.06
67	1732.50	21.30	348.90	1720.25	90.77	-4.74
68	1751.90	21.10	348.10	1738.33	97.64	-6.14
69	1761.60	21.00	347.70	1747.39	101.05	-6.87
70	1771.30	20.90	348.10	1756.45	104.44	-7.60
	1780.90	20.70	348.50	1765.42	107.78	-8.29
72	1790.60	20.50	348.20	1774.50	111.12	-8.98
73	1800.10	20.40	347.80	1783.40	114.37	-9.67
74	1809.90	20.20	347.20	1792.59	117.69	-10.40
75	1819.60	20.30	347.40	1801.69	120.96	-11.14
76	1829.30	20.20	346.90	1810.79	124.23	-11.89
77	1839.00	20.00	346.90	1819.90	127.48	-12.64
78	1848.70	19.90	348.00	1829.02	130.71	-13.36
79	1858.30	20.20	348.00	1838.04	133.93	-14.05
80	1868.30	20.40	348.70	1847.42	137.33	-14.75
81	1877.30	20.10	348.90	1855.86	140.38	-15.35
82	1887.10	20.00	347.70	1865.07	143.67	-16.03
83	1896.60	20.00	345.50	1874.00	146.83	-16.79
84	1906.30	19.80	344.50	1883.12	150.02	-17.64
85	1916.00	19.30	343.60	1892.24	153.16	-18.55
86	1925.70	19.80	342.80	1901.37	156.33	-19.49
87	1935.40	19.90	342.80	1910.49	159.47	-20.47
88	1945.20	19.80	342.50	1919.71	162.65	-21.46
89	1954.80	19.90	342.30	1928.74	165.76	-22.45
90	1964.50	19.90	341.70	1937.86	168.90	-23.47
91	1974.30	19.90	340.90	1947.08	172.06	-24.54
92	1983.90	19.90	340.60	1956.10	175.14	-25.61
93	1993.70	19.60	341.20	1965.33	178.27	-26.70
94	2003.50	19.30	341.20	1974.57	181.36	-27.75
95	2013.20	19.30	341.20	1983.72	184.40	-28.78
96	2022.90	18.90	341.10	1992.89	187.40	-29.81
97	2032.50	18.50	341.40	2001.98	190.31	-30.80
98	2042.20	18.30	341.20	2011.18	193.21	-31.78
99	2051.30	18.10	341.40	2019.83	195.91	-32.69
100	2055.60	18.00	341.90	2023.92	197.17	-33.11
101	2073.60	17.20	343.50	2041.08	202.37	-34.73



COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

COMPUTALOG

BOREHOLE COMPENSATED SONIC

....MEASURED DEPTH....

FOLD

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

Run No.	ONE
Date	DECEMBER 22, 1998
Depth Driller	2400.0 m
Depth Logger	2398.8 m
Bottom Log Int.	2395.8 m
Top Log Int.	1885.0 m
Casing Driller	1885.0 m @
Casing Logger	1885.0 m
Bit Size	311.0 mm
Type Fluid in Hole	LIGNOSULPHONATE
Dens.	1.20 g/cm3
Visc.	75 s
pH	9.0
Fluid Loss	5.0 cc
Source of Sample	FLOWLINE
Rm @ Meas. Temp.	0.25 @ 21.0 °C
Rmf @ Meas. Temp.	0.20 @ 21.0 °C
Rmc @ Meas. Temp.	0.90 @ 21.0 °C
Rm @ BHT	0.25 @ 71.0 °C
Rmf @ BHT	0.20 @ 71.0 °C
Rmc @ BHT	0.90 @ 71.0 °C
Max. Rec. Temp.	71.0 °C
Equipment	5400-1
Location	EDMONTON
Recorded By	E. BELCHAK
Witnessed By	L. THOMSON

Run No.	TWO
Date	JANUARY 22, 1999
Depth Driller	2374.0 m
Depth Logger	2368.2 m
Bottom Log Int.	2365.2 m
Top Log Int.	1885.0 m
Casing Driller	1885.0 m @
Casing Logger	1885.0 m
Bit Size	311.0 mm
Type Fluid in Hole	LIGNOSULPHONATE
Dens.	1.20 g/cm3
Visc.	75 s
pH	9.0
Fluid Loss	5.0 cc
Source of Sample	FLOWLINE
Rm @ Meas. Temp.	0.25 @ 21.0 °C
Rmf @ Meas. Temp.	0.20 @ 21.0 °C
Rmc @ Meas. Temp.	0.90 @ 21.0 °C
Rm @ BHT	0.25 @ 71.0 °C
Rmf @ BHT	0.20 @ 71.0 °C
Rmc @ BHT	0.90 @ 71.0 °C
Max. Rec. Temp.	71.0 °C
Equipment	5400-1
Location	EDMONTON
Recorded By	K. SCOTT
Witnessed By	L. THOMSON

PROV... FIEL... WELL ... RAPIDS ... FOREST ET AL FLETT ... -61

COMPANY ... FOREST OIL LTD.

LOCATION: SURFACE: N 60°-40' W 123°-26'

Perm. Datum: GROUND LEVEL Elev. 255.0 m

Log measured from K.B. 2.5 m above Permanent Datum

Elev.: K.B. 257.5 m; G.L. 255.0 m; D.F. ----- m

Other Services: BHC/GR/CNL/DAC/DIFL/MAC

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REMARKS — Rig: NABORS # 24 E — Service Order # 20366

Drilling Stopped 17:00/01st Circulation Stopped 09:30/02nd Tool on Bottom 18:00/02nd BHT 100 °C

SPED/CNS/GR/DAC/BCT RAN IN COMBINATION

UNIT 1, SECTION 61, GRID AREA 60-50-123-15

SURFACE LOCATION: 60°-40' N 123°-26'

MAXIMUM DEVIATION OF 21.4° @ 1722.8 m

Prints: 2

CHANGES IN MUD TYPE OR NEW SAMPLE		
Date	Sample No.	
Depth - Driller		
Type Fluid in Hole		
Dens.	Visc.	
Rm	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
TWO	BCT-LA	13117	CENTRALIZED
TWO	CAL-CC	9330	
TWO	UGR-JA	103	RA-205-569

REMARKS

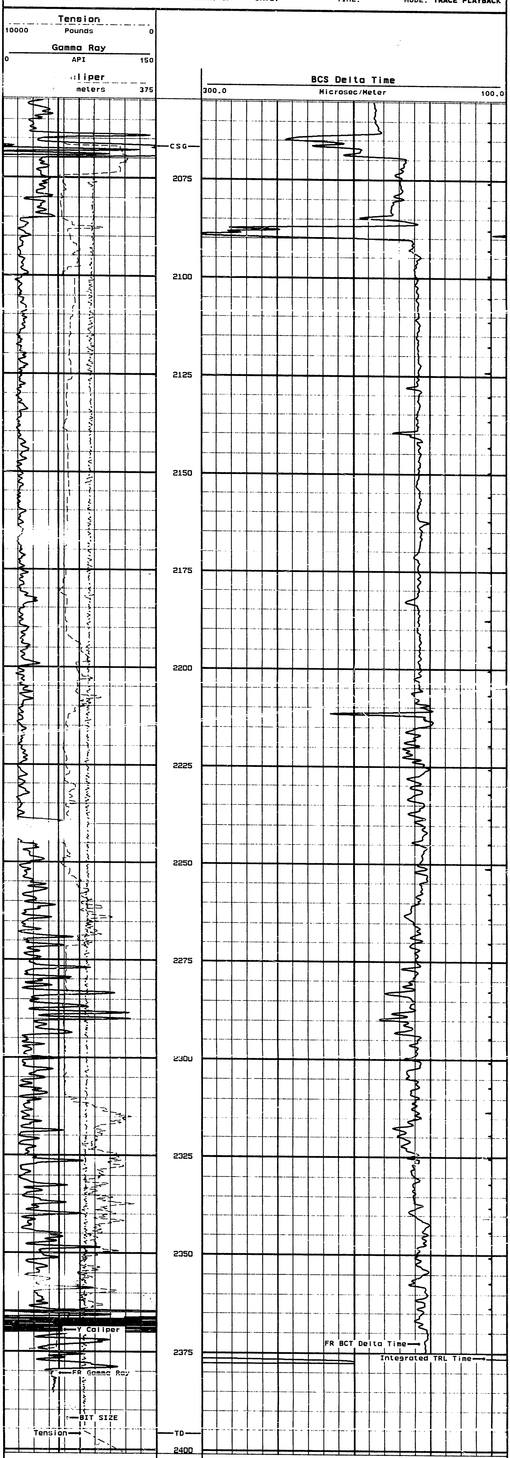
MAIN PASS
1:600 SCALE

VERSION: 2.0b

MAIN PASS

20366 BCS02

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK



START DEPTH: 2400.6 Meters DIRECTION: UP DATE: 01/02/99 TIME: 23:55 MODE: TRACE PLAYBACK

20366 BCS02

MAIN PASS

VERSION: 2.0b

REMARKS

MAIN PASS
1:240 SCALE

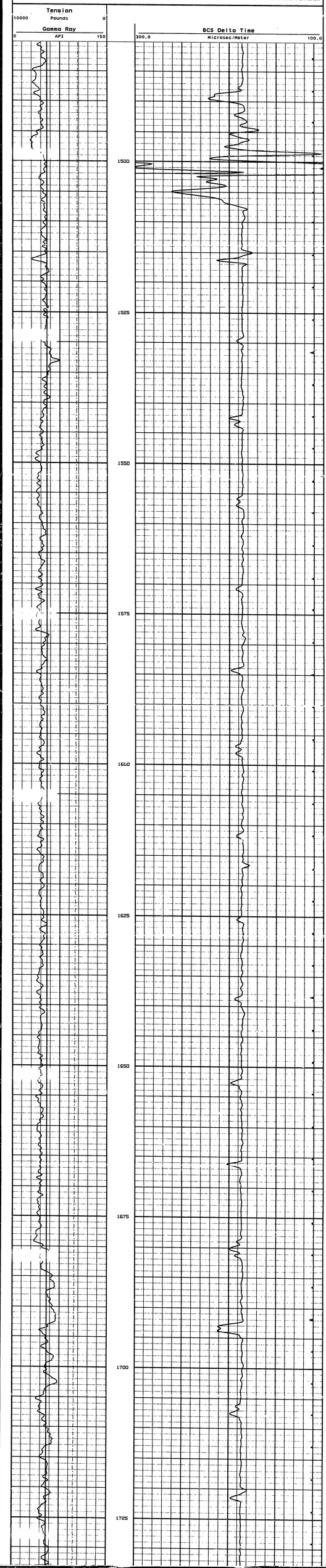
VERSION: 2.0b

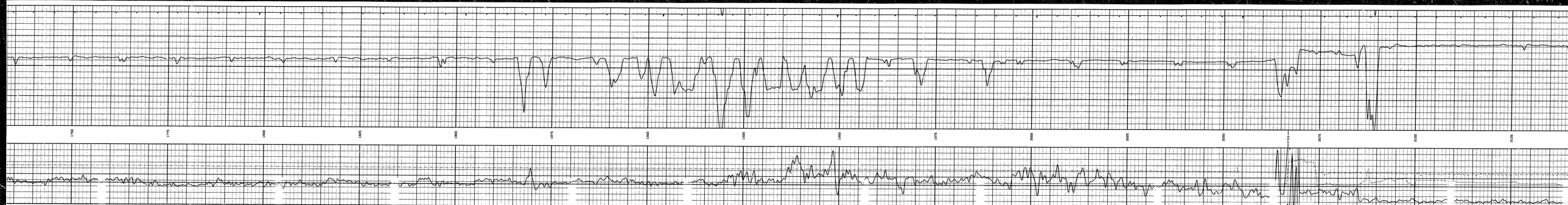
MAIN PASS

20366 BCS02

20366 BCS02

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK




1750
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1925
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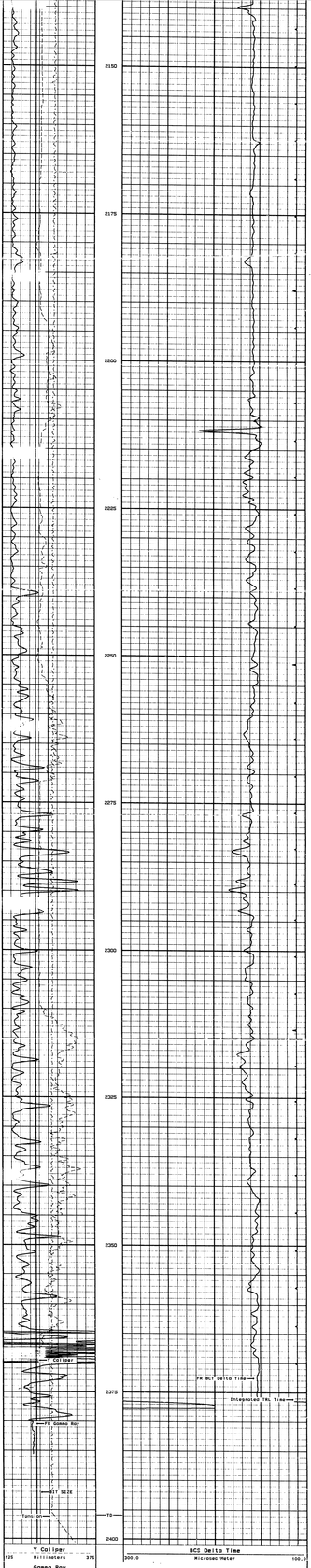
1975
2000
2025
2050
2075
2100
2125



START DEPTH: 2400.6 Meters DIRECTION: UP DATE: 01/02/99 TIME:23:55 MODE: TRACE PLAYBACK

Z0366 BCS02

MAIN PASS

VERSION: 2.0b

REMARKS

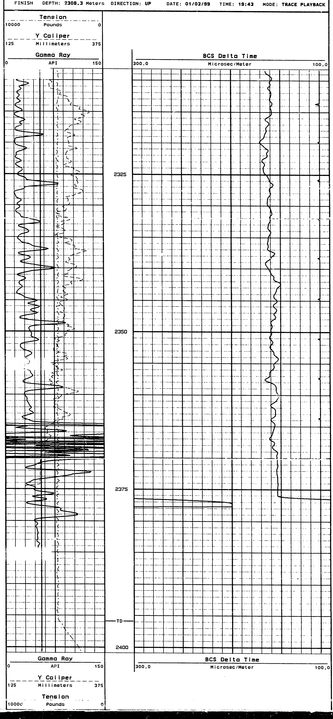
REPEAT PASS
1:240 SCALE

VERSION: 2.0b

MERGED PASS

Z0366 BCS01

FINISH DEPTH: 2308.3 Meters DIRECTION: UP DATE: 01/02/99 TIME: 19:43 MODE: TRACE PLAYBACK



START DEPTH: 2400.0 Meters DIRECTION: UP DATE: 01/02/99 TIME: 19:42 MODE: TRACE PLAYBACK

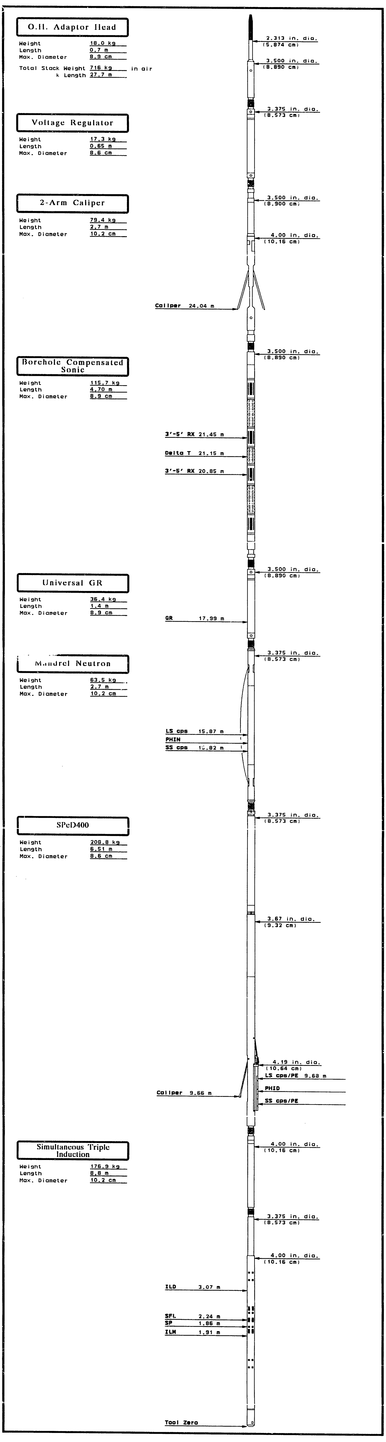
20366 BCS01

MERGED PASS

VERSION: 2.0b

11/25/98	15:58	0.0 M	Ver 2.0b-2.0b	JOB SHOP		
Caliper Before Survey Calibration						
Tool Type: CAL-CC				Serial No:9330		
	Measured			Calibrated		
	Small	Large	Units	Small	Large	Units
CAL2	4497.7	6875.6	mv	177.8	355.6	mm

01/02/99	11:32	0.0 M	Ver 2.0b-2.0b	JOB 20366	
Gamma Ray Before Survey Calibration					
Tool Type: UGR-24				Serial No: 103	
Calibrator No: RA-225-589					
Background		Calibrator	Standard	Units	
181.7		719.2	140.0	API	
Delta Counts Per Sec: 527.5			CPS/API = 3.768		



COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS PROVINCE N. W. T.

COMPUTALOG

BEST
COPY
ON FILE

N.E.B. COPY 9211-CDN-61 1 of 1

COMPUTALOG CS400

BOREHOLE COMPENSATED SONIC "TRUE VERTICAL DEPTH"

PROVINCE & FIELD	NORTH WEST TERRITORIES FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION
SURFACE: 3 DB'-0.0" N 123'-26'

Perm. Datum GRDF-0 LEVEL. Elev.205.0 m
Log measured from K.B. 7.5 m above Permanent Datum.

Other Services: BHC/GR/CAL DIL/SP/GR/CAL

ELEV.K.B.205.0 m
G.L.203.0 m
CBF ------

Date	DECEMBER 27, 1998	JANUARY 2, 1999
Run No.	ONE	TWO
First Reading	**FALL DEPTH ABS**	2335.4 m
Last Reading	**TRUE VERTICAL**	2036.0 m
Meters Meas.		301.4 m
Depth Reached		2358.4 m
Bot. Driller		2358.4 m
Dep. Logger		2036.0 m
Dep. Driller		2036.0 m
Fluid Type		POLYMER
Dens. x Visc.		1140 60
Fluid Loss		10.0
Fluid Water Loss		7.8
Mud Res.	@ °C	0.32 @ 17 °C @
Mud Res. @ BHT	@ °C	0.19 @ 100 °C @
R	@ °C	0.35 @ 18 °C @
Rmf	@ °C	0.30 @ 18 °C @
Rmf @ BHT		0.09 @ 100 °C @
Bit Size	311.0 mm	216.0 mm
Spacing		0.61 m
Logging Unit/Time		3.5 Hrs.
Unit No.	303	
Location	GRANDE PR.	EDMONTON
Recorded By	F. GRUBB	OPERATORS:
Witnessed By		M. SCOTSONS M. SCOTT
		B. BELLMAN L. ROULSTON

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REMARKS

RIG: NABORS # 24-E

Service Order # 20366
Drilling Stopped 12:00 MST. Circulation Stopped 08:30/12/28 Tool on Bottom 18:30/12/28 Bit 100.-%
Drilling Time Recorded Every 1 Metre
Surface Location N.W.T. Fort Simpson
Angle Deviation 2° At 1.4 Kms.

Bit Record			
Bit No.	1		
Size	311.0 mm		
Make	Hughes		
Type	Tricone		
Type Fluid In			
Jets			
Depth In	301.4 m		
Depth Out	2358.4 m		
Footage	2057.0 m		
Hours	144.0		
Dull Char.			
Bearings			
Gauge			
Reason Pull	TD		

Equipment Data		
Type	Serial No.	Size
Sonic	11117	
Sonic	1109	
Sonic	1023	
Sonic		
Sonic		
Sonic		

Other Equipment: CENTRALIZED
Mx-205-589

Mud Type	Viscosity	Density
Gel-Lime	60	1140
Gel-Lime	60	1140
Gel-Lime	60	1140
Gel-Lime	60	1140
Gel-Lime	60	1140
Gel-Lime	60	1140

Mud Type: Gel-Lime
Viscosity: 60
Density: 1140

Time Log

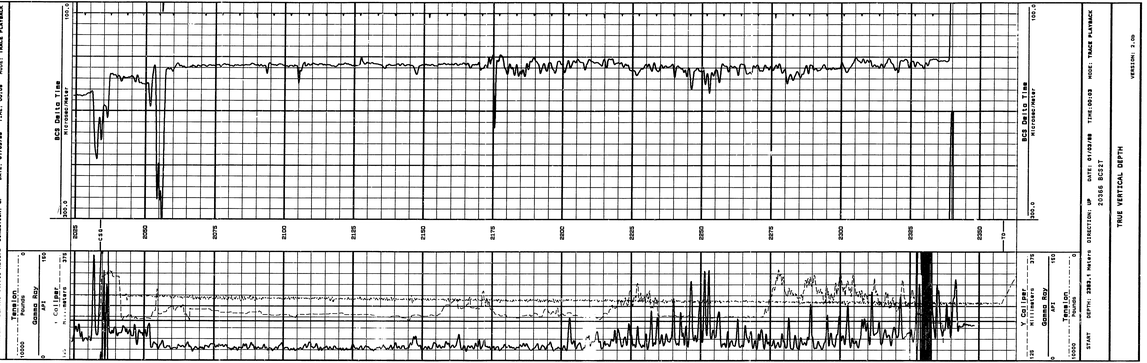
SCALE CHANGES
TIME CHANGES

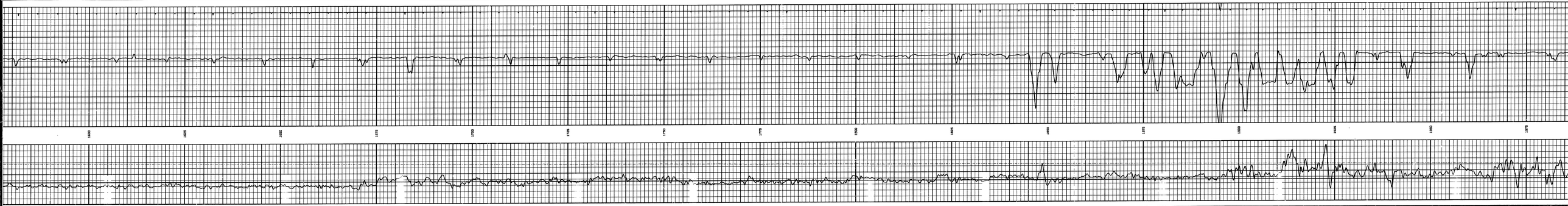
Run No. | Date | Hours
1 | 12/28 | 144.0
2 | 12/30 | 1.0
3 | 12/30 | 1.0

Bit Record: 1 | 1 | 1 | 1 | 1 | 1

Scale 1 Meter = 50 m
Scale 1 Second = 1 Sec
Time Fluid In
Jets
Depth In 301.4 m
Depth Out 2358.4 m
Footage 2057.0 m
Hours 144.0 Hrs.
Dull Char.
Bearings
Gauge
Reason Pull TD

Scale 1 Meter = 50 m
Scale 1 Second = 1 Sec




1650
1675
1700
1725
1750
1775
1800
1825
1850
1875
1900
1925
1950
1975

START DEPTH: 2383.1 Meters DIRECTION: UP DATE: 01/03/88 TIME:00:03 MODE: TRACE PLAYBACK

20366 BCS2T

TRUE VERTICAL DEPTH

VERSION: 2.0b

REMARKS

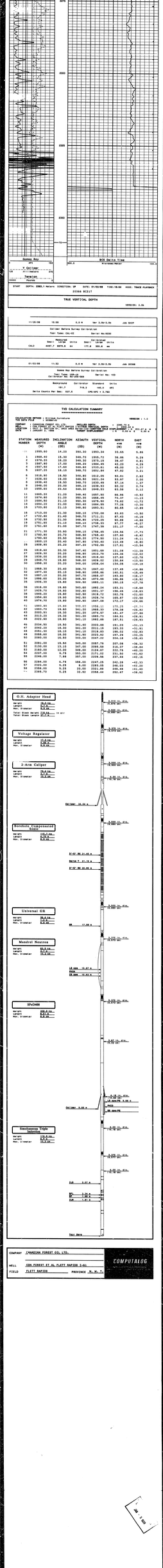
TRUE VERTICAL DEPTH
REPEAT PASS
1:240 SCALE

VERSION: 2.0b

TRUE VERTICAL DEPTH

20366 BCS17

FINISH: DEPTH: 2897.4 Meters DIRECTION: UP DATE: 01/02/98 TIME: 18:56 MODE: TRACE PLAYBACK



FINISH: DEPTH: 2896.1 Meters DIRECTION: UP DATE: 01/02/98 TIME: 18:54 MODE: TRACE PLAYBACK

20366 BCS17

TRUE VERTICAL DEPTH

VERSION: 2.3b

11/28/98	15:58	2.0 M	Ver 2.3b-2.3b	JOB SHOP

Caliper Before Survey Calibration

Pad Type: CAL-02 Serial No:9300

	Measured Depth	Value	Calibrated Depth	Value
CALS	Small: 1470.8	Units	Small: 1470.8	Units
	Large: 2870.8	20	Large: 2870.8	20.0

01/02/98	11:32	2.0 M	Ver 2.3b-2.3b	JOB 20366

Gamma Ray Before Survey Calibration

Calibrator Type: GR-06 Serial No: 165

	Background	Calibrator	Standard	Units
	18.7	116.2	146.0	API

Delta Counts Per Sec: 597.8 CPS/API = 0.746

TVD CALCULATION SUMMARY

****

CALCULATION METHOD : Minimum Curvature
TIE DATA FILE : 1-SURVEY.TIE

VERSION : 7.0

COMPANY : CANADIAN FOREST OIL LTD.
WELL : CON FOREST ET AL FLETT RAP32B
FIELD : FLETT RAP32B
DATE : 1998-06-4
TIE DATA : 1 SURVEY(S) FROM 1.00 TO 2897.00 METERS
CALCULATED : 1998-06-4 AT 15:47:48 BY: JOHN HAMILTON
SURVEY : 1 SURVEY(S) FROM 1.00 TO 2897.00 METERS
SECTION : 0.00 METERS AT 0.00 DEGREES

STATION NUMBER	MEASURED DEPTH (M)	INCLINATION ANGLE (DD)	AZIMUTH (DD)	VERTICAL DEPTH (M)	NORTH +ve (M)	EAST +ve (M)
--	1555.60	14.20	350.30	1553.34	33.65	5.86
1	1568.40	15.00	349.70	1565.72	36.95	5.29
2	1579.20	16.20	349.30	1575.15	39.67	4.81
3	1597.20	17.00	348.80	1590.82	44.20	4.09
4	1597.30	17.00	348.80	1590.91	44.23	4.07
5	1607.20	18.10	348.70	1600.84	47.02	3.77
6	1616.80	18.50	348.90	1610.26	50.01	3.43
7	1626.60	19.00	348.90	1621.24	53.47	2.00
8	1636.40	19.50	348.70	1630.80	57.14	1.37
9	1646.00	20.00	348.10	1639.93	60.32	0.74
10	1655.80	20.50	348.10	1649.24	63.58	0.12
11	1665.60	21.00	348.40	1657.50	66.96	-0.52
12	1674.80	21.50	348.60	1666.30	70.42	-1.12
13	1684.50	21.10	350.30	1675.61	73.62	-1.72
14	1694.20	21.00	352.40	1684.95	77.26	-2.30
15	1703.80	21.20	349.60	1694.21	80.85	-2.89
16	1713.00	21.30	349.10	1702.98	83.93	-3.50
17	1722.60	21.30	348.10	1712.21	87.09	-4.18
18	1732.30	21.30	348.10	1721.51	90.28	-4.88
19	1741.90	21.10	348.10	1730.73	93.77	-5.27
20	1751.60	21.00	347.70	1740.08	101.17	-7.00
21	1771.30	20.80	348.10	1758.45	104.56	-7.73
22	1780.80	20.60	348.10	1767.34	107.93	-8.45
23	1790.60	20.50	348.20	1776.50	111.18	-9.11
24	1800.10	20.40	347.80	1785.40	114.48	-9.80
25	1809.80	20.20	347.20	1794.56	117.66	-10.54
26	1819.60	20.30	347.40	1803.69	121.06	-11.28
27	1829.20	20.40	347.60	1812.64	124.36	-12.00
28	1839.00	20.00	348.80	1821.84	127.62	-12.73
29	1848.70	19.90	348.00	1829.02	130.64	-13.50
30	1858.30	20.20	348.00	1838.02	133.66	-14.18
31	1868.00	20.40	348.70	1847.42	137.45	-14.88
32	1877.60	20.10	349.60	1856.56	140.91	-15.49
33	1887.30	20.00	347.70	1865.97	143.80	-16.17
34	1896.80	20.00	347.70	1875.07	146.87	-16.90
35	1906.50	19.90	349.50	1883.71	149.90	-17.79
36	1916.00	19.80	343.60	1892.54	153.31	-18.66
37	1925.70	19.80	342.80	1901.17	156.45	-19.63
38	1935.20	19.80	342.50	1919.72	162.76	-21.60
39	1944.80	19.80	341.50	1928.44	165.87	-22.63
40	1954.70	19.90	340.90	1937.10	172.17	-24.88
41	1962.80	19.90	340.60	1950.11	173.25	-27.71
42	1972.70	19.80	341.00	1965.50	174.69	-29.82
43	2000.80	19.90	341.20	1974.97	181.47	-37.66
44	2010.40	19.90	341.20	1983.91	184.57	-38.93
45	2020.40	19.90	341.10	1993.18	187.51	-40.93
46	2034.50	19.90	341.40	2003.88	191.05	-51.15
47	2042.20	19.30	341.00	2011.46	193.23	-51.61
48	2051.30	19.10	341.10	2019.83	195.02	-52.63
49	2060.80	18.90	341.20	2028.61	196.71	-53.61
50	2069.90	18.90	343.00	2037.02	204.18	-55.05
51	2081.00	19.50	343.00	2047.79	207.08	-56.32
52	2130.00	19.20	347.00	2095.56	218.37	-58.80
53	2160.00	12.00	349.00	2124.87	222.75	-60.20
54	2220.00	7.00	349.00	2185.21	228.00	-61.02
55	2244.00	7.00	357.00	2209.58	227.66	-62.16
56	2264.00	6.75	358.00	2247.05	240.00	-62.33
57	2272.00	6.25	358.00	2255.68	240.30	-62.20
58	2296.00	5.25	0.00	2281.59	240.50	-62.20
--	2305.70	5.25	32.92	2290.46	242.47	-59.52

COMPANY	CANADIAN FOREST OIL LTD.			COMPUTALOG
WELL	CON FOREST ET AL FLETT RAP32B 3-61			
FIELD	FLETT RAP32B	PROVINCE	N. W. T.	

10 x 100

NEB COPY 1851

COMPUTALOG

CS400

SPECTRAL Pe DENSITY COMPENSATED NEUTRON GAMMA RAY LOG

FOLD

COMPANY	CANADIAN FOREST OIL LTD.
WELL	***MEASURED DEPTH LOG*** CDN FOREST ET AL FLETT RAPIDS I-61
	92H-C/13-I-I
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

PROVINCE NORTH WEST TERRITORIES
FIELD FLETT RAPIDS
WELL CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY CANADIAN FOREST OIL LTD.
--MEASURED DEPTH LOG--

LOCATION
SURFACE: N 60°-40' W 123°-26'
Perm. Datum Ground Level Elev. 255.0
Log measured from K.B. 7.5 m above Permanent Datum.

Other Services: STI/SP BCS/GR/CAL
ELEV. K.B. 262.5
G.L. 255.0
CBF

Date	DECEMBER 22, 1998		
Run No.	ONE		
First Reading	1656.0		
Last Reading	569.8		
Meters Meas.	1086.2		
Depth Reached	1665.0		
Bot. Driller	2073.6		
Csg. Logger	569.8		
Csg. Driller	569.6	339.7mm@101.2kg/m	
Fluid Type	POLYMER		
Dens. & Visc.	1270 100		
Mud pH	10.4		
Mud Water Loss	7.7		
Mud Res.	0.24 @ 13 °C	@ °C	@ °C
Mud Res. @ BHT	0.08 @ 85 °C	@ °C	@ °C
Rmc	0.29 @ 16 °C	@ °C	@ °C
Rmf	0.20 @ 14 °C	@ °C	@ °C
Rmf @ BHT	0.05 °C	@ °C	@ °C
Bit Size	311mm		
Spacing	N/A		
Operating Time	7.5 hrs.		
Unit #	363		
Location	GRANDE PR[illegible]E		
Recorded By	J. GRUBB		
Witnessed By	B.L. BELL[illegible]		

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REMARKS Rig: NABORS #24E Service Order # 14150
Drilling Stopped 22:00/18. Circulation Stopped 19:15/21. Tool on Bottom 04:35/22. BHT 85 °C
UNABLE TO GET SET GOOD PAD CONTACT DUE TO MASHOUT. 1460-1400m
STI-SPED-CNT-GR-BCS-DAC LOGGED IN COMBINATION.
MAXIMUM TEMPERATURE RECORDED 85 C
MAXIMUM REACHABLE LOGGED 1.4m FROM BRIDGE.
SURFACE LOCATION: N 60-40' W 123°-26'-UNIT 1 SECTION 61-GRID AREA 60-50-123-15
CHANGES IN MUD TYPE OR NEW SAMPLE
Date Sample No. 12/22/98
Depth Sampl. Mr.
Type Fluid in Hole
Dens. Visc.
pH Water Loss
Source of Sample
Rm @ Meas. Temp.
Rmf @ Meas. Temp.
Rmc @ Meas. Temp.
Rm @ BHT
Rmf @ BHT
Rmc @ BHT

Type Log	Interval	Scale

SCALE CHANGES

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	SPED	153163	2229-GH
	CNT	126	71-26-228N
	GR	9140	9140-GR
	CAL	9140	Y-CALIPER

REMARKS

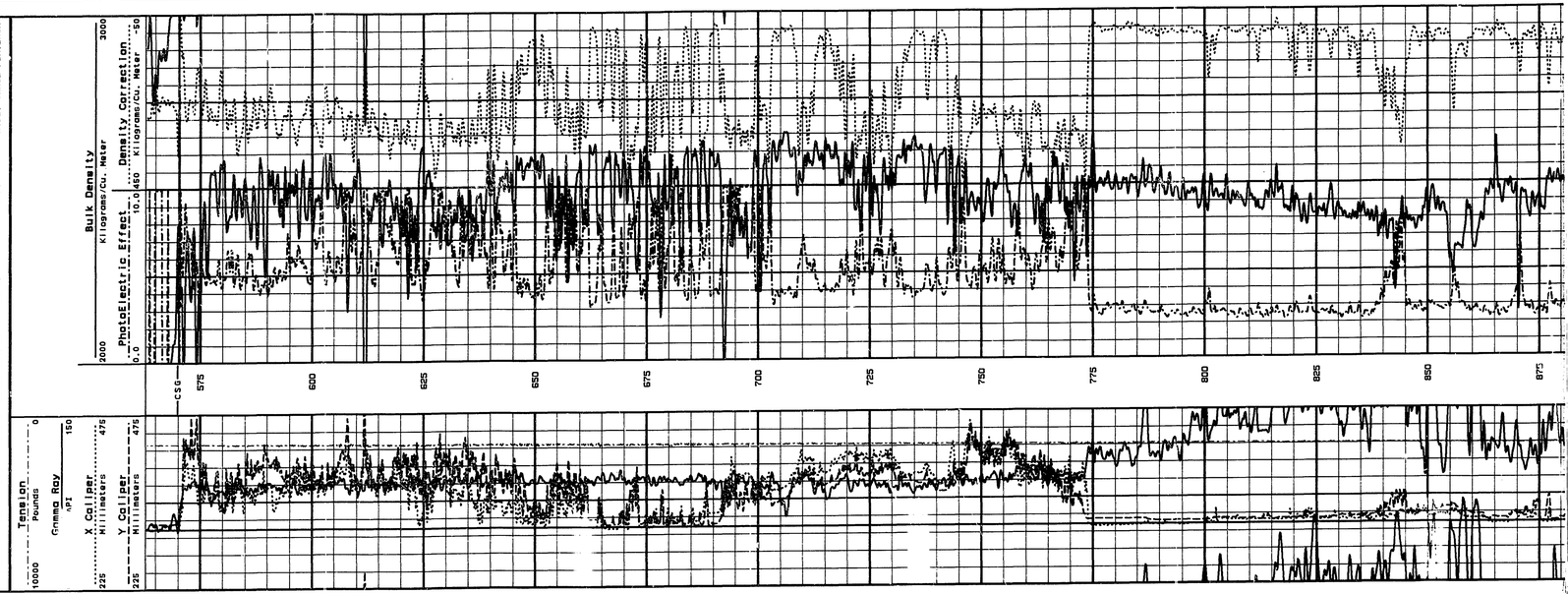
MAIN PASS
1:200 SCALE
BULK DENSITY

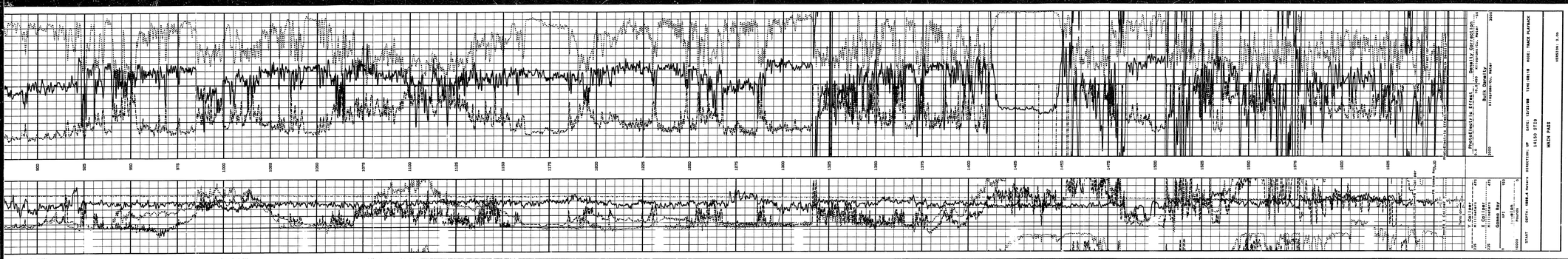
VERSION: 2.0D

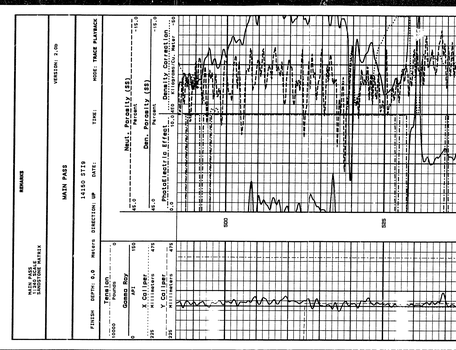
MAIN PASS

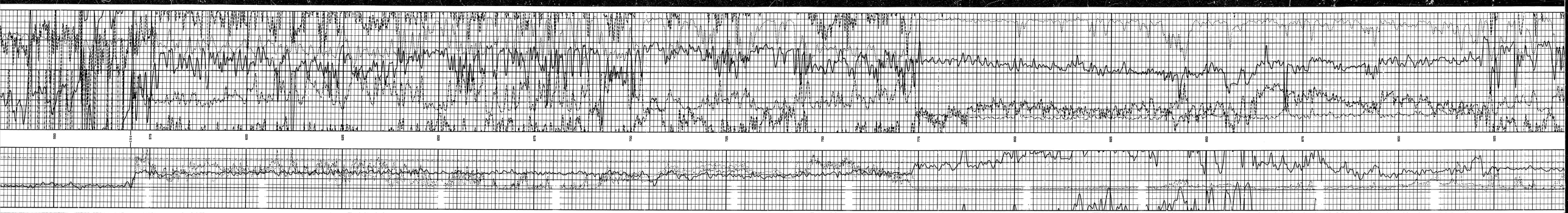
14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK




Bulk Density
Kilogrammes/m³
Porosity/Corrected
Porosity/Uncorrected
Density/Corrected
Density/Uncorrected
Gamma Ray
API
Units
Caliper
Millimetres
Caliper
Millimetres
MAIN PASS
14150 STD
START DEPTH: 9884.4 Metres DIRECTION: UP DATE: 17/12/96 TIME:08:18 MODE: TRACE PLAYBACK
MAIN PASS
VERSION: 2.00


REMARKS
MAIN PASS
VERSION: 2.00
FINISH DEPTH: 9.0 Metres DIRECTION: UP DATE: 14150 STD TIME: MODE: TRACE PLAYBACK
Meas. Porosity (%)
Corr. Porosity (%)
Density/Corrected
Density/Uncorrected
Gamma Ray
Caliper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625
650
675
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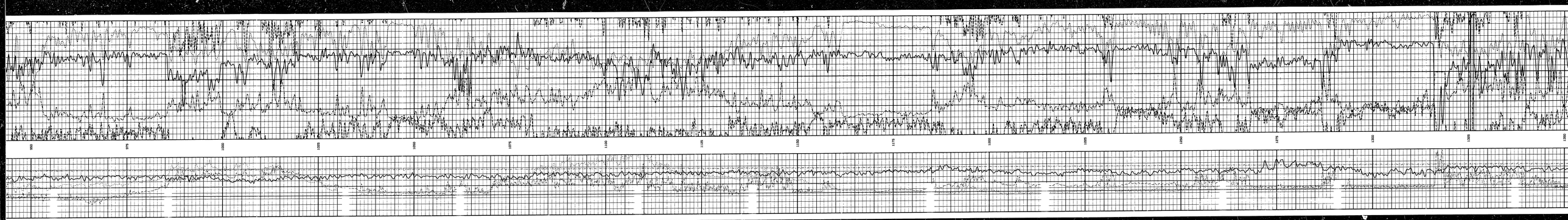
850
875
900
925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975
1000
1025
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1150
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1200
1225
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1275
1300
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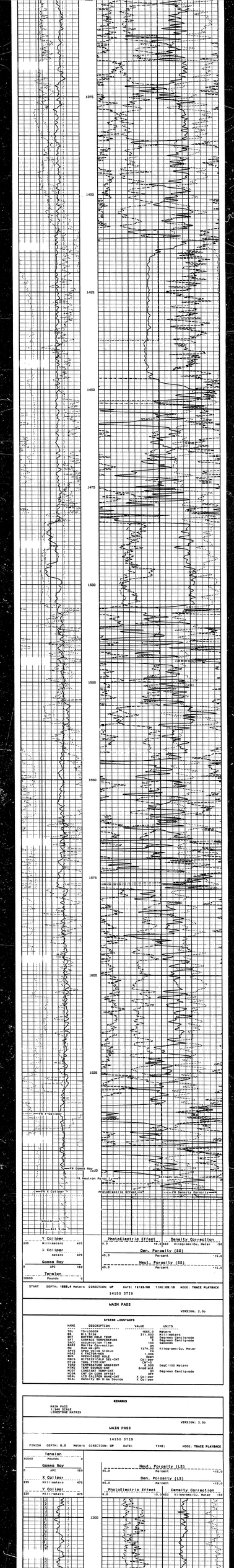
1350
1375
1400



START DEPTH: 1550.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:09:18 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 2.0b

SYSTEM CONSTANTS

NAME	DESCRIPTION	VALUE	UNITS
TDL	TD-LOGGER	1695.0	Meters
BS	BIT SIZE	311.000	Millimeters
BHT	BOTTOM HOLE TEMP	95	Degrees Centigrade
SFT	SURFACE TEMPERATURE	20	Degrees Centigrade
AQT	Acquisition Time	100	Seconds
SWC	Sidewall Correction	0.00	
DM	Mud Weight	1270.00	Kilograms/Cu. Meter
DRIF	Hole Deviation	1.00	
BHS	OPEN/CASED HOLE	Open	
MSCL	MAIN SCALE/SELL-CNT	Caliper	
TEMP	TEMP. TYPE	Celsius	
TGRD	TEMPERATURE GRADIENT	0.000	
MRT	MAX. RECORD TEMP	Degrees C	DegC/100 Meters
MCST	CONTRACT TEMP-CNT	95	Degrees Centigrade
NCOR	CNT CH CORE OFFSET	OFF	
NCAL	CNT CH CALIBRATION	X Caliper	
SCAL	Density SP Plot Source	X Caliper	

REMARKS

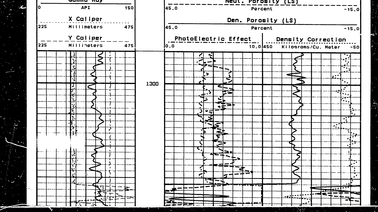
MAIN PASS
1:240 SCALE
LIMESTONE MATRIX

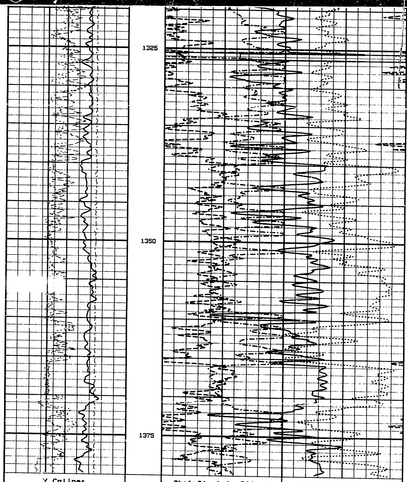
MAIN PASS

VERSION: 2.0b

14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK





START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:08:18 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 2.0b

REMARKS

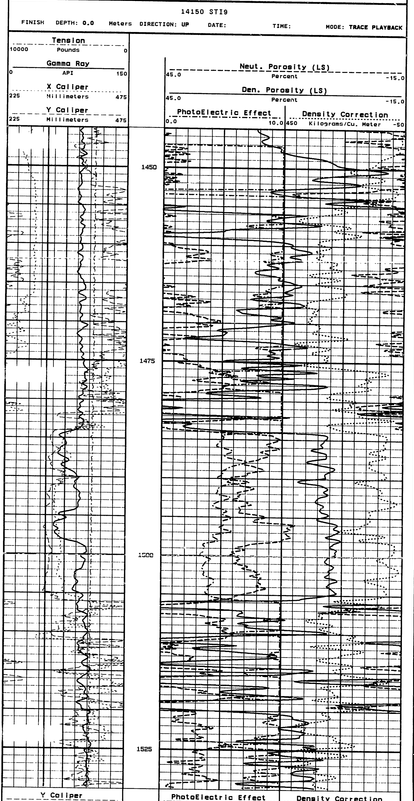
MAIN PASS
1:240 SCALE
LIMESTONE MATRIX

VERSION: 2.0b

MAIN PASS

14150 STI9

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK



START DEPTH: 1888.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:09:18 MODE: TRACE PLAYBACK

14150 STI9

MAIN PASS

VERSION: 2.0b

11/16/98 13:25 0.0 M Ver 2.0b-2.0b Job SHOP

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9140

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CAL2	3517.3	6129.5	mv	177.8	355.6	mm

12/22/98 02:06 0.0 M Ver 2.0b-2.0b Job 14150

Gamma Ray Before Survey Calibration

Tool Type: UGR-JA Serial No: 124
Calibrator No: 085

Background	Calibrator	Standard	Units
158.5	692.2	140.0	API

Delta Counts Per Sec: 495.7 CPS/API = 3.541

11/26/98 20:16 0.0 M Ver 2.0b-2.0b Job SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: NSV-193 Source No: RA-20S-085

	Low Porosity	Med Porosity	High Porosity	Units
Tank Ratio:	0.713	1.457	2.256	SS/LS
Tank Porosity:	-0.76	10.25	25.73	LM-PU
LS Detector:	711.6	148.5	74.5	CPS
SS Detector:	486.3	242.7	168.3	CPS
Tool Ratio:	0.686	1.450	2.287	SS/LS
Tool Porosity:	-0.30	10.26	25.41	LM-PU

Tool Constant: 1.005
Surface Temperature: 21 DegC

SS Detector	LS Detector	Ratio	Porosity
295.4 CPS	189.0 CPS	1.563	12.23

12/22/98 02:04 0.0 M Ver 2.0b-2.0b Job 14150

Compensated Neutron Before Survey Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: NSV-193 Source No: RA-20S-085

	Verifier Check	Units
LS Detector:	190.2	CPS
SS Detector:	289.9	CPS
Tool Ratio:	1.524	SS/LS
Tool Porosity:	11.55	LM-PU

Tool Constant: 1.005

12/22/98 08:51 0.0 M Ver 2.0b-2.0b Job 14150

Compensated Neutron After Survey Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: NSV-193 Source No: RA-20S-085

	Verifier Check Before	Verifier Check After	Units
LS Detector:	190.2	191.2	CPS
SS Detector:	289.9	293.2	CPS
Tool Ratio:	1.524	1.533	SS/LS
Tool Porosity:	11.55	11.71	LM-PU

Tool Constant: 1.005

12/09/98 14:45 0.0 M Ver 2.0b-2.0b Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB Serial No: 153
Firmware Ver: 4.00 Source No: 2228-GH

	Blk	Al	Al+Pe	Mg	Units
Cs Pk	109.69	109.87	110.19	110.04	Ch
Gain	0.166	0.166	0.166	0.166	Ch/kev
Mg Pk	11.57				

Tnp Pk	11.57				
Grf	0.160				
Rem	10.36	10.04	9.46	9.75	%
LLPE	74	1623	1162	1393	cps
LUPE	53	1220	892	7293	cps
LSUC	563	1135	1067	6411	cps
LCMP	1125	4480	4104	35543	cps
Cs Pk	109.83	110.02	109.70	110.13	Ch
Gain	0.168	0.168	0.165	0.168	Ch/Kev
Tnp Pk	11.83				
Grf	0.201				
Rem	9.33	9.43	9.77	8.99	%
LLPE	181	3904	3101	2993	cps
LUPE	97	2106	1694	2992	cps
SSUC	518	5007	4809	6745	cps
SCMP	1092	12093	11322	17319	cps
Acc	100	100	100	100	Secs

Density Calibration

	Fresh	Barite
Spine Angle =	79.33	80.24
Spine Length =	198.54	193.80

Pe Calibration

	Fresh
LS Slope =	0.9758
LS Intercept =	0.4000
SS Slope =	3.3479
SS Intercept =	0.4252

12/22/98 02:04 0.0 M Ver 2.00-2.00 Job 14150

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB Serial No: 153

Firmware Ver: 4.00 Source No: 2228-GK

	Shop	Before	Units
Cs Pk	109.69	110.01	Ch
Gain	0.165	0.166	Ch/Kev
Tnp Pk	11.57	11.44	Ch
Grf	0.150	-0.013	Ch
Rem	10.36	9.39	%
LLPE	74	102	cps
LUPE	53	102	cps
LSUC	563	566	cps
LCMP	1125	1132	cps
Cs Pk	109.83	110.02	Ch
Gain	0.168	0.167	Ch/Kev
Tnp Pk	11.83	11.24	Ch
Grf	0.201	0.212	Ch
Rem	9.33	9.16	%
LLPE	181	103	cps
LUPE	97	103	cps
SSUC	518	522	cps
SCMP	1092	1080	cps
Acc	100	100	Secs

12/22/98 08:50 0.0 M Ver 2.00-2.00 Job 14150

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB Serial No: 153

Firmware Ver: 4.00 Source No: 2228-GK

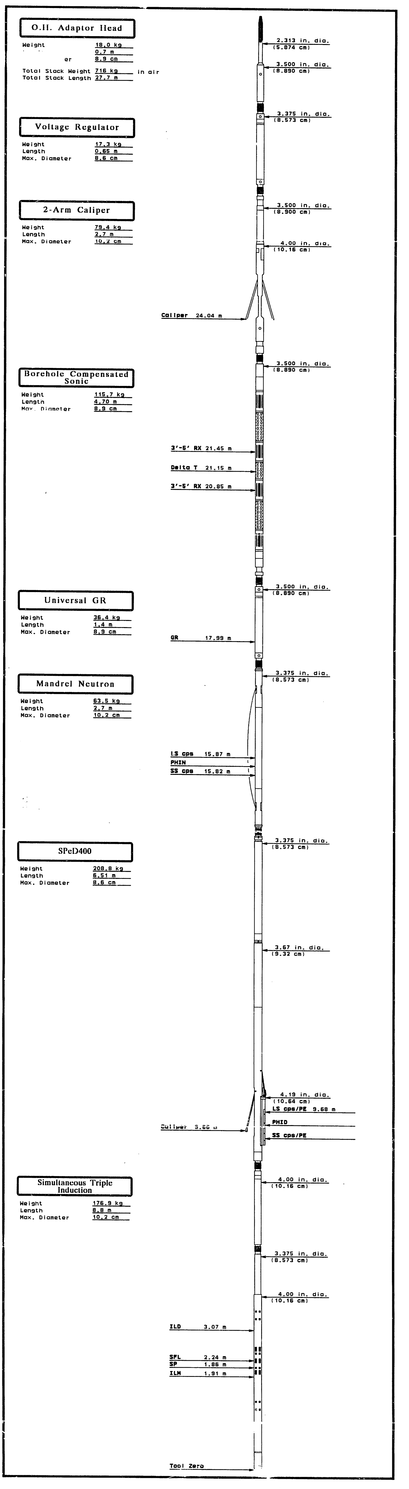
	Shop	Before	After	Units
Cs Pk	109.69	110.01	109.91	Ch
Gain	0.165	0.166	0.166	Ch/Kev
Tnp Pk	11.57	11.44	11.43	Ch
Grf	0.150	-0.013	0.111	Ch
Rem	10.36	9.39	9.61	%
LLPE	74	102	100	cps
LUPE	53	102	100	cps
LSUC	563	566	563	cps
LCMP	1125	1132	1130	cps
Cs Pk	109.83	110.02	110.01	Ch
Gain	0.168	0.167	0.168	Ch/Kev
Tnp Pk	11.83	11.24	11.41	Ch
Grf	0.201	0.212	0.241	Ch
Rem	9.33	9.16	8.55	%
LLPE	181	103	101	cps
LUPE	97	103	101	cps
SSUC	518	522	520	cps
SCMP	1092	1080	1083	cps
Acc	100	100	100	Secs

12/09/98 14:51 0.0 M Ver 2.00-2.00 Job SHOP

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:153

	Measured			Calibrated		
	Small	Large	Units	Small	Large	Units
CALX	1561.0	2971.5	mv	177.8	355.6	mm



COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

N.E.B. COPY 1851

COMPUTALOG CS400

SPECTRAL Pe DENSITY COMPENSATED NEUTRON GAMMA RAY LOG

COMPANY	CANADIAN FOREST OIL LTD.
	TRUE VERTICAL DEPTH
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
	9211-C131-1-1
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION: SURFACE: N 60°-40' W 123°-26'

Other Services: STI/SP, BCS/GR/CAL

Perm. Datum Ground Level Elev. 255.0 — ELEV.K.B. 262.5, G.L. 255.0, CBF

Log measured from K.B., 7.5 m above Permanent Datum.

Date	DECEMBER 22, 1998	
Run No.	ONE	TVD MEASUREMENTS
First Reading	1656.0	1648.1
Last Reading	569.8	569.8
Meters Meas.	1086.2	1078.3
Depth Reached	1665.0	
Bot. Driller	2073.6	
Csg. Logger	569.8	
Csg. Driller	569.6	339.7mm@101.2kg/m
Fluid Type	POLYMER	
Dens. & Visc.	1270 / 100	
Mud pH	10.4	
Mud Water Loss	7.7	
Mud Res.	0.24 @ 13 °C	@ °C
Mud Res. @ BHT	0.08 @ 85 °C	@ °C
Rmc	0.29 @ 16 °C	@ °C
Rmf	0.20 @ 14 °C	@ °C
Rmf @ BHT	0.05 °C	@ °C
Bit Size	311mm	
Spacing	N/A	
Operating Time	7.5 hrs.	
Unit #	363	
Location	GRANDE PR	
Recorded By	J. GRUBB	
Witnessed By	B.L. BELL	

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: NABORS #24E — Service Order # 14150

Drilling Stopped 22:00/18 Circulation Stopped 19:15/21 Tool on Bottom 04:35/22 BHT 85 °C

UNABLE TO GET GOOD PAD CONTACT 1450-1400m

STI-SPED-CNT-GR-BCS-DAC LOGGED IN COMBINATION. Prints: 2

MAXIMUM DEVIATION OF 21.4°

TD NOT REACHED, LOGGE FROM BRIDGE

SURFACE LOCATION: N 60°-40' W 123°-15'; UNIT I, SECTION 61, GRID AREA 60-50-123-15

CHANGES IN MUD TYPE OR NEW SAMPLE: Date 12/22/98

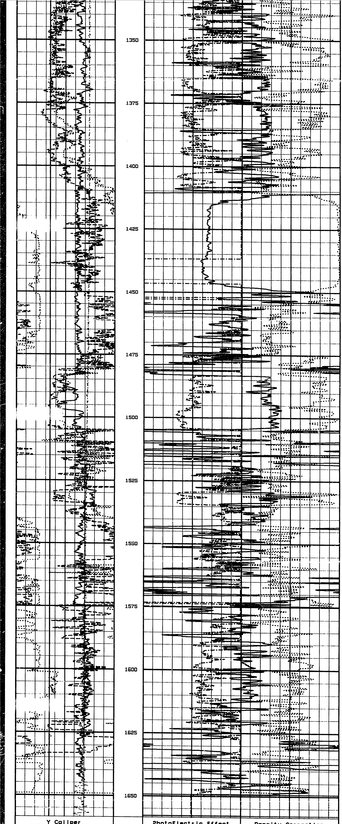
Run No.	Tool Type	Tool No.	Other
ONE	SPED	153153	2228-GW
	CNT	126	71-2A-228N
	UGR	124	RA-20S-085
	CAL	9140	Y-CALIPER

REMARKS

MAIN PASS 1:600 SCALE BULK DENSITY

TRUE VERTICAL DEPTH LOG

TVD PASS



TIME: 1858.4 Meters DIRECTION: UP DATE: 13/23/88 TIME:09:33 MODE: TRACE PLAYBACK

14150 STIIO

TVD PASS

VERSION: 2.00

REMARKS

MAIN PASS
SANDSTONE
SANDSTONE MATRIX

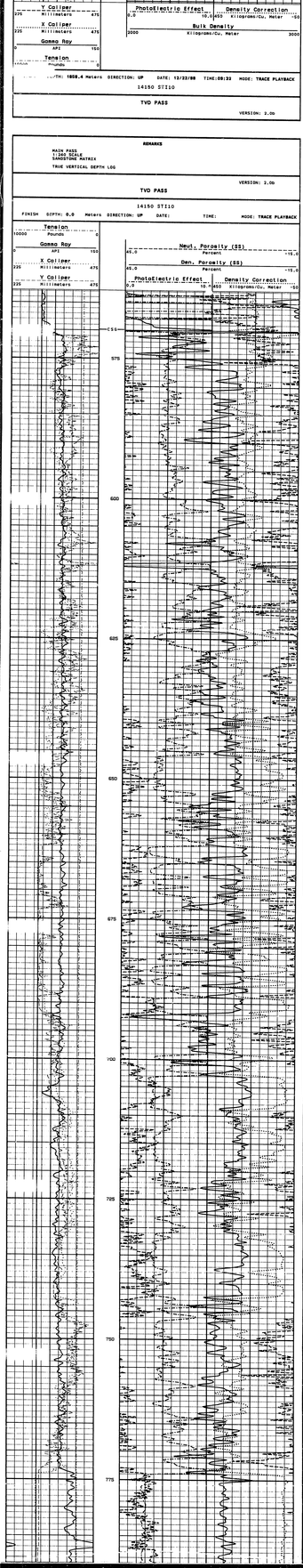
TRUE VERTICAL DEPTH LOG

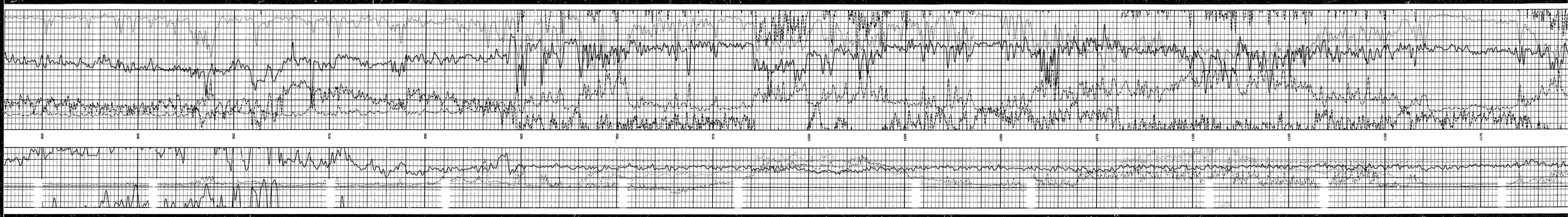
VERSION: 2.00

TVD PASS

14150 STIIO

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

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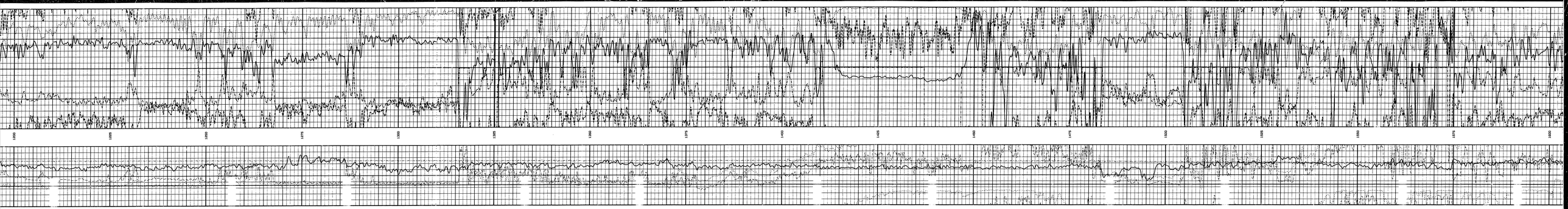
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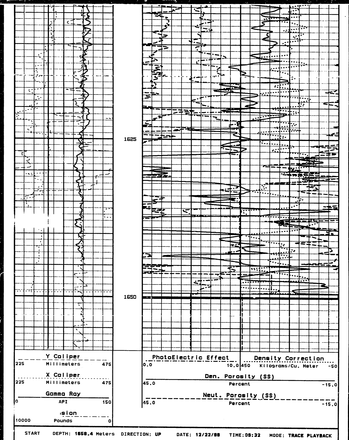
2300



START DEPTH: 1658.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:09:33 MODE: TRACE PLAYBACK

14150 STI10

TVD PASS

VERSION: 2.0b

REMARKS

MAIN PASS
1:240 SCALE
LIMESTONE MATRIX

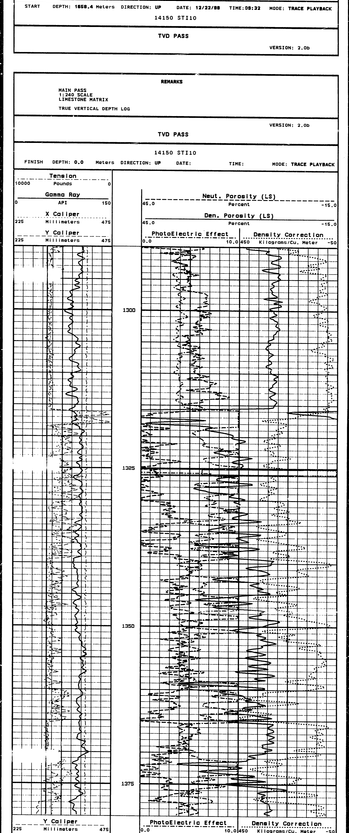
TRUE VERTICAL DEPTH LOG

VERSION: 2.0b

TVD PASS

14150 STI10

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK



START DEPTH: 1658.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:09:33 MODE: TRACE PLAYBACK

14150 STI10

TVD PASS

VERSION: 2.0b

REMARKS

MAIN PASS
1:240 SCALE
LIMESTONE MATRIX

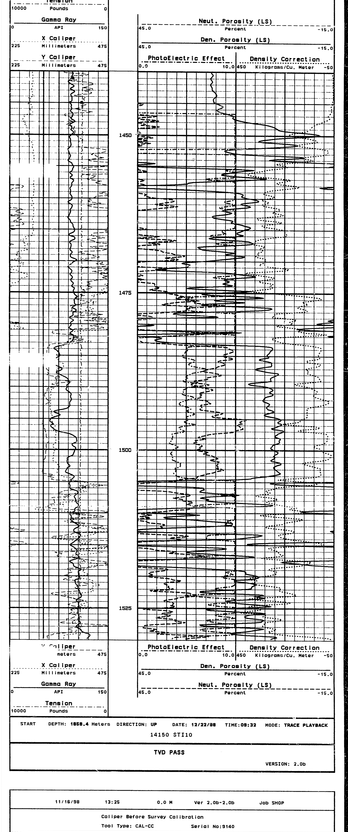
TRUE VERTICAL DEPTH LOG

VERSION: 2.0b

TVD PASS

14150 STI10

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK



START DEPTH: 1658.4 Meters DIRECTION: UP DATE: 12/22/98 TIME:09:33 MODE: TRACE PLAYBACK

14150 STI10

TVD PASS

VERSION: 2.0b

11/18/98 13:25 0.0 M Ver 2.0b-2.0b JOB SHOP

Caliper Before Survey Calibration

Tool Type: CAL-CC Serial No:9140

	Measured Small	Measured Large	Measured Units	Calibrated Small	Calibrated Large	Calibrated Units
CAL2	3617.3	6139.5	mv	177.8	355.6	mm

12/22/98 02:06 0.0 M Ver 2.0b-2.0b JOB 14150

Gamma Ray Before Survey Calibration

Tool Type: USR-JA Serial No: 124
Calibrator No: 085

Background	Calibrator	Standard	Units
196.5	892.2	140.0	API

Delta Counts Per Sec: 495.7 CPS/API = 3.541

11/26/98 20:16 0.0 M Ver 2.0b-2.0b JOB SHOP

Compensated Neutron Shop Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: HSV-153 Source No: SA-205-086

	Low Porosity	Med Porosity	High Porosity	Units
Tank Ratio:	0.713	1.457	2.286	SS/LS
Tank Porosity:	-0.76	10.25	25.73	LM-PU
LS Detector:	711.6	169.5	74.5	CPS
SS Detector:	495.3	240.7	168.9	CPS
Tool Ratio:	0.686	1.450	2.267	SS/LS
Tool Porosity:	-0.80	10.25	25.41	LM-PU

Tool Constant: 1.005
Surface Temperature: 21 DegC

SS Detector	LS Detector	Ratio	Porosity
295.4 CPS	189.0 CPS	1.563	12.23

12/22/98	02:04	0.0 M	Ver 2.0b-2.0b	Job 14150

Compensated Neutron Before Survey Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: WSV-193 Source No: RA-20S-085

	Verifier Check	Units
LS Detector:	190.2	CPS
SS Detector:	289.9	CPS
Tool Ratio:	1.524	SS/LS
Tool Porosity:	11.55	LM-PU

Tool Constant: 1.005

12/22/98	08:51	0.0 M	Ver 2.0b-2.0b	Job 14150

Compensated Neutron After Survey Calibration

Tool Type: CNT-S Serial No: 126
Verifier No: WSV-193 Source No: RA-20S-085

	Verifier Check Before	After	Units
LS Detector:	190.2	191.2	CPS
SS Detector:	289.9	293.2	CPS
Tool Ratio:	1.524	1.533	SS/LS
Tool Porosity:	11.55	11.71	LM-PU

Tool Constant: 1.005

12/09/98	14:45	0.0 M	Ver 2.0b-2.0b	Job SHOP

Spectral Pe Density Shop Calibration

Tool Type: SPS-AB Serial No: 153

Firmware Ver: 4.00 Source No: 2228-GW

	Bkg	Al	Al+Fe	Mg	Units
Cs Pk	109.69	109.87	110.19	110.04	Ch
Gain	0.165	0.166	0.166	0.166	Ch/Kev
Tng Pk	11.57				
Off	0.150				
Res	10.36	10.54	9.46	9.75	%
LLPE	174	1622	1114	10601	cps
LUPE	93	1220	992	7293	cps
LSUC	563	1135	1067	6411	cps
LCMP	1125	4460	4104	25543	cps
Cs Pk	109.83	110.02	109.70	110.13	Ch
Gain	0.166	0.166	0.165	0.166	Ch/Kev
Tng Pk	11.63				
Off	0.201				
Res	9.33	9.63	9.77	8.99	%
SLPE	181	2904	2101	4255	cps
SUPE	97	2106	1554	2992	cps
SSUC	518	5007	4809	6745	cps
SCMP	1092	12099	11922	17319	cps
Acc	100	100	100	100	Secs

Density Calibration

	Fresh	Barite
Spine Angle =	78.39	80.24
Spine Length =	196.54	193.80

Pe Calibration

	Fresh
LS Slope =	1.6758
LS Intercept =	-0.2458
SS Slope =	3.3479
SS Intercept =	-0.4399

12/22/98	02:04	0.0 M	Ver 2.0b-2.0b	Job 14150

Spectral Pe Density Before Survey Tool Check

Tool Type: SPS-AB Serial No: 153

Firmware Ver: 4.00 Source No: 2228-GW

	Shop	Before	Units
Cs Pk	109.69	110.01	Ch
Gain	0.165	0.166	Ch/Kev
Tng Pk	11.57	11.44	Ch
Off	0.150	-0.013	Ch
Res	10.36	9.39	%
LLPE	174	182	
LUPE	93	102	
LSUC	563	566	
LCMP	1125	1132	
Cs Pk	109.83	110.02	Ch
Gain	0.166	0.167	Ch/Kev
Tng Pk	11.63	11.24	Ch
Off	0.201	0.212	Ch
Res	9.33	9.16	%
SLPE	181	186	
SUPE	97	103	
SSUC	518	522	
SCMP	1092	1090	
Acc	100	100	Secs

12/22/98	08:50	0.0 M	Ver 2.0b-2.0b	Job 14150

Spectral Pe Density After Survey Tool Check

Tool Type: SPS-AB Serial No: 153

Firmware Ver: 4.00 Source No: 2228-GW

	Shop	Before	After	Units
Cs Pk	109.69	110.01	109.91	Ch
Gain	0.165	0.166	0.166	Ch/Kev
Tng Pk	11.57	11.44	11.43	Ch
Off	0.150	-0.013	0.111	Ch
Res	10.36	9.39	9.41	%
LLPE	174	182	180	cps
LUPE	93	102	100	cps
LSUC	563	566	563	cps
LCMP	1125	1132	1130	cps
Cs Pk	109.83	110.02	110.01	Ch
Gain	0.166	0.167	0.166	Ch/Kev
Tng Pk	11.63	11.24	11.41	Ch
Off	0.201	0.212	0.241	Ch
Res	9.33	9.16	8.55	%
SLPE	181	186	186	cps
SUPE	97	103	101	cps
SSUC	518	522	520	cps
SCMP	1092	1090	1093	cps
Acc	100	100	100	Secs

12/09/98	14:51	0.0 M	Ver 2.0b-2.0b	Job SHOP

Caliper Before Survey Calibration

Tool Type: SPD-AB Serial No:153

	Measured Small	Measured Large	Units	Calibrated Small	Calibrated Large	Units
CALX	1561.0	2971.5	mv	177.8	355.6	mm

TVD CALCULATION SUMMARY

CALCULATION METHOD : Minimum Curvature
TVD DATA FILE : SURVEY
VERSION : 1.0

COMPANY : CANADIAN FOREST OIL LTD.
WELL : CON FOREST ET AL FLETT RAPIDS I-61
LOCATION : SURFACE: N 60°-40' W 123°-26'
DATE : DECEMBER 22, 1998

TRUE VERTICAL DEPTH : 2041.08 m
DRILLED DEPTH : 2073.60 m
BOTTOM HOLE DISPLACEMENT : N 202.37 m W 34.73 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)
...	0.00	0.00	0.00	0.00	0.00	0.00
1	21.30	0.00	0.00	21.30	0.00	0.00
2	569.60	0.00	0.00	569.60	0.00	0.00
3	588.00	0.75	355.00	588.00	0.12	-0.01
4	599.00	0.50	7.00	599.00	0.24	-0.01
5	618.00	0.25	2.00	618.00	0.36	0.00
6	667.00	0.25	39.00	667.00	0.55	0.07
7	714.00	1.00	32.00	713.99	0.98	0.35
8	724.00	1.00	322.00	723.99	1.12	0.35
9	743.00	1.00	17.00	742.99	1.41	0.29
10	764.00	1.25	347.00	763.99	1.81	0.29
11	783.00	1.25	335.00	782.98	2.20	0.16
12	792.00	1.25	7.00	791.98	2.39	0.13
13	802.00	1.25	352.00	801.98	2.60	0.13
14	821.00	1.50	337.00	820.97	3.04	0.00
15	839.00	1.50	7.00	838.97	3.49	-0.06
16	866.00	1.25	4.00	865.96	4.13	0.00
17	893.00	1.00	0.00	892.95	4.66	0.02
18	940.00	1.00	37.00	939.95	5.40	0.27
19	992.00	1.00	339.00	991.94	6.19	0.38
20	1049.00	3.00	17.00	1048.90	8.08	0.64
21	1067.00	3.25	15.00	1066.88	9.02	0.91
22	1087.00	3.13	21.00	1086.85	10.08	1.25
23	1102.00	3.25	29.00	1101.82	10.83	1.60
24	1126.00	3.00	37.00	1125.79	11.93	2.31
25	1146.00	2.75	39.00	1145.76	12.72	2.93
26	1175.00	2.10	35.00	1174.74	13.69	3.67
27	1211.00	1.60	49.00	1210.72	14.57	4.43
28	1233.00	1.50	59.00	1232.71	14.91	4.91
29	1281.00	1.50	132.00	1280.70	14.82	5.91
30	1367.80	1.50	131.80	1367.47	13.30	7.60
31	1380.90	1.30	122.60	1380.56	13.11	7.86
32	1390.70	1.00	119.10	1390.36	13.00	8.03
33	1400.30	0.90	120.50	1399.96	12.93	8.16
34	1409.90	0.80	103.80	1409.56	12.87	8.29
	1419.70	1.20	48.20	1419.36	12.92	8.44
36	1429.50	2.10	18.00	1429.15	13.16	8.57
37	1439.10	3.50	3.90	1438.74	13.62	8.64
38	1448.80	5.10	357.90	1448.42	14.35	8.65
39	1458.40	6.60	355.30	1457.97	15.33	8.59
40	1468.10	7.80	354.50	1467.59	16.54	8.48
41	1477.90	8.70	354.30	1477.29	17.94	8.34
42	1487.70	9.60	354.00	1486.96	19.49	8.18
43	1497.40	10.40	353.10	1496.51	21.16	7.99
44	1507.00	11.30	351.00	1505.94	22.95	7.74
45	1516.80	12.00	350.80	1515.54	24.90	7.43
46	1526.60	12.50	350.50	1525.12	26.95	7.09
47	1536.20	13.10	350.80	1534.48	29.05	6.74
48	1546.00	13.40	351.20	1544.02	31.27	6.39
49	1555.60	14.20	350.30	1553.34	33.53	6.02
50	1568.40	15.30	349.70	1565.72	36.74	5.46
51	1578.20	16.20	349.30	1575.15	39.36	4.97
52	1587.90	17.00	349.20	1584.45	42.08	4.46
53	1597.50	17.60	349.60	1593.61	44.88	3.93
54	1607.20	18.10	348.70	1602.85	47.80	3.37
55	1616.90	18.50	348.90	1612.06	50.79	2.78
56	1626.60	19.00	348.50	1621.24	53.85	2.17
57	1636.40	19.50	348.70	1630.49	57.02	1.53
	1646.00	20.00	349.10	1639.53	60.20	0.91
	1655.60	20.60	349.30	1648.53	63.47	0.28
60	1665.20	21.20	349.40	1657.50	66.84	-0.35
61	1674.80	21.20	349.80	1666.45	70.25	-0.98
62	1684.50	21.10	350.30	1675.50	73.70	-1.58
63	1694.20	21.00	350.40	1684.55	77.13	-2.17
64	1703.80	21.10	349.80	1693.51	80.53	-2.76
65	1713.00	21.30	349.10	1702.09	83.80	-3.37
66	1722.80	21.40	348.70	1711.21	87.30	-4.06
67	1732.50	21.30	348.90	1720.25	90.77	-4.74
68	1751.90	21.10	348.10	1738.33	97.64	-6.14
69	1761.60	21.00	347.70	1747.39	101.05	-6.87
70	1771.30	20.90	348.10	1756.45	104.44	-7.60
71	1780.90	20.70	348.50	1765.42	107.78	-8.29
72	1790.60	20.50	348.20	1774.50	111.12	-8.98
73	1800.10	20.40	347.80	1783.40	114.37	-9.67
74	1809.90	20.20	347.20	1792.59	117.69	-10.40
75	1819.60	20.30	347.40	1801.69	120.96	-11.14
76	1829.30	20.20	346.90	1810.79	124.23	-11.89
77	1839.00	20.00	346.90	1819.90	127.48	-12.64
78	1848.70	19.90	348.00	1829.02	130.71	-13.36
79	1858.30	20.20	348.00	1838.04	133.93	-14.05
80	1868.30	20.40	348.70	1847.42	137.33	-14.75
81	1877.30	20.10	348.90	1855.86	140.38	-15.35
82	1887.10	20.00	347.70	1865.07	143.67	-16.03
83	1896.60	20.00	345.50	1874.00	146.83	-16.79
84	1906.30	19.80	344.50	1883.12	150.02	-17.64
85	1916.00	19.80	343.60	1892.24	153.18	-18.55
86	1925.70	19.80	342.80	1901.37	156.33	-19.49
87	1935.40	19.90	342.80	1910.49	159.47	-20.47
88	1945.20	19.80	342.50	1919.71	162.65	-21.46
89	1954.80	19.90	342.30	1928.74	165.76	-22.45
90	1964.50	19.90	341.70	1937.86	168.90	-23.47
91	1974.30	19.90	340.90	1947.08	172.06	-24.54
92	1983.90	19.90	340.60	1956.10	175.14	-25.61
93	1993.70	19.60	341.20	1965.33	178.27	-26.70
[illegible]	2003.50	19.30	341.20	1974.57	181.36	-27.75
	2013.20	19.30	341.20	1983.72	184.40	-28.78
96	2022.90	18.90	341.10	1992.89	187.40	-29.81
97	2032.50	18.50	341.40	2001.98	190.31	-30.80
98	2042.20	18.30	341.20	2011.18	193.21	-31.78
99	2051.30	18.10	341.40	2019.83	195.91	-32.69
100	2055.60	18.00	341.90	2023.92	197.17	-33.11
101	2073.60	17.20	343.50	2041.08	202.37	-34.73

O.H. Adaptor Head

Weight 18.0 kg
Length 0.7 m
Max. Diameter 8.9 cm

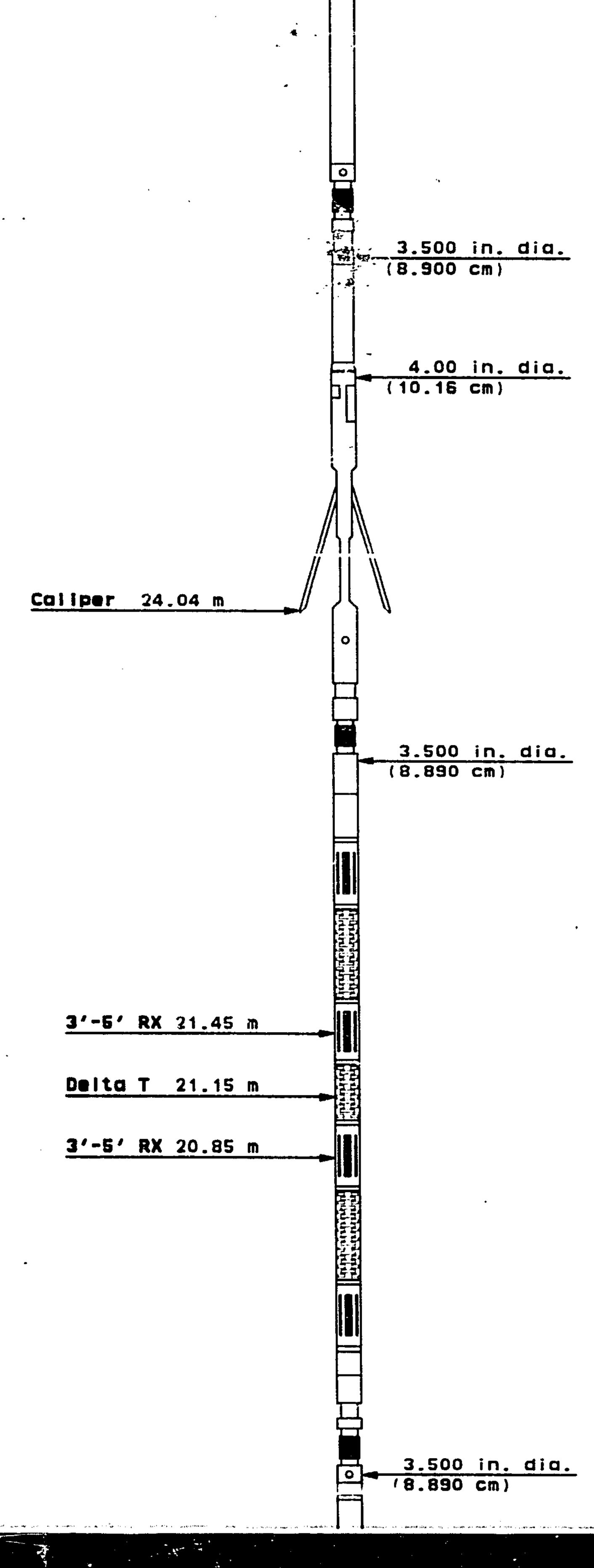
Total Stack Weight 716 kg in air
Total Stack Length 27.7 m

...age Regulator

Weight 17.3 kg
Length 0.65 m
Max. Diameter 8.6 cm

2-Arm Caliper

Weight 79.4 kg
Length 2.7 m
Max. Diameter 10.2 cm



Borehole Compensated Sonic

Weight 115.7 kg
Length 4.70 m
Max. Diameter 8.9 cm

Universal GR

Weight	36.4 kg
Length	1.4 m
Max. Diameter	8.9 cm

Mandrel Neutron

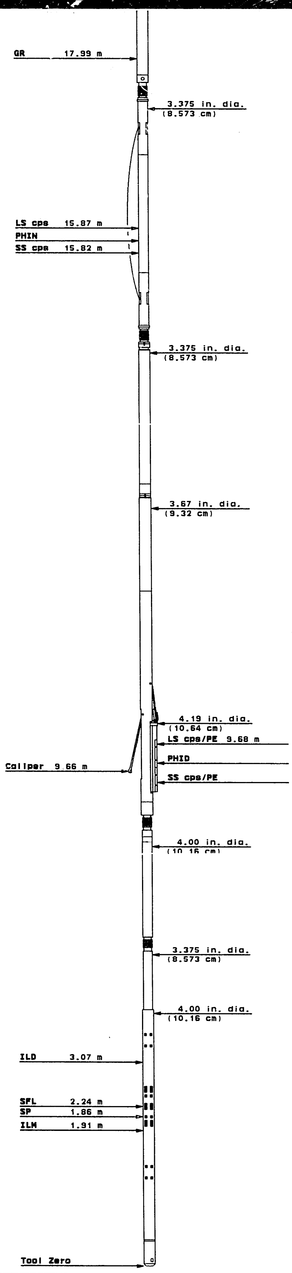
Weight	63.5 kg
	2.7 m
er	10.2 cm

SPeD400

Weight	208.8 kg
Length	6.51 m
Max. Diameter	8.6 cm

Simultaneous Triple Induction

Weight	176.9 kg
Length	8.8 m
Max. Diameter	10.2 cm



COMPANY	CANADIAN FOREST OIL LTD.		
WELL	CDN FOREST ET AL FLETT RAPIDS I-61		
FIELD	FLETT RAPIDS	PROVINCE	N.W.T.

COMPUTALOG

9311-C/31-1-1 1351

COMPUTALOG

.CS400

SPECTRAL Pe DENSITY COMPENSATED NEUTRON
******MEASURED DEPTH******

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDH FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDH FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

LOCATION
SURFACE: N 60°-40' W 123°-26'

Other Services: DLL/MSFL BCS/GR BCT/GR/

Perm. Datum GROUND LEVEL Elev. 255.0 m
Log measured from K.B. 7.5 m above Permanent Datum.

ELEV.K.B.262.5 m
G.L. 255.0 m
CBF =======

Date	DECEMBER 22, 1998	JANUARY 2, 1999	ADDITIONAL CNT/GR
Run No.	ONE	TWO	
First Reading		2386.7 m	2066.[illegible]
Last Reading		2066.7 m	1550.[illegible]
Meters Meas.		319.5 m	516.7 m
Depth Reached	1665.0 m	2395.7 m	
Driller	2073.6 m	2395.7 m	
Csg. Logger	569.8 m	2066.7 m	
Csg. Driller	569.6 m	2067.7 m	244. [illegible] 54.73kg/m
Fluid Type		POLYMER	
Dens. & Visc.		1140 60	
Mud pH		10.0	
Mud Water Loss		8	
Mud Res.	@ °C	0.32 @ 17 °C	@ °C
Mud Res. @ BHT	@ °C	0.10 @ 150 °C	@ °C
Rmc	@ °C	0.3 @ °C	
Rmf	@ °C	0.3 @ °C	
Rmf @ BHT	@ °C	0.08 @ °C	
Bit Size	311.0 mm	216.0 m	
Sensing		N/A	
Operating Time		4.5 hrs.	
Unit #	263	359	
Location	GRANDE PRA	EDMONTON	OPERATOR [illegible]
Recorded By	J. GRUBB	C. SCUTCHINGS	K. SCOTT
Witnessed By		B. BELLMAN	L. ROULSTON

FOLD

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 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS

Bits: NADDIS # 24 E
Drilling Stopped 17:00 /DLL Circulation Stopped 05:20 /BCS
Hole Condition: Good
SURFACE LOCATION: N 60°-40' W 123°-26'
Logging Speed: 30 m/min Time Constant: 1 sec
CASING SHOE WAS REPAIRED BY PLACING A PLUG AND HOLE RUGOSITY CHANGES IN MUD TYPE OR NEW SAMPLE

Service Order # 20366
Tool on Bottom 18:30/BCS
Prints: 2
SCALE CHANGES
Interval:

	Run 1	Run 2	Run 3
Type Log			
Depth - Driller			
Depth - Logger			
Bottom Log Interval			
Top Log Interval			
Drill Collar Size			
Max. Rec. Temp.			
Equipment Location			
Recorded by			
Witnessed by			

Run No.	TWO		
Tool Type	SPECTRAL DENSITY COMPENSATED NEUTRON		
Tool No.	1501	1501	1501
Pad	168	168	168
Type	CALIPER	CALIPER	CALIPER
Serial No.	3330	3330	3330

EQUIPMENT DATA

Other

223E-DM
TM-3A-227N
BHC OFFSET TO X-CALIPER

REMARKS

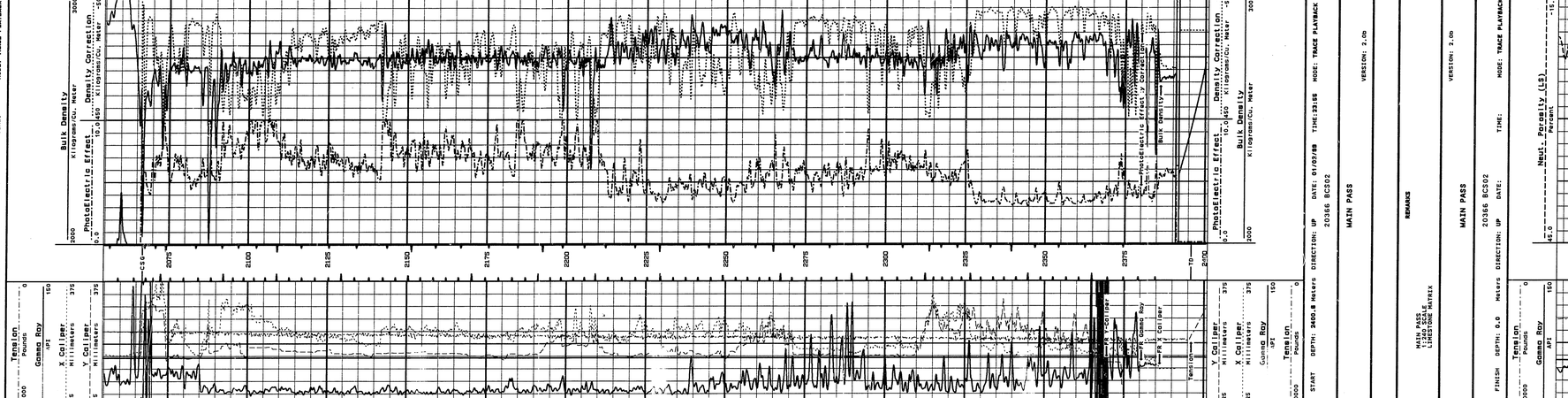
MAIN PASS
1:200 SCALE
X-CALIPER PRESENTATION
BOREHOLE VOLUME TICKS ON THE LEFT
ANNULUS VOLUME TICKS ON THE RIGHT

VERSION: 2.0b

MAIN PASS

20366 BCS02

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK



MAIN PASS
1:200 SCALE
LIMESTONE MATRIX

VERSION: 2.0b

MAIN PASS

20366 BCS02

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: TIME: MODE: TRACE PLAYBACK

REMARKS

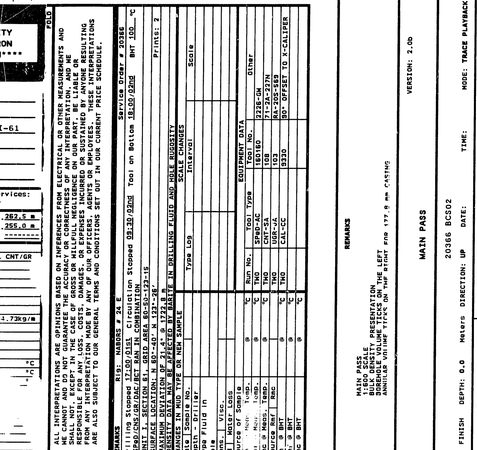
MAIN PASS
1:200 SCALE
LIMESTONE MATRIX

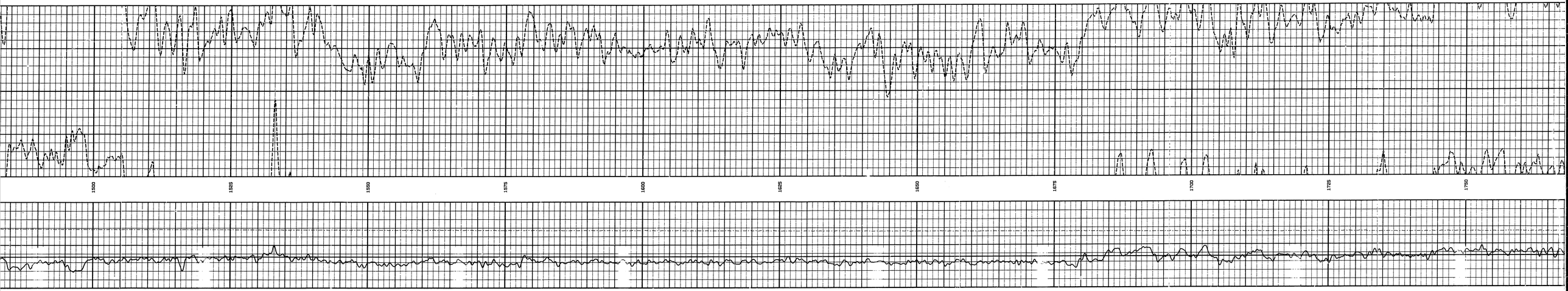
VERSION: 2.0b

MAIN PASS

20366 BCS02

FINISH DEPTH: 0.0 Meters DIRECTION: UP DATE: 01/01/98 TIME: 23:59 MODE: TRACE PLAYBACK




1500
1525
1550
1575
1600
1625
1650
1675
1700
1725
1750

11/20/98	10:58	0.0 M	Ver 2.00-2.0b	JOB SHOP

Caliper Before Survey Calibration

Tool Type: CAL-10 Serial No:B330

	Measured Value	Units	Calibrated Value	Units
CALS	4457.7	BATS.B	177.8	300.8 mm

01/02/99	11:32	0.0 M	Ver 2.00-2.0b	JOB 20306

Gamma Ray Before Survey Calibration

Tool Type: GRP-16 Serial No: 103
Calibration No: RAP205-005

	Measured Value	Calibrated Standard	Units
GR	180.1	710.2	140.9 API

Delta Counts Per Sec: 537.5 CPS-APIS = 3.768

12/13/98	16:54	0.0 M	Ver 2.00-2.0b	JOB SHOP

Compensated Neutron Snow Calibration

Tool Type: CNT-B Serial No: 108
Verifier No: 4001-106 Source No: 7134-2376

	Low Porosity	Mid Porosity	High Porosity	Units
Tank Ratio:	1.000	1.000	1.000	Ratio
Tank Porosity:	0.10	0.20	0.30	Sh.Lim
LS Detector:	1611.0	1328.0	1012.0	CPS
SS Detector:	1614.0	1329.0	1013.0	CPS
Tool Ratio:	0.990	1.000	0.997	Sh/Ls
Tool Porosity:	0.10	0.20	0.30	Lm-Pu

Tool Consider: 1.000
Surface Temperature: 27 Degc

SS Detector	LS Detector	Ratio	Porosity
204.8 CPS	186.2 CPS	1.001	10.22

01/02/99	11:30	0.0 M	Ver 2.00-2.0b	JOB 20306

Compensated Neutron Before Survey Calibration

Tool Type: CNT-B Serial No: 108
Verifier No: 4001-106 Source No: 7134-2376

	Vertifier Check Value	Units
LS Detector:	186.1	CPS
SS Detector:	207.3	CPS
Tool Ratio:	1.000	Sh/Ls
Tool Porosity:	13.48	Lm-Pu

Tool Consider: 1.000

01/02/99	21:27	0.0 M	Ver 2.00-2.0b	JOB 20306

Compensated Neutron After Survey Calibration

Tool Type: CNT-B Serial No: 108
Verifier No: 4001-106 Source No: 7134-2376

	Vertifier Check Before	After	Units
LS Detector:	180.1	182.7	CPS
SS Detector:	201.3	205.0	CPS
Tool Ratio:	1.000	1.000	Sh/Ls
Tool Porosity:	13.48	13.84	Lm-Pu

Tool Consider: 1.000

12/20/98	13:46	0.0 M	Ver 2.00-2.0b	JOB SHOP

Spectral Pe Density Snow Calibration

Tool Type: SPD-HR Serial No: 160
Firmware Ver: 4.00 Source No: 2228-GM

	Snw	At	At+Pe	Pe	Units
Cs.Pk	109.76	109.88	110.20	109.94	Ch
Thp.Pk	1.00	1.00	1.00	1.00	Ch/mev
Thp.Pk	1.00				
PHT	15.750				%
Gain	1.00	0.93	0.97	10.30	%
LSHD	1000	1001	999	1000	ccs
LSHD	1000	1000	999	1000	ccs
LSHD	999	1000	999	1000	ccs
LSHD	999	1000	999	1000	ccs
Cs.Pk	109.94	110.07	110.20	110.15	Ch
Thp.Pk	1.00	1.00	1.00	1.00	Ch/mev
PHT	15.750				%
Gain	1.00	0.93	0.97	10.30	%
LSHD	1000	1001	999	1000	ccs
LSHD	1000	1000	999	1000	ccs
LSHD	999	1000	999	1000	ccs
LSHD	999	1000	999	1000	ccs
Avg	100		100	100	Secs

Density Calibration

	Fixed	Units
Spine Ratio :	2.00000	Ratio
Spine Length :	200.000	mm

Pe Calibration

	Fixed
LS Slope :	2.7229
LS Intercept :	-0.1000
SS Slope :	2.7229
SS Intercept :	-0.1000

01/02/99	11:15	0.0 M	Ver 2.00-2.0b	JOB 20306

Spectral Pe Density Before Survey Tool Check

Tool Type: SPD-HR Serial No: 160
Firmware Ver: 4.00 Source No: 2228-GM

	Snow	Before	Units
Cs.Pk	109.76	110.13	Ch
Thp.Pk	1.00	1.00	Ch/mev
PHT	15.750	15.750	%
Gain	1.00	10.30	%
LSHD	1000	1000	ccs
LSHD	999	1000	ccs
Cs.Pk	109.94	110.06	Ch
Thp.Pk	1.00	1.00	Ch/mev
PHT	15.750	15.750	%
Gain	1.00	10.30	%
LSHD	1000	1000	ccs
LSHD	999	1000	ccs
Avg	100	100	Secs

01/02/99	21:17	0.0 M	Ver 2.00-2.0b	JOB 20306

Spectral Pe Density After Survey Tool Check

Tool Type: SPD-HR Serial No: 160
Firmware Ver: 4.00 Source No: 2228-GM

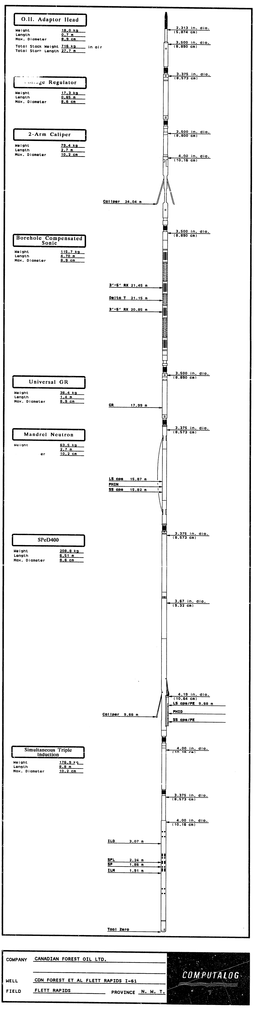
	Snow	Before	After	Units
Cs.Pk	109.76	110.13	109.94	Ch
Thp.Pk	1.00	1.00	1.00	Ch/mev
PHT	15.750	15.750	15.750	%
Gain	1.00	10.30	10.30	%
LSHD	1000	1000	1000	ccs
LSHD	999	1000	1000	ccs
Cs.Pk	109.94	110.06	110.15	Ch
Thp.Pk	1.00	1.00	1.00	Ch/mev
PHT	15.750	15.750	15.750	%
Gain	1.00	10.30	10.30	%
LSHD	1000	1000	1000	ccs
LSHD	999	1000	1000	ccs
Avg	100	100	100	Secs

12/20/98	14:02	0.0 M	Ver 2.00-2.0b	JOB SHOP

Caliper Before Survey Calibration

Tool Type: GPD-AB Serial No:165

	Measured Value	Units	Calibrated Standard	Units
CALX	1100.9	BATS.B	177.8	300.8 mm



COMPANY	CANADIAN FOREST OIL LTD.
WELL	CON FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS PROVINCE N. W. T.

COMPUTALOG

JAN 5 1999

BEST

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ON FILE

9211-C131-1-1 1851

CS400

COMPUTALOG

SPECTRAL Pe DENSITY
COMPENSATED NEUTRON
****TRUE VERTICAL DEPTH****

FOLD

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST ET AL FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION
SURFACE: N 60°-40' W 123°-26'

Other Services: DLL/MSFL BCT/EMI

Perm. Datum GROUND LEVEL Elev. 255.0 m
Log measured from K.B. , 7.5 m above Permanent Datum.

ELEV. K.B. 262.5 m
G.L. 255.0 m
CBF --------

Date	DECEMBER 22, 1998	JANUARY 2, 1999	
Run No.	ONE	TWO	ADDITIONAL CNT/GR
First Reading		2348.5 m	2034.0 m
Last Reading	**ALL DEPTHS ARE**	2034.0 m	1548.0 m
Meters Meas.	**TRUE VERTICAL**	314.5 m	486.0 m
Depth Reached		2358.4 m	
Bot. Driller		2358.4 m	
Csg. Logger		2034.0 m	
Csg. Driller		2034.8 m	244.5mm, 64.73kg/m
Fluid Type		POLYMER	
Dens. & Visc.		1140 60	
Mud pH		10.0	
Mud Water Loss		7.8	
Mud Res.	@ °C	0.32 @ 17 °C	@ °C
Mud Res. @ BHT	@ °C	0.10 @ 100 °C	@ °C
Rmc	@ °C	0.35 @ 18 °C	@ °C
Rmf	@ °C	0.30 @ 16 °C	@ °C
Rmf @ BHT	@ °C	0.09 @ 100 °C	@ °C
Bit Size	311.0 mm	216.0 mm	
Spacing		N/A	
Operating Time		4.5 hrs.	
Unit #	363	358	
Location	GRANDE PRAIRIE	EDMONTON	OPERATORS:
Recorded By	J. GRUBB	C. SCUTCHINGS	K. SCOTT
Witnessed By		B. BELLMAN	L. ROULSTON

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REMARKS Rig: NABORS # 24 E Service Order # 20366

Drilling Stopped 17:00/01st. Circulation Stopped 09:30/02nd Tool on Bottom 18:00/02nd BHT 100 °C
SPWD/CNS/GR/DAC/BCT RAN IN COMBINATION
UNIT 1, SECTION 61, GRID AREA 80-50-123-16
SURFACE LOCATION: N 60°-40' W 123°-26'
MAXIMUM DEVIATION OF 21.4° @ 1722.8 m
DENSITY DATA MAY BE AFFECTED BY BARITE IN DRILLING FLUID AND HOLE RUGOSITY

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
Rmf | Mud Temp.
Rmf | Mud Temp.
Rmc @ Meas. Temp.
Source Rmf | Rmc
Rm @ BHT
Rmf @ BHT
Rmc @ BHT

SCALE CHANGES

Type Log	Interval	Scale

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
TWO	SPWD-AC	180180	2228-GH
TWO	CNT-SA	108	71-2A-227N
TWO	DGR-JA	1073	RA-205-5E8
TWO	CAL-CC	5330	90° OFFSET TO X-CALIPER

REMARKS

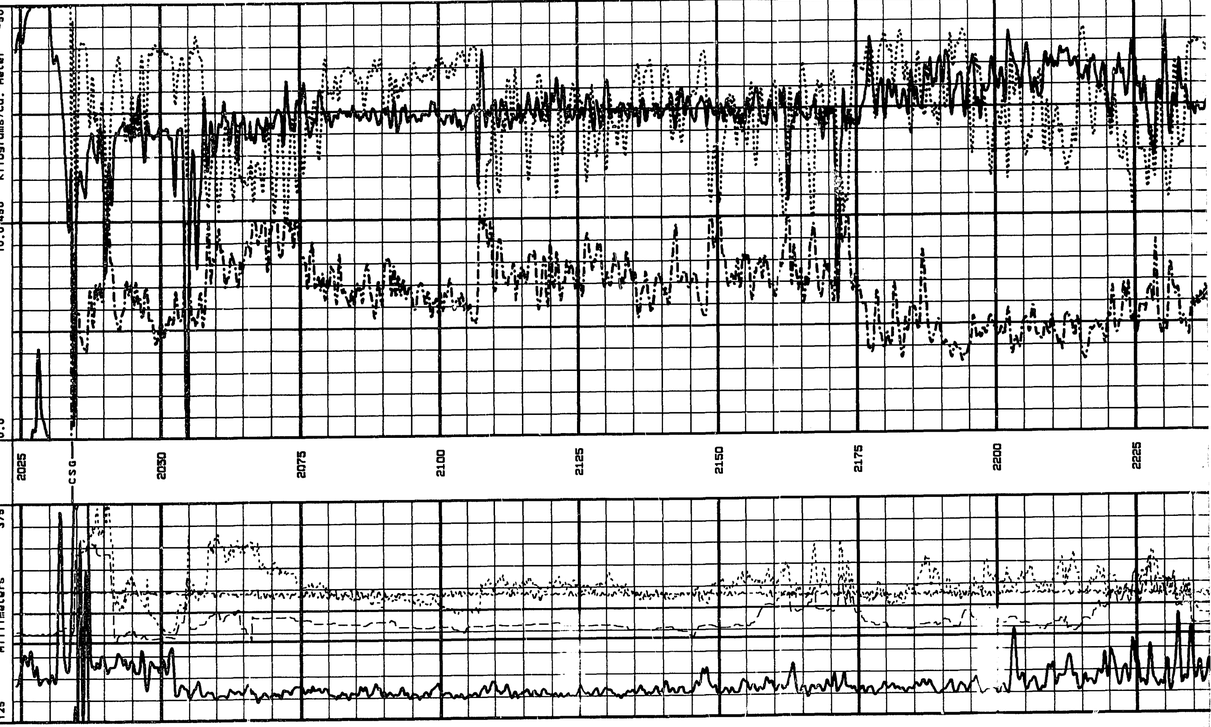
TRUE VERTICAL DEPTH
MAIN PASS
1:200 SCALE
BULK DENSITY PRESENTATION

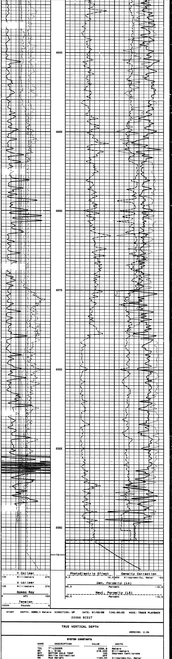
VERSION: 2.0b

TRUE VERTICAL DEPTH

20366 BCS2T

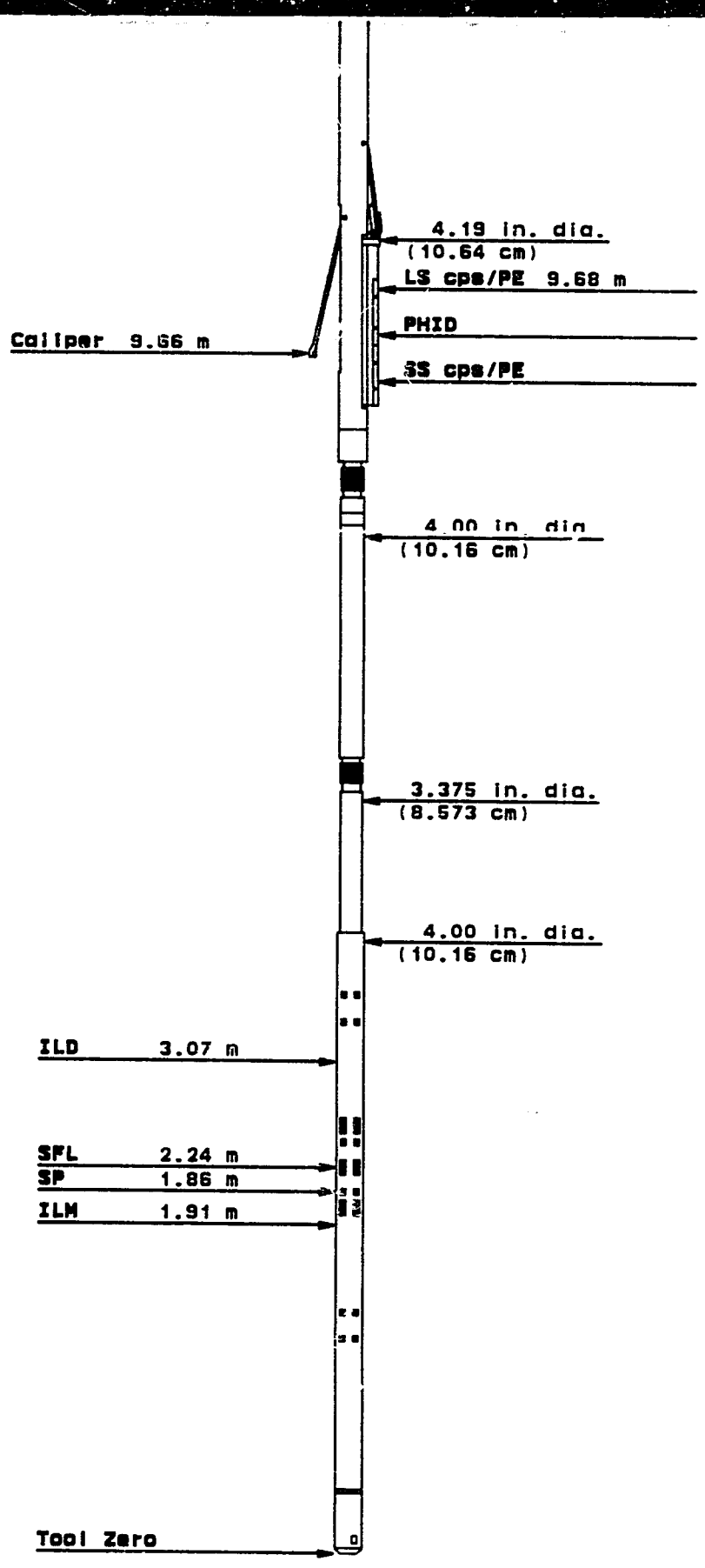
FINISH DEPTH: 1477.8 Meters DIRECTION: UP DATE: 01/03/88 TIME: 00:06 MODE: TRACE PLAYBACK




TRUE VERTICAL DEPTH
ZONE WEST
Depth Reference (1.0)
Depth Reference (2.0)
Depth Reference (3.0)
Depth Reference (4.0)
Depth Reference (5.0)
Depth Reference (6.0)
Depth Reference (7.0)
Depth Reference (8.0)
Depth Reference (9.0)
Depth Reference (10.0)
Depth Reference (11.0)
Depth Reference (12.0)
Depth Reference (13.0)
Depth Reference

Simultaneous Triple Induction

Weight	176.9 kg
Length	8.8 m
Max. Diameter	10.2 cm



COMPANY	CANADIAN FOREST OIL LTD.		
WELL	CDN FOREST ET AL FLETT RAPIDS I-61		
FIELD	FLETT RAPIDS	PROVINCE	N. W. T.

COMPUTALOG

JAN - 5 1999

NEB COPY 1851

COMPANY: CANADIAN FOREST OIL LTD.
WELL: CDN FOREST ET AL FLETT RAPIDS
FIELD: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

PROVINCE: NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: I-61-60-50-123-15
Well: CDN FOREST ET AL FLETT RA
Company: CANADIAN FOREST OIL LTD.

Schlumberger

DIPOLE SHEAR SONIC IMAGER LOG

LOCATION: I-61-60-50-123-15
300I616050123150 (UWI)

Elev.: K.B. 262.5 m; G.L. 255 m; D.F. 262.2 m

Permanent Datum:	GROUND LEVEL	Elev.:	255 m
Log Measured From:	KELLY BUSHING	7.5 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

Logging Date	9-JAN-1999			
Run Number	THREE			
Depth Driller	2660 m			
Schlumberger Depth	2660 m			
Bottom Log Interval	2652 m			
Top Log Interval	2067 m			
Casing Driller Size @ Depth	244.500 mm	@	2067.7 m	@
Casing Schlumberger	2067 m			
Bit Size	216.000 mm			
Type Fluid In Hole	GEL CHEM			
MUD Density / Viscosity	1160 kg/m3	62 s		
MUD Fluid Loss / PH	8.2 cm3	10.2		
MUD Source Of Sample	FLOWLINE			
RM @ Measured Temperature	0.240 ohm.m	@	21 degC	@
RMF @ Measured Temperature	0.210 ohm.m	@	14 degC	@
RMC @ Measured Temperature	0.170 ohm.m	@	12 degC	@
Source RMF / RMC	MEASURED	MEASURED		
RM @ MRT / RMF @ MRT	0.069 @ 125	0.052 @ 125	@	@
Maximum Recorded Temperatures	125 degC	125	125	
Circulation Stopped / Time	10-JAN-1999		1:00	
Logger On Bottom / Time	9-JAN-1999		13:40	
Unit Number / Location	2025	GRANDE PRAIRIE		
Recorded By	TONY DANIEL/SEBASTION KIRSTEIN			
Witnessed By	BRIAN BELLMAN			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
MUD Density / Viscosity				
MUD Fluid Loss / PH				
MUD Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF / RMC				
RM @ MRT / RMF @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

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OTHER SERVICES1
OS1: DLL-LDT-CNL-EDAC-GR
OS2: DSI-NGT
OS3: FMI-GR
OS4: LOGNETS
OS5:

REMARKS: RUN NUMBER 1
ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST.
DLL-LDT-CNL-EDAC-GR-SP FIRST PASS, DSI-NGT SECOND PASS AND FMI-GR THIRD PASS.
BRIDGED WITH FIRST PASS 12:00 9-JAN-1999, 2510M, BROKE THE EDAC.
RAN FIRST PASS WITH NO EDAC.
DIPOLE RAN IN P+S, UPPER DIPOLE AND STONELY MODES.

RIG: NABORS 24E
PRINTS: ? FIELD AND ? FINALS
OPERATORS: GREG "HOT HEAD" BOYD AND MARK "TEENY WEENY" PURCELL

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 2

	RUN 1	RUN 2
SERVICE ORDER #:	1055767	
PROGRAM VERSION:	9C0-413	
FLUID LEVEL:		

LOGGED INTERVAL	START	STOP	START	STOP

EQUIPMENT DESCRIPTION

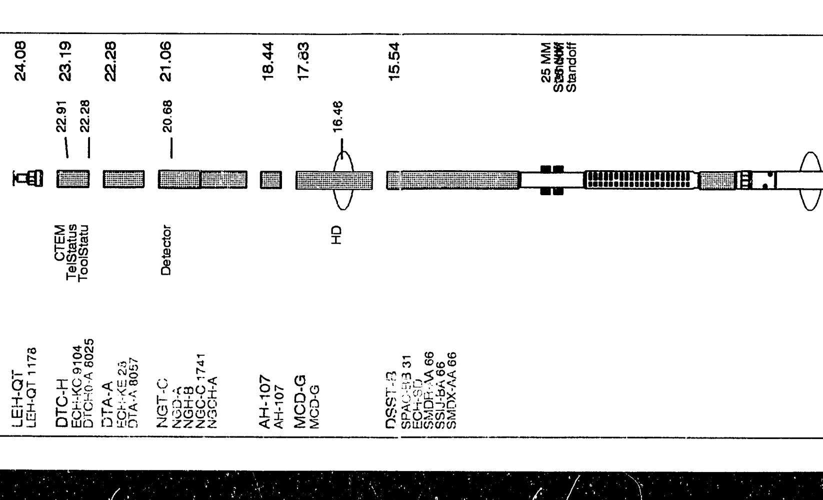
RUN 1 — RUN 2

SURFACE EQUIPMENT

GSR-U
WITM (DTS)-A

DOWNHOLE EQUIPMENT

LEH-QT
LEH-QT 1178
DTC-H
ECH-KC 9104
DTC-H-A 8025
DTA-A
ECH-KE 23
DTA-A 8057
NGT-C
NSD-A
NGH-B
NGC-C 1741
NGCH-A
AH-107
AH-107
MCD-G
MCD-G
DSST-B
SPAC-BB 31
ECH-SD
SMDH-AA 66
SSLI-BA 66
SMDX-AA 66



MAXIMUM STRING DIAMETER 143 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	DSSTB .032	FN:46 PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50 PRODUCER	10-Jan-1999 14:16	2664.6 M	2028.0 M
CUST	DSSTB .034	FN:51 CUSTOMER	10-Jan-1999 14:16	2664.6 M	2028.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 33.07 M3
Cement Volume = 18.37 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.8 M using data channel(s) HD

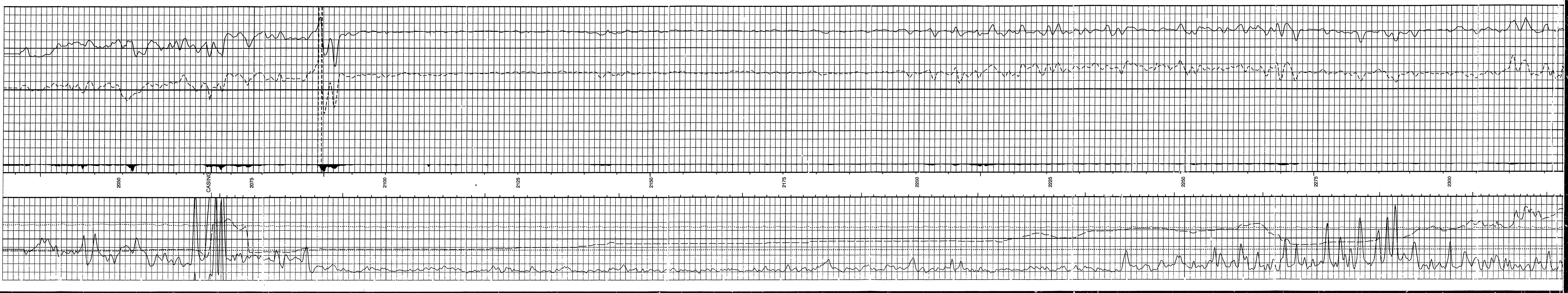
OP System Version: 9C0-413

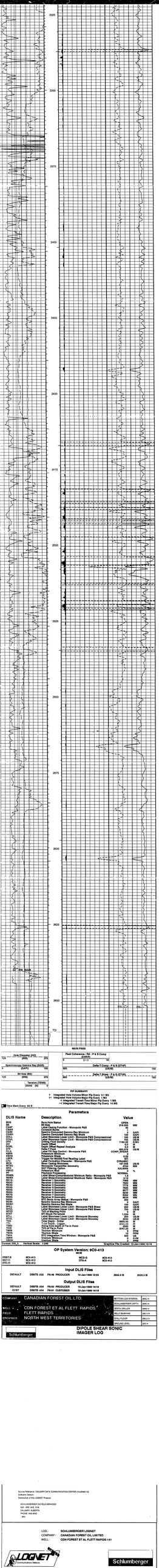
		MCM	
DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S





MAIN PASS

Hole Diameter (HD)	
125 (MM)	375

Spectroscopy Gamma Ray (SGR)	
0 (API)	100

Bit Size (BS)	
125 (MM)	375

Tension (TENS)	
20000 (N)	0

Peak Calibration / Fit, I P & S Comp	
0 (Count)	10

Delta T Comp / P & S (DTCP)	
300 (US/M)	100

Delta T Shear / P & S (DTSP)	
300 (US/M)	100

FIP SUMMARY
- Integrated Hole Volume Minor Flip Every 0.1 M3
- Integrated Hole Volume Major Flip Every 1 M3
  - Integrated Transit Time Minor Flip Every 1 MS
  - Integrated Transit Time Major Flip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BIT	Bit Size	CASED	
BS	Bit Size	318.000	MM
CSIZ	Latest Casing Function - Monopole P&S	0	
CSIZ1	Casing Diameter	0	
CSIZ2	Specific Computed Gamma Ray Windows	0	COUNT
CSIZ3	Specific Computed Gamma Ray Stack	100	COUNT
CSIZ4	Latest Shear Upper Limit - Monopole P&S Compressional	1000	US/M
CSIZ5	Latest Shear Lower Limit - Monopole P&S Compressional	100	US/M
DCC	Depth Correction Counter	1180.00	MM
DOC	Depth Offset	0	M
DRF	Delta T Shear Repeat Analysis	0	
FIP	Delta T Flag	103.270	US/M
FILT	Latest Fit Gain Control - Monopole P&S	COMP_SHEAR	
FMTD	Fast Mode Transit Delay	0.000	
HBVA	Polarization Mode	0.47	
HCAL	Hole Caliper Used for Sonic Nearing Latest	0.000	
LCC	LSAR Formation Character - Monopole P&S	DYNAMIC	
MTSP	Latest Shear Upper Limit	1.000	US/M
MTSS	Monopole Transmitter Sequence	4124	HZ
PMOD	HOT Filtering Option	KALMAN	
PRFQ	Pulse Repeat Freq	0	%
PRMS	Processed Propagating	NORMAL	
RMAX	Latest Shear/Compressional Minimum Ratio - Monopole P&S	3.13	
RMIN	Latest Shear/Compressional Maximum Ratio - Monopole P&S	1.000	
RS1C	Receiver 1 Geometry	7600	MM
RS1G	Receiver 1 Geometry	7725	MM
RS2C	Receiver 2 Geometry	7275	MM
RS2G	Receiver 2 Geometry	7400	MM
RS3C	Receiver 3 Geometry	6925	MM
RS3G	Receiver 3 Geometry	6925	MM
RS4C	Receiver 4 Geometry	6600	MM
RS4G	Receiver 4 Geometry	6600	MM
SGAIN	Specific Gamma Ray Gains	20	COUNT
SGBS	Specific Gamma Ray Blocks	0	COUNT
SMTS	Latest Shear Lower Limit - Monopole P&S Shear	100	US/M
SMTU	Latest Shear Upper Limit - Monopole P&S Shear	1000	US/M
SPKD	TXD of Starting Point	0	M
SPKS	Spike Detection Level	1.000	
STLL	Latest Shear Lower Limit - Monopole Stoneley	200	US/M
STUL	Latest Shear Upper Limit - Monopole Stoneley	1000	US/M
TDD	Total Depth - Driller	2600.00	M
TDL	Total Depth - Logger	2600.00	M
TMD	From Hole Top TXD to Point	2047.22	M
TMZ	TXD of Tool Point	2047.22	M
TRIG	Transmitter Trigger	0	PTM
TRWA	Transmitter Blank	0	PTM
TRWB	Transmitter Receiver Time Window - Monopole P&S	500	PTM
UBRK	Uranium Break	0	PTM
UBLK	Uranium Blank	0	PTM

Format: DSI_3 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:18

OP System Version: 9C0-413

		MCD-D	
DSST-D	MCD-413		MCD-D
NGT-C	MCD-413	DTA-A	MCD-413
DTC-H	MCD-413		

Input DLIS Files

DEFAULT	DSST8..010	FR.46 PRODUCER	10-Jan-1999 12:55	2604.5 M 3026.0 M

Output DLIS Files

DEFAULT	DSST8..014	FR.95 PRODUCER	10-Jan-1999 14:18
CV97	DSST8..014	FR.64 OVERTOWER	10-Jan-1999 14:18

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2602 m
WELL:	CDN FOREST ET AL FLETT RAPIDS	SCHLUMBERGER DEPTH	2603 m
FIELD:	FLETT RAPIDS	DEPTH DRILLER	2600 m
PROVINCE:	NORTH WEST TERRITORIES	KELLY BUSHING	262.5 m
		KELLY FLOOR	262.5 m
		GROUND LEVEL	225 m

Schlumberger

DIPOLE SHEAR SONIC IMAGER LOG

Source Reference: CALGARY DATA COMMUNICATION CENTER (CALGARY)
Software Version:
Distribution of this LOGNET Product:

SCHLUMBERGER OILFIELD SERVICES
1554 - 3RD AVE. S.W.
CALGARY, ALBERTA
PHONE: 508-4000
Jobn

LOG - SCHLUMBERGER LOGNET
COMPANY - CANADIAN FOREST OIL LIMITED
WELL - CDN FOREST ET AL FLETT RAPIDS I-01

LOGNET Communications Network

Schlumberger

WELL COPY 1851

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT. RAPIDS

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

PROVINCE NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: I-61-60-50-123-15
Well: CDN FOREST ET AL FLETT RA
Company: CANADIAN FOREST OIL LTD.
LOCATION

Schlumberger

DIPOLE SHEAR SONIC IMAGER LOG
TRUE VERTICAL DEPTH

I-61-60-50-123-15
300616050123150 (UWI)

Elev.: K.B. 262.5 m
G.L. 255 m
D.F. 262.2 m

Permanent Datum: GROUND LEVEL Elev.: 255 m
Log Measured From: KELLY BUSHING 7.5 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

Logging Date		9-JAN-1999			
Run Number		THREE		***TVD***	
Depth Driller		2660 m			
Schlumberger Depth		2660 m		2622.24 m	
Bottom Log Interval		2640 m		2614 m	
Top Log Interval		2067 m		2055 m	
Casing Driller Size @ Depth		244.500 mm @ 2067.7 m			
Casing Schlumberger		2067 m			
Bit Size		216.000 mm			
Type Fluid In Hole		GEL CHEM			
M/D Density	Viscosity	1160 kg/m3	62 s		
Fluid Loss	PH	8.2 cm3	10.2		
Source Of Sample		FLOWLINE			
RM @ Measured Temperature		0.240 ohm.m @ 21 degC		@	
RMF @ Measured Temperature		0.210 ohm.m @ 14 degC		@	
RMC @ Measured Temperature		0.170 ohm.m @ 12 degC		@	
Source RMF	RMC	MEASURED	MEASURED		
RM @ MRT	RMF @ MRT	0.069 @ 125	0.052 @ 125	@	@
Maximum Recorded Temperatures		125 degC	125	125	
Circulation Stopped	Time	10-JAN-1999		1:00	
Logger On Bottom	Time	9-JAN-1999		13:40	
Unit Number	Location	2025	GRANDE PRAIRIE		
Recorded By		TONY DANIEL/SEBASTION KIRSTEIN			
Witnessed By		BRIAN BELLMAN			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@		@	
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
M/D Density	Viscosity			
Fluid Loss	PH			
Source Of Sample				
RM @ Measured Temperature	@		@	
RMF @ Measured Temperature	@		@	
RMC @ Measured Temperature	@		@	
Source RMF	RMC			
RM @ MRT	RMF @ MRT	@ @	@	@
Maximum Recorded Temperatures				
Circulation Stopped	Time			
Logger On Bottom	Time			
Unit Number	Location			
Recorded By				
Witnessed By				

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OTHER SERVICES1	OTHER SERVICES2
CS1: DLL-LDT-CNL-EDAC-GR	CS1:
CS2: PSI-NGT	CS2:
CS3: PSI-DTA	CS3:
CS4: LOG-HETS	CS4:
CS5:	CS5:
CS6:	CS6:

REMARKS: RUN NUMBER 1
ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST.
DLL-LDT-CNL-EDAC-GR-SP FIRST PASS, DSI-NGT SECOND PASS AND
FLETT-TRIPLE COMBO
BRIDGED WITH FIRST PASS 12:00 9-JAN-1999. 28100L BROKE THE EDAC.
RAN FIRST PASS WITH NO EDAC.
DIPOLE RAN IN P+S, UPPER DIPOLE AND STONELY MODES.

RIG: NABORS 24E
PRINTS: 1 FIELD AND 3 FINALS
OPERATORS: GREG "HOT HEAD" BOYD AND MARK "BENY WEENY" PURCELL

	RUN 1		RUN 2		
SERVICE ORDER #:	1055787		SERVICE ORDER #:		
PROGRAM VERSION:	9C0-413		PROGRAM VERSION:		
FLUID LEVEL			FLUID LEVEL		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

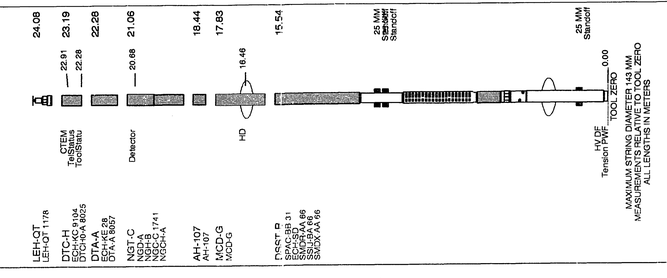
EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT

GSRU
WITM (DTS):-A

DOWNHOLE EQUIPMENT



Input DLIS Files

DEFAULT	DSSTB .034	FN:50 PRODUCER	10-Jan-1999 14:16	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .036	FN:54 PRODUCER	10-Jan-1999 14:36	2626.8 M	1997.7 M
CUST	DSSTB .036	FN:55 CUSTOMER	10-Jan-1999 14:36	2626.8 M	1997.7 M

Integrated Hole/Cement Volume Summary

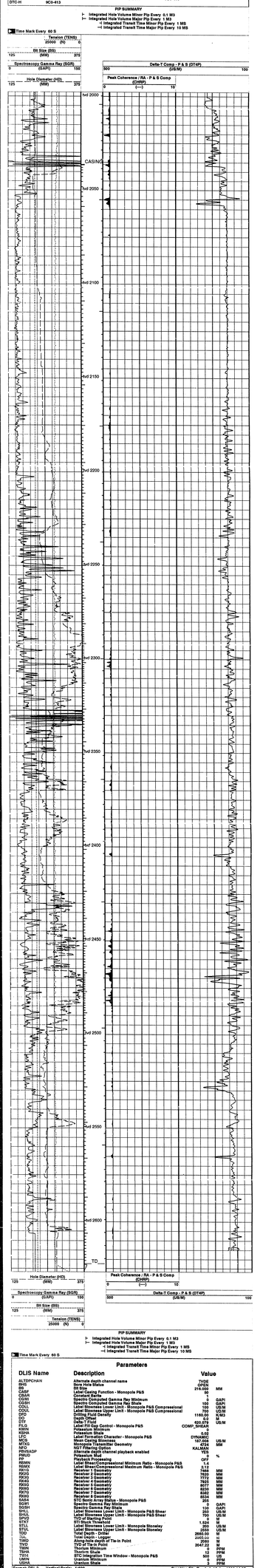
Hole Volume = 33.07 M3
Cement Volume = 18.37 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.5 M using data channel(s) HD

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

PIP SUMMARY
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS



PIP SUMMARY
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

Parameters

DLIS Name	Description	Value
ALTDPCHAN	Alternate depth channel name	TVDM
BHS	Bore Hole Status	OPEN
CBF	Casing	219.000 MM
CSAF	Label Casing Function - Monopole P&S	50
CBAR	Constant Barite	1
CGMN	Spectro Computed Gamma Ray Minimum	0 GAPI
CGMX	Spectro Computed Gamma Ray Maxim	150 GAPI
CGLL	Label Stoneley Lower Limit - Monopole P&S Compressional	100 US/M
CGUL	Label Stoneley Upper Limit - Monopole P&S Compressional	700 US/M
DFD	Drilling Fluid Density	1160.00 K/M3
DFL	Drilling Fluid	0 CP
DTF	Delta-T Fluid	620.279 US/M
FLG	Label Fill Gap Control - Monopole P&S	COMP_SHEAR
FMN	Frame Minimum	0
KSHA	Potassium Shale	0.02
LFC	Label Formation Character - Monopole P&S	DYNAMIC
MTXL	Matrix Slowness Limit	187.004 US/M
MTXO	Monopole Transmitter Geometry	0.254 MM
NFC	NGT Filtering Option	KALMAN
PBVSADP	Alternate depth channel playback enabled	YES
PMUD	Potassium Mud	0 %
RBM	Label Remapping	OFF
RSMN	Label Shear/Compressional Minimum Ratio - Monopole P&S	1.4
RSMX	Label Shear/Compressional Maximum Ratio - Monopole P&S	2.112
RX0	Receiver 0 Geometry	7500 MM
RX1G	Receiver 1 Geometry	7620 MM
RX3G	Receiver 3 Geometry	7772 MM
RX4G	Receiver 4 Geometry	7925 MM
RX5G	Receiver 5 Geometry	8077 MM
RX6G	Receiver 6 Geometry	8230 MM
RX7G	Receiver 7 Geometry	8382 MM
RX8G	Receiver 8 Geometry	8534 MM
SABM	STC Band Energy Status - Monopole P&S	20
SGNI	Spectro Gamma Ray Minimum	0 GAPI
SGSH	Spectro Gamma Ray Shale	100 GAPI
SHLL	Label Stoneley Lower Limit - Monopole P&S Shear	500 US/M
SHUL	Label Stoneley Upper Limit - Monopole P&S Shear	700 US/M
SPVO	TVO of Starting Point	0 M
STBL	Stoneley Baseline	1.524 M
STLL	Label Stoneley Lower Limit - Monopole Stoneley	200 US/M
STUL	Label Stoneley Upper Limit - Monopole Stoneley	2000 US/M
TDD	Total Depth - Driller	2685.00 M
TDL	Total Depth - Logger	2685.00 M
TIMO	Along-hole depth of Tie-In Point	2000 M
TVO	TVD of Tie-In Point	2047.22 M
TBHN	Thorium Minimum	0 PPM
TBHX	Thorium Maxim	15 PPM
TSVX	STC Integration Time Window - Monopole P&S	500 US
UBHN	Uranium Minimum	0 PPM
UBHX	Uranium Maxim	5 PPM

Format: DSI_2 Vertical Scale: 1:500 Graphics File Created: 10-Jan-1999 14:37

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .034	FN:50 PRODUCER	10-Jan-1999 14:16	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .036	FN:54 PRODUCER	10-Jan-1999 14:36	2626.8 M	1997.7 M
CUST	DSSTB .036	FN:55 CUSTOMER	10-Jan-1999 14:36	2626.8 M	1997.7 M

Integrated Hole/Cement Volume Summary

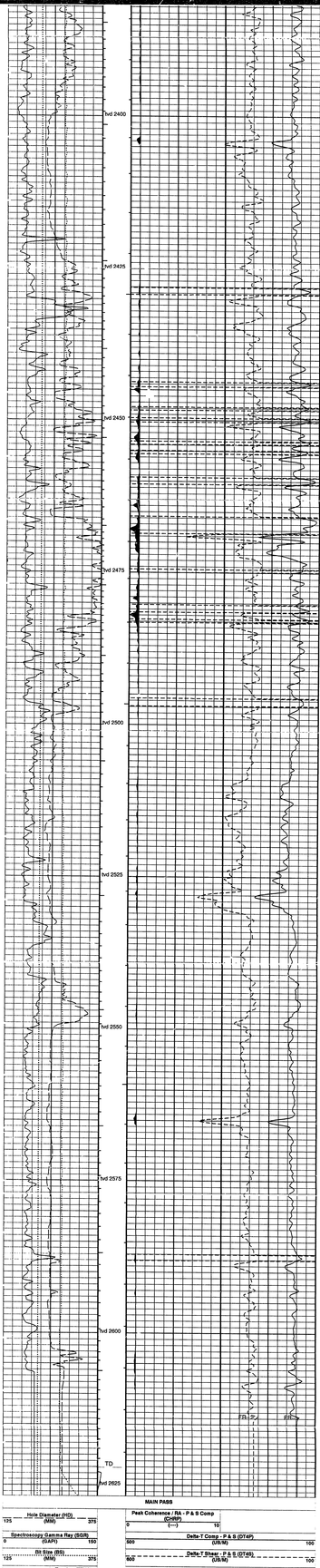
Hole Volume = 33.07 M3
Cement Volume = 18.37 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.5 M using data channel(s) HD

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

PIP SUMMARY
Integrated Hole Volume Minor Pip Every 0.1 Mb
Integrated Hole Volume Major Pip Every 1.0 Mb
Integrated Travel Time Minor Pip Every 1 MS
Integrated Travel Time Major Pip Every 10 MS
Time Mark Every 60.0 S
Depth Mark Every 10.0 M
Delta-T (Fast) P & S (US/F)
Delta-T Compressional & S (US/F)
Total Gamma Ray (GAPI)
Hole Diameter (IN)
MAIN PASS
CASING



MAIN PASS

Hole Diameter (HD)
125 (MM) 375

Peak Coherence / RA - P & S Comp
(CHRP)
0 (---) 10

Spectroscopy Gamma Ray (SGR)
0 (GAPI) 150

Delta-T Comp - P & S (DT4P)
500 (US/M) 100

Bit Size (BS)
125 (MM) 375

Delta-T Shear - P & S (DT4S)
500 (US/M) 100

Tension (TENS)
25000 (N) 0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	DYDE	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	216.000	MM
CALIBRT	Label Caliper Function - Monopole P&S	50	
CGAIN	Gain Control	1	
CGMI	Spectra Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectra Computed Gamma Ray Shale	100	GAPI
COSL	Label Slowness Lower Limit - Monopole P&S Compressional	100	US/M
COSU	Label Slowness Upper Limit - Monopole P&S Compressional	700	US/M
DFD	Drilling Fluid Density	1160.00	KG/M3
DO	Depth Offset	0.0	M
DT2	Delta-T Fluid	620.078	US/M
DTCG	Delta-T Gain Control - Monopole P&S	COMP_SHEAR	
KMIN	Potassium Minimum	0	
KSHA	Potassium Shale	3.02	
LFC	Label Formation Character - Monopole P&S	DYNAMIC	
MFSS	Mean Casing Slowness	187.008	US/M
MT2G	Receiver 2 Geometry Monopole Geometry	7922	MM
NFC	NOT Filtering Option	KAISER	
PBVSADP	Alternate depth channel playback enabled	YES	
PHIND	Porosity Index	0	%
PR	Playback Processing	CP	
RSMN	Label Shear/Compressional Minimum Ratio - Monopole P&S	1.4	
RSMX	Label Shear/Compressional Maximum Ratio - Monopole P&S	3.12	
RX1G	Receiver 1 Geometry	7688	MM
RX2G	Receiver 2 Geometry	7922	MM
RX3G	Receiver 3 Geometry	7922	MM
RX4G	Receiver 4 Geometry	7922	MM
RX5G	Receiver 5 Geometry	8077	MM
RX6G	Receiver 6 Geometry	8230	MM
RX7G	Receiver 7 Geometry	8384	MM
RX8G	Receiver 8 Geometry	8538	MM
SAS4	STC Socio Array Status - Monopole P&S	255	
SGMI	Spectra Gamma Ray Minimum	0	GAPI
SGSH	Spectra Gamma Ray Shale	100	GAPI
SHLL	Label Slowness Lower Limit - Monopole P&S Shear	350	US/M
SHUL	Label Slowness Upper Limit - Monopole P&S Shear	790	US/M
SPOD	TYD of Starting Point	0	M
STKT	TYD of Ending Point	2.5	M
STLL	Label Slowness Lower Limit - Monopole Stoneley	250	US/M
STUL	Label Slowness Upper Limit - Monopole Stoneley	2550	US/M
TD	Total Depth - Driller	2660.00	M
TDD	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-In Point	2660.00	M
TIVD	TVD Of Tie-In Point	2047.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	0	PPM
TWIN	STC Integration Time Window - Monopole P&S	400	US
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	0	PPM

Format: DSI_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:37

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .034	FN:50	PRODUCER	10-Jan-1999 14:16	2664.8 M 2028.0 M

Output DLIS Files

DEFAULT	DSSTB .036	FN:54	PRODUCER	10-Jan-1999 14:38
CUST	DSSTB .036	FN:55	CUSTOMER	10-Jan-1999 15:38

Input DLIS Files

DEFAULT	DSSTB .030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M 2590.0 M

Output DLIS Files

DEFAULT	DSSTB .035	FN:52	PRODUCER	10-Jan-1999 14:32	2627.1 M 2552.4 M
CUST	DSSTB .035	FN:53	CUSTOMER	10-Jan-1999 14:32	2627.1 M 2552.4 M

Integrated Hole/Cement Volume Summary

Hole Volume = 33.07 M3
Cement Volume = 18.37 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2087.8 M using data channel(s) HD

OP System Version: 9C0-413

MCM

uWD-I-D	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Transit Time Minor Pip Every 1 MS
- Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Tension (TENS)
25000 (N) 0

Delta-T Shear - P & S (DT4S)
500 (US/M) 100

Bit Size (BS)
125 (MM) 375

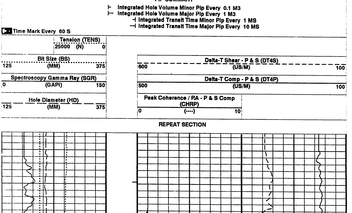
Spectroscopy Gamma Ray (SGR)
0 (GAPI) 150

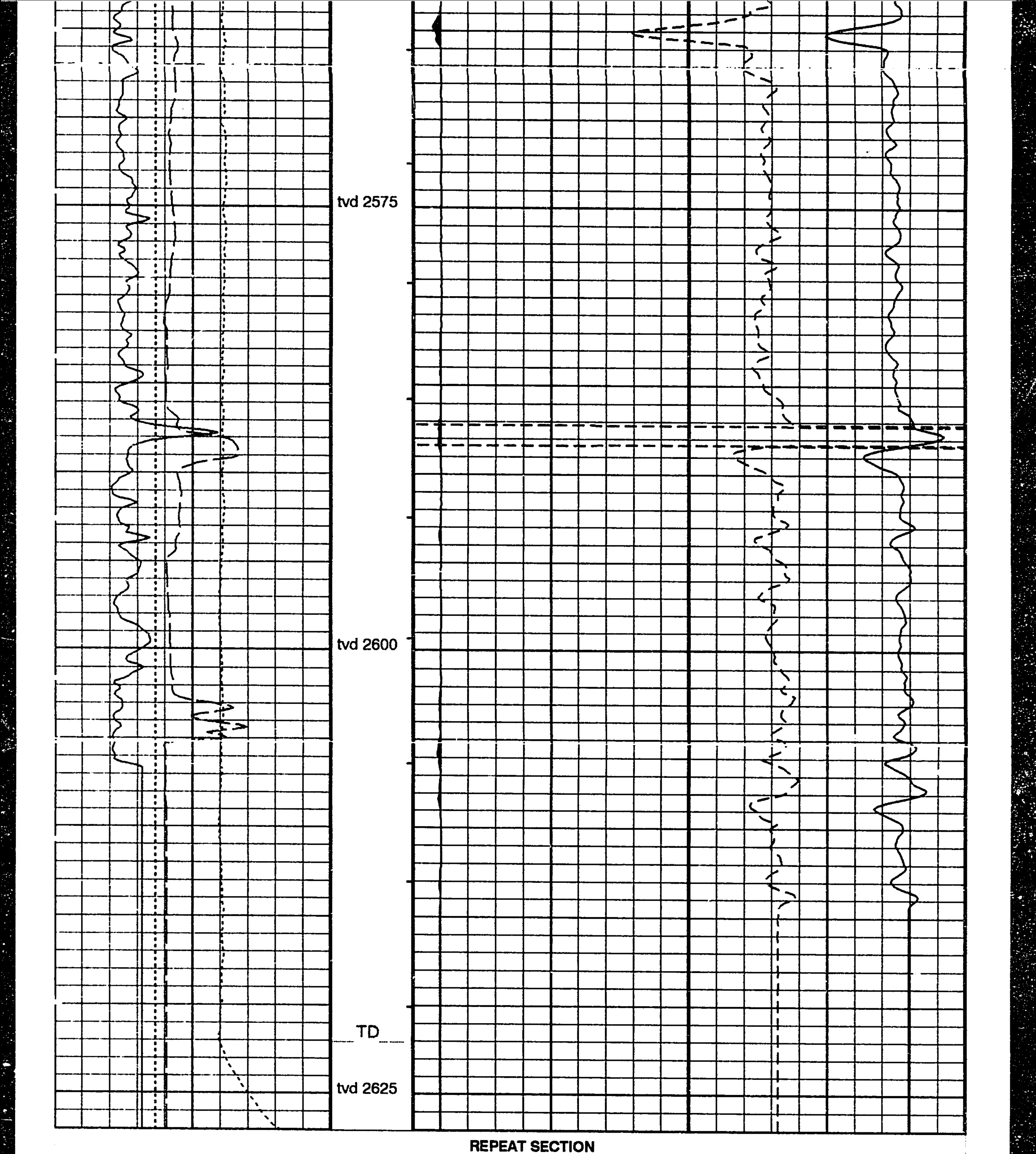
Delta-T Comp - P & S (DT4P)
500 (US/M) 100

Hole Diameter (HD)
125 (MM) 375

Peak Coherence / RA - P & S Comp
(CHRP)
0 (---) 10

REPEAT SECTION





REPEAT SECTION

Curve	Left	Units	Right
Hole Diameter (HD)	125	(MM)	375
Spectroscopy Gamma Ray (SGR)	0	(GAPI)	150
Bit Size (BS)	125	(MM)	375
Tension (TENS)	25000	(N)	0
Peak Coherence / RA - P & S Comp (CHRP)	0	(----)	10
Delta-T Comp - P & S (DT4P)	500	(US/M)	100
Delta-T Shear - P & S (DT4S)	600	(US/M)	100

PIP SUMMARY

Integrated Hole Volume Minor Pip Every 0.1 M3
Integrated Hole Volume Major Pip Every 1 M3
Integrated Transit Time Minor Pip Every 1 MS
Integrated Transit Time Major Pip Every 10 MS

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	216.000	MM
CASF	Label Casing Function - Monopole P&S	50	
CBAR	Constant Barite	1	
CGMI	Spectro Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectro Computed Gamma Ray Shale	100	GAPI
COLL	Label Slowness Lower Limit - Monopole P&S Compressional	100	US/M
COUL	Label Slowness Upper Limit - Monopole P&S Compressional	700	US/M
DFD	Drilling Fluid Density	1160.00	K/M3
DO	Depth Offset	0.0	M
DTF	Delta-T Fluid	620.079	US/M
FILG	Label Fill Gap Control - Monopole P&S	COMP_SHEAR	
KMIN	Potassium Minimum	0	
KSHA	Potassium Shale	0.02	
LFC	Label Formation Character - Monopole P&S	DYNAMIC	
MCS	Mean Casing Slowness	187.008	US/M
MTXG	Monopole Transmitter Geometry	4724	MM
NFO	NGT Filtering Option	KALMAN	
PBVSADP	Alternate depth channel playback enabled	YES	
PMUD	Potassium Mud	0	%
PP	Playback Processing	OFF	
RSMN	Label Shear/Compressional Minimum Ratio - Monopole P&S	1.4	
RSMX	Label Shear/Compressional Maximum Ratio - Monopole P&S	2.12	
RX1G	Receiver 1 Geometry	7468	MM
RX2G	Receiver 2 Geometry	7620	MM
RX3G	Receiver 3 Geometry	7772	MM
RX4G	Receiver 4 Geometry	7925	MM
RX5G	Receiver 5 Geometry	8077	MM
RX6G	Receiver 6 Geometry	8230	MM
RX7G	Receiver 7 Geometry	8382	MM
RX8G	Receiver 8 Geometry	8534	MM
SAS4	STC Sonic Array Status - Monopole P&S	255	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
SHLL	Label Slowness Lower Limit - Monopole P&S Shear	250	US/M
SHUL	Label Slowness Upper Limit - Monopole P&S Shear	700	US/M
SPVD	TVD of Starting Point	0	M
STLL	Label Slowness Lower Limit - Monopole Stoneley	200	US/M
STUL	Label Slowness Upper Limit - Monopole Stoneley	2550	US/M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	12	PPM
TWI4	STC Integration Time Window - Monopole P&S	500	US
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: DSI_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:32

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M	2590.0 M

Output DLIS Files

DEFAULT	DSSTB .035	FN:52	PRODUCER	10-Jan-1999 14:32
CUST	DSSTB .035	FN:53	CUSTOMER	10-Jan-1999 14:32

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Mechanical Caliper - G Wellsite Calibration - Electronics Calibration							
Before: 10-JAN-1999 11:43							
MCDG Counts Plus	377.0	N/A	376.3	N/A	N/A	N/A	
MCDG Counts Zero	103.0	N/A	103.0	N/A	N/A	N/A	
Mechanical Caliper - G Wellsite Calibration - Caliper Calibration							
Before: 10-JAN-1999 11:44							
Diameter Large Ring	304.8	N/A	326.0	N/A	N/A	N/A	MM
Diameter Small Ring	203.2	N/A	223.2	N/A	N/A	N/A	MM
Natural Gamma Spectroscopy - C Wellsite Calibration - Background Measurement							
Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33							
WINDOW 1 Background	100.0	40.17	40.64	N/A	N/A	100.0	CPS
WINDOW 2 Background	50.00	13.59	13.71	N/A	N/A	50.00	CPS
WINDOW 3 Background	10.00	3.861	3.729	N/A	N/A	10.00	CPS
WINDOW 4 Background	6.000	1.443	1.273	N/A	N/A	6.000	CPS
WINDOW 5 Background	10.00	1.623	1.384	N/A	N/A	10.00	CPS
SGR Background	30.00	15.88	15.92	N/A	N/A	N/A	GAPI
Natural Gamma Spectroscopy - C Wellsite Calibration - Normalized Jig Measurement							
Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38							
WINDOW 1 Jig	376.0	382.9	380.6	N/A	N/A	22.56	CPS
WINDOW 2 Jig	167.0	164.3	164.9	N/A	N/A	10.02	CPS
WINDOW 3 Jig	24.00	23.86	23.90	N/A	N/A	1.440	CPS
WINDOW 4 Jig	14.00	14.19	13.74	N/A	N/A	2.800	CPS
WINDOW 5 Jig	22.50	20.28	20.77	N/A	N/A	4.500	CPS
SGR Jig	162.0	162.0	161.6	N/A	N/A	7.000	GAPI
Natural Gamma Spectroscopy - C Master Calibration - Master Quality Control Values							
Master: 10-JAN-1999 11:08							
Photomultiplier Res. CARC3	8.000	9.066	--	--	--	--	
APU WINDOW Jig	1350	887.0	--	--	--	--	CPS
APL WINDOW Jig	1350	886.8	--	--	--	--	CPS

The NGT PCSL Value is set to 196.719 KEV

Mechanical Caliper - G / Equipment Identification

Primary Equipment:
Mechanical Caliper Device - G — MCD - G

Auxiliary Equipment:

Mechanical Caliper - G Wellsite Calibration — Electronics Calibration

Phase	MCDG Counts Plus	Value	Phase	MCDG Counts Zero	Value
Before		376.3	Before		103.0
	320.5 (Minimum) 377.0 (Nominal) 433.5 (Maximum)			87.55 (Minimum) 103.0 (Nominal) 118.4 (Maximum)	

Before: 10-JAN-1999 11:43

Mechanical Caliper - G Wellsite Calibration — Caliper Calibration

Phase	Diameter Large Ring MM	Value	Phase	Diameter Small Ring MM	Value
Before		326.0	Before		223.2
	259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)			172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)	

Before: 10-JAN-1999 11:44

Natural Gamma Spectroscopy - C / Equipment Identification

Primary Equipment:
NGT Cartridge — NGC - C — 1741
NGT Sonde — NGD - A

Auxiliary Equipment:
NGT Cartridge Housing — NGCH - A
NGT Sonde Housing — NGH - B
Gamma Source Radioactive — GSR - U

Natural Gamma Spectroscopy - C Wellsite Calibration — Background Measurement

Phase	WINDOW 1 Background CPS	Value	Phase	WINDOW 2 Background CPS	Value	Phase	WINDOW 3 Background CPS	Value
Master		40.17	Master		13.59	Master		3.861
Before		40.64	Before		13.71	Before		3.729
	0 (Minimum) 100.0 (Nominal) 400.0 (Maximum)			0 (Minimum) 50.00 (Nominal) 200.0 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)	
Phase	WINDOW 4 Background CPS	Value	Phase	WINDOW 5 Background CPS	Value	Phase	SGR Background GAPI	Value
Master		1.443	Master		1.623	Master		15.88
Before		1.373	Before		1.384	Before		15.92
	0 (Minimum) 6.000 (Nominal) 24.00 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	

Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33

Natural Gamma Spectroscopy - C Wellsite Calibration — Normalized Jig Measurement

Phase	WINDOW 1 Jig CPS	Value	Phase	WINDOW 2 Jig CPS	Value	Phase	WINDOW 3 Jig CPS	Value
Master		382.9	Master		164.3	Master		23.86
Before		380.6	Before		164.9	Before		23.90
	354.0 (Minimum) 376.0 (Nominal) 398.0 (Maximum)			155.0 (Minimum) 167.0 (Nominal) 179.0 (Maximum)			21.50 (Minimum) 24.00 (Nominal) 26.50 (Maximum)	
Phase	WINDOW 4 Jig CPS	Value	Phase	WINDOW 5 Jig CPS	Value	Phase	SGR Jig GAPI	Value
Master		14.19	Master		20.28	Master		162.0
Before		13.74	Before		20.77	Before		161.6
	12.50 (Minimum) 14.00 (Nominal) 15.50 (Maximum)			20.00 (Minimum) 22.50 (Nominal) 25.00 (Maximum)			150.0 (Minimum) 162.0 (Nominal) 174.0 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration — Quality Control Values

Phase	DHVF Jig V	Value	Phase	Quality Windows Ratio Jig	Value
Master		1328	Master		2.330
Before		1328	Before		2.308
	1088 (Minimum) 1450 (Nominal) 1813 (Maximum)			2.150 (Minimum) 2.240 (Nominal) 2.330 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration — Quality Control Values Check

Phase	Thorium peak Form Factor Jig	Value
Before		-0.005182
	-0.2000 (Minimum) 0 (Nominal) 0.2000 (Maximum)	

Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Master Calibration — Master Quality Control Values

Phase	Photomultiplier Res. CARC3	Value	Phase	APU WINDOW Jig CPS	Value	Phase	APL WINDOW Jig CPS	Value
Master		9.066	Master		887.0	Master		886.6
	4.500 (Minimum) 8.000 (Nominal) 11.50 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)	
Phase	Thorium peak Form Factor Jig	Value						
Master		-0.05029						
	-0.1000 (Minimum) 0 (Nominal) 0.1000 (Maximum)							

Master: 10-JAN-1999 11:08

Directional Survey Manually-Entered Inclinometry Summary

Tie In Point : Measured Depth True Vertical Depth
2080.00 M 2047.22 M

Depth	Deviation	True Vertical Depth	Depth	Deviation	True Vertical Depth
0.00 M	0.00 DEG	0.01 M	1655.60 M	20.60 DEG	1648.53 M
569.60 M	0.00 DEG	569.61 M	1665.20 M	21.20 DEG	1657.50 M
588.00 M	0.75 DEG	588.01 M	1674.80 M	21.20 DEG	1666.45 M
599.00 M	0.50 DEG	599.01 M	1684.50 M	21.10 DEG	1675.50 M
618.00 M	0.25 DEG	618.01 M	1694.20 M	21.00 DEG	1684.55 M
667.00 M	0.25 DEG	667.01 M	1703.80 M	21.10 DEG	1693.51 M
714.00 M	1.00 DEG	714.01 M	1713.00 M	21.30 DEG	1702.08 M
724.00 M	1.00 DEG	724.00 M	1722.80 M	21.40 DEG	1711.21 M
743.00 M	1.25 DEG	743.00 M	1732.50 M	21.30 DEG	1720.25 M
764.00 M	1.25 DEG	764.00 M	1751.90 M	21.10 DEG	1738.33 M
783.00 M	1.25 DEG	782.99 M	1761.60 M	21.00 DEG	1747.39 M
792.00 M	1.25 DEG	791.99 M	1771.30 M	20.90 DEG	1756.44 M
802.00 M	1.25 DEG	801.99 M	1780.90 M	20.70 DEG	1765.42 M
821.00 M	1.50 DEG	820.98 M	1790.60 M	20.50 DEG	1774.50 M
839.00 M	1.50 DEG	838.97 M	1800.10 M	20.40 DEG	1783.40 M
866.00 M	1.25 DEG	865.97 M	1809.90 M	20.20 DEG	1792.59 M
893.00 M	1.00 DEG	892.96 M	1819.60 M	20.30 DEG	1801.69 M
940.00 M	1.00 DEG	939.95 M	1829.30 M	20.20 DEG	1810.79 M
992.00 M	1.00 DEG	991.95 M	1839.00 M	20.00 DEG	1819.90 M
1049.00 M	3.00 DEG	1048.91 M	1848.70 M	19.90 DEG	1829.02 M
1067.00 M	3.25 DEG	1066.88 M	1858.30 M	20.20 DEG	1838.04 M
1087.00 M	3.13 DEG	1086.85 M	1868.30 M	20.40 DEG	1847.42 M
1102.00 M	3.25 DEG	1101.83 M	1877.30 M	20.10 DEG	1855.86 M
1126.00 M	3.00 DEG	1125.79 M	1887.10 M	20.00 DEG	1865.07 M
1146.00 M	2.75 DEG	1145.77 M	1896.60 M	20.00 DEG	1873.99 M
1175.00 M	2.10 DEG	1174.74 M	1906.30 M	19.80 DEG	1883.11 M
1211.00 M	1.60 DEG	1210.72 M	1916.00 M	19.80 DEG	1892.24 M
1233.00 M	1.50 DEG	1232.71 M	1925.70 M	19.80 DEG	1901.37 M
1281.00 M	1.50 DEG	1280.70 M	1945.20 M	19.80 DEG	1919.71 M
1367.80 M	1.50 DEG	1367.47 M	1954.80 M	19.90 DEG	1928.74 M
1380.90 M	1.30 DEG	1380.56 M	1974.30 M	19.90 DEG	1947.08 M
1390.70 M	1.00 DEG	1390.36 M	1983.90 M	19.90 DEG	1956.11 M
1400.30 M	0.90 DEG	1399.96 M	1993.70 M	19.60 DEG	1965.33 M
1409.09 M	0.80 DEG	1408.75 M	2003.50 M	19.30 DEG	1974.57 M
1419.70 M	1.20 DEG	1419.36 M	2013.20 M	19.30 DEG	1983.73 M
1429.50 M	2.10 DEG	1429.15 M	2022.90 M	18.90 DEG	1992.89 M
1439.10 M	3.50 DEG	1438.74 M	2034.50 M	18.50 DEG	2003.88 M
1448.80 M	5.10 DEG	1448.41 M	2042.20 M	18.30 DEG	2011.19 M
1458.40 M	6.60 DEG	1457.96 M	2051.30 M	18.10 DEG	2019.83 M
1468.10 M	7.80 DEG	1467.59 M	2055.60 M	18.00 DEG	2023.92 M
1477.90 M	8.70 DEG	1477.29 M	2080.00 M	16.50 DEG	2047.22 M
1487.70 M	9.60 DEG	1486.96 M	2091.00 M	15.50 DEG	2057.79 M
1497.40 M	10.40 DEG	1496.51 M	2130.00 M	13.10 DEG	2095.58 M
1507.00 M	11.30 DEG	1505.94 M	2160.00 M	12.00 DEG	2124.87 M
1516.80 M	12.00 DEG	1515.54 M	2207.00 M	9.75 DEG	2171.02 M
1526.60 M	12.50 DEG	1525.12 M	2246.00 M	7.88 DEG	2209.56 M
1536.20 M	13.10 DEG	1534.48 M	2284.00 M	6.75 DEG	2247.25 M
1546.00 M	13.40 DEG	1544.02 M	2320.00 M	5.25 DEG	2283.05 M
1555.60 M	14.20 DEG	1553.34 M	2359.00 M	5.25 DEG	2321.88 M
1568.40 M	15.30 DEG	1565.72 M	2399.00 M	5.00 DEG	2361.72 M
1578.20 M	16.20 DEG	1575.15 M	2436.00 M	4.50 DEG	2398.60 M
1587.90 M	17.00 DEG	1584.45 M	2475.00 M	4.00 DEG	2437.49 M
1597.50 M	17.60 DEG	1593.61 M	2513.00 M	4.00 DEG	2475.40 M
1607.20 M	18.10 DEG	1602.84 M	2522.00 M	3.50 DEG	2484.38 M
1616.90 M	18.50 DEG	1612.05 M	2561.00 M	2.75 DEG	2523.32 M
1626.60 M	19.00 DEG	1621.24 M	2600.00 M	2.75 DEG	2562.27 M
1636.40 M	19.50 DEG	1630.49 M	2648.00 M	1.50 DEG	2610.24 M
1646.00 M	20.00 DEG	1639.53 M	2660.00 M	1.19 DEG	2622.24 M

COMPANY	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2614 m
		SCHLUMBERGER DEPTH	2622.24 m
WELL	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

DIPOLE SHEAR SONIC
IMAGER LOG
TRUE VERTICAL DEPTH

COMPANY: CANADIAN FOREST OIL LTD.
WELL: CDN FOREST ET AL FLETT RAPIDS
FIELD: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

Schlumberger
COMPACTABLE NEUTRON
LITHODENSITY LOG

PROVINCE:NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: 14H-60-50-123-13
Well: CDN FOREST ET AL FLETT RA
Company: CANADIAN FOREST OIL LTD

LOCATION
Permanent Datum: GROUND LEVEL
Log Measured From: KELLY BUSHING
Drilling Measured From: KELLY BUSHING

Elev.:	K.B.:	365.5 m	
	D.F.:	363.7 m	
	G.L.:	354.5 m	
Date:	25-Jan-99		
Run No.:	ONE		
Depth-Driller:	2664.0 m		
Depth-Logger:	2664.5 m		
Bottom Log Interval:	2662.5 m		
Top Log Interval:	2000.0 m		
Casing-Driller:	339.0 m @		
Casing-Logger:	339.0 m		
Bit Size:	200.0 mm		
Type Fluid in Hole:	GEL CHEM		
Density:	1.20 g/cm3		
Viscosity:	60.0 s		
Fluid Loss:	10.0 cm3		
Source:	RM	RF	
Rm @ Measured Temperature:	0.200 @ 20.0 C		
Rmf @ Measured Temperature:	0.150 @ 20.0 C		
Rmc @ Measured Temperature:	0.300 @ 20.0 C		
Source Rmf / Rmc:	MEASURED	MEASURED	
Rm @ BHT:	0.120 @ 125.0 C		
Maximum Recorded Temperatures:	125.0 C	125.0 C	
Circulation Stopped:	12:00	12:00	
Logger On Bottom:	16:00	16:00	
Unit Number:	2	2	
Location:	Time	Date	
Recorded By:	DON CARDIN		
Witnessed By:	BRIAN BOUCHER		

Run	Service Order	Depth-Driller	Depth-Logger	Bottom Log Interval	Top Log Interval	Casing Driller Size @ Depth	Casing Logger Size @ Depth	Bit Size	Type Fluid in Hole	Density	Viscosity	Fluid Loss	Source Sample	Rm @ Measured Temperature	Rmf @ Measured Temperature	Rmc @ Measured Temperature	Source Rmf / Rmc	Rm @ BHT	Maximum Recorded Temperatures	Circulation Stopped	Logger On Bottom	Unit Number	Location	Recorded By	Witnessed By
1	AT Start No.	339.0 m	339.0 m	339.0 m	0.0 m	339.0 m @ 0.0 m	339.0 m	200.0 mm	GEL CHEM	1.20 g/cm3	60.0 s	10.0 cm3	RM	0.200 @ 20.0 C	0.150 @ 20.0 C	0.300 @ 20.0 C	MEASURED	0.120 @ 125.0 C	125.0 C	12:00	16:00	2	Time	DON CARDIN	BRIAN BOUCHER
2	AT Start No.	1000.0 m	1000.0 m	1000.0 m	339.0 m	339.0 m @ 339.0 m	339.0 m	200.0 mm	GEL CHEM	1.20 g/cm3	60.0 s	10.0 cm3	RM	0.200 @ 20.0 C	0.150 @ 20.0 C	0.300 @ 20.0 C	MEASURED	0.120 @ 125.0 C	125.0 C	12:00	16:00	2	Time	DON CARDIN	BRIAN BOUCHER
3	AT Start No.	2000.0 m	2000.0 m	2000.0 m	1000.0 m	339.0 m @ 1000.0 m	339.0 m	200.0 mm	GEL CHEM	1.20 g/cm3	60.0 s	10.0 cm3	RM	0.200 @ 20.0 C	0.150 @ 20.0 C	0.300 @ 20.0 C	MEASURED	0.120 @ 125.0 C	125.0 C	12:00	16:00	2	Time	DON CARDIN	BRIAN BOUCHER
4	AT Start No.	2664.0 m	2664.5 m	2662.5 m	2000.0 m	339.0 m @ 2000.0 m	339.0 m	200.0 mm	GEL CHEM	1.20 g/cm3	60.0 s	10.0 cm3	RM	0.200 @ 20.0 C	0.150 @ 20.0 C	0.300 @ 20.0 C	MEASURED	0.120 @ 125.0 C	125.0 C	12:00	16:00	2	Time	DON CARDIN	BRIAN BOUCHER

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 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
DS1: DLL-LDT-CNL-EDAC-GR
DS2: DIB-NGT
DS3: FM-GR
DS4: LDONETS
DS5:

OTHER SERVICES2
DS1:
DS2:
DS3:
DS4:
DS5:

REMARKS: RUN NUMBER 1
- ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST
- DLL-LDT-CNL-EDAC-GR-SP FIRST PASS, DS NOT SECOND PASS AND FM-GR THIRD PASS.
- BRIDGED WITH FIRST PASS 12:00 9-JAN-1999, 2510M, SPCHE THE EDAC.
- WAVEFIRST PASS WITH NO EDAC

REMARKS: RUN NUMBER 2

RIG: NABORS 240
PRINTS: 1 FIELD AND 1 FINALS
OPERATORS: GREG *+OT HEAD SOYD AND MARK *FEENY WEENY* FURCELL

RUN 1			RUN 2		
SERVICE ORDER # :		1055/303	SERVICE ORDER # :		
LOGGING UNIT NMBR:		9C0-413	LOGGING UNIT NMBR:		
FLUID LEVEL:			FLUID LEVEL:		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

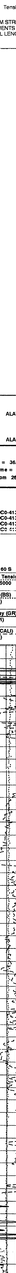
EQUIPMENT DESCRIPTION

RUN 1 — RUN 2

SURFACE EQUIPMENT
WITM (DT)0-A

CDF-AA-124
CDF-B
NCS-VB
GSR-UY 1237

DOWNHOLE EQUIPMENT



LEH-QT	24.97
SPA-A	24.08
	23.47
DTC-H	22.86
	22.58
	21.95
DTA-A	21.95
SGT-N	20.73
	20.45
AH-107	19.05
CNT-H	18.44
	17.09
	16.94
LDT-D	16.23
	11.78
	11.73
	11.58
AH-107	10.95
ALAT-B	10.34
	9.47
	7.98
	4.89
AH-169	0.41
	0.00

MAXIMUM STRING DIAMETER 114 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	ALATB.015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M / 2054.5 M

Output DLIS Files

DEFAULT	ALATB.019	FN:30	PRODUCER	10-Jan-1999 09:21	2664.6 M / 2054.7 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3
Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2067.8 M using data channel(s) CALI

OP System Version: 9C0-413

	MCM		MCM
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
DTA-A	9C0-413		

PIP SUMMARY
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Tension (TENS)	
25500 (N)	0

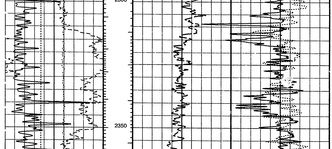
Bit Size (BS)	
125 (MM)	375

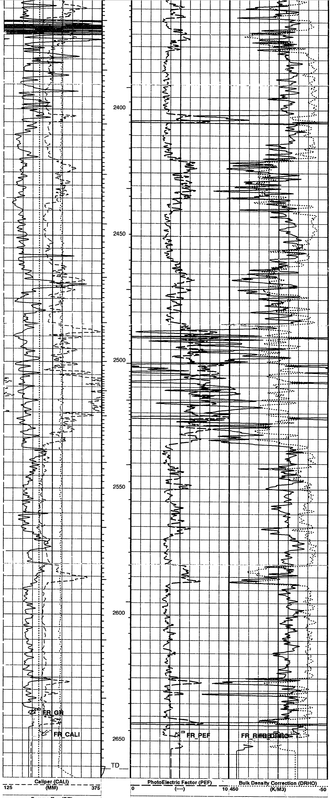
Gamma Ray (GR)	
0 (GAPI)	150

Caliper (CALI)	
125 (MM)	375

Bulk Density (RHOB)	
2000 (K/M3)	3000

Photoelectric Factor (PEF)		Bulk Density Correction (DRHO)	
0 (b/e)	10	-150 (K/M3)	150





PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BFM	Borehole Fluid Medium	LIQUID	
BS	Bit Size	216.000	MM
DHC	Density Hole Correction	STD	
DO	Depth Offset	0.0	M
DOPL	Depth Offset Repeat Analysis	0.0	M
DPRM	Density Processing Processing Mode	STAND	
FD	Fluid Density	1000	K/M3
LBTR	Trigger for MAXIS First Reading Label	371	
MDCR	Mud Density Cut Off	2000	K/M3
MP	Playback Processing	NORMAL	
SPVD	TVD of Starting Point	0	M
TCD	Total Cement Depth	1.534	M
TDD	Total Depth - Driller	2854.6	M
TDL	Total Depth - Logger	2860.00	M
TIME	Alloop-hole depth of Tie-In Point	0000	M
TVD	TVD of Tie-In Point	3047.22	M
WHP	Wellhead Pressure	1100	KPA

Format: PORO_2 Vertical Scale: 1:600 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-D	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTC-H	9C0-413	UTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.015	FN:25 PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.015	FN:26 PRODUCER	10-Jan-1999 09:21		

Input DLIS Files

DEFAULT	ALATB.015	FN:26 PRODUCER	10-Jan-1999 09:21	2664.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB.019	FN:30 PRODUCER	10-Jan-1999 09:21	2664.6 M	2054.7 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3

Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)

Computed from 2850.0 M to 2067.8 M using data channel(s): CALI

OP System Version: 9C0-413

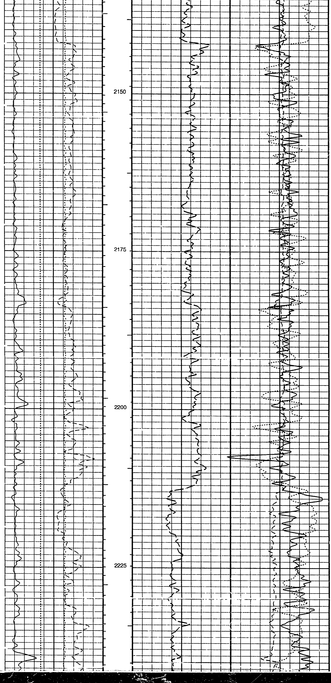
MCM

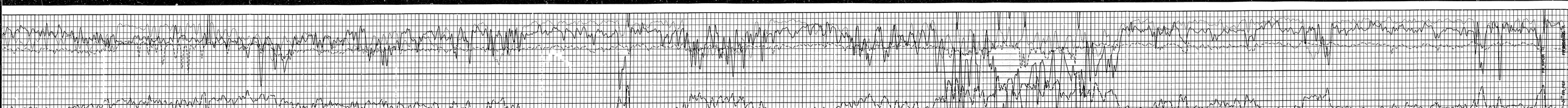
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

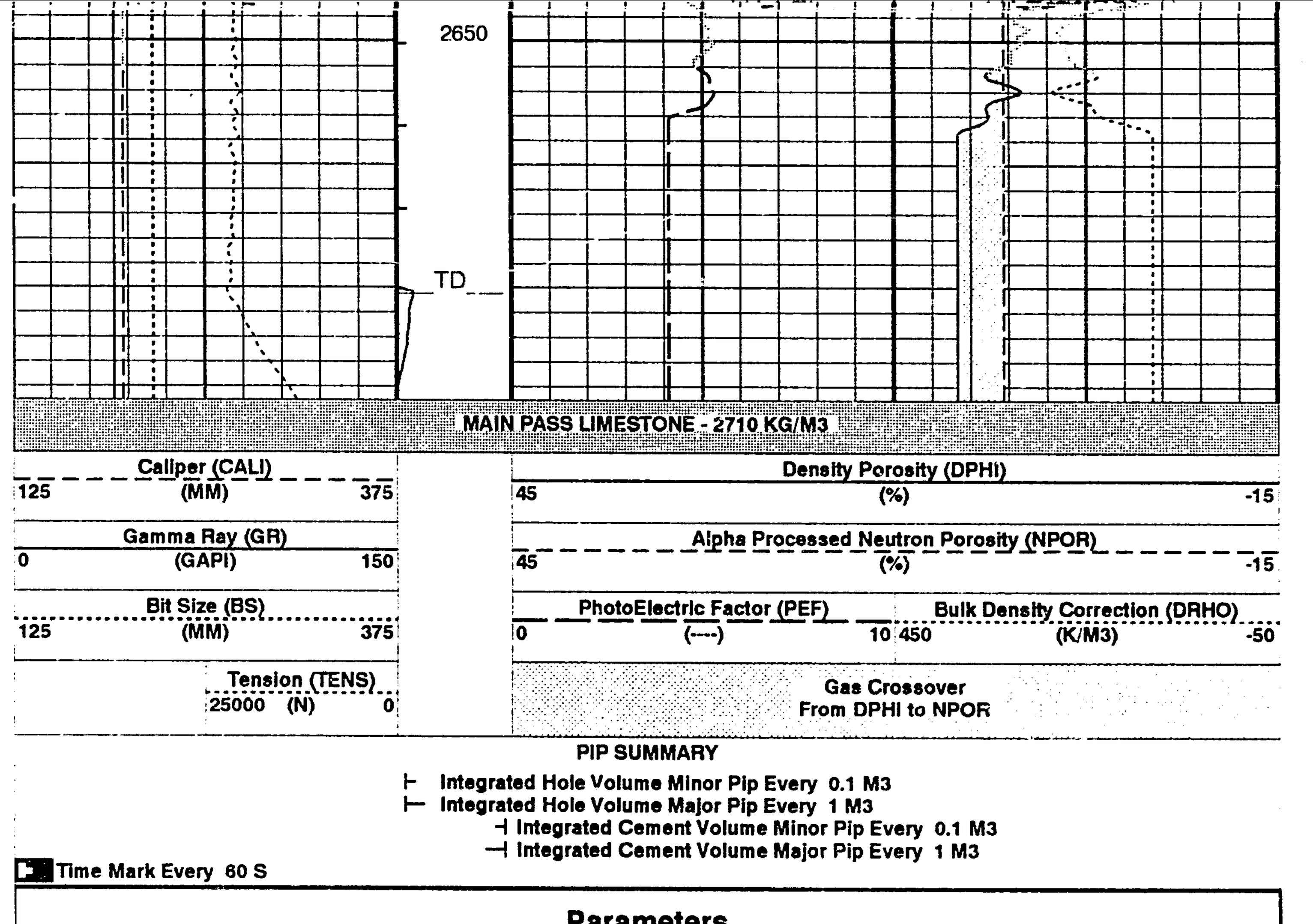
PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S




2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600
2625
CALIBER
GR (API)
CALIBER
GR (API)



MAIN PASS LIMESTONE - 2710 KG/M3

Caliper (CALI) 125 (MM) 375
Density Porosity (DPHI) 45 (%) -15
Gamma Ray (GR) 0 (GAPI) 150
Alpha Processed Neutron Porosity (NPOR) 45 (%) -15
Bit Size (BS) 125 (MM) 375
PhotoElectric Factor (PEF) 0 (----) 10
Bulk Density Correction (DRHO) 450 (K/M3) -50
Tension (TENS) 25000 (N) 0
Gas Crossover From DPHI to NPOR

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BFM	Borehole Fluid Medium	LIQUID	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	216.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CSIZ	Current Casing Size	244.500	MM
CWEI	Casing Weight	64.73	KG/M
DFD	Drilling Fluid Density	1160.00	K/M3
DHC	Density Hole Correction	BS	
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	1.0	M
DPPM	Density Porosity Processing Mode	STAN	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
LBFR	Trigger for MAXIS First Reading Label	STI	
MATR	Rock Matrix Type	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2710	K/M3
MST	Mud Sample Temperature	20.56	DEGC
MWCO	Mud Weight Correction Option	NO	
PP	Playback Processing	NORMAL	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	0.2100	OHMM
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	12.7	MM
SOCO	Standoff Correction Option	NO	
SPVD	TVD of Starting Point	0	M
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
WMUD	Mud Weight	1160	K/M3

Format: PORO_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M
DEFAULT	ALATB .013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2584.6 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

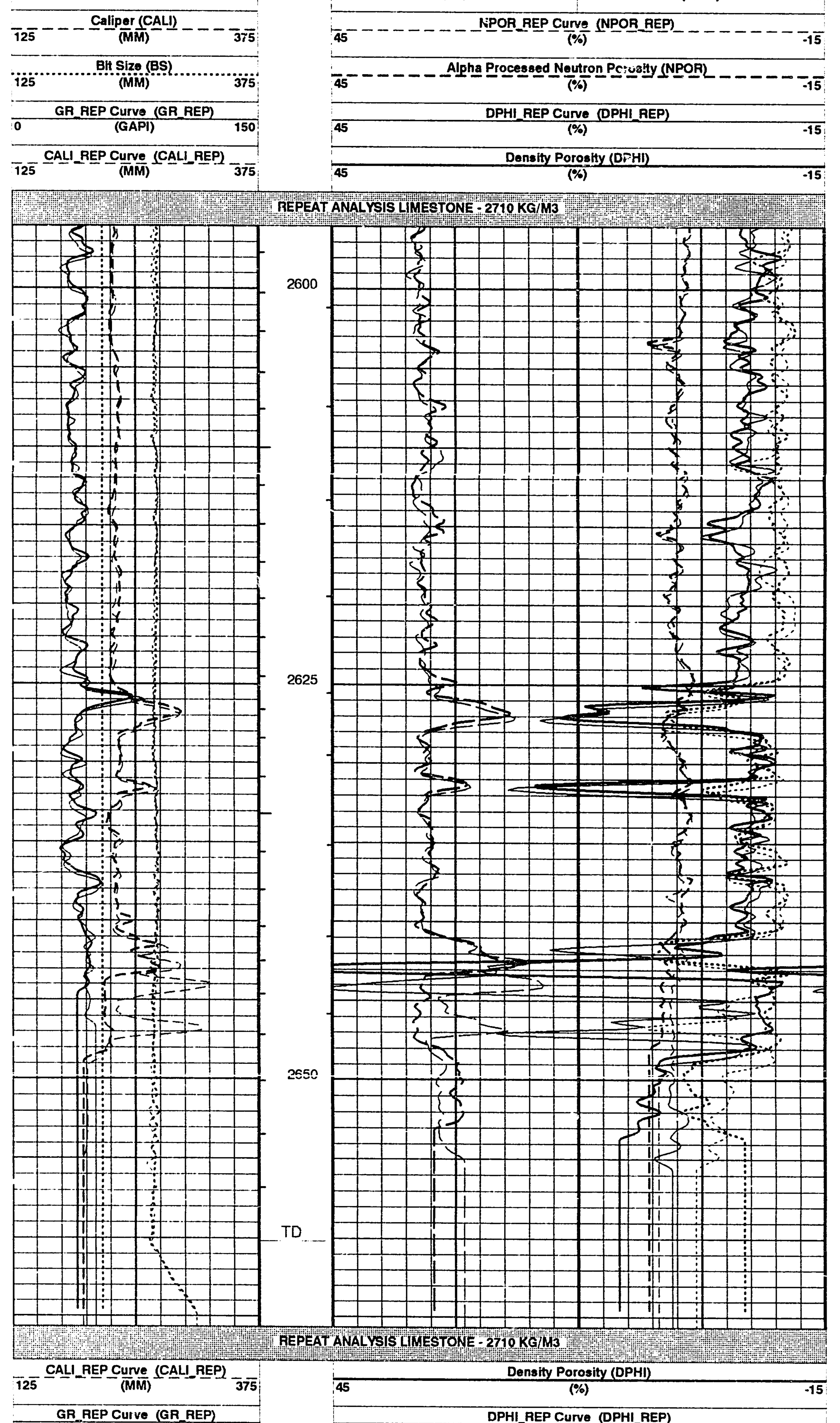
PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

TENS_REP Curve (TENS_REP) 25000 (N) 0
Tension (TENS) 25000 (N) 0
PEF_REP Curve (PEF_REP) 0 (----) 10
DRHO_REP Curve (DRHO_REP) 450 (K/M3) -50
Gamma Ray (GR) 0 (GAPI) 150
PhotoElectric Factor (PEF) 0 (----) 10
Bulk Density Correction (DRHO) 450 (K/M3) -50
Caliper (CALI) 125 (MM) 375
NPOR_REP Curve (NPOR_REP) 45 (%) -15
Bit Size (BS) 125 (MM) 375
Alpha Processed Neutron Porosity (NPOR) 45 (%) -15
GR_REP Curve (GR_REP) 0 (GAPI) 150
DPHI_REP Curve (DPHI_REP) 45 (%) -15
CALI_REP Curve (CALI_REP) 125 (MM) 375
Density Porosity (DPHI) 45 (%) -15

REPEAT ANALYSIS LIMESTONE - 2710 KG/M3



REPEAT ANALYSIS LIMESTONE - 2710 KG/M3

CALI_REP Curve (CALI_REP) 125 (MM) 375
Density Porosity (DPHI) 45 (%) -15
GR_REP Curve (GR_REP) 0 (GAPI) 150
DPHI_REP Curve (DPHI_REP) 45 (%) -15
Bit Size (BS) 125 (MM) 375
Alpha Processed Neutron Porosity (NPOR) 45 (%) -15
Caliper (CALI) 125 (MM) 375
NPOR_REP Curve (NPOR_REP) 45 (%) -15
Gamma Ray (GR) 0 (GAPI) 150
PhotoElectric Factor (PEF) 0 (----) 10
Bulk Density Correction (DRHO) 450 (K/M3) -50
Tension (TENS) 25000 (N) 0
PEF_REP Curve (PEF_REP) 0 (----) 10
DRHO_REP Curve (DRHO_REP) 450 (K/M3) -50
TENS_REP Curve (TENS_REP) 25000 (N) 0

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BFM	Borehole Fluid Medium	LIQUID	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	216.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CSIZ	Current Casing Size	244.500	MM
CWEI	Casing Weight	64.73	KG/M
DFD	Drilling Fluid Density	1160.00	K/M3
DHC	Density Hole Correction	BS	
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	1.0	M
DPPM	Density Porosity Processing Mode	STAN	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix Type	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2710	K/M3
MST	Mud Sample Temperature	20.56	DEGC
MWCO	Mud Weight Correction Option	NO	
PP	Playback Processing	NORMAL	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	0.2100	OHMM
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	12.7	MM
SOCO	Standoff Correction Option	NO	
SPVD	TVD of Starting Point	0	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
WMUD	Mud Weight	1160	K/M3

Format: PORO_REP Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:22

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M
DEFAULT	ALATB .013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2584.6 M

Output DLIS Files

DEFAULT	ALATB .019	FN:30	PRODUCER	10-Jan-1999 09:21

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Azimuthal Laterolog Wellsite Calibration - El. StandOff Current - Checking - (Modulus and Phase)							
Before: 9-JAN-1999 8:26							
El. StandOff Current	197.0	N/A	207.7	N/A	N/A	N/A	UA
El. StandOff Current	0	N/A	-4.124	N/A	N/A	N/A	DEG
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Modulus Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	66.83	N/A	68.26	N/A	N/A	0.8800	MV
DLT Shallow Voltage	-56.84	N/A	-57.00	N/A	N/A	0.2900	MV
DLT Groningen Voltage	66.83	N/A	65.97	N/A	N/A	0.8800	MV
DLT Deep Current	2115	N/A	2149	N/A	N/A	[illegible]	UA
DLT Shallow Current	-1799	N/A	-1797	N/A	N/A	9.270	UA
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Phases Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	0	N/A	0.6649	N/A	N/A	2.800	DEG
DLT Shallow Voltage	0	N/A	-2.244	N/A	N/A	4.000	DEG
DLT Groningen Voltage	0	N/A	-1.301	N/A	N/A	2.800	DEG
DLT Deep Current	0	N/A	2.376	N/A	N/A	2.800	DEG
DLT Shallow Current	0	N/A	-1.088	N/A	N/A	4.000	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Voltages (Modulus and Phase) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Voltage	66.83	N/A	64.73	N/A	N/A	0.8800	MV
Az. Laterolog Voltage	0	N/A	-1.378	N/A	N/A	2.800	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Currents (Modulus and Phases) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Current - 0	-45.46	N/A	-45.75	N/A	N/A	0.6000	UA
Az. Laterolog Current - 1	-45.46	N/A	-44.12	N/A	N/A	0.6000	UA
Az. Laterolog Current - 2	-45.46	N/A	-42.77	N/A	N/A	0.6000	UA
Az. Laterolog Current - 3	-45.46	N/A	-43.95	N/A	N/A	0.6000	UA
Az. Laterolog Current - 4	-45.46	N/A	-46.85	N/A	N/A	0.6000	UA
Az. Laterolog Current - 5	-45.46	N/A	-44.11	N/A	N/A	0.6000	UA
Az. Laterolog Current - 6	-45.46	N/A	-46.10	N/A	N/A	0.6000	UA
Az. Laterolog Current - 7	-45.46	N/A	-45.97	N/A	N/A	0.6000	UA
Az. Laterolog Current - 8	-45.46	N/A	-46.09	N/A	N/A	0.6000	UA
Az. Laterolog Current - 9	-45.46	N/A	-45.24	N/A	N/A	0.6000	UA
Az. Laterolog Current - 10	-45.46	N/A	-43.96	N/A	N/A	0.6000	UA
Az. Laterolog Current - 11	-45.46	N/A	-43.73	N/A	N/A	0.6000	UA
Az. Laterolog Current - 0	0	N/A	1.019	N/A	N/A	2.800	DEG
Az. Laterolog Current - 1	0	N/A	-1.742	N/A	N/A	2.800	DEG
Az. Laterolog Current - 2	0	N/A	-2.926	N/A	N/A	2.800	DEG
Az. Laterolog Current - 3	0	N/A	-1.899	N/A	N/A	2.800	DEG
Az. Laterolog Current - 4	0	N/A	2.504	N/A	N/A	2.800	DEG
Az. Laterolog Current - 5	0	N/A	-2.331	N/A	N/A	2.800	DEG
Az. Laterolog Current - 6	0	N/A	0.5241	N/A	N/A	2.800	DEG
Az. Laterolog Current - 7	0	N/A	0.1780	N/A	N/A	2.800	DEG
Az. Laterolog Current - 8	0	N/A	1.226	N/A	N/A	2.800	DEG
Az. Laterolog Current - 9	0	N/A	0.2502	N/A	N/A	2.800	DEG
Az. Laterolog Current - 10	0	N/A	-1.422	N/A	N/A	2.800	DEG
Az. Laterolog Current - 11	0	N/A	-2.691	N/A	N/A	2.800	DEG
Litho Density - D Wellsite Calibration - Background Measurement							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LL Background	20.00	19.58	19.41	N/A	N/A	1.000	CPS
LU Background	76.00	75.86	75.49	N/A	N/A	1.000	CPS
LS Background	57.00	57.51	57.16	N/A	N/A	1.000	CPS
LITH Background	5.500	5.556	5.545	N/A	N/A	0.3000	CPS
SS1 Background	16.00	16.79	16.65	N/A	N/A	0.5000	CPS
SS2 Background	11.00	11.50	11.48	N/A	N/A	0.5000	CPS
Litho Density - D Wellsite Calibration - Tool Quality Control Information HV							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LSHV Background	1500	1293	1292	N/A	N/A	N/A	V
SSHV Background	1500	1362	1364	N/A	N/A	N/A	V
Litho Density - D Wellsite Calibration - Detectors Resolution From BKG Measurments							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LS Resolution Background	8.000	9.267	9.374	N/A	N/A	N/A	
SS Resolution Background	8.000	9.284	9.068	N/A	N/A	N/A	
Litho Density - D Wellsite Calibration - Caliper Calibration							
Before: 9-JAN-1999 8:46							
Caliper Small Ring	203.2	N/A	228.4	N/A	N/A	N/A	MM
Caliper Large Ring	304.8	N/A	330.6	N/A	N/A	N/A	MM
Litho Density - D Master Calibration - Aluminum Measurement							
Master: 12-DEC-1998 16:17							
LL Aluminum	90.00	89.03	--	--	--	--	CPS
LU Aluminum	135.0	134.4	--	--	--	--	CPS
LS Aluminum	155.0	156.2	--	--	--	--	CPS
LITH Aluminum	50.00	55.51	--	--	--	--	CPS
SS1 Aluminum	175.0	168.8	--	--	--	--	CPS
SS2 Aluminum	260.0	253.5	--	--	--	--	CPS
Litho Density - D Master Calibration - Litholog Measurement							
Master: 12-DEC-1998 16:02							
LL Iron	80.00	79.07	--	--	--	--	CPS
LU Iron	120.0	118.6	--	--	--	--	CPS
LS Iron	135.0	138.3	--	--	--	--	CPS
LITH Iron	30.00	35.29	--	--	--	--	CPS
SS1 Iron	155.0	148.2	--	--	--	--	CPS
SS2 Iron	245.0	228.6	--	--	--	--	CPS
Litho Density - D Master Calibration - Spectrum Quality Ratios							
Master: 12-DEC-1998 16:34							
QRLS Calculated	0.6500	0.6624	--	--	--	--	
QRSS Calculated	0.7200	0.6658	--	--	--	--	
QRLI Calculated	0.3900	0.3554	--	--	--	--	
QLIR Calculated	1.390	1.393	--	--	--	--	
QR Calculated	1 000	0.9911	--	--	--	--	
Compensated Neutron - H Wellsite Calibration - Zero Measurement							
Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23							
CNTC Background	27.89	27.89	27.54	N/A	N/A	4.183	CPS
CFTC Background	29.16	29.16	30.26	N/A	N/A	4.374	CPS
Compensated Neutron - H Master Calibration - Tank Measurement							
Master: 8-JAN-1999 0:33							
Thermal Near Corr. (Tank)	6031	6518	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2749	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.372	--	--	--	--	
Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration							
Before: 9-JAN-1999 8:38							
Gamma Ray (Jig - Bkg)	162.3	N/A	162.3	N/A	N/A	14.76	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCT-B Water Temperature 16.3 DEGC.
Thermal Housing Size 85.613 MM.

Azimuthal Laterolog / Equipment Identification

Primary Equipment:

Azimuthal Laterolog Standard Sub ALSS - A

Auxiliary Equipment:

Dual Laterolog Electrode	DLE - H	719
Dual Laterolog Sonde	DLS - H	813
Azimuthal Laterolog Housing	ALAH - A	
Azimuthal Laterolog Sonde Cartridge	ALSC - B	
Azimuthal Laterolog Controller Cartridge	ALCC - B	725
Laterolog Control Module	LCM - AA	724

Azimuthal Laterolog Wellsite Calibration
El. StandOff Current - Checking - (Modulus and Phase)

Measurement	Phase	Minimum	Nominal	Maximum	Value
El. StandOff Current UA	Before	157.6	197.0	236.4	207.7
El. StandOff Current DEG	Before	-18.00	0	18.00	-4.124

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In Phase DLT Currents and Voltages Zero Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
DLT Deep Voltage {P} Zero MV	Before	-0.02470	0	0.02470	0.0002012
DLT Shallow Voltage {P} Zero MV	Before	-0.02470	0	0.02470	0.005491
DLT Groningen Voltage {P} Zero MV	Before	-0.02470	0	0.02470	-0.0004845
DLT Deep Current {P} Zero UA	Before	-0.08800	0	0.08800	0.005772
DLT Shallow Current {P} Zero UA	Before	-0.1760	0	0.1760	0.02588

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Out Of Phase DLT Currents and Voltages Zero Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
DLT Deep Voltage {Q} Zero MV	Before	-0.02470	0	0.02470	-0.0007873
DLT Shallow Voltage {Q} Zero MV	Before	-0.02470	0	0.02470	-0.001725
DLT Groningen Voltage {Q} Zero MV	Before	-0.02470	0	0.02470	0.0009256
DLT Deep Current {Q} Zero UA	Before	-0.08800	0	0.08800	-0.002085
DLT Shallow Current {Q} Zero UA	Before	-0.1760	0	0.1760	-0.05064

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Modulus Plus Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
DLT Deep Voltage MV	Before	60.15	66.83	73.51	68.26
DLT Shallow Voltage MV	Before	-61.39	-56.84	-52.29	-57.00
DLT Groningen Voltage MV	Before	60.15	66.83	73.51	65.97
DLT Deep Current UA	Before	2009	2115	2221	2149
DLT Shallow Current UA	Before	-1943	-1799	-1656	-1797

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Phases Plus Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
DLT Deep Voltage DEG	Before	-10.00	0	10.00	0.6649
DLT Shallow Voltage DEG	Before	-15.00	0	15.00	-2.244
DLT Groningen Voltage DEG	Before	-10.00	0	10.00	-1.301
DLT Deep Current DEG	Before	-10.00	0	10.00	2.376
DLT Shallow Current DEG	Before	-15.00	0	15.00	-1.088

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages Zero Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
Az Laterolog Voltage {P} Zero MV	Before	-0.02470	0	0.02470	-0.0006216
Az. Laterolog Voltage {Q} Zero MV	Before	-0.02470	0	0.02470	-0.001095

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages (Modulus and Phase) Plus Measurements

Measurement	Phase	Minimum	Nominal	Maximum	Value
Az. Laterolog Voltage MV	Before	60.15	66.83	73.51	64.73
Az. Laterolog Voltage DEG	Before	-10.00	0	10.00	-1.378

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In and Out Of Phase Azimuthal Currents Zero Measurements

Az. Laterolog Current {P} Zero UA: Minimum -0.006560, Nominal 0, Maximum 0.006560. Az Laterolog Current {Q} Zero UA: Minimum -0.006560, Nominal 0, Maximum 0.006560.

Phase	Az. Laterolog Current {P} Zero UA Value	Phase	Az Laterolog Current {Q} Zero UA Value
Before	-0.0001850	Before	-1.121E-00
Before	-0.0006922	Before	0.0001941
Before	0.0003246	Before	0.0001833
Before	0.0006009	Before	-0.0002004
Before	0.0001004	Before	-0.0002452
Before	-9.675E-00	Before	-0.0001606
Before	0.0001745	Before	0.0003708
Before	-0.0001427	Before	0.0003453
Before	-0.0006144	Before	-0.0004346
Before	0.0002321	Before	0.0004988
Before	0.0001558	Before	0.0003296
Before	0.0002317	Before	-4.660E-00

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Currents (Modulus and Phases) Plus Measurements

Az. Laterolog Current UA: Minimum -50.01, Nominal -45.46, Maximum -40.91. Az Laterolog Current DEG: Minimum -10.00, Nominal 0, Maximum 10.00.

Phase	Az. Laterolog Current UA Value	Phase	Az Laterolog Current DEG Value
Before	-45.75	Before	1.019
Before	-44.12	Before	-1.742
Before	-42.77	Before	-2.926
Before	-43.95	Before	-1.899
Before	-46.85	Before	2.504
Before	-44.11	Before	-2.331
Before	-46.10	Before	0.5241
Before	-45.97	Before	0.1780
Before	-46.09	Before	1.226
Before	-45.24	Before	0.2502
Before	-43.96	Before	-1.422
Before	-43.73	Before	-2.691

Before: 9-JAN-1999 8:26

Litho Density - D / Equipment Identification

Primary Equipment:

Nuclear Services Cartridge	NSC - E	1993
Powered Gamma Detector	PGD - G	
Gamma Source Radioactive	GSR - J	2044

Auxiliary Equipment:

Density Resistivity Sonde	DRS - C	722
Electronics Cartridge Housing	ECH - MKA	756
Powered Detector Housing	PDH - L	881

Litho Density - D Wellsite Calibration
Background Measurement

Measurement	Minimum	Nominal	Maximum	Master	Before
LL Background CPS	15.00	20.00	25.00	19.58	19.41
LU Background CPS	58.00	76.00	94.00	75.86	75.49
LS Background CPS	43.00	57.00	72.00	57.51	57.16
LITH Background CPS	4.000	5.500	7.000	5.558	5.545
SS1 Background CPS	12.00	16.00	19.50	16.79	16.65
SS2 Background CPS	8.000	11.00	13.50	11.50	11.48

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Wellsite Calibration
Detectors Resolution From BKG Measurments

Measurement	Minimum	Nominal	Maximum	Master	Before
LS Resolution Background	5.000	8.000	11.50	9.267	9.374
SS Resolution Background	5.000	8.000	11.50	9.284	9.068

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Master Calibration
Aluminum Measurement

Measurement	Phase	Minimum	Nominal	Maximum	Value
LL Aluminum CPS	Master	70.00	90.00	125.0	89.03
LU Aluminum CPS	Master	100.0	135.0	194.0	134.4
LS Aluminum CPS	Master	120.0	155.0	217.0	156.2
LITH Aluminum CPS	Master	35.00	50.00	74.00	55.51
SS1 Aluminum CPS	Master	125.0	175.0	256.0	168.8
SS2 Aluminum CPS	Master	210.0	260.0	353.0	253.5

Master: 12-DEC-1998 16:17

Litho Density - D Master Calibration
Litholog Measurement

Measurement	Phase	Minimum	Nominal	Maximum	Value
LL Iron CPS	Master	60.00	80.00	114.0	79.07
LU Iron CPS	Master	85.00	120.0	177.0	118.6
LS Iron CPS	Master	100.0	135.0	193.0	138.3
LITH Iron CPS	Master	15.00	30.00	51.00	35.29
SS1 Iron CPS	Master	105.0	155.0	234.0	148.2
SS2 Iron CPS	Master	190.0	245.0	325.0	228.6

Master: 12-DEC-1998 16:02

Litho Density - D Master Calibration
Spectrum Quality Ratios

Measurement	Phase	Minimum	Nominal	Maximum	Value
QRLS Calculated	Master	0.6000	0.6500	0.7000	0.6624
QRSS Calculated	Master	0.6200	0.7200	0.8200	0.6658
QRLI Calculated	Master	0.2900	0.3900	0.4500	0.3554
QLIR Calculated	Master	1.290	1.390	1.450	[illegible]
QR Calculated	Master	0.9800	1.000	1.020	[illegible]

Master: 12-DEC-1998 16:34

Compensated Neutron - H / Equipment Identification

Primary Equipment:

Compensated Neutron Cartridge	CNC - HA	1240
Neutron Logging Source	NLS - KL	
Neutron Source Radioactive	NSR - F	2438
Neutron Detector with Alpha Source	CND - A	

Auxiliary Equipment:

Compensated Neutron Housing	CNH - A	4466
Neutron Calibration Tank	NCT - B	

Compensated Neutron - H Wellsite Calibration
Zero Measurement

Measurement	Minimum	Nominal	Maximum	Master	Before
CNTC Background CPS	5.000	27.89	40.00	27.89	27.54
CFTC Background CPS	5.000	29.16	40.00	29.16	30.26

Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23

Compensated Neutron - H Master Calibration
Tank Measurement

Measurement	Phase	Minimum	Nominal	Maximum	Value
Thermal Near Corr. (Tank) CPS	Master	5000	6031	7200	6518
Thermal Far Corr. (Tank) CPS	Master	2075	2793	3125	2749
CNTC/CFTC (Tank)	Master	2.120	2.159	2.540	2.372

Master: 8-JAN-1999 0:33

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge	SGC - SA	2588
Scintillation Gamma Detector	SGD - TAA	21097

Auxiliary Equipment:

Scintillation Gamma Housing	SGH - K	2439
Gamma Source Radioactive	GSR - U/Y	1237

Scintillation Gamma-Ray - N Wellsite Calibration
Detector Calibration

Measurement	Phase	Minimum	Nominal	Maximum	Value
Gamma Ray Background GAPI	Before	0	30.00	120.0	23.46
Gamma Ray (Jig - Bkg) GAPI	Before	147.6	162.3	177.1	162.3
Gamma Ray (Calibrated) GAPI	Before	147.0	162.0	177.0	162.0

Before: 9-JAN-1999 8:38

NATIONAL ENERGY BOARD
JAN 1 4 [illegible]

COMPANY	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2648.3 m
		SCHLUMBERGER DEPTH	2660 m
WELL	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

COMPENSATED NEUTRON LITHODENSITY LOG

PROVINCE NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: 141-60-60-120W5
Well: CDN FOREST ET AL FLETT
Licence: CANADIAN FOREST OIL LTD.
LOCATION

COMPANY CANADIAN FOREST OIL LTD.
WELL CDN FOREST ET AL FLETT RAPIDS
FIELD FLETT RAPIDS
PROVINCE NORTH WEST TERRITORIES

SCHLUMBERGER
Schlumberger Canada Limited
Calgary, Alberta

COMPENSATED NEUTRON
TRUE VERTICAL DEPTH

Date: 30-Jan-1999
Run: One
Service Order: 29526
Depth Reference: K.B. 0 m above Perm. Datum
Elevation: K.B. 0 m, D.F. 0 m, G.L. 0 m

Permanent Datum	G.L. (Ground Level)	Elevations: K.B.	D.F.
Log Measured From	K.B.	0 m	0 m
Drilling Measured From	K.B.		

Date	30-Jan-99		
Run Number	One		
Depth Driller	2664.0 m		
Depth Logger	2665.0 m		
Bottom Logged Interval	2662.0 m		
Top Logged Interval	1500.0 m		
Casing Driller	244.5 mm @ 0.0 m		
Casing Logger	244.5 mm @ 0.0 m		
Bit Size	200.0 mm		
Type Fluid in Hole	Water Based Mud		
Density	1.0 g/cm³		
Viscosity	0.0 mPa.s		
Fluid Loss	0.0 cm³		
Source of Sample	Flowline		
Rm @ Measured Temp	0.000 @ 0.0 °C		
Rmf @ Measured Temp	0.000 @ 0.0 °C		
Rmc @ Measured Temp	0.000 @ 0.0 °C		
Rm @ BHT	0.000 @ 0.0 °C		
Time Since Circulation	0.0 hrs		
Time Since Cooling	0.0 hrs		
Max. Recorded Temp.	0.0 °C		
Equipment Number	1227		
Location			
Recorded By	D. Lindell		
Witnessed By	Mr. Kaczmarek		

Run 1	Run 2	Run 3	Run 4
244.5 mm @ 0.0 m			
200.0 mm			
2664.0 m			
2665.0 m			
2662.0 m			
1500.0 m			
Water Based Mud			
1.0 g/cm³			
0.0 mPa.s			
0.0 cm³			
Flowline			
0.000 @ 0.0 °C			
0.000 @ 0.0 °C			
0.000 @ 0.0 °C			
0.000 @ 0.0 °C			
0.0 hrs			
0.0 hrs			
0.0 °C			
1227			
D. Lindell			
Mr. Kaczmarek			

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 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 OUR GENERAL TERMS AND CONDITIONS AS SET FORTH IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES:	OTHER SERVICES:
CB1 DLL-LDT-CNL-6DAC-GR	CB1
CB2 NGT-GR	CB2
CB3 FMI-GR	CB3
CB4 LDONETB	CB4
CB5	CB5

REMARKS: RUN NUMBER 1
ALL PRESENTATIONS AND MATERIALS AS PER CLIENT REQUEST
RIG: CANADIAN FOREST OIL LTD RIGHT FIRST PASS, 200 FEET BEGIND PASS WITH 1500 TO 1200 TUBING
SPOKED WITH PRIMT PASS 12.00 ALONG 1999, 20 UNE, SPOKE THE EDMC
1 MAIN FIRST PASS WITH NO SDMC

REMARKS: RUN NUMBER 2

RIG: GARDNER 58
PRESSURE TYPE:LAND 7 PIMLE
OPERATIONS: DAND FOOT HEAD BOYD AND MARK "TENNY MEENY" LINDELL

RUN 1				RUN 2			
SERVICE ORDER #			1000NAT	SERVICE ORDER #			
PROGRAM VERSION #			WCS-413	PROGRAM VERSION #			
PLUG LEGEND				PLUG LEGEND			
LOGGED INTERVAL	START	STOP		LOGGED INTERVAL	START	STOP	

EQUIPMENT DESCRIPTION

RUN 1 | RUN 2

SURFACE EQUIPMENT

CNA-AA 724
HC-B
SGS-SA
GERA-UT 1227

DOWNHOLE EQUIPMENT

LEH-QT LEH-QT 1176		24.97
SPA-A SPA-A 329	SP SPARC	23.47 24.08
DTC-H ECH-HC 9104	CTEM Tel/Sonar Tel/Sonar	22.56 21.95
DTA-A ECH-AT 25 ECH-AT 1000		21.95
ISST-A ISS-ST 2188 ISS-ST 1000 ISS-SA 2187	Gamma Ray	20.45 20.73
AH-107 AH-107		19.05
CNT-H1 CNT-H1		18.44
CTC-D CTC-D 1260 CNO-VA 1260	CTC CNTC	18.08 18.84
LDT-D LDT-D SBR-J 2041 LDT-D 1000 LDO-SA 2188 LDO-SA 1000 RCH-J 481		16.23
	Caliper CAL	11.25 11.58 11.92
AH-107 AH-107		10.95
ALAT-B ALAT-B SLDC-B 1705 SLDC-B 1000 CLS-B 1 RCH-J 1 RCH-J 1	CONTROL	10.34 9.47
	ALAT CALI	7.98
	LLD LLS	4.89
AH-169	OF Tension FP Mark SGS	0.00 0.41

MAXIMUM STRING DIAMETER 114 MM
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

DEFAULT	ALATB 315	FN:25 PRODUCER	10-Jan-1999 08:24	2664.0 M	2554.5 M

Output DLIS Files

DEFAULT	ALATB 321	FN:30 PRODUCER	10-Jan-1999 08:35	2625.0 M	2523.5 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.82 20
Cement Volume = 21.31 903 (assuming 177.80 MM casing O.D.)
Computed from 2665.0 M to 2497.0 M using data channel(s): CALI

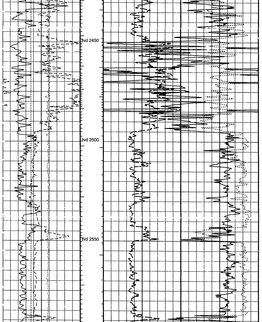
OP System Version: 9C0-413

ALAT-B	WCS-413	LDT-D	WCS-413
CNT-H	WCS-413	SGS-B	WCS-413
STA-A	WCS-413	STC-H	WCS-413
SPA-A	WCS-413		

OP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S



PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BFD	Borehole Fluid Medium	LIGNOSO	
BIS	Bit Size	216.000	MM
DBC	Density Hole Correction	BS	
DCS	Density Cutoff	0.00	M
DPRM	Density Porosity Processing Mode	STAN	
FD	Fluid Density	1000	K/M3
HDEN	Hole Density	2710	K/M3
PBVIADP	Alternate depth channel playback enabled	YES	
PP	Playback Processing	OFF	
TCDVD	TVD Of Casing Shoe	0	M
STRT	RTI Block Threshold	1.000	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIND	Total Depth Of Tie-In Point	0.00	M
TIVD	TVD Of Tie-In Point	0.00	M
WMUD	Mud Weight	1150	K/M3

Format: PORO_2 Vertical Scale: 1:600 Graphics File Created: 10-Jan-1999 09:36

OP System Version: 9C0-413

		MCM	
ALAT-G	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB.015	FH:25 PRODUCER	10-Jan-1999 08:24	2664.0 M 2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FH:32 PRODUCER	10-Jan-1999 08:35	

Input DLIS Files

DEFAULT	ALATB.015	FH:25 PRODUCER	10-Jan-1999 08:24	2664.0 M 2054.5 M

Output DLIS Files

DEFAULT	ALATB.021	FH:32 PRODUCER	10-Jan-1999 08:35	2626.8 M 2023.0 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3
Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)
Computed from 2660.0 M to 2097.8 M using data channel(s) CALI

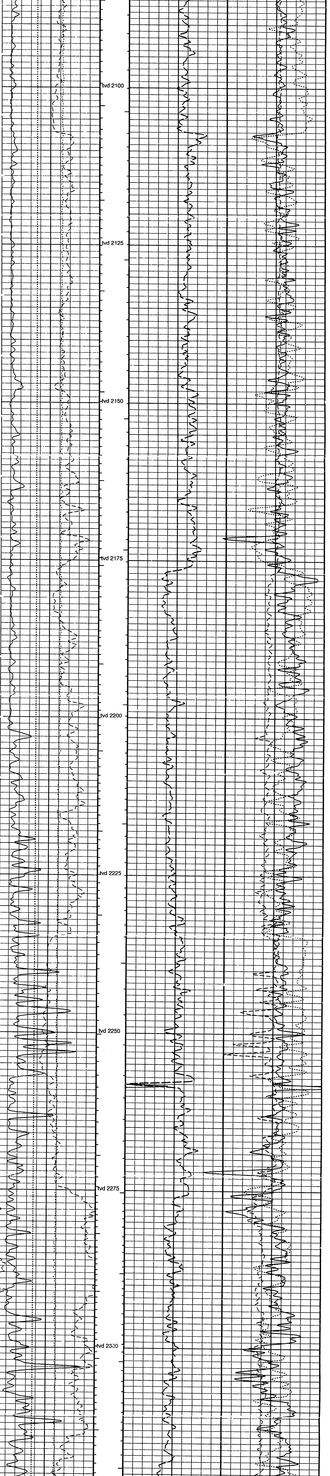
OP System Version: 9C0-413

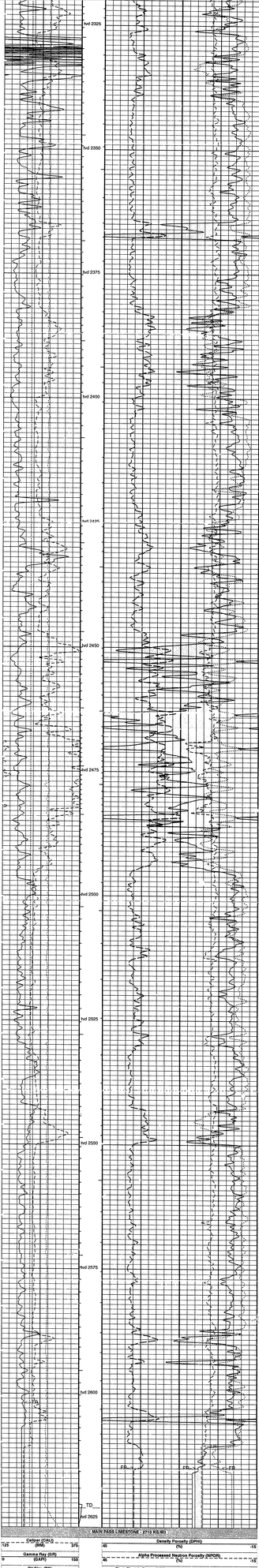
		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-H	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S





PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BTM	Borehole Fluid Medium	LIQUID	
BHS	Borehole Fluid Type	WATER	
BHT	Hole Temp Status	0.0000	
BS	Bit Size	216.000	MM
BRAL	Borehole Salinity	-50000.00	PPM
CCCO	Casing & Cement Correction Option	NO	
CCOO	Casing & Cement Thickness Correction Option	NO	
CBIZ	Current Casing Size	244.500	MM
CBWT	Casing Weight	53.600	KG/M
DFD	Drilling Fluid Density	1180.00	K/M3
DDC	Density Hole Correction	50	
DEPTH	Depth - Point	0.0	M
DPPM	Density Porosity Processing Mode	STAN	
FD	Fluid Density	1180.00	K/M3
FBAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GAIN	Gain Correction Option	1.0	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRO	Geothermal Gradient	0.014227	DC/M
HCCO	Hole Caliper Correction Option	NO	
MATR	Rock Matrix Type	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MDEN	Matrix Density	2710	
MDCN	Matrix Density	1310	K/M3
MST	Mud Sample Temperature	20.55	DEGC
MWCO	Mud Weight Correction Option	NO	
PBMDEP	Alternate depth channel playback enabled	YES	
PS	Pressure Source	TDP	
PTCO	Pressure/Temperature Correction Option	NO	
RMF	Resistivity of Mud Filtrate Sample	0.2100	OHMM
SDAT	Start Date/Time	5-Jan-99	
SOCN	Standoff Distance	12.7	MM
SOCO	Standoff Correction Option	NO	
STEM	Stem Length Used	0	M
STAT	STI Stack Threshold	1.525	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2662.00	M
TWD	Along Hole Depth of Tie-In Point	0.000	M
TWO	TVD of Tie-In Point	2047.22	M
WMUD	Mud Weight	1180	K/M3

Format: PORO_S Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:36

OP System Version: 9C0-413

		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

Input DLIS Files

DEFAULT	ALATB .015	FN:25	PRODUCER	10-Jan-1999 08:24	2664.6 M	2054.5 M

Output DLIS Files

DEFAULT	ALATB .021	FN:32	PRODUCER	10-Jan-1999 09:35	

Input DLIS Files

DEFAULT	ALATB .013	FN:21	PRODUCER	10-Jan-1999 06:50	2665.5 M	2584.6 M

Output DLIS Files

DEFAULT	ALATB .020	FN:31	PRODUCER	10-Jan-1999 09:30	2028.7 M	2547.8 M

Integrated Hole/Cement Volume Summary

Hole Volume = 36.02 M3

Cement Volume = 21.31 M3 (assuming 177.80 MM casing O.D.)

Computed from 2660.0 M to 2067.8 M using data channel(s) CALI

OP System Version: 9C0-413

		MCM	
ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SFA-A	9C0-413		

PIP SUMMARY

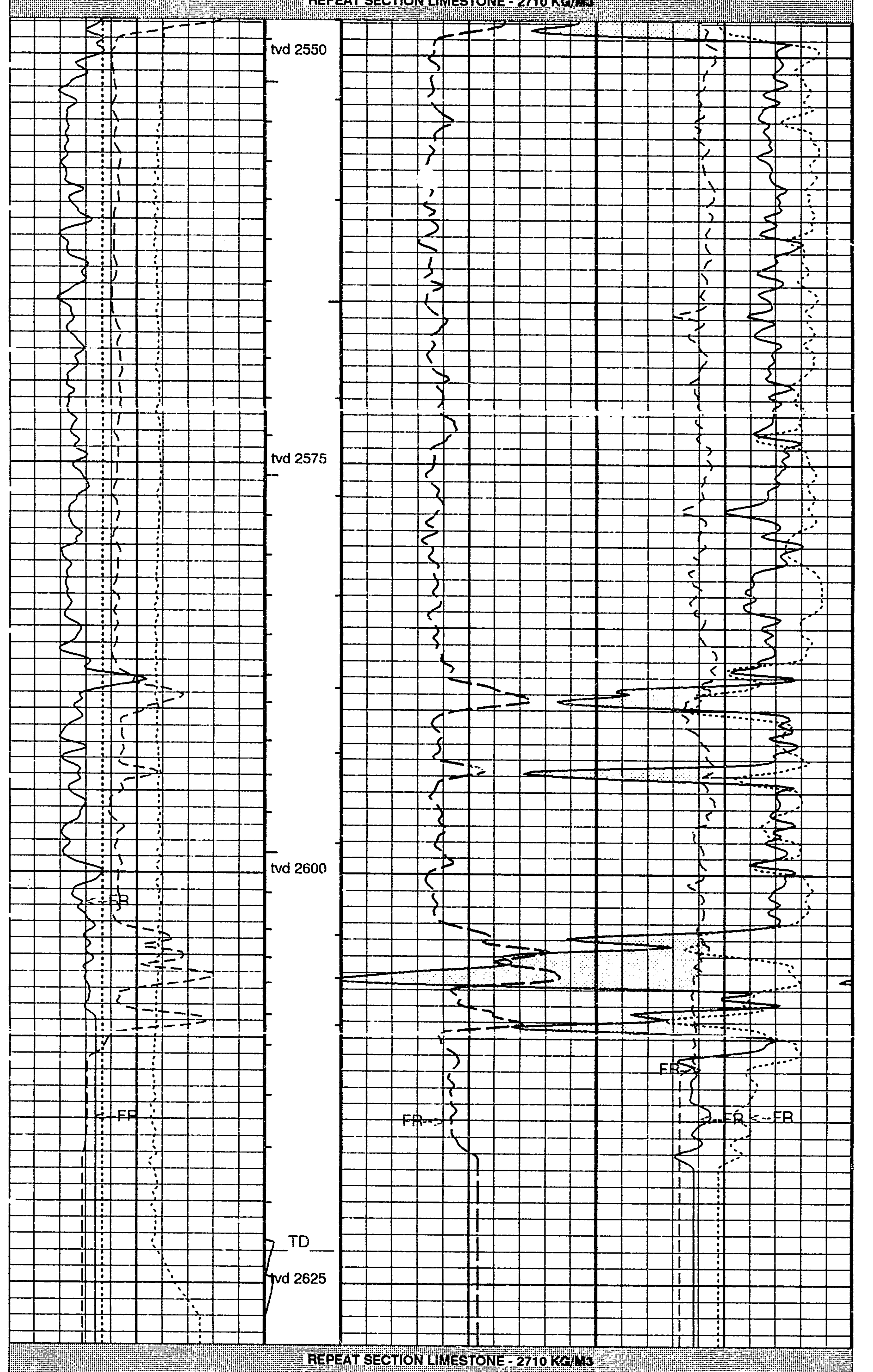
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3

⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊣ Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Track 1			Track 3	
Tension (TENS) 25000 (N) 0			Gas Crossover From DPHI to NPOR	
Bit Size (BS) 125 (MM) 375			PhotoElectric Factor (PEF) 0 (----) 10	Bulk Density Correction (DRHO) 450 (K/M3) -50
Gamma Ray (GR) 0 (GAPI) 150			Alpha Processed Neutron Porosity (NPOR) 45 (%) -15	
Caliper (CALI) 125 (MM) 375			Density Porosity (DPHI) 45 (%) -15	

REPEAT SECTION LIMESTONE - 2710 KG/M3



REPEAT SECTION LIMESTONE - 2710 KG/M3

Track 1			Track 3	
Caliper (CALI) 125 (MM) 375			Density Porosity (DPHI) 45 (%) -15	
Gamma Ray (GR) 0 (GAPI) 150			Alpha Processed Neutron Porosity (NPOR) 45 (%) -15	
Bit Size (BS) 125 (MM) 375			PhotoElectric Factor (PEF) 0 (----) 10	Bulk Density Correction (DRHO) 450 (K/M3) -50
Tension (TENS) 25000 (N) 0			Gas Crossover From DPHI to NPOR	

PIP SUMMARY

⊢ Integrated Hole Volume Minor Pip Every 0.1 M3
⊢ Integrated Hole Volume Major Pip Every 1 M3
⊣ Integrated Cement Volume Minor Pip Every 0.1 M3
⊣ Integrated Cement Volume Major Pip Every 1 M3

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BFM	Borehole Fluid Medium	LIQUID	
BHFL	Borehole Fluid Type	WATER	
BHS	Bore Hole Status	OPEN	
BS	Bit Size	216.000	MM
BSAL	Borehole Salinity	-50000.00	PPM
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
CSIZ	Current Casing Size	244.500	MM
CWEI	Casing Weight	64.73	KG/M
DFD	Drilling Fluid Density	1160.00	K/M3
DHC	Density Hole Correction	BS	
DO	Depth Offset	1.0	M
DPPM	Density Porosity Processing Mode	STAN	
FD	Fluid Density	1000	K/M3
FSAL	Formation Salinity	-50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCSE	Generalized Caliper Selection	BS	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.018227	DC/M
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix Type	LIMESTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2710	K/M3
MST	Mud Sample Temperature	20.56	DEGC
MWCO	Mud Weight Correction Option	NO	
PBVSADP	Alternate depth channel playback enabled	YES	
PP	Playback Processing	OFF	
PTCO	Pressure/Temperature Correction Option	NO	
RMFS	Resistivity of Mud Filtrate Sample	0.2100	OHMM
SDAT	Standoff Data Source	SOCN	
SOCN	Standoff Distance	12.7	MM
SOCO	Standoff Correction Option	NO	
SPVD	TVD of Starting Point	0	M
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
WMUD	Mud Weight	1160	K/M3

Format: PORO_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 09:30

OP System Version: 9C0-413

MCM

ALAT-B	9C0-413	LDT-D	9C0-413
CNT-H	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413
SPA-A	9C0-413		

Input DLIS Files

DEFAULT ALATB .013 FN:21 PRODUCER 10-Jan-1999 06:50 2665.5 M 2584.6 M

Output DLIS Files

DEFAULT ALATB .020 FN:31 PRODUCER 10-Jan-1999 09:30

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Azimuthal Laterolog Wellsite Calibration - El. StandOff Current - Checking - (Modulus and Phase)							
Before: 9-JAN-1999 8:26							
El. StandOff Current	197.0	N/A	207.7	N/A	N/A	N/A	UA
El. StandOff Current	0	N/A	-4.124	N/A	N/A	N/A	DEG
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Modulus Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	66.83	N/A	68.26	N/A	N/A	0.8800	MV
DLT Shallow Voltage	-56.84	N/A	-57.00	N/A	N/A	0.2900	MV
DLT Groningen Voltage	66.83	N/A	65.97	N/A	N/A	0.8800	MV
DLT Deep Current	2115	N/A	2149	N/A	N/A	13.91	UA
DLT Shallow Current	-1799	N/A	-1797	N/A	N/A	9.270	UA
Azimuthal Laterolog Wellsite Calibration - DLT Currents and Voltages Phases Plus Measurements							
Before: 9-JAN-1999 8:26							
DLT Deep Voltage	0	N/A	0.6649	N/A	N/A	2.800	DEG
DLT Shallow Voltage	0	N/A	[illegible]	N/A	N/A	4.000	DEG
DLT Groningen Voltage	0	N/A	-1.301	N/A	N/A	2.800	DEG
DLT Deep Current	0	N/A	2.376	N/A	N/A	2.800	DEG
DLT Shallow Current	0	N/A	-1.088	N/A	N/A	4.000	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Voltages (Modulus and Phase) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Voltage	66.83	N/A	64.73	N/A	N/A	0.8800	MV
Az. Laterolog Voltage	0	N/A	-1.378	N/A	N/A	2.800	DEG
Azimuthal Laterolog Wellsite Calibration - Azimuthal Currents (Modulus and Phases) Plus Measurements							
Before: 9-JAN-1999 8:26							
Az. Laterolog Current - 0	-45.46	N/A	-45.75	N/A	N/A	0.6000	UA
Az. Laterolog Current - 1	-45.46	N/A	-44.12	N/A	N/A	0.6000	UA
Az. Laterolog Current - 2	-45.46	N/A	-42.77	N/A	N/A	0.6000	UA
Az. Laterolog Current - 3	-45.46	N/A	-43.95	N/A	N/A	0.6000	UA
Az. Laterolog Current - 4	-45.46	N/A	-46.85	N/A	N/A	0.6000	UA
Az. Laterolog Current - 5	-45.46	N/A	-44.11	N/A	N/A	0.6000	UA
Az. Laterolog Current - 6	-45.46	N/A	-46.10	N/A	N/A	0.6000	UA
Az. Laterolog Current - 7	-45.46	N/A	-45.97	N/A	N/A	0.6000	UA
Az. Laterolog Current - 8	-45.46	N/A	-46.09	N/A	N/A	0.6000	UA
Az. Laterolog Current - 9	-45.46	N/A	-45.24	N/A	N/A	0.6000	UA
Az. Laterolog Current - 10	-45.46	N/A	-43.96	N/A	N/A	0.6000	UA
Az. Laterolog Current - 11	-45.46	N/A	-43.73	N/A	N/A	0.6000	UA
Az. Laterolog Current - 0	0	N/A	1.019	N/A	N/A	2.800	DEG
Az. Laterolog Current - 1	0	N/A	-1.742	N/A	N/A	2.800	DEG
Az. Laterolog Current - 2	0	N/A	-2.926	N/A	N/A	2.800	DEG
Az. Laterolog Current - 3	0	N/A	-1.899	N/A	N/A	2.800	DEG
Az. Laterolog Current - 4	0	N/A	2.504	N/A	N/A	2.800	DEG
Az. Laterolog Current - 5	0	N/A	-2.331	N/A	N/A	2.800	DEG
Az. Laterolog Current - 6	0	N/A	0.5241	N/A	N/A	2.800	DEG
Az. Laterolog Current - 7	0	N/A	0.1780	N/A	N/A	2.800	DEG
Az. Laterolog Current - 8	0	N/A	1.226	N/A	N/A	2.800	DEG
Az. Laterolog Current - 9	0	N/A	0.2502	N/A	N/A	2.800	DEG
Az. Laterolog Current - 10	0	N/A	-1.422	N/A	N/A	2.800	DEG
Az. Laterolog Current - 11	0	N/A	-2.691	N/A	N/A	2.800	DEG
Litho Density - D Wellsite Calibration - Background Measurement							
Master: 12-DEC-1998 15.50 Before: 9-JAN-1999 8:25							
LL Background	20.00	19.58	19.41	N/A	N/A	1.000	CPS
LU Background	76.00	75.86	75.49	N/A	N/A	1.000	CPS
LS Background	57.00	57.51	57.16	N/A	N/A	1.000	CPS
LITH Background	5.500	5.558	5.545	N/A	N/A	0.3000	CPS
SS1 Background	16.00	16.79	16.65	N/A	N/A	0.5000	CPS
SS2 Background	11.00	11.50	11.48	N/A	N/A	0.5000	CPS
Litho Density - D Wellsite Calibration - Tool Quality Control Information HV							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LSHV Background	1500	1293	1292	N/A	N/A	N/A	V
SSHV Background	1500	1362	1364	N/A	N/A	N/A	V
Litho Density - D Wellsite Calibration - Detectors Resolution From BKG Measurments							
Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25							
LS Resolution Background	8.000	9.267	9.374	N/A	N/A	N/A	
SS Resolution Background	8.000	9.284	9.068	N/A	N/A	N/A	
Litho Density - D Wellsite Calibration - Caliper Calibration							
Before: 9-JAN-1999 8:46							
Caliper Small Ring	203.2	N/A	228.4	N/A	N/A	N/A	MM
Caliper Large Ring	304.8	N/A	330.6	N/A	N/A	N/A	MM
Litho Density - D Master Calibration - Aluminum Measurement							
Master: 12-DEC-1998 16:17							
LL Aluminum	90.00	89.03	--	--	--	--	CPS
LU Aluminum	135.0	134.4	--	--	--	--	CPS
LS Aluminum	155.0	156.2	--	--	--	--	CPS
LITH Aluminum	50.00	55.51	--	--	--	--	CPS
SS1 Aluminum	175.0	168.8	--	--	--	--	CPS
SS2 Aluminum	260.0	253.5	--	--	--	--	CPS
Litho Density - D Master Calibration - Litholog Measurement							
Master: 12-DEC-1998 16:02							
LL Iron	80.00	79.07	--	--	--	--	CPS
LU Iron	120.0	113.6	--	--	--	--	CPS
LS Iron	135.0	138.3	--	--	--	--	CPS
LITH Iron	30.00	35.29	--	--	--	--	CPS
SS1 Iron	155.0	148.2	--	--	--	--	CPS
SS2 Iron	245.0	228.6	--	--	--	--	CPS
Litho Density - D Master Calibration - Spectrum Quality Ratios							
Master: 12-DEC-1998 16:34							
QRLS Calculated	0.6500	0.6624	--	--	--	--	
QRSS Calculated	0.7200	0.6658	--	--	--	--	
QRLI Calculated	0.3900	0.3554	--	--	--	--	
QLIR Calculated	1.390	1.393	--	--	--	--	
QR Calculated	1.000	0.9911	--	--	--	--	
Compensated Neutron - H Wellsite Calibration - Zero Measurement							
Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23							
CNTC Background	27.89	27.89	27.54	N/A	N/A	4.183	CPS
CFTC Background	29.16	29.16	30.26	N/A	N/A	4.374	CPS
Compensated Neutron - H Master Calibration - Tank Measurement							
Master: 8-JAN-1999 0:33							
Thermal Near Corr. (Tank)	6031	6518	--	--	--	--	CPS
Thermal Far Corr. (Tank)	2793	2749	--	--	--	--	CPS
CNTC/CFTC (Tank)	2.159	2.372	--	--	--	--	
Scintillation Gamma-Ray - N Wellsite Calibration - Detector Calibration							
Before: 9-JAN-1999 8:36							
Gamma Ray (Jig - Bkg)	162.3	N/A	162.3	N/A	N/A	14.76	GAPI
Gamma Ray (Calibrated)	162.0	N/A	162.0	N/A	N/A	15.00	GAPI

The CNT Master Calibration Was Done With The Following Parameters :

NCT-B Water Temperature 16.3 DEGC.
Thermal Housing Size 85.613 MM.

Azimuthal Laterolog / Equipment Identification

Primary Equipment:		
Azimuthal Laterolog Standard Sub	ALSS - A	
Auxiliary Equipment:		
Dual Laterolog Electrode	DLE - H	719
Dual Laterolog Sonde	DLS - H	813
Azimuthal Laterolog Housing	ALAH - A	
Azimuthal Laterolog Sonde Cartridge	ALSC - B	
Azimuthal Laterolog Controller Cartridge	ALCC - B	725
Laterolog Control Module	LCM - AA	724

Azimuthal Laterolog Wellsite Calibration
El. StandOff Current - Checking - (Modulus and Phase)

Phase	El. StandOff Current UA	Value	Phase	El. StandOff Current DEG	Value
Before	157.6 (Minimum) 197.0 (Nominal) 236.4 (Maximum)	207.7	Before	-18.00 (Minimum) 0 (Nominal) 18.00 (Maximum)	-4.124

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In Phase DLT Currents and Voltages Zero Measurements

Phase	DLT Deep Voltage {P} Zero MV	Value	Phase	DLT Shallow Voltage {P} Zero MV	Value	Phase	DLT Groningen Voltage {P} Zero MV	Value
Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	0.0002012	Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	0.005491	Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	-0.0004845

Phase	DLT Deep Current {P} Zero UA	Value	Phase	DLT Shallow Current {P} Zero UA	Value
Before	-0.08800 (Minimum) 0 (Nominal) 0.08800 (Maximum)	0.005772	Before	-0.1760 (Minimum) 0 (Nominal) 0.1760 (Maximum)	0.02588

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Out Of Phase DLT Currents and Voltages Zero Measurements

Phase	DLT Deep Voltage {Q} Zero MV	Value	Phase	DLT Shallow Voltage {Q} Zero MV	Value	Phase	DLT Groningen Voltage {Q} Zero MV	Value
Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	-0.0007873	Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	-0.001725	Before	-0.02470 (Minimum) 0 (Nominal) 0.02470 (Maximum)	0.0009256

Phase	DLT Deep Current {Q} Zero UA	Value	Phase	DLT Shallow Current {Q} Zero UA	Value

Phase	DLT Deep Current {Q} Zero UA	Value	Phase	DLT Shallow Current {Q} Zero UA	Value
Before		-0.002085	Before		-0.05064
	-0.08800 (Minimum) / 0 (Nominal) / 0.08800 (Maximum)			-0.1760 (Minimum) / 0 (Nominal) / 0.1760 (Maximum)	

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Modulus Plus Measurements

Phase	DLT Deep Voltage MV	Value	Phase	DLT Shallow Voltage MV	Value	Phase	DLT Groningen Voltage MV	Value
Before		68.26	Before		-57.00	Before		65.97
	60.15 (Minimum) / 66.83 (Nominal) / 73.51 (Maximum)			-61.39 (Minimum) / -56.84 (Nominal) / -52.29 (Maximum)			60.15 (Minimum) / 66.83 (Nominal) / 73.51 (Maximum)	

Phase	DLT Deep Current UA	Value	Phase	DLT Shallow Current UA	Value
Before		2149	Before		-1797
	2009 (Minimum) / 2115 (Nominal) / 2221 (Maximum)			-1943 (Minimum) / -1799 (Nominal) / -1655 (Maximum)	

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
DLT Currents and Voltages Phases Plus Measurements

Phase	DLT Deep Voltage DEG	Value	Phase	DLT Shallow Voltage DEG	Value	Phase	DLT Groningen Voltage DEG	Value
Before		0.6649	Before		-2.244	Before		-1.301
	-10.00 (Minimum) / 0 (Nominal) / 10.00 (Maximum)			-15.00 (Minimum) / 0 (Nominal) / 15.00 (Maximum)			-10.00 (Minimum) / 0 (Nominal) / 10.00 (Maximum)	

Phase	DLT Deep Current DEG	Value	Phase	DLT Shallow Current DEG	Value
Before		2.376	Before		-1.088
	-10.00 (Minimum) / 0 (Nominal) / 10.00 (Maximum)			-15.00 (Minimum) / 0 (Nominal) / 15.00 (Maximum)	

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages Zero Measurements

Phase	Az. Laterolog Voltage {P} Zero MV	Value	Phase	Az Laterolog Voltage {Q} Zero MV	Value
Before		-0.0006216	Before		-0.001095
	-0.02470 (Minimum) / 0 (Nominal) / 0.02470 (Maximum)			-0.02470 (Minimum) / 0 (Nominal) / 0.02470 (Maximum)	

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Voltages (Modulus and Phase) Plus Measurements

Phase	Az. Laterolog Voltage MV	Value	Phase	Az. Laterolog Voltage DEG	Value
Before		64.73	Before		-1.378
	60.15 (Minimum) / 66.83 (Nominal) / 73.51 (Maximum)			-10.00 (Minimum) / 0 (Nominal) / 10.00 (Maximum)	

Before: 9-JAN-1999 8:26

Azimuthal Laterolog Wellsite Calibration
In and Out Of Phase Azimuthal Currents Zero Measurements

Phase	Az. Laterolog Current {P} Zero UA	Value	Phase	Az. Laterolog Current {Q} Zero UA	Value
Before		-0.0001850	Before		-1.121E-00
Before		-0.0006922	Before		0.0001941
Before		0.0003246	Before		0.0001833
Before		0.0006009	Before		-0.0002004
Before		0.0001004	Before		-0.0002452
Before		-9.675E-00	Before		-0.0001606
Before		0.0001745	Before		0.0003708
Before		-0.0001427	Before		0.0003453
Before		-0.0006144	Before		-0.0004346
Before		0.0002321	Before		0.0004988
Before		0.0001558	Before		0.0003296
Before		0.0002317	Before		-4.660E-00
	-0.006560 (Minimum) / 0 (Nominal) / 0.006560 (Maximum)			-0.006560 (Minimum) / 0 (Nominal) / 0.006560 (Maximum)	

Before: 9-JAN-1999 8:22

Azimuthal Laterolog Wellsite Calibration
Azimuthal Currents (Modulus and Phases) Plus Measurements

Phase	Az. Laterolog Current UA	Value	Phase	Az. Laterolog Current DEG	Value
Before		-45.75	Before		1.019
Before		-44.12	Before		-1.742
Before		-42.77	Before		-2.926
Before		-43.95	Before		-1.899
Before		-46.85	Before		2.504
Before		-44.11	Before		-2.331
Before		-46.10	Before		0.5241
Before		-45.97	Before		0.1780
Before		-46.09	Before		1.226
Before		-45.24	Before		0.2502
Before		-43.96	Before		-1.422
Before		-43.73	Before		-2.691
	-50.01 (Minimum) / -45.46 (Nominal) / -40.91 (Maximum)			-10.00 (Minimum) / 0 (Nominal) / 10.00 (Maximum)	

Before: 9-JAN-1999 8:26

Litho Density - D / Equipment Identification

Primary Equipment:

Nuclear Services Cartridge	NSC - E	1993
Powered Gamma Detector	PGD - G	
Gamma Source Radioactive	GSR - J	2044

Auxiliary Equipment:

Density Resistivity Sonde	DRS - C	722
Electronics Cartridge Housing	ECH - MKA	756
Powered Detector Housing	PDH - L	881

Litho Density - D Wellsite Calibration
Background Measurement

Phase	LL Background CPS	Value	Phase	LU Background CPS	Value	Phase	LS Background CPS	Value
Master		19.58	Master		75.86	Master		57.51
Before		19.41	Before		75.49	Before		57.16
	15.00 (Minimum) / 20.00 (Nominal) / 25.00 (Maximum)			58.00 (Minimum) / 76.00 (Nominal) / 94.00 (Maximum)			43.00 (Minimum) / 57.00 (Nominal) / 72.00 (Maximum)	

Phase	LITH Background CPS	Value	Phase	SS1 Background CPS	Value	Phase	SS2 Background CPS	Value
Master		5.558	Master		16.79	Master		11.50
Before		5.545	Before		16.65	Before		11.48
	4.000 (Minimum) / 5.500 (Nominal) / 7.000 (Maximum)			12.00 (Minimum) / 16.00 (Nominal) / 19.50 (Maximum)			8.000 (Minimum) / 11.00 (Nominal) / 13.50 (Maximum)	

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Wellsite Calibration
Detectors Resolution From BKG Measurments

Phase	LS Resolution Background	Value	Phase	SS Resolution Background	Value
Master		9.267	Master		9.284
Before		9.374	Before		9.068
	5.000 (Minimum) / 8.000 (Nominal) / 11.50 (Maximum)			5.000 (Minimum) / 8.000 (Nominal) / 11.50 (Maximum)	

Master: 12-DEC-1998 15:50 Before: 9-JAN-1999 8:25

Litho Density - D Master Calibration
Aluminum Measurement

Phase	LL Aluminum CPS	Value	Phase	LU Aluminum CPS	Value	Phase	LS Aluminum CPS	Value
Master		89.03	Master		134.4	Master		156.2
	70.00 (Minimum) / 90.00 (Nominal) / 125.0 (Maximum)			100.0 (Minimum) / 135.0 (Nominal) / 194.0 (Maximum)			120.0 (Minimum) / 155.0 (Nominal) / 217.0 (Maximum)	

Phase	LITH Aluminum CPS	Value	Phase	SS1 Aluminum CPS	Value	Phase	SS2 Aluminum CPS	Value
Master		55.51	Master		168.8	Master		253.5
	35.00 (Minimum) / 50.00 (Nominal) / 74.00 (Maximum)			125.0 (Minimum) / 175.0 (Nominal) / 258.0 (Maximum)			210.0 (Minimum) / 260.0 (Nominal) / 353.0 (Maximum)	

Master: 12-DEC-1998 16:17

Litho Density - D Master Calibration
Litholog Measurement

Phase	LL Iron CPS	Value	Phase	LU Iron CPS	Value	Phase	LS Iron CPS	Value
Master		79.07	Master		118.6	Master		138.3
	60.00 (Minimum) / 80.00 (Nominal) / 114.0 (Maximum)			85.00 (Minimum) / 120.0 (Nominal) / 177.0 (Maximum)			100.0 (Minimum) / 135.0 (Nominal) / 193.0 (Maximum)	

Phase	LITH Iron CPS	Value	Phase	SS1 Iron CPS	Value	Phase	SS2 Iron CPS	Value
Master		35.29	Master		148.2	Master		228.6
	15.00 (Minimum) / 30.00 (Nominal) / 51.00 (Maximum)			105.0 (Minimum) / 155.0 (Nominal) / 234.0 (Maximum)			190.0 (Minimum) / 245.0 (Nominal) / 325.0 (Maximum)	

Master: 12-DEC-1998 16:02

Litho Density - D Master Calibration
Spectrum Quality Ratios

Phase	QRLS Calculated	Value	Phase	QRSS Calculated	Value	Phase	QRLI Calculated	Value
Master		0.6624	Master		0.6658	Master		0.3554
	0.6000 (Minimum) / 0.6500 (Nominal) / 0.7000 (Maximum)			0.6200 (Minimum) / 0.7200 (Nominal) / 0.8200 (Maximum)			0.2900 (Minimum) / 0.3900 (Nominal) / 0.4500 (Maximum)	

Phase	QLIR Calculated	Value	Phase	QR Calculated	Value
Master		1.393	Master		0.9911
	1.290 (Minimum) / 1.390 (Nominal) / 1.450 (Maximum)			0.9800 (Minimum) / 1.000 (Nominal) / 1.020 (Maximum)	

Master: 12-DEC-1998 16:34

Compensated Neutron - H / Equipment Identification

Primary Equipment:

Compensated Neutron Cartridge	CNC - HA	1240
Neutron Logging Source	NLS - KL	
Neutron Source Radioactive	NSR - F	2438
Neutron Detector with Alpha Source	CND - A	

Auxiliary Equipment:

Compensated Neutron Housing	CNH - A	4466
Neutron Calibration Tank	NCT - B	

Compensated Neutron - H Wellsite Calibration
Zero Measurement

Phase	CNTC Background CPS	Value	Phase	CFTC Background CPS	Value
Master		27.89	Master		29.16
Before		27.54	Before		30.26
	5.000 (Minimum) / 27.89 (Nominal) / 40.00 (Maximum)			5.000 (Minimum) / 29.16 (Nominal) / 40.00 (Maximum)	

Master: 8-JAN-1999 0:23 Before: 9-JAN-1999 8:23

Compensated Neutron - H Master Calibration
Tank Measurement

Phase	Thermal Near Corr (Tank) CPS	Value	Phase	Thermal Far Corr. (Tank) CPS	Value	Phase	CNTC/CFTC (Tank)	Value
Master		6518	Master		2749	Master		2.372
	5000 (Minimum) / 6031 (Nominal) / 7200 (Maximum)			2075 (Minimum) / 2793 (Nominal) / 3125 (Maximum)			2.120 (Minimum) / 2.159 (Nominal) / 2.540 (Maximum)	

Master: 8-JAN-1999 0:33

Scintillation Gamma-Ray - N / Equipment Identification

Primary Equipment:

Scintillation Gamma Cartridge	SGC - SA	3588
Scintillation Gamma Detector	SGD - TAA	21097

Auxiliary Equipment:

Scintillation Gamma Housing	SGH - K	2439
Gamma Source Radioactive	GSR - U/Y	1237

Scintillation Gamma-Ray - N Wellsite Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray (Jig - Bkg) GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		23.46	Before		162.3	Before		162.0
	0 (Minimum) / 30.00 (Nominal) / 120.0 (Maximum)			147.6 (Minimum) / 162.3 (Nominal) / 177.1 (Maximum)			147.0 (Minimum) / 162.0 (Nominal) / 177.0 (Maximum)	

Before: 9-JAN-1999 8:38

Directional Survey Manually-Entered Inclinometry Summary

Tie In Point : Measured Depth True Vertical Depth

2080.00 M 2047.22 M

Depth	Deviation	True Vertical Depth	Depth	Deviation	True Vertical Depth
0.00 M	0.00 DEG	0.01 M	1655.60 M	20.60 DEG	1648.53 M
569.60 M	0.00 DEG	569.61 M	1665.20 M	21.20 DEG	1657.50 M
588.00 M	0.75 DEG	588.01 M	1674.80 M	21.20 DEG	1666.45 M
599.00 M	0.50 DEG	599.01 M	1684.50 M	21.10 DEG	1675.50 M
618.00 M	0.25 DEG	618.01 M	1694.20 M	21.00 DEG	1684.55 M
667.00 M	0.25 DEG	667.01 M	1703.80 M	21.10 DEG	1693.51 M
714.00 M	1.00 DEG	714.01 M	1713.00 M	21.30 DEG	1702.08 M
724.00 M	1.00 DEG	724.00 M	1722.80 M	21.40 DEG	1711.21 M
743.00 M	1.25 DEG	743.00 M	1732.50 M	21.30 DEG	1720.25 M
764.00 M	1.25 DEG	764.00 M	1751.90 M	21.10 DEG	1738.33 M
783.00 M	1.25 DEG	782.99 M	1761.60 M	21.00 DEG	1747.39 M
792.00 M	1.25 DEG	791.99 M	1771.30 M	20.90 DEG	1756.44 M
802.00 M	1.25 DEG	801.99 M	1780.90 M	20.70 DEG	1765.42 M
821.00 M	1.50 DEG	820.98 M	1790.60 M	20.50 DEG	1774.50 M
839.00 M	1.50 DEG	838.97 M	1800.10 M	20.40 DEG	1783.40 M
866.00 M	1.25 DEG	865.97 M	1809.90 M	20.20 DEG	1792.59 M
893.00 M	1.00 DEG	892.96 M	1819.60 M	20.30 DEG	1801.69 M
940.00 M	1.00 DEG	939.95 M	1829.30 M	20.20 DEG	1810.79 M
992.00 M	1.00 DEG	991.95 M	1839.00 M	20.00 DEG	1819.90 M
1049.00 M	3.00 DEG	1048.91 M	1848.70 M	19.90 DEG	1829.02 M
1067.00 M	3.25 DEG	1066.88 M	1858.30 M	20.20 DEG	1838.04 M
1087.00 M	3.13 DEG	1086.85 M	1868.30 M	20.40 DEG	1847.42 M
1102.00 M	3.25 DEG	1101.83 M	1877.30 M	20.10 DEG	1855.86 M
1126.00 M	3.00 DEG	1125.79 M	1887.10 M	20.00 DEG	1865.07 M
1146.00 M	2.75 DEG	1145.77 M	1896.60 M	20.00 DEG	1873.99 M
1175.00 M	2.10 DEG	1174.74 M	1906.30 M	19.80 DEG	1883.11 M
1211.00 M	1.60 DEG	1210.72 M	1916.00 M	19.80 DEG	1892.24 M
1233.00 M	1.50 DEG	1232.71 M	1925.70 M	19.80 DEG	1901.37 M
1281.00 M	1.50 DEG	1280.70 M	1945.20 M	19.80 DEG	1919.71 M
1367.80 M	1.50 DEG	1367.47 M	1954.80 M	19.90 DEG	1928.74 M
1380.90 M	1.30 DEG	1380.56 M	1974.30 M	19.90 DEG	1947.08 M
1390.70 M	1.00 DEG	1390.36 M	1983.90 M	19.90 DEG	1956.11 M
1400.30 M	0.90 DEG	1399.96 M	1993.70 M	19.60 DEG	1965.33 M
1409.09 M	0.80 DEG	1408.75 M	2003.50 M	19.30 DEG	1974.57 M
1419.70 M	1.20 DEG	1419.36 M	2013.20 M	19.30 DEG	1983.73 M
1429.50 M	2.10 DEG	1429.15 M	2022.90 M	18.90 DEG	1992.89 M
1439.10 M	3.50 DEG	1438.74 M	2034.50 M	18.50 DEG	2003.88 M
1448.80 M	5.10 DEG	1448.41 M	2042.20 M	18.30 DEG	2011.19 M
1458.40 M	6.60 DEG	1457.96 M	2051.30 M	18.10 DEG	2019.83 M
1468.10 M	7.80 DEG	1467.59 M	2055.60 M	18.00 DEG	2023.92 M
1477.90 M	8.70 DEG	1477.29 M	2080.00 M	16.50 DEG	2047.22 M
1487.70 M	9.60 DEG	1486.96 M	2091.00 M	15.50 DEG	2057.79 M
1497.40 M	10.40 DEG	1496.51 M	2130.00 M	13.10 DEG	2095.58 M
1507.00 M	11.30 DEG	1505.94 M	2160.00 M	12.00 DEG	2124.87 M
1516.80 M	12.00 DEG	1515.54 M	2207.00 M	9.75 DEG	2171.02 M
1526.60 M	12.50 DEG	1525.12 M	2246.00 M	7.88 DEG	2209.56 M
1536.20 M	13.10 DEG	1534.48 M	2284.00 M	6.75 DEG	2247.25 M
1546.00 M	13.40 DEG	1544.02 M	2320.00 M	5.25 DEG	2283.05 M
1555.60 M	14.20 DEG	1553.34 M	2359.00 M	5.25 DEG	2321.89 M
1568.40 M	15.30 DEG	1565.72 M	2399.00 M	5.00 DEG	2361.72 M
1578.20 M	16.20 DEG	1575.15 M	2436.00 M	4.50 DEG	2398.60 M
1587.90 M	17.00 DEG	1584.45 M	2475.00 M	4.00 DEG	2437.49 M
1597.50 M	17.60 DEG	1593.61 M	2513.00 M	4.00 DEG	2475.40 M
1607.20 M	18.10 DEG	1602.84 M	2522.00 M	3.50 DEG	2484.38 M
1616.90 M	18.50 DEG	1612.05 M	2561.00 M	2.75 DEG	2523.32 M
1626.60 M	19.00 DEG	1621.24 M	2600.00 M	2.75 DEG	2562.27 M
1636.40 M	19.50 DEG	1630.49 M	2648.00 M	1.50 DEG	2610.24 M
1646.00 M	20.00 DEG	1639.53 M	2660.00 M	1.19 DEG	2622.24 M

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2615 m
		SCHLUMBERGER DEPTH	2622.24 m
WELL:	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD:	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE:	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

COMPENSATED NEUTRON LITHODENSITY LOG TRUE VERTICAL DEPTH

DIPMETER/ CALIPER

N.E.B. COPY

9211-C131-1-1 1851

INCLINE

COMPUTED DIPMETER RESULTS

CLIENT HEF PETROPHYSICAL CONSULTING INC.
COMPANY CANADIAN FOREST OIL
WELL CDN FOREST ET AL FLETT RAPIDS I-61
FIELD FLETT RAPIDS
PROVINCE NWT COUNTRY CANADA

TAPE NUMBER

LOCATION: LATITUDE: 60 40
LONGITUDE: 123 26

OTHER SERVICES

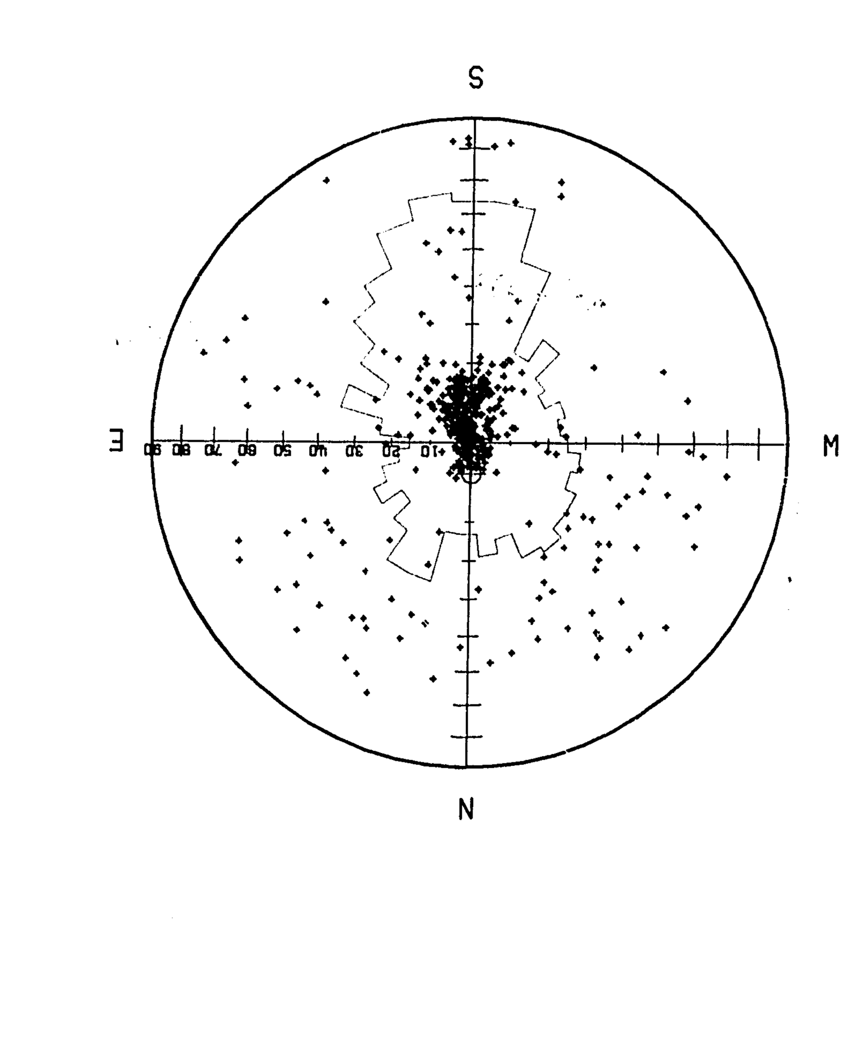
PERMANENT DATUM GROUND LEVEL ELEV. 255.0000
LOG MEASURED FROM KELLY BUS , 7.500 M. ABOVE PERM DATUM
DRILLING MEASURED FROM KELLY BUSHING

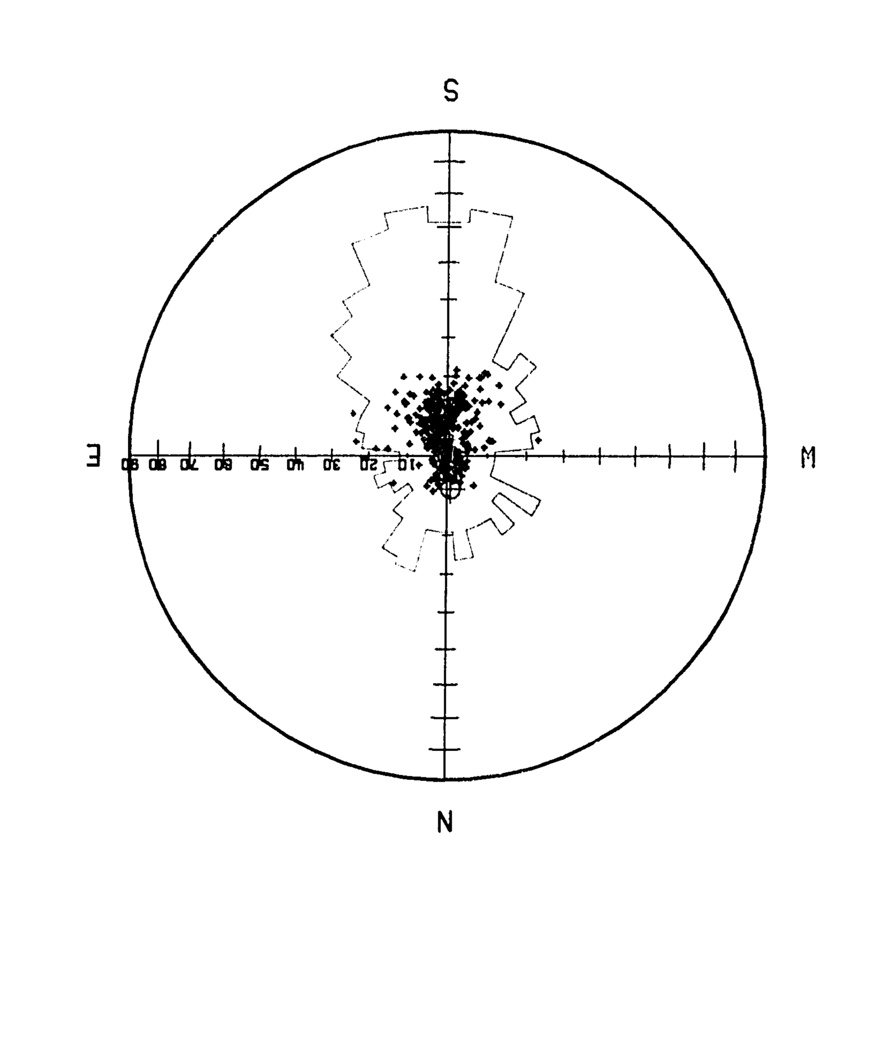
ELEV K.B. 262.50
D.F. 255.00
G.L. 255.00

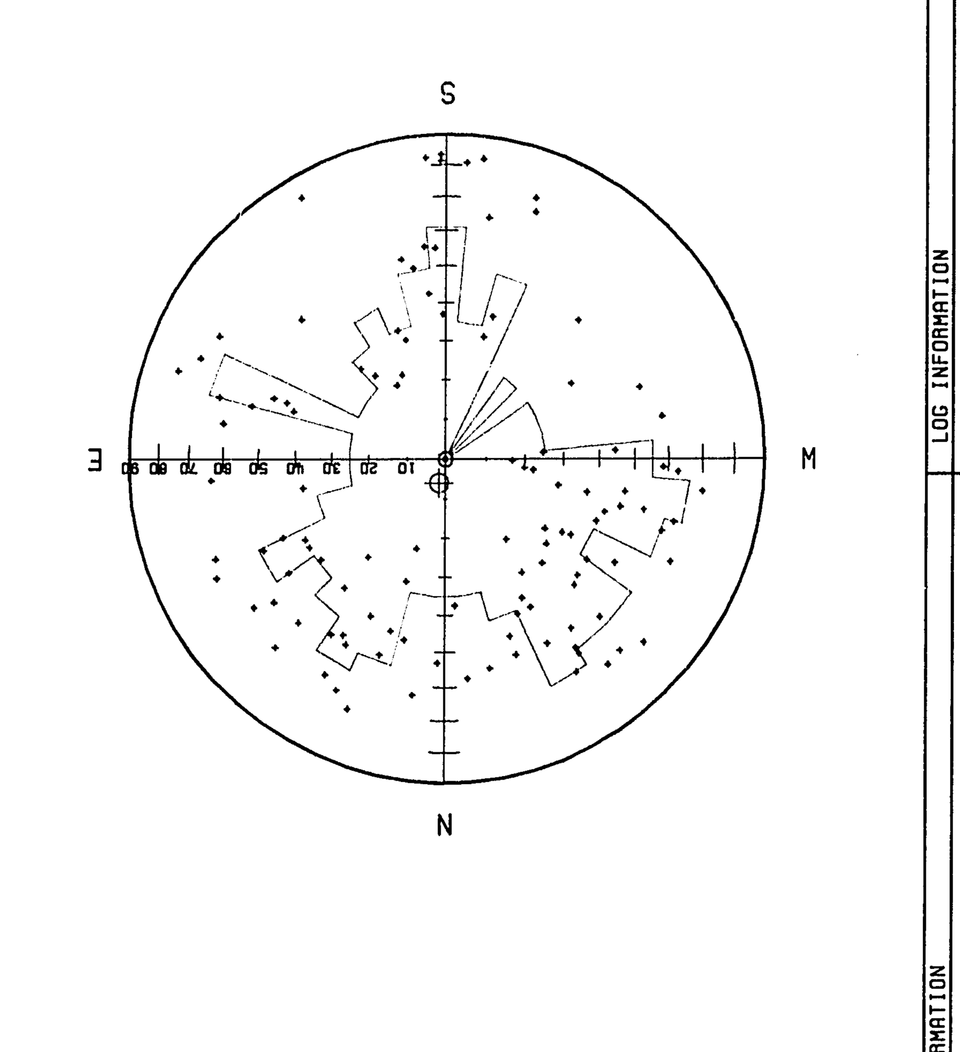
DATE	02 JAN 1999			
RUN NO.	TWO			
DEPTH - DRILLER	2395.70			
DEPTH - LOGGER	2395.70			
BOTTOM LOGGED INTERVAL	2395.1			
TOP LOGGED INTERVAL	2068.0			
CASING - DRILLER	244.50 AT 2067.	AT	AT	AT
CASING - LOGGER	2066.7000			
BIT SIZE	216.00			
TYPE FLUID IN HOLE	POLYMER			
CASING SIZE/WT.	--			
DENSITY / VISCOSITY	1140.0 / 60.000			
PH / FLUID LOSS	10.000 / 7.80 ML	ML	ML	ML
SOURCE OF SAMPLE	FLOWLINE			
R_M AT MEASURED TEMP.	.320 AT 17.0 C	AT C	AT C	AT C
R_{MF} AT MEASURED TEMP.	.300 AT 16.0 C	AT C	AT C	AT C
R_{MC} AT MEASURED TEMP.	.350 AT 18.0 C	AT C	AT C	AT C
SOURCE: R_{MF} R_{MC}	M / M			
R_M AT BHT	0.090 AT 100. C	AT C	AT C	AT C
TIME SINCE CIRCULATION	0930			
MAX. REC. TEMP.	100.0C	C	C	C
LOGGING CONTRACTOR	COMPUTALOG			
RECORDED BY	TILLER			
WITNESSED BY	BRIAN BELLMAN			

NATIONAL ENERGY BOARD
ENERGY BRANCH
JAN - 5 1999

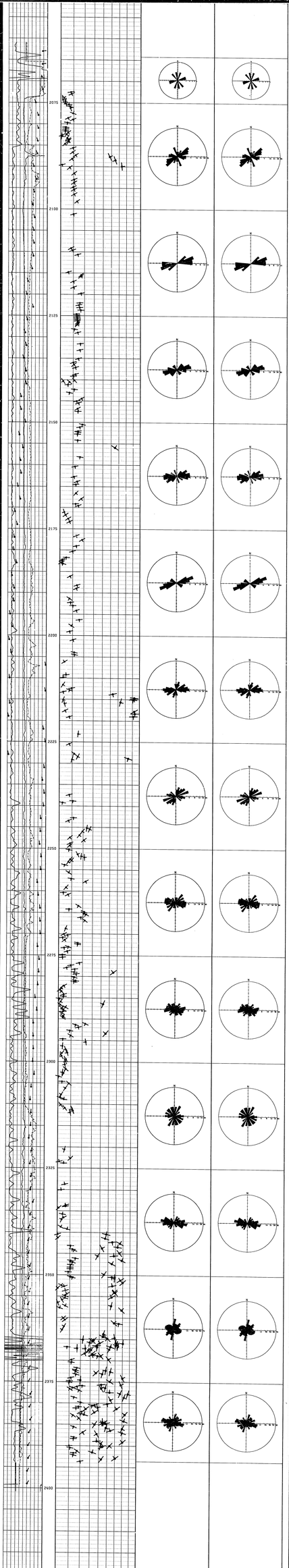
FOLD HERE







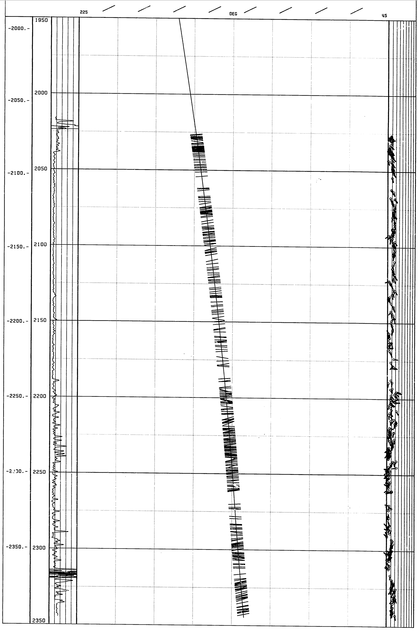
2075
2100
2125
2150
2175
2200
2225
2250
2275
2300
2325
2350
2375
2400
2425
1:240
DIP 0 TO 90 DEGREES
BED BOUNDARY
FRACTURE
LARGE FRACTURE
SCHMIDT PLOT
BEDS
SCHMIDT PLOT
FRACTURES
DEVI
DEG
-1
9
GR
GAPI
0
150
DMAX
MM
100
350
DMIN
MM
100
350
HEF PETROPHYSICAL CONSULTING
WELL NAME
: CDN FOREST ET AL FLETT RAPIDS I-61
1:240
DIP 0 TO 90 DEGREES
(WITH STRIKE WINGS)
BED BOUNDARY
FRACTURE
LARGE FRACTURE
STRIKE PLOT
BEDS
STRIKE PLOT
FRACTURES
DEVI
DEG
-1
9
GR
GAPI
0
150
DMAX
MM
100
350
DMIN
MM
100
350
2050



HEF PETROPHYSICAL CONSULTING

WELL NAME : CDN FOREST ET AL FLETT RAPIDS I-61

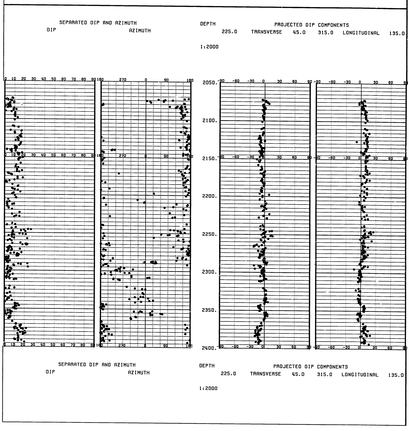
MEAS. DEPTH (M)	TVD (M)	GAMMA RAY	CROSS SECTION	DIP
	0	0 GAPI 150	PRJ.DIST.FROM WELLHEAD(M)	0 TO 90
			0	90



HEF PETROPHYSICAL
I N C L I N E

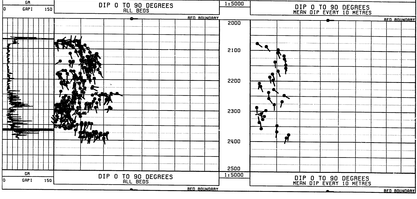
COMPUTED DIPMETER RESULTS

COMPANY	:	CANADIAN FOREST OIL
FIELD	:	FLETT RAPIDS
WELL	:	CON FOREST ET AL FLETT
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	:	27.5
SHORT TERM AVERAGE	:	5.00
STRIKING SURFACES	:	2
LOG NAME	:	BCDS
DATE/TIME	:	90/ 1/ 3 AT 21: 4:36
ANALYST	:	HEF3



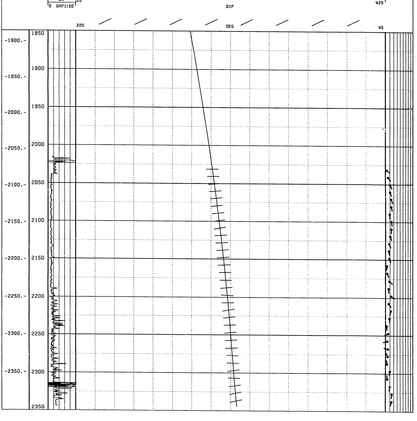
HEF PETROPHYSICAL CONSULTING

WELL NAME : CON FOREST ET AL FLETT RAPIDS I-61



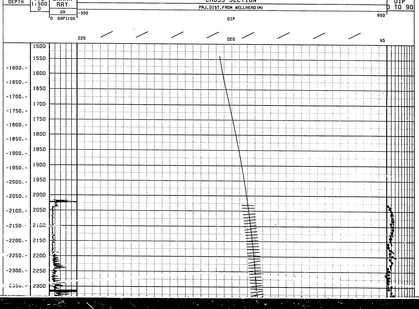
HEF PETROPHYSICAL CONSULTING

WELL NAME : CON FOREST ET AL FLETT RAPIDS I-61



HEF PETROPHYSICAL CONSULTING

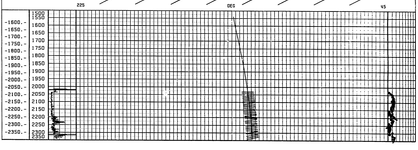
WELL NAME : CON FOREST ET AL FLETT RAPIDS I-61



HEF PETROPHYSICAL CONSULTING

WELL NAME: CON FOREST ET AL FLETT RAPIDS I-61

MEASURED DEPTH	TVD	GAMMA RAY	CROSS SECTION	DIP TO 90
	1:200	GR 0 GAPI150	PALISIS:FROM WELLHEAD	0 DIP 1100



HEF PETROPHYSICAL CONSULTING INC

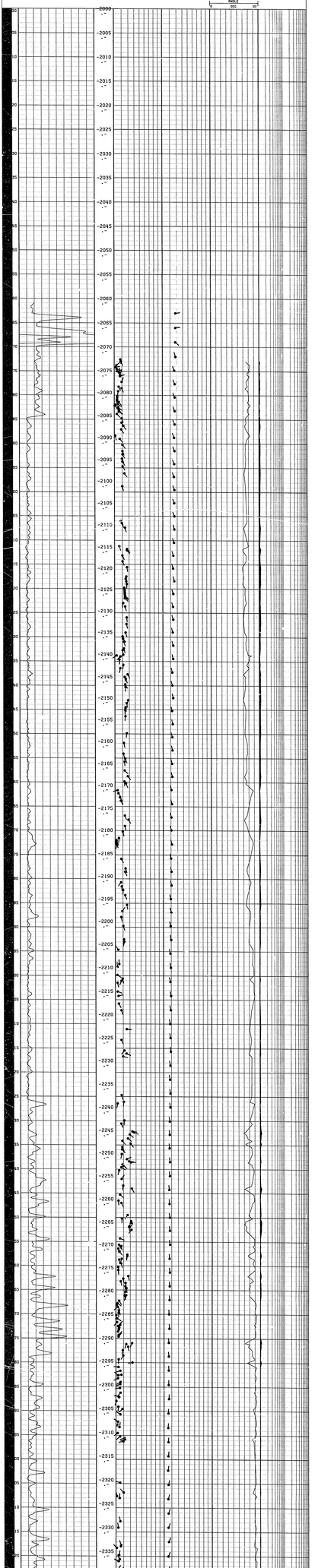
BED THICKNESS PLOT

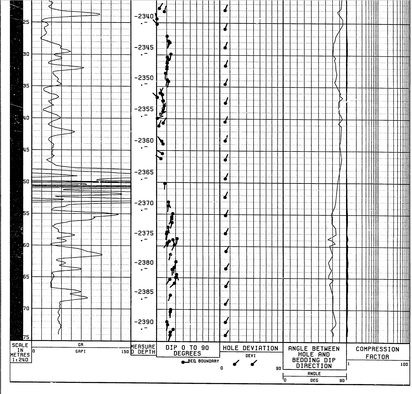
WELL NAME:CON FOREST ET AL FLETT RAPIDS I-61

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.

SCALE METRES 1:200	GR 0 GAPI 150	MEASURED DEPTH	DIP 0 TO 90 DEGREES (BED BOUNDARY)	HOLE DEVIATION (DEV) 0 90	ANGLE BETWEEN HOLE AND BEDDING DIP DIRECTION (ANGLE DEG) 0 90	COMPRESSION FACTOR 0 100



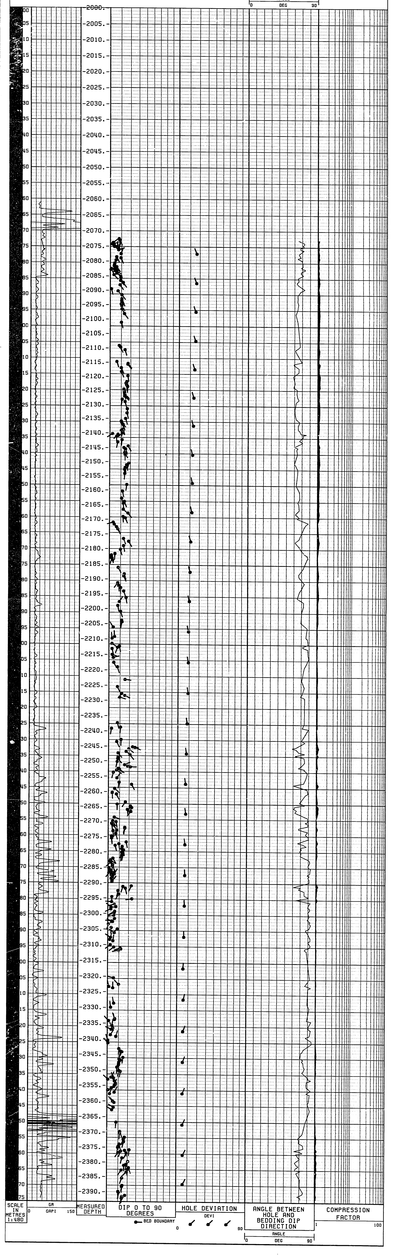


HEF PETROPHYSICAL CONSULTING INC

BED THICKNESS PLOT — **WELL NAME:CON FOREST ET AL FLETT RAPIDS I-61**

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.

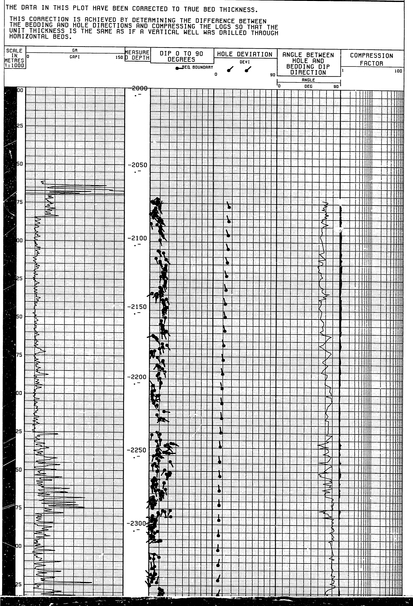


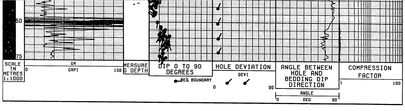
HEF PETROPHYSICAL CONSULTING INC

BED THICKNESS PLOT — WELL NAME:CON FOREST ET AL FLETT RAPIDS I-61

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.





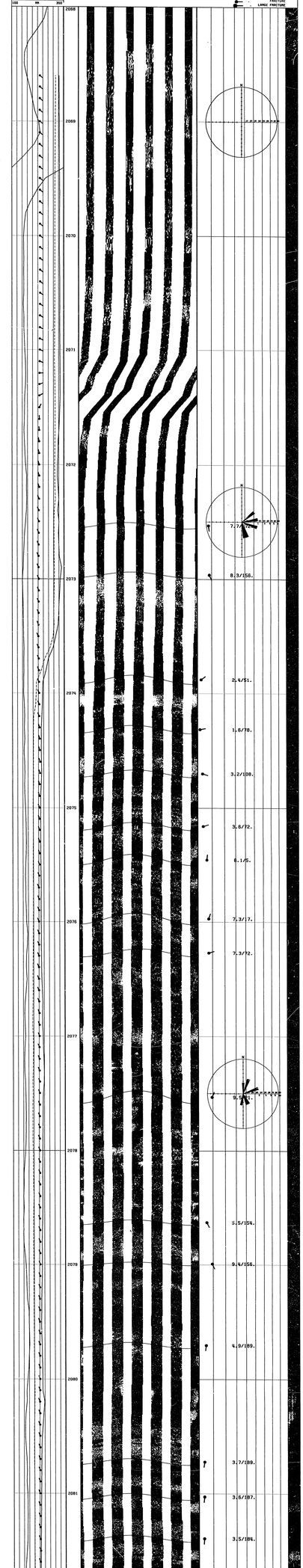
HEF PETROPHYSICAL CONSULTING

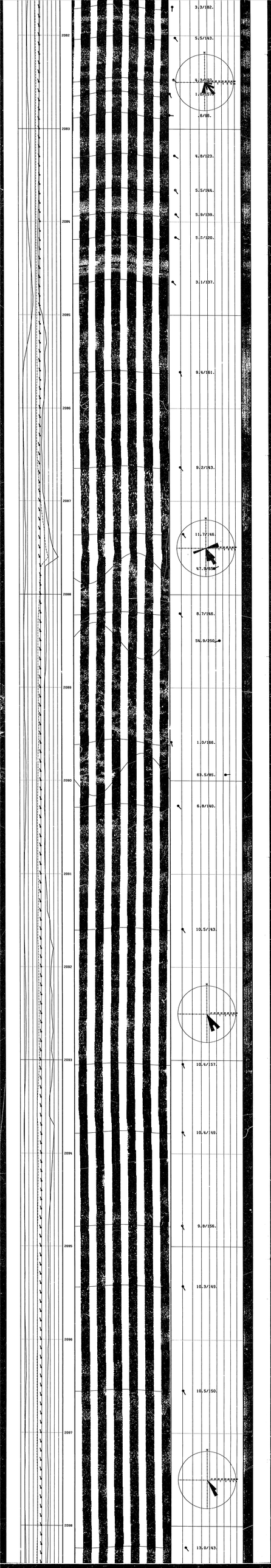
WELL NAME : CDN FOREST ET AL FLETT RAPIDS I-61

1:10

EMI IMAGE
NORTH 0 AND 360 DEGREES
RIM
1 METER NORMALIZED
DEG

SCHMIDT PLOT
DIP 0 TO 90 DEGREES
DIP/RIM

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2082
5.5/143.
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.6/88.
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5.5/144.
2084
5.0/139.
5.7/120.
3.1/137.
2085
9.4/181.
2086
9.2/143.
2087
11.7/148.
47.9/85.
2088
8.7/148.
54.9/250.
2089
1.0/186.
2090
63.5/85.
6.8/140.
2091
10.5/143.
2092
2093
10.4/157.
10.4/149.
2094
9.8/156.
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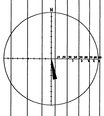
2099

2100

2101

10.0/165.

2102



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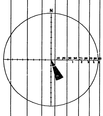

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2111

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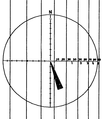

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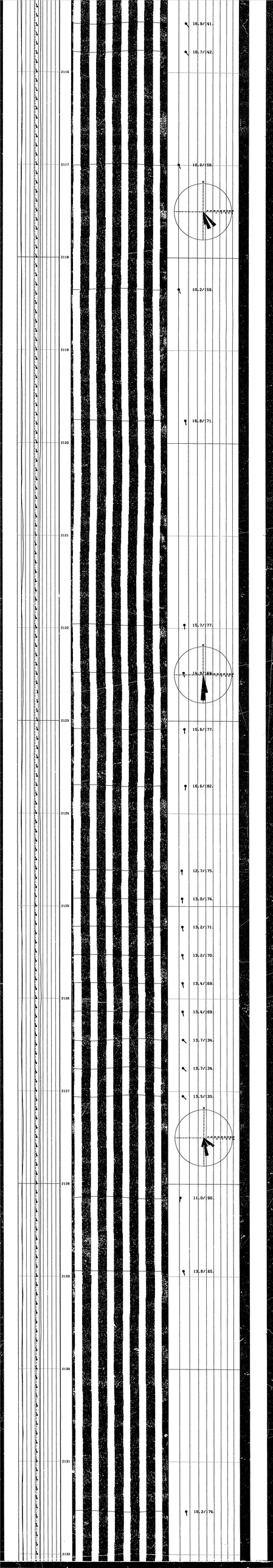
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15,7/77.
15,8/69.
2123
15,6/77.
16,6/82.
2124
12,7/75.
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2125
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13,2/70.
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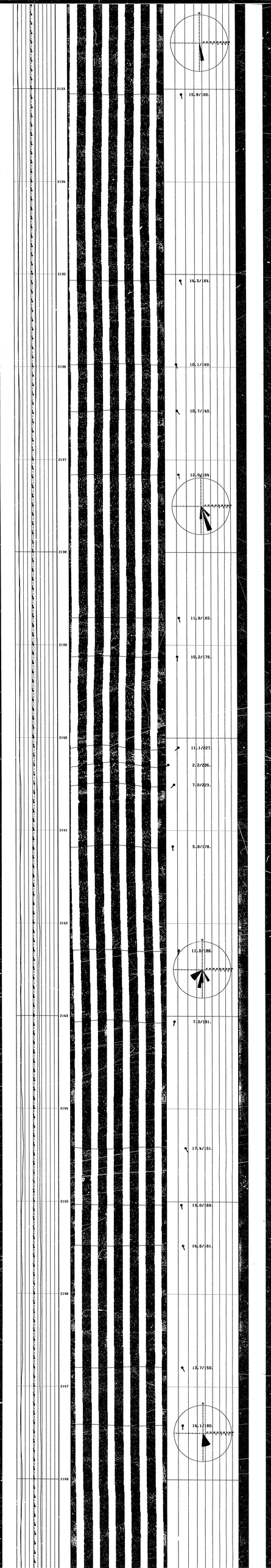
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2.2/236.
7.0/223.
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5.8/178.
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11.0/86.
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7.0/191.
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17.4/51.
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14.6/61.
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14.1/80.
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2149

2150

16.2/194.

2151

15.8/170.

2152

14.3/173.

14.1/188.

13.7/182.

2153

2154

14.0/184.

2155

2156

55.0/34.

2157

2158

15.1/189.

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2164

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12.5/176.

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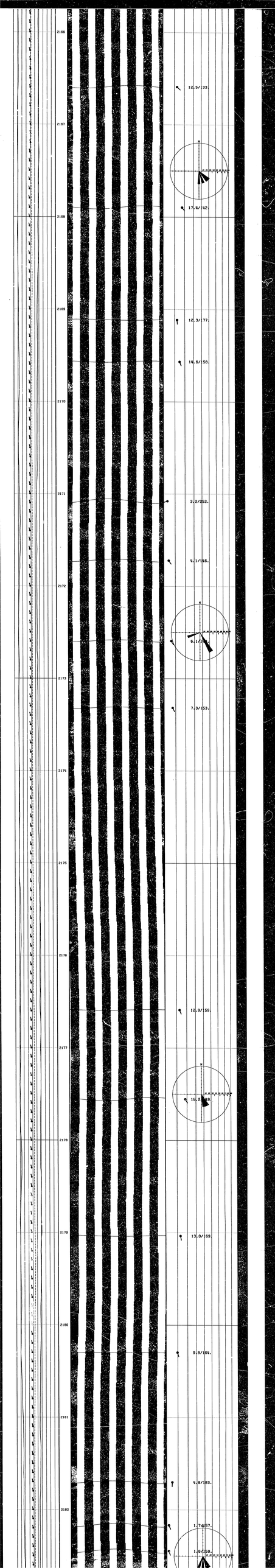
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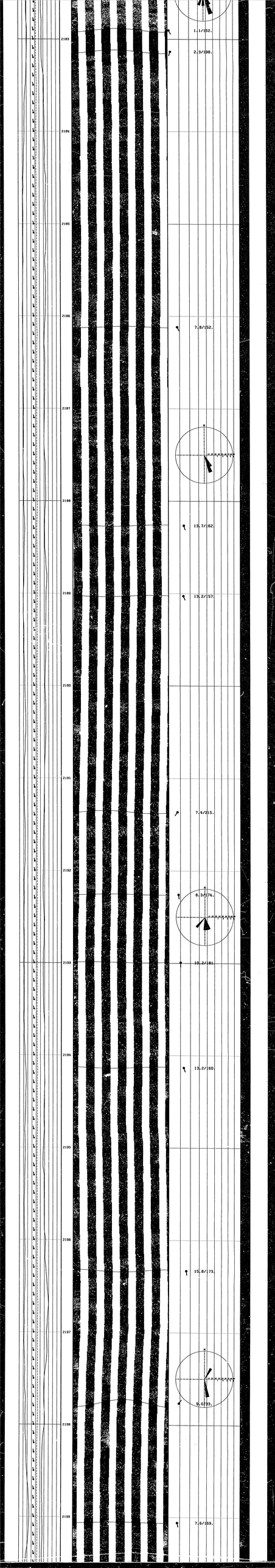
1.6/159.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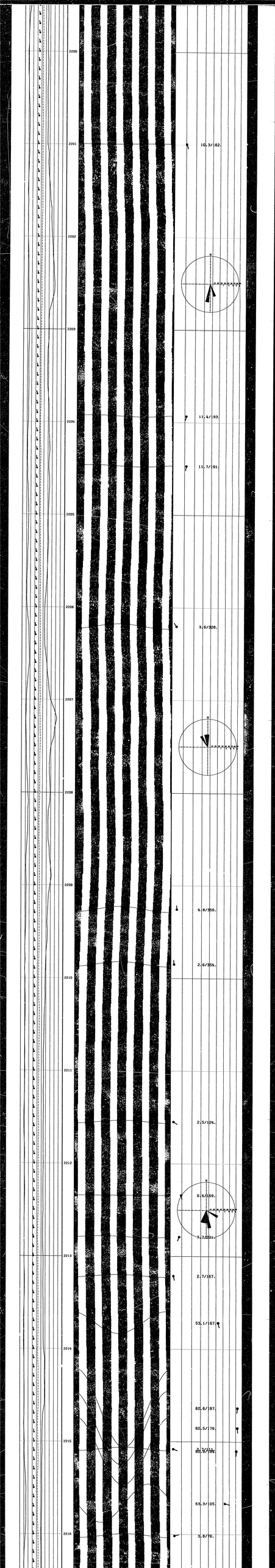
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3.6/328.
4.8/358.
2.6/354.
2.5/124.
9.4/189.
7.7/201.
2.7/187.
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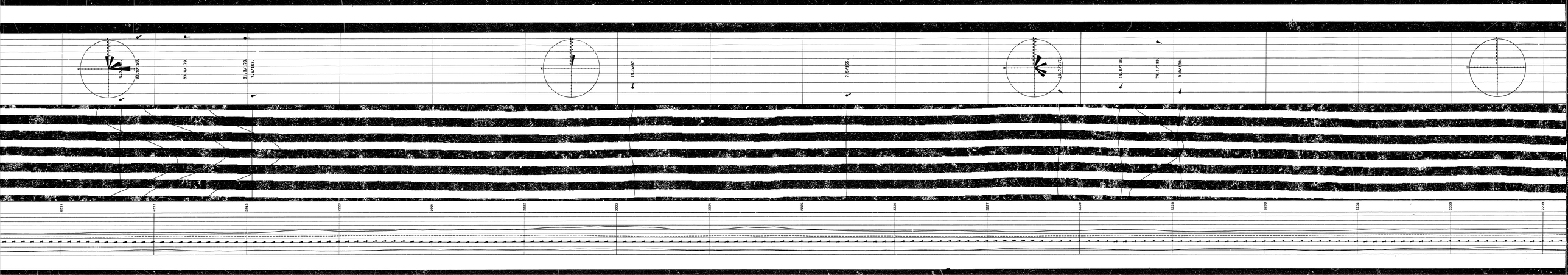

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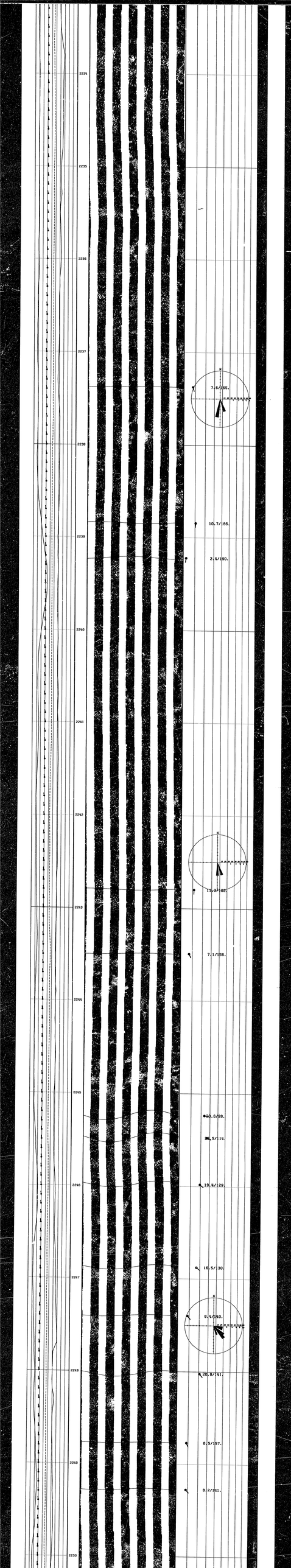
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11.8/102.
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23.6/99.
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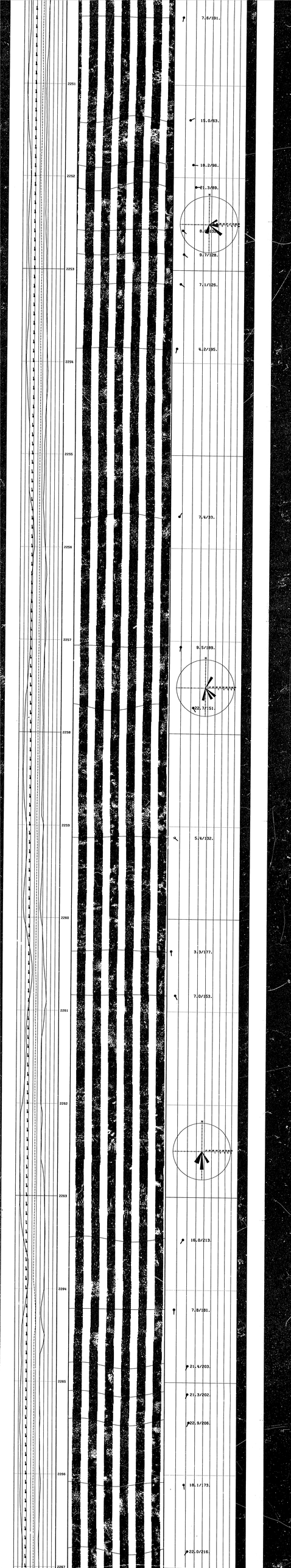
8.5/157.
8.2/161.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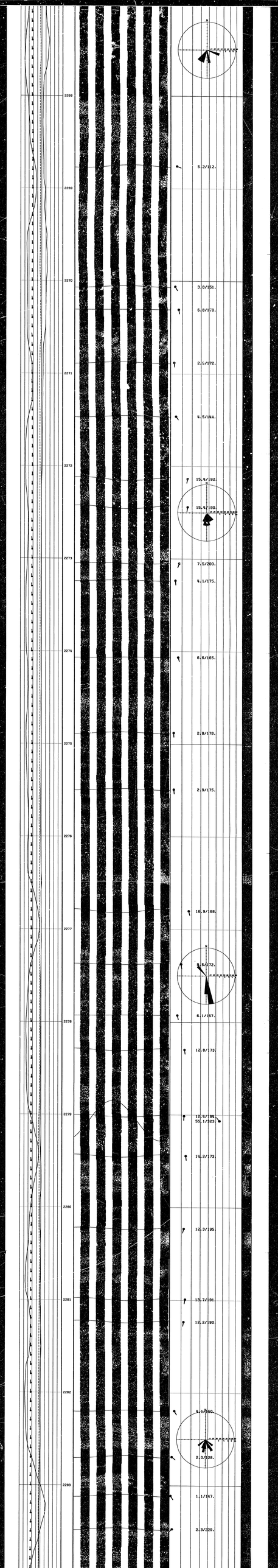
2267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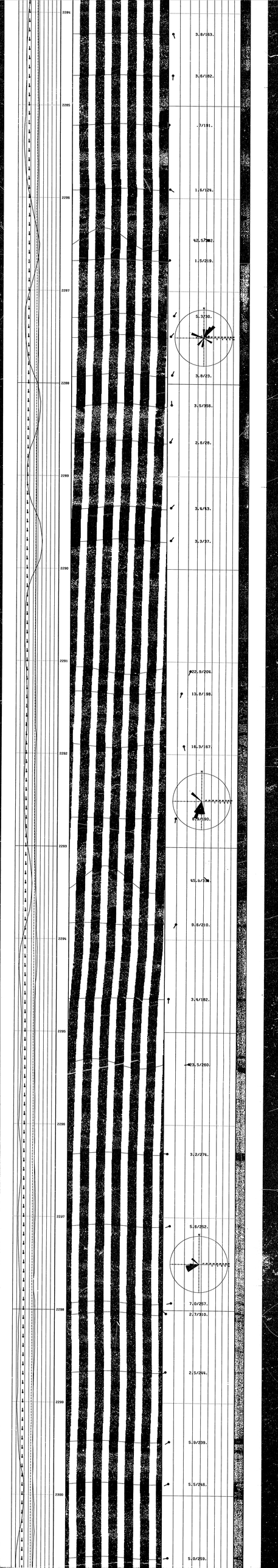
2.3/229.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3.8/23.
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3.5/358.
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16.3/167.
8.9/180.
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45.8/2
9.6/210.
2293
3.4/182.
2294
23.5/260.
2295
3.2/274.
2296
5.6/252.
7.0/257.
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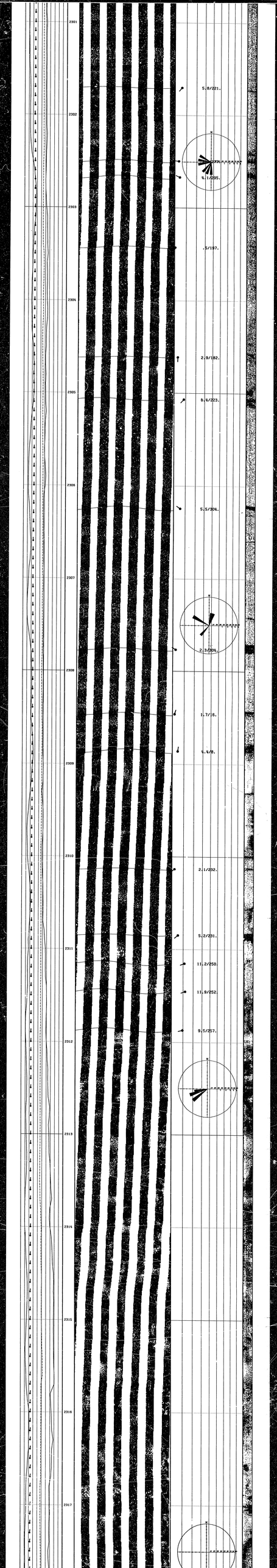
2.5/244.
2298
5.0/239.
5.5/246.
2299
5.0/259.
2300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5.8/221.
8.1/295.
.5/197.
2.9/182.
8.4/223.
5.5/304.
2.3/304.
1.7/16.
4.4/8.
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5.2/231.
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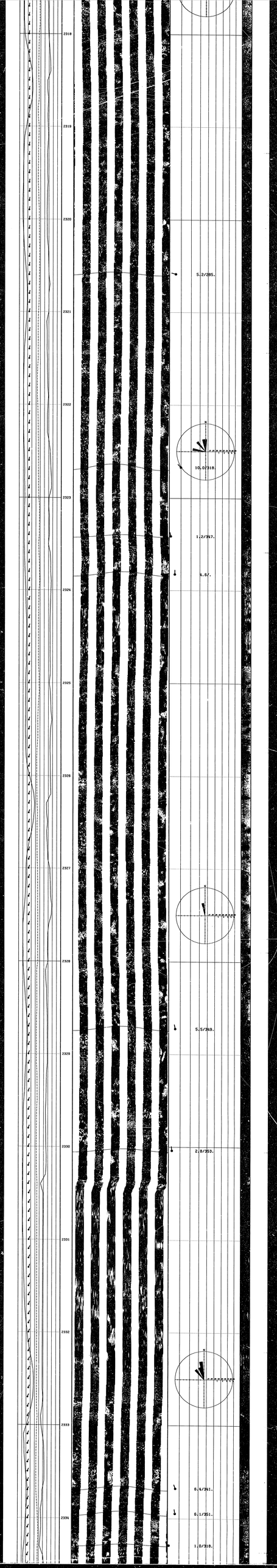
11.8/252.
9.5/257.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2323
1.2/347.
4.0/.
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5.5/349.
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8.4/341.
8.1/351.
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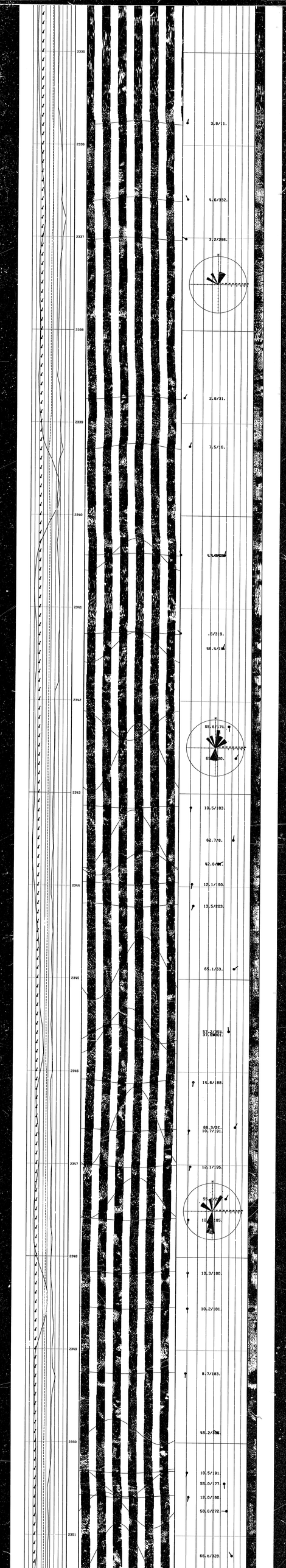
1.0/318.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.8/319.
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2343
10.5/83.
62.7/8.
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12.1/90.
13.5/203.
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65.1/53.
2346
16.6/88.
2347
12.1/95.
2348
10.3/80.
10.2/81.
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10.5/91.
55.0/77.
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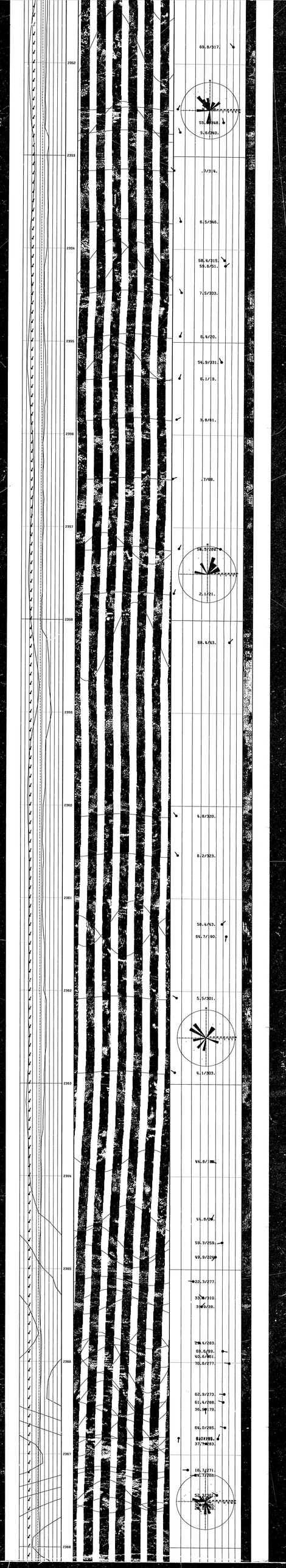
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8.5/346.
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59.8/51.
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.7/68.
56.9/284.
2.1/21.
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4.8/320.
6.2/323.
56.4/43.
64.7/90.
5.5/301.
4.1/303.
44.8/
44.8/
59.3/259.
49.9/229.
22.3/277.
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70.6/277.
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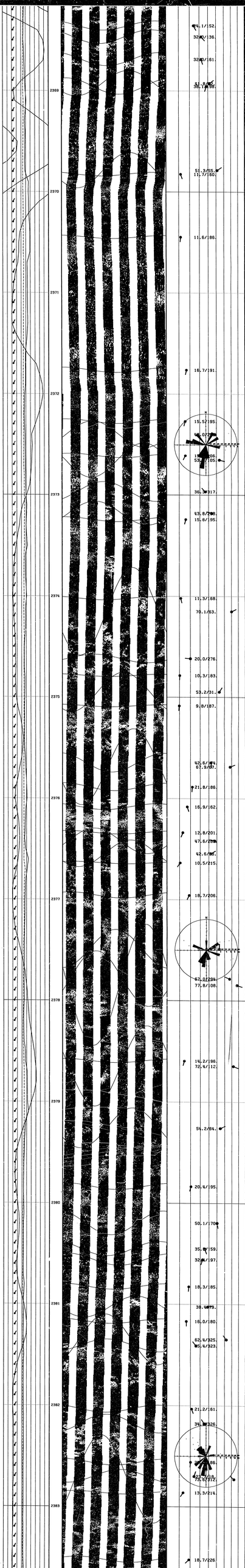
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70.1/63.
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53.2/31.
9.8/187.
67.9/87.
21.8/186.
16.9/162.
12.8/201.
10.5/215.
16.7/206.
67.0/296.
77.8/108.
14.2/198.
72.4/112.
54.2/64.
20.4/195.
50.1/170.
16.3/185.
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72.4/112.
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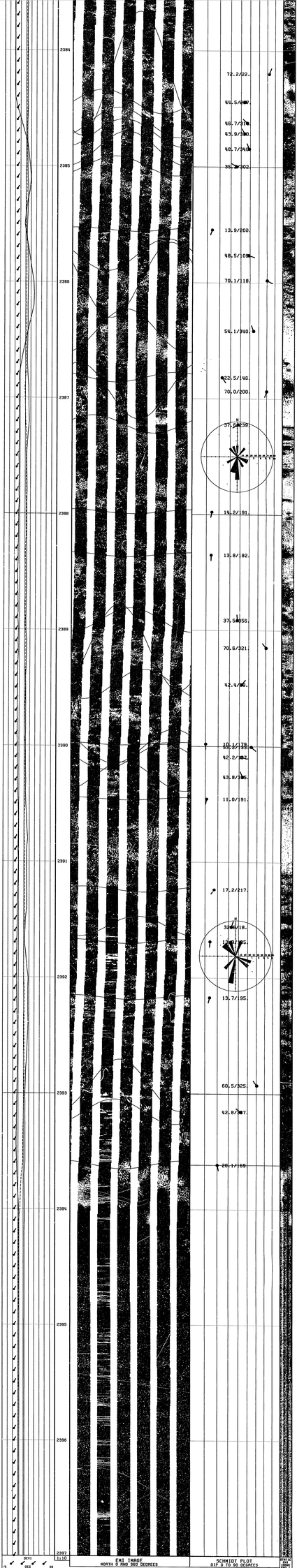
16.7/226.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DATE
RM
DMAX
RA
EMI IMAGE
NORTH 0 AND 360 DEGREES
RBIN
1 METER NORMALIZED
0
DEG
SCHMIDT PLOT
DIP 0 TO 90 DEGREES
DIPAZIM
90
BED BOUNDARY
DRILLING INDUCED FRACTURE
FRACTURE
LARGE FRACTURE

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

MISCELLANEOUS

N.E.B. COPY

1851

COMPUTALOG

CS400

GAMMA RAY LOG

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST et al FLETT RAPIDS I-61
	N 60 -40' W 123 -26'
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LSD ___ Sec. ___ Twp. ___ Rge. ___
Perm. Datum Ground Level Elev. 255.0
Log measured from K.B., 7.5 m above Permanent Datum.
UWI
Licence WID#1851

Other Services: TCP
ELEV. K.B. 262.50
G.L. 255.00
CBF

Date	02/12/99
Run No.	ONE
Type Log	GR/CCL
Depth-Driller	2660.0
Depth-Logger	NOT TOUCHED
Btm.Log Inter.	2297.0
Top Log Inter.	2236.9
Fluid in Hole	3% KCL
Fluid Level	SURFACE
Bit Size (mm)	311
Unit #	406
Location	FORT ST. JOHN
Recorded By	D.DEI
Witnessed By	O.KITTELSON

Shot Density	No. of Shots	Perf. Interval From	To
17	111	2311.0	2318.0

Gun Type ERHSC
Gun Size 127 mm

Tubing/Casing Record

Size mm	Wt. Kg/m	From	To
339.7	101.2	SURFACE	569.6
244.5	64.7	SURFACE	2073.0
177.8	43.16	1899.0	2657.0

Collar Location

Casing	Tubing

Other Services

Service	Type	Size	Depth
Bridge Plug			
Prod. Packer			
Cement Retainer			
Cement			
Junk Basket Type			
Gauging Size			

Tubing Bottom
Seating Nipple

FOLD

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: CENALTA 32 Service Order # 68094
BHT 127 °C
CORRELATE TO COMPUTALOG SPECTRAL Pe DENSITY COMPENSATED NEUTRON LOG
DATED: DECEMBER 22,1998
Prints: 11

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	Other
ONE	GR/CCL	PENGO	add 6.67 m AFTER CORRELATION LOG
			RUN CONFIRMATION LOG

REMARKS

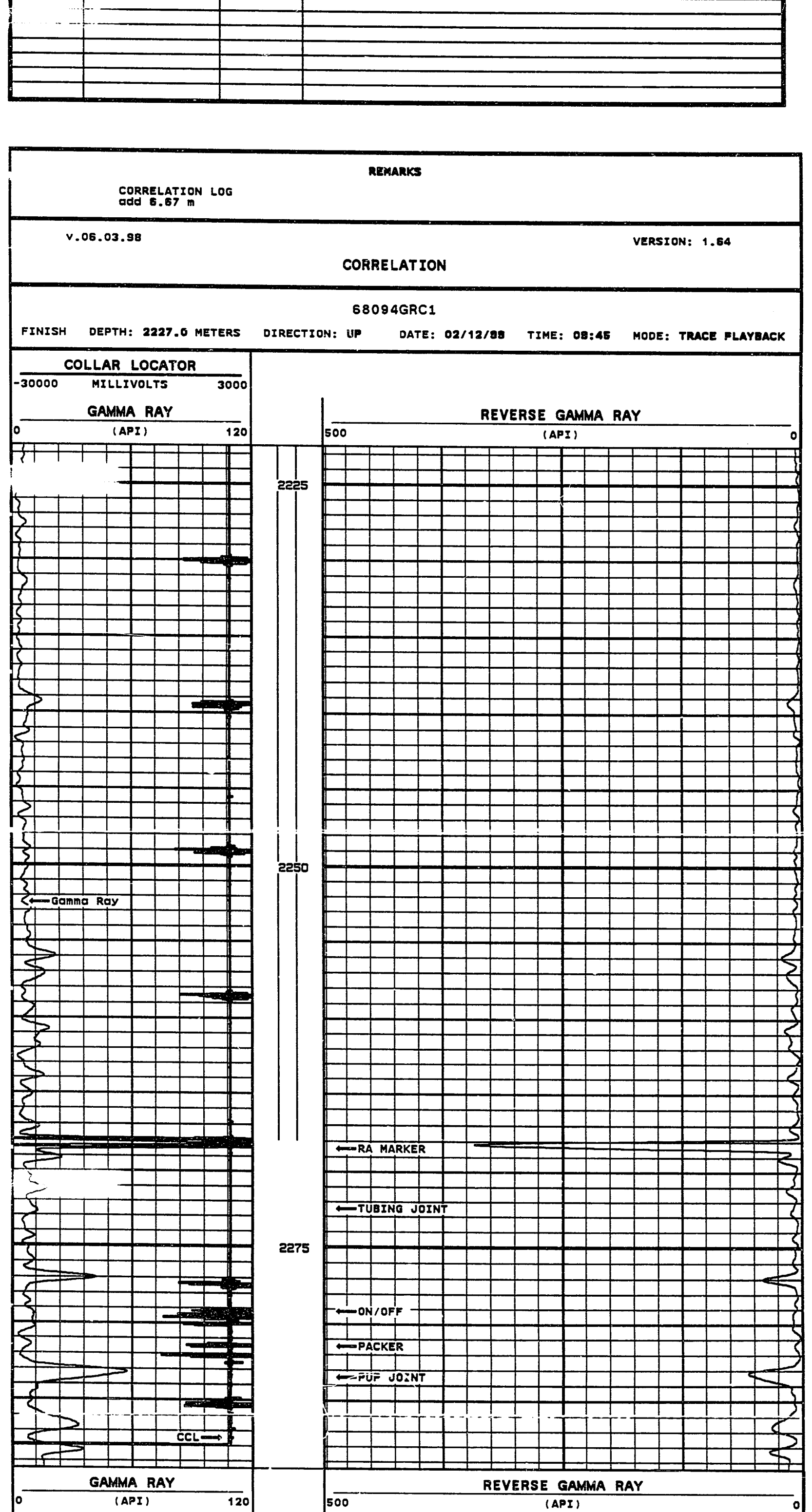
CORRELATION LOG
add 6.67 m

V.06.03.98 VERSION: 1.64

CORRELATION

68094GRC1

FINISH DEPTH: 2227.0 METERS DIRECTION: UP DATE: 02/12/98 TIME: 09:45 MODE: TRACE PLAYBACK



START DEPTH: 2284.0 METERS DIRECTION: UP DATE: 02/12/98 TIME: 09:38 MODE: TRACE PLAYBACK

68094GRC1

CORRELATION

V.06.03.98 VERSION: 1.64

REMARKS

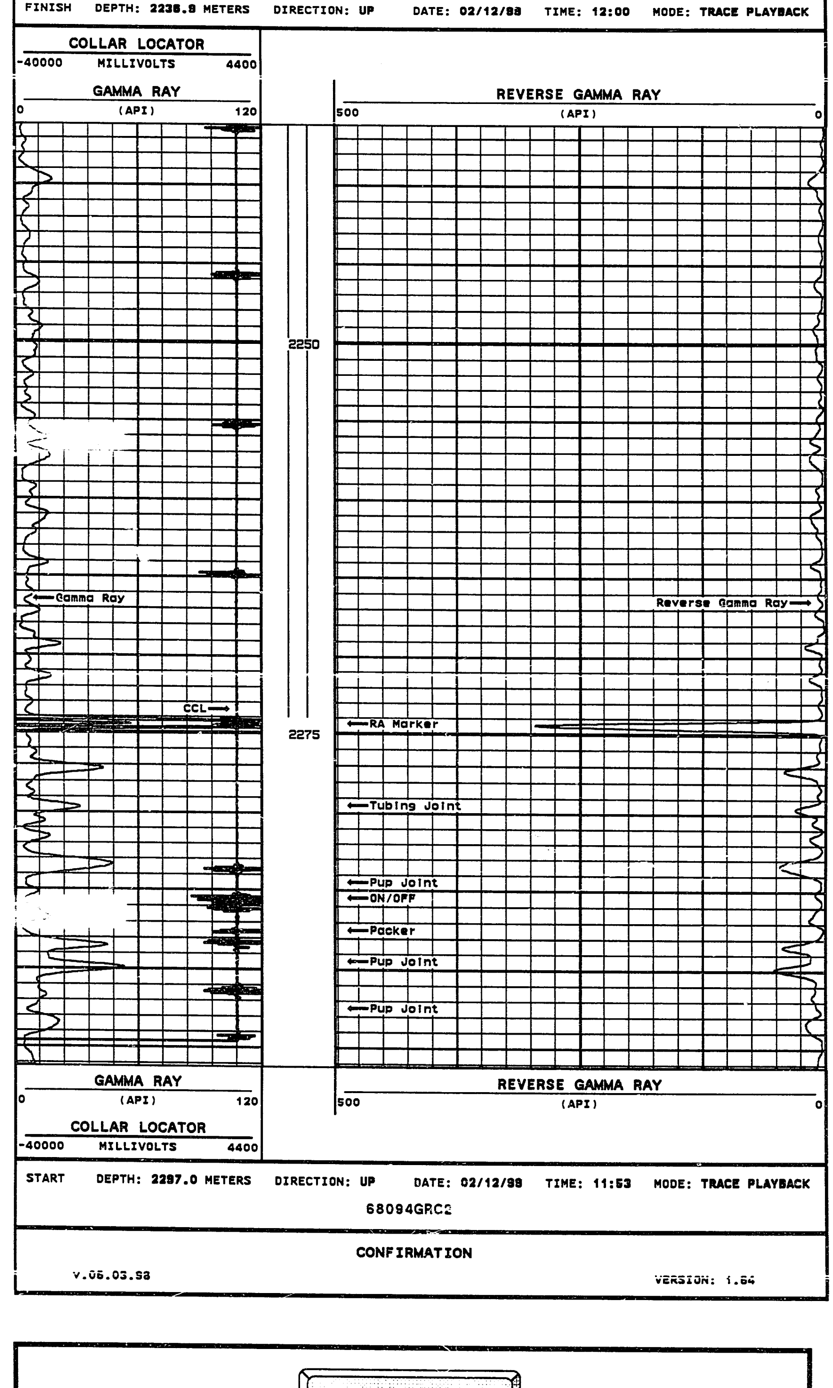
CONFIRMATION LOG
RA READ AT 2274.41 mKB TO PERFORATE 2311.0 mKB TO 2318.0 mKB

V.06.03.98 VERSION: 1.64

CONFIRMATION

68094GRC2

FINISH DEPTH: 2236.9 METERS DIRECTION: UP DATE: 02/12/98 TIME: 12:00 MODE: TRACE PLAYBACK



GAMMA RAY (API) 0 120
COLLAR LOCATOR -40000 MILLIVOLTS 4400
REVERSE GAMMA RAY (API) 500 0

START DEPTH: 2297.0 METERS DIRECTION: UP DATE: 02/12/98 TIME: 11:53 MODE: TRACE PLAYBACK

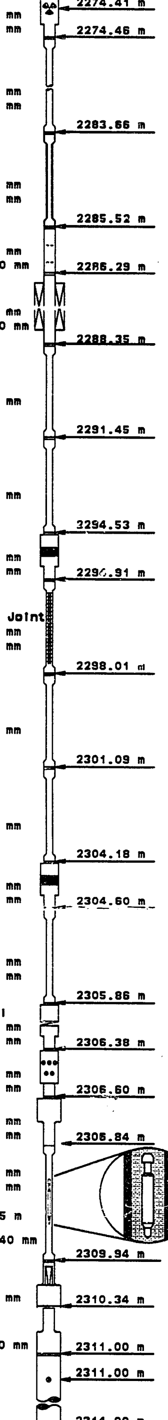
68094GRC2

CONFIRMATION

V.06.03.98 VERSION: 1.64

Computalog Ltd.
Tubing Conveyed System

Company : CANADIAN FOREST OIL LTD.
LSD : N 60 -40' W 123-26'



Component	Description	Depth	Length
R.A. Marker	R.A. Marker I.D. - 72.82 mm O.D. - 88.90 mm	2274.41 m / 2274.46 m	
Tubing Joint	Tubing Joint I.D. - 72.82 mm O.D. - 88.90 mm	2283.66 m	Length - 9.20 m
Blast Joint	Blast Joint I.D. - 72.32 mm O.D. - 88.90 mm	2285.52 m	Length - 1.86 m
On/Off Tool	On/Off Tool I.D. - 77.00 mm O.D. - 139.70 mm	2286.29 m	Length - 0.77 m
Packer	Packer I.D. - 72.82 mm O.D. - 177.80 mm	2288.35 m	Length - 2.06 m
Pup Joint	Pup Joint O.D. - 88.90 mm	2291.45 m	Length - 3.10 m
Pup Joint	Pup Joint O.D. - 88.90 mm	2294.53 m	Length - 3.08 m
Nipple	Nipple I.D. - 69.85 mm O.D. - 88.90 mm	2294.91 m	Length - 0.38 m
Perforated Pup Joint	Perforated Pup Joint I.D. - 72.82 mm O.D. - 88.90 mm	2298.01 m	Length - 3.10 m
Pup Joint	Pup Joint O.D. - 88.90 mm	2301.09 m	Length - 3.08 m
Pup Joint	Pup Joint O.D. - 88.90 mm	2304.18 m	Length - 3.09 m
Nipple	Nipple I.D. - 69.85 mm O.D. - 88.90 mm	2304.60 m	Length - 0.42 m
Pup Joint	Pup Joint I.D. - 72.82 mm O.D. - 88.90 mm	2305.86 m	Length - 1.26 m
Separation Tool	Separation Tool I.D. - 72.82 mm O.D. - 93.00 mm	2306.38 m	Length - 0.52 m
Flow Sub	Flow Sub I.D. - 72.82 mm O.D. - 93.00 mm	2306.60 m	Length - 0.22 m
Crossover Sub	Crossover Sub I.D. - 62.00 mm O.D. - 88.90 mm	2306.84 m	Length - 0.24 m
Handling Joint (With Drop Bar)	Handling Joint I.D. - 72.82 mm O.D. - 88.90 mm; Drop Bar Length - 3.05 m, Fish Neck O.D. - 25.40 mm	2309.94 m	Length - 3.10 m
Firing Head	Firing Head O.D. - 73.00 mm	2310.34 m	Length - 0.40 m
Top Sub	Top Sub O.D. - 127.00 mm	2311.00 m	Length - (.66 m
	Top Shot	2311.00 m	
	Bottom Shot	2314.00 m	
Perforated Interval(s)	Top Shot O.D. - 127.00 mm	2314.00 m	
	Bottom Shot	2318.00 m	
Bottom Sub	Bottom Sub O.D. - 127.00 mm	2318.30 m	Length - 0.30 m

Perforated Length 3.0 m
Shot Density 17spm

Perforated Length 4.0 m
Shot Density 17spm

Remarks:
CORRELATE TO COMPUTALOG SPECTRA Pe DENSITY COMPENSATED NEUTRON LOG
DATED DECEMBER 22,1998

ALL MEASUREMENTS TO TOP OF COLLARS.

Other Mechanical Data:
DROP BAR HAS A 1" FISHNECK

SEPERATION SUB: 40-003-0500-00
SHIFT UP SEPARATION SUB
W/2.750 ID SLEEVE OTIS B
POSITIVE KEYS GRIS GUN

Perforating Data:

Distance Marker to Top Shot:	36.59
Gun Type:	ERHSC
Gun O.D.:	127 mm
Charge Type:	OWEN
Gram Weight:	39

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CDN FOREST et al FLETT RAPIDS I-61
FIELD	FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

1851 N68

CS400

COMPUTALOG

GAMMA RAY LOG

COMPANY	CANADIAN FOREST OIL LTD.
WELL	CON FOREST et al FLETT RAPIDS I-61
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LOCATION 0.00'+0.0' N 0.00'+0.0' W
Perm. Datum GROUND LEVEL Elev.: 255.0
Log measured from KB, 3.0 m above Permanent Datum.
Elevations: KB:258.0, DF:, GL:255.0

Other Services: ELEV.K.B 255.0 GR 255.0

Date	87/10/09				
Run No.	ONE				
Type Log	GR/CCL				
Depth-Driller	3800.0				
Depth-Logger	NOT TAGGED				
Bottom Logged	3800.0				
Top Log Interval	FIRST				
Fluid in Hole	SWEET				
Fluid Level	SURFACE				
Bit Size (mm)	215				
Max.Rec.Temp.					
Location	FORT ST. JOHN				
Recorded By	D.SEI				
Witnessed By	K.KITTELSON				

Casing Record

Size	Wgt/Ft	Grade	Top	Bottom
244.5	36.8	J55	SURFACE	3800.0
177.8	34.18	J55	SURFACE	3800.0
88.9	9.6	J55	SURFACE	3800

Casing Location

Casing	Tubing	Service Type	Size	Depth
		Bridge Plug		
		Cement Retainer		
		Compl. Packer		
		Cement		

Other Services:

Tubing Bottom
Running Middle

Joint Tail Tube
Shoulder Tail Size

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REMARKS

COMPUTALOG 3 SUPERVISOR: R.BURNETT; OPERATOR: ANDERSON; RECORDER: J.J.ZEE

SECTION START @ MEAS. 0.0 m

PRINTED: 87/10/09

Type	Date	Time
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34

Type	Date	Time
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34
	87/10/09	09:34

REMARKS

MAIN PASS

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:34 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

REMARKS

MAIN PASS

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:34 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

REMARKS

CONFIRMATION PASS

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:34 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

REMARKS

CONFIRMATION PASS

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:34 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

REMARKS

CONFIRMATION 2

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:39 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

REMARKS

CONFIRMATION 2

Y-86-20-88

VERSION: 1.84

REVERSE GAMMA RAY

DIRECTION: UP DATE: 03/10/09 TIME: 09:39 MODE: TRACE PLAYBACK

COLLAR LOCATION

GAMMA RAY

COLLAR LOCATION

GAMMA RAY

REVERSE GAMMA RAY

COMPUTALOG

COMPANY CANADIAN FOREST OIL LTD.

WELL CON FOREST et al FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N.W.T.

N.E.C. COPY 1851

COMPUTALOG

CS400

COLLAR LOG

PROVINCE NORTH WEST TERRITORIES
WELL CDN FOREST et al FLETT RAPIDS I-61
FIELD FLETT RAPIDS
COMPANY CANADIAN FOREST OIL LTD.

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST et al FLETT RAPIDS I-61

FIELD FLETT RAPIDS

PROVINCE NORTH WEST TERRITORIES

LOCATION N 60°-40' W 123°-26'
Perm. Datum GROUND LEVEL Elev.255.0
Log measured from KB 7.5 m above Permanent Datum.
UWI
Licence NID#1851

Other Services:
ELEV.K.B.262.5
G.L.255.0
CBF

Date	02/17/89				
Run No.	ONE				
Tyes Log	CCL				
Depth-Driller	2660.0				
Depth-Logger	NOT TOUCHED				
Bte.Log Inter	2309.0				
Top Log Inter	2215.4				
Fluid in Hole	2%KCL				
Fluid Level	SURFACE				
Bit Size (mm)	311				
Unit #	406				
Location	FORT ST. JOHN				
Recorded By	D.DRI				
Witnessed By	O.KITTELSON				

Shot Density	No. of Shots	Perf. Interval From	To

Gun Type
Gun Size

Tubing/Casing Record

Size mm	Wt. kg/m	From	To
244.5	64.7	SURFACE	569.6
177.8	43.16	SURFACE	1899.0

Collar Location

Casing	Tubing

Other Services

Service	Type	Size	Depth
Bridge Plug	MODEL S	177.8	2306.0
Prodn. Packer			
Cement Retainer			
Cement	CLASS "G"	177.8	2306.0

Tubing Bottom — Junk in Hole Type #25
Seating Nipple — Gouge Ring Size 146.81

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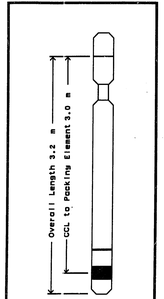
REMARKS
CORRELATE TO COMPUTALOG SECTOR BOND LOG DATED: 02/11/89

SERVICE ORDER: 8 8202
BIT: 202mm

FINISH: 1.

EQUIPMENT DATA

Run No.	Tool Type	Tool No.	
ONE	CCL		POSITION CCL AT 2293.0 MKB TO SET BRIDGE PLUG AT 2306.0 MKB

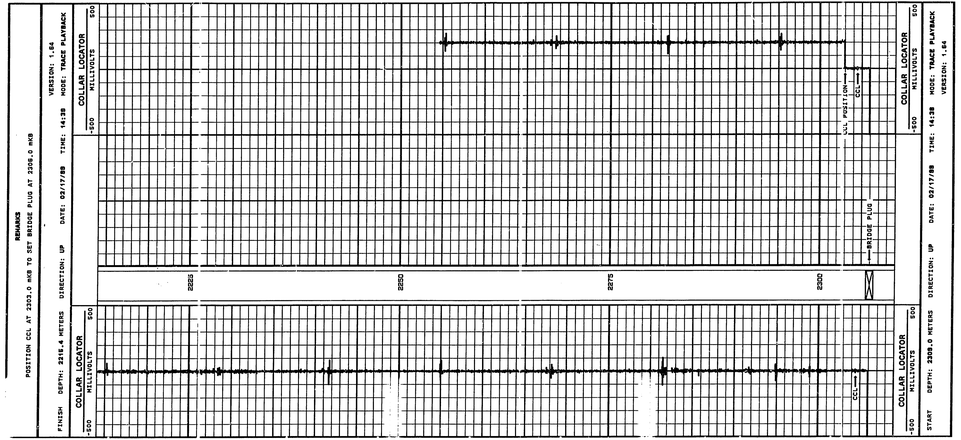


Date 02/17/89
Type PERMANENT
Model S
Size 177.8
Depth 2306.0
Make BAKER

REMARKS
POSITION CCL AT 2293.0 MKB TO SET BRIDGE PLUG AT 2306.0 MKB

FINISH DEPTH: 2316.4 METERS DIRECTION: UP DATE: 02/17/89 TIME: 14:38 MODE: TRACE PLAYBACK VERSION: 1.64

START DEPTH: 2308.0 METERS DIRECTION: UP DATE: 02/17/89 TIME: 14:38 MODE: TRACE PLAYBACK VERSION: 1.64



COMPUTALOG

COMPANY CANADIAN FOREST OIL LTD.
WELL CDN FOREST et al FLETT RAPIDS I-61
FIELD FLETT RAPIDS PROVINCE N.W.T.

PROVINCE NORTH WEST TERRITORIES		COMPUTALOG	
FIELD FLETT RAPIDS	WELL CDN FOREST #1 d/ FLETT RAPIDS I-61		
COMPANY CANADIAN FOREST OIL LTD.		PERFORATING LOG	

NEW COPY

PROVINCE NORTH WEST TERRITORIES			
FIELD FLETT RAPIDS	WELL CDN FOREST #1 d/ FLETT RAPIDS I-61		
COMPANY CANADIAN FOREST OIL LTD.			

Date 02/18/89	Run No. ONE	Elev.	
Type 2D	Tool Type CCL	Tool No.	
Model E-4	Depth Driller 2097.00	Depth Logger 2091.00	
Size 2D	Bottom Log Interval 2091.00	Top Log Interval SURFACE	
Depth 2091.18	Max. Rec. Temp. 0 DEGC	Equip. Location	
Make BAKER	Recorded By	Witnessed By	

ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS AND WE CANNOT, AND WE DO NOT, GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION, 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 OUR GENERAL TERMS AND CONDITIONS SET OUT IN OUR CURRENT PRICE SCHEDULE.

REMARKS N/A: CENALTY — Service Order # 88037

CORRELATE TO COMPUTALOG SECTOR BOND LOG DATED: 02/11/89 — BHT 280C

Prime: 17

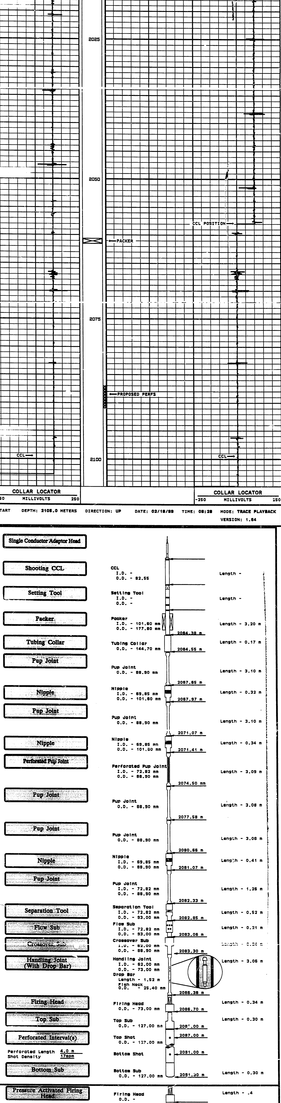
Run No.	Tool Type	Tool No.	Comments
ONE	CCL		POSITION CCL AT 2057.90 MKB TO SET PACKER AT 2061.18 MKB PS.92 m FROM CENTER RUBBER TO TOP SHOT. PERFORATE 2087.0 MKB TO 2091.0 MKB

REMARKS

POSITION CCL AT 2057.90 MKB TO SET PACKER AT 2061.18 MKB
PS.92 m FROM CENTER RUBBER TO TOP SHOT
TOP SHOT AT 2087.0MKB TO 2091.0 MKB

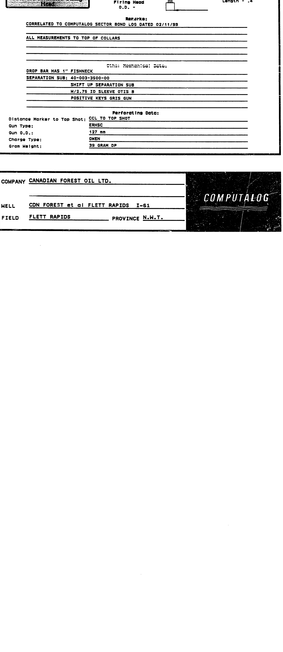
VERSION: 1.04

FINISH: DEPTH: 1997.0 METERS DIRECTION: UP DATE: 02/18/89 TIME: 08:38 MODE: TRACE PLAYBACK



START: DEPTH: 2091.0 METERS DIRECTION: UP DATE: 02/18/89 TIME: 08:38 MODE: TRACE PLAYBACK

VERSION: 1.04



Remarks:

CORRELATED TO COMPUTALOG SECTOR BOND LOG DATED 02/11/89

ALL MEASUREMENTS TO TOP OF COLLARS

DROP BAR HAS 1" FISHNECK — Other Mechanical Data:

SEPARATION SUB: AO-003-3500-00
SHIFT OF SEPARATION SUB
M/S.78 20 SHARKE SITE A
POSITIVE VEYS GRIS GUN

Perforating Data:

Distance Marker to Top Shot: CCL TO TOP SHOT
Gun Type: ENERG
Run O.D.: 127 mm
Charge Type: DMEN
Gram weight: 50 GRAM SP

COMPANY CANADIAN FOREST OIL LTD.			COMPUTALOG
WELL CDN FOREST #1 d/ FLETT RAPIDS I-61			
FIELD FLETT RAPIDS	PROVINCE N.W.T.		

N.E.B. COPY 6911-C(3)-1-1 1951

COMPUTALOG

CS400

CEMENT BOND LOG

PROVINCE	NORTH WEST TERRITORIES
FIELD	FLETT RAPIDS
WELL	CON FOREST ET AL FLETT RAPIDS I-61
COMPANY	CANADIAN FOREST OIL LTD.

COMPANY	CANADIAN FOREST OIL LTD.
	'''MEASURED DEPTH'''
WELL	CON FOREST ET AL FLETT RAPIDS I-61
	N 60°-40' W 123°-26'
FIELD	FLETT RAPIDS
PROVINCE	NORTH WEST TERRITORIES

LSD ___ Sec. ___ Twp. ___ Rge. ___
Perm. Datum Ground Level Elev. 255.0
Log measured from K.B. 7.5 ft above Permanent Datum.

Other Services: NONE

ELEV. K.B. 262.5
G.L. 255.0
CBF ----

DMI Licence

		Shot Density	No. of Shots	Perf. Interval FROM	TO
Date	DECEMBER 26, 1998				
Run No.	ONE				
Type Log	CBL/VDL/GR/CCL				
Depth-Driller	2073.6				
Depth-Logger	2071.2	NOT TAGGED			
Bis.Log Inter	1321.2				
Top Log Inter	100				
Fluid in Hole	DRILLING MUD	Gun Type			
Fluid Level	135	Gun Size			
Bit Size (mm)	215mm	Tubing/Casing Record			
Unit #	473	Size mm	Wt. kg/m	From	To
Location	FT. ST. JOHN	339.7	103.2	SURFACE	369.8
Recorded By	G. MARQUIS	244.5	84.7	SURFACE	2073
Witnessed By	G. SOLBERG				

Collar Location

Casing	Tubing	Other Services: Service	Type	Size	Depth
		Bridg	ug		
		Prod.	acker		
		Cemen	tainer		
		Cemen			
Tubing Bottom		Junk	ot Type		
Tooling Nipple		Gauge	g Size		

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REMARKS:

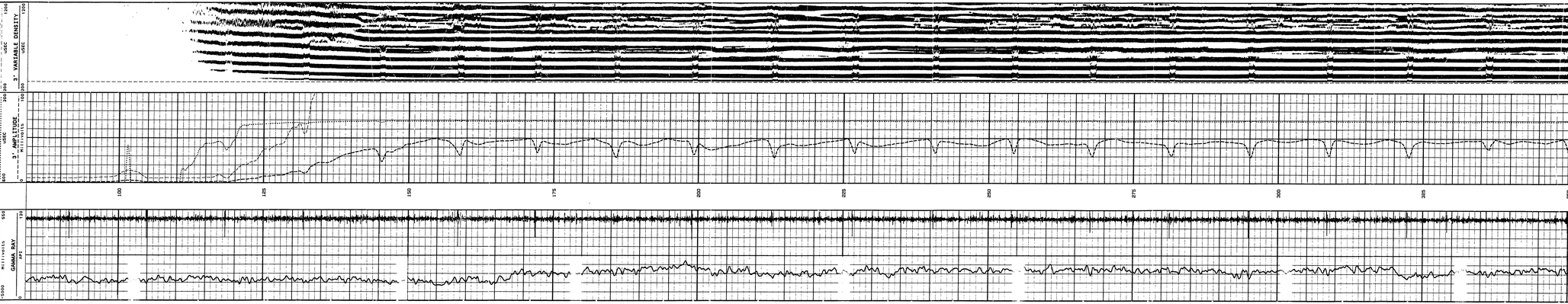
CORRELATED TO COMPUTALOG DOUBLE-DIPS, LAS DATED 27-DEC-98.
LOGGED WITH 1000 PSI ON CASING. PRESSURE DROPPED TO ZERO WHEN BEGINNING LOGGING, AFTER OPENING STAGE TOOL AND BEGINNING CEMENT JOB NO RETURNS WERE OBSERVED.
SEP 66888

MAIN PASS

VERSION: 1.64

DIRECTION: UP DATE: 12/28/98 TIME: 04:17 MODE: TRACE PLAYBACK

V-06-03-98



375
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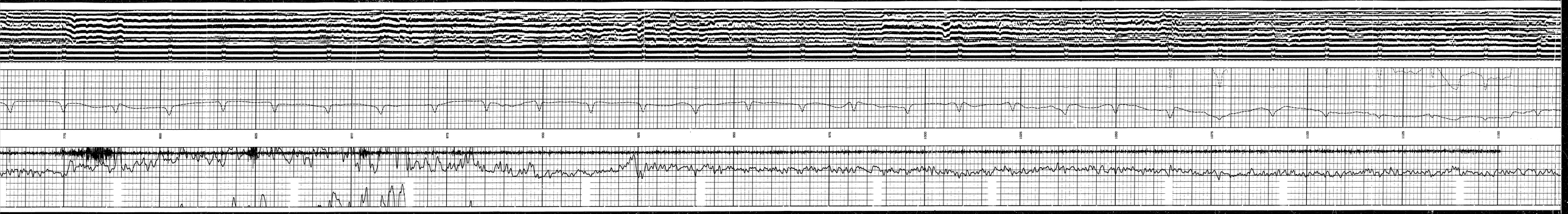
750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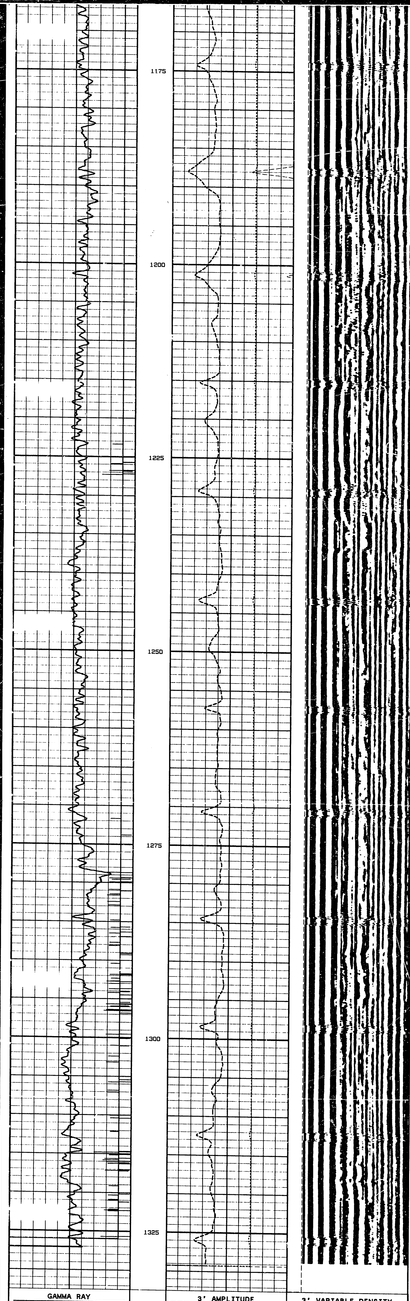


START DEPTH: 1331.2 METERS DIRECTION: UP DATE: 12/28/98 TIME: 02:11 MODE: TRACE PLAYBACK

66868CBL3

MAIN PASS

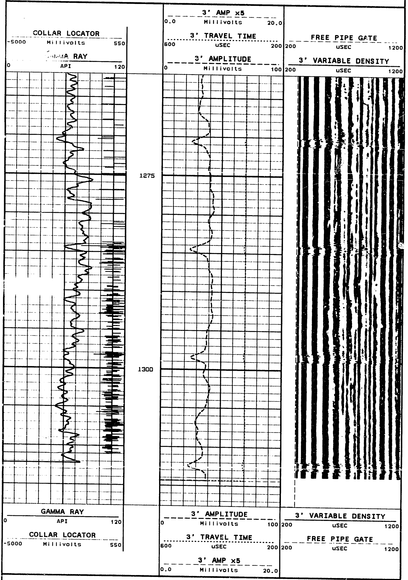
v.06.03.98 VERSION: 1.64

v.06.03.98 VERSION: 1.64

REPEAT PASS

66868CBL2

FINISH DEPTH: 1269.5 METERS DIRECTION: UP DATE: 12/28/98 TIME: 02:08 MODE: TRACE PLAYBACK



START DEPTH: 1316.1 METERS DIRECTION: UP DATE: 12/28/98 TIME: 02:01 MODE: TRACE PLAYBACK

66868CBL2

REPEAT PASS

v.06.03.98 VERSION: 1.64

COMPANY CANADIAN FOREST OIL LTD.

WELL CDN FOREST ET AL FLETT RAPIDS I-61

FIELD FLETT RAPIDS PROVINCE N.W.T.

COMPUTALOG

LITHOLOGY STRIP LOG
WellSight Systems Inc.
Scale 1:240 Metric

Well Name:	CANADIAN FOREST et al FLEET RAPIDS I - 01		
Location:	111°18'22.4sq 20' W 123 deg 10'	Region:	N.W.T.
Licence Number:	0111 - 0111 - 0111	Rig Release:	
Spud Date:	09/11/1982-10:00	Drilling Completed:	09/07/08@11:00HR
Surface Coordinates:	LAT - 58 deg 40' 41" N LONG - 123 deg 20' 34" W		
Bottom Hole Coordinates:	284.1 metres North; 28.8 metres West of surface location		
Ground Elevation (m):	254.0	K.B. Elevation (m):	262.0
Logged Interval (m):	28 m To: 2600 m	Total Depth (m):	2600 m
Formation:	LOWER DEVONIAN		
Type of Drilling Fluid:	KCL POLYMER		

Printed by STRIP LOG from WellSight Systems Inc. 1-800-447-1534

OPERATOR

Company: CANADIAN FOREST OIL LIMITED
Address: Suite 500, 500 - 5th Ave. S.W.
CALGARY, AB
T2P 3G3

GEOLOGIST

Name: M. FOX / B. BELLMAN
Company: OAS CONSULTING LTD.
Address: 4316 DALHART ROAD N.W
CALGARY, AB.
T3A 1B6

CORES

None

DSTs

None on penetration

COMMENTS

DIRECTIONALLY DRILLED WELL
KICK OFF DEPTH: 1285.0 m K.B. / 1284.7 m K.B.
INITIAL AZIMUTH: 120.0 degrees
FINAL AZIMUTH: 49.0 degrees
MAXIMUM HOLE ANGLE: 71.4 degrees at 1722.8 m K.B.
DEPTH WELL WAS FIRST SEMI-ORIENTATED AT: 2072.0 m K.B.
FINAL HOLE ANGLE: 52.0 degrees
TOTAL DEPTH: 2600.0 m K.B. / 2022.0 m T.V.D.

ROCK TYPES

Anhy, Bent, Bitu, Cht, Clyst, Coal, Congl, Dol, Gyp, Lime, Lmst, Meta, Mdst, Salt, Shale, Sltst, Shgr, Sdst, Sa, Till, Blank, Mssangl

ACCESSORIES

MINERAL: Anhy, Argyle, Bent, Bit, Brecfrag, Calc, Chert, Clmbs, Cbbt, Dol, Feldspar, Ferrgel, Fer, Gilsonite, Gyp, Hydmica, Kaol, Marl, Mirvol, Nodule, Oolite, Pyr, Salt, Sandy, Sltst, Sd, Sulphur, Tuff

FOSSIL: Algae, Amph, Belem, Bryozoa, Brach, Bryozoa, Crystal, Coral, Crin, Echin, Foram, Fossil, Gastro, Oolite, Ostra, Pelec, Pelmatozoa, Plant, Rhino

STRINGER: Anhy, Arg, Bitu, Coal, Dol, Gyp, Lime, Lmst, Sltst, Shgr, Sd, Tuff

TEXTURE: Boundst, Chalky, Crystx, Fenestral, Fossils, Grained, Lithogr, Micrxln, Mudst, Packst, Wackest

OTHER SYMBOLS

POROSITY TYPE: Earthy, Fracture, Inter, Moldic, Organic, Pinpoint, Vuggy

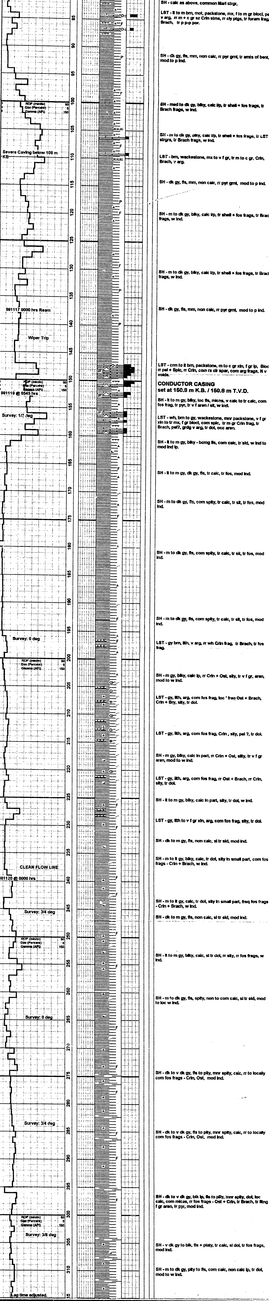
SORTING: Well, Moderate, Poor

ROUNDING: Rounded, Subrnd, Subang, Angular

OIL SHOWS: Even, Spotted, Dead

INTERVALS: None, Core, Dst

EVENTS: Sdt, Sidewall



SH - m to sh gy, bby, v calc, arg ms fst lam ity, tr mm to v f gr sbd, w bnd.

SH - dk to m gy, pby to fis, com calc, tr ms bi/dol sds, w bnd.

SH - dk to v dk gy, platy, bby in part, com to very calc, locally mudstone, tr dol, mod to w bnd.

SHALE - dk to v dk gy, pby to fis, bby / p, com to v calc, grdg locally to mudstone, micas, mod to w bnd.

SH - m to sh, pby, bby / p, com to v calc, tr v f to f gr calc, tr slty, mod to w bnd.

SH - dk to m gy, pby, bby in part, com calc, tr v f to f gr calc, tr slty, mod to w bnd.

SH - dk to m gy, bk to, pby to bby, locally very calc, tr shell frag, mod to w bnd.

LST - dk gy to bk, m gy, mudstone, tlth to ms, v arg, slty, tr Crin + ms shell frags.

SH - m to dk gy, bk to, bby, calc, tr v f gr cz calc, w bnd.

LST - dk gy to bk, m gy to, mudstone, tlth to ms, v arg, slty, tr Crin + shell frags.

SH - v dk gy to bk, pby to fis, bby in part, very calc, w bnd.

SH - dk gy, bk to, pby to fis, locally calc, tr bm slty lam, tr dol, mod w bnd.

SH - v dk gy to bk, bby, fns in part, sl calc, tr bm SLST lam, tr cs grn pyr grns + grnl, w bnd.

SH - v dk gy to bk, bby, fis / p, com calc, tr bm SLST lam, tr c gr pyr gr + grnl, w bnd.

BESA RIVER / ETANDA
BANFF FORMATION
at 428.0 m K.B. / 428.0 m T.V.D.

LST - dk to m gy, mudstone, tlth to ms, v arg, slty tr small part.

SH - dk gy, fis, spty / part, nrn, frag calc, sl dol, tr pyr, w bnd.

LST - dk to m gy, mudstone, tlth to ms, v arg, sl tr bioclast, slty in small part.

LST - dk gy to bk, mudstone, tlth to ms, v arg, tr slty, sl tr bioclast.

SH - m gy to bk, pby to bby, mm, v calc, tr slty, w bnd.

SAND - slt, yel, orng, f to c gr, tr peb, A = R, p srtd, pred lse p, tr calc cmt, qz + v abd sbd.

SH - med to dk gy, platy, mm, v calc, tr fling aren, tr slty, tr Crin fragments, w bnd.

SH - m to dk gy, pby, mm, v calc, tr fling aren, tr slty, tr lse sand gr, w bnd.

SH - m gy to bk, pby, mm, v calc, tr fling aren, tr slty, tr lse sand, w bnd.

SH - m gy, fis to loc bby, mm, mod calc, dol, tr slty, tr Crin debris, w bnd.

SH - m gy, fis to pby, mm, mod calc, tr Crin debris, loc calc lam, mod w bnd.

SH - m gy, fis to pby, mm, mod calc, tr Crin debris, loc calc lam, mod w bnd.

SH - m gy, fis to pby, mm, mod calc, tr pyr grnl, tr loc calc lam, mod bnd.

SH - m to dk gy, fis, bby tp, mm, mod calc, tr dol, tr loc pyr grnl, tr ca lam, mod bnd.

SH - m to dk gy, fis to pby, mm, tr calc, tr dol, sl slty, mod bnd.

SH - m to dk gy, fis to pby, mm, mod calc, tr dol, sl slty, mod bnd.

SH - m to dk gy, fis to pby, mm, mod calc, tr dol, sl slty, mod bnd.

SH - m to dk gy, fis, bby tp, mm, mod calc, tr dol, sl slty, sl tr dep cz calc, sl slty, mod w bnd.

SH - m to dk gy, bby, fis tp, mm, mod calc, tr dol, slty, mod w bnd.

SH - m to dk gy, bby, fis tp, mod calc, dol, slty, sl tr dissm pyr, w bnd.

SH - m to dk gy, bby, fis tp, mod calc, dol, loc lmst slty, tr dep calc, tr dissm pyr, w bnd to hd.

SH - m to dk gy, bby, spty ongs tp, wdy calc, tr dol, slty, tr dep calc, sl tr c gr tp grnl pyr, tr embedded Crin + Brach, w bnd.

SURFACE CASING
set at 669.6 m K.B. / 669.6 m T.V.D.

SH - m to dk gy, fis, mm, calc, sl dol, slty, tr f to v f gr aren, mod bnd.

SH - m to dk gy, fis, mm, micaceous tp, calc, tr dol, slty, tr aren, mod bnd.

SH - m to bk gy, fis, bby tp, calc, tr dep calc lam, slty, mod to w bnd.

SH - m to dk gy, fis, bby tp, calc, tr dol, slty, mod bnd.

SH - m to dk gy, bby, fis tp, mica, calc, tr dol, tr slty, mod to p bnd.

SH - dk gy, bby, fis tp, mica, mod calc, tr slty, mod to p bnd.

SH - dk gy, bby, mica, mod to sl calc, tr dol, tr slty, occ pyr, mod to loc w bnd.

SH - dk gy, bby, fis, mica, sl calc to dol, tr slt, tr pyr grnl, mod bnd.

SH - dk gy, bby, fis, mica, sl calc to dol, tr slt, tr pyr grnl, mod bnd.

SH - m gy, f gr tp, bby, mica, nrn tp, mod calc to dol, tr calc lam, tr pyr grnl, slty, mod to w bnd.

SH - m to dk gy, bby, mm, tr mica fibs, mod calc to dol, tr calc lam, slty, w bnd.

SH - m to dk gy, bby, mm, tr mica fibs, mod calc to dol, tr Ca lam, slty, w bnd.

SH - m to dk gy, bby, mm, mod calc, mod bnd.

SH - m to dk gy, f gr tp, bby, fis tp, calc to loc v calc, loc mudstone stngs, tr fos frags, tr dissm pyr, mod to w bnd.

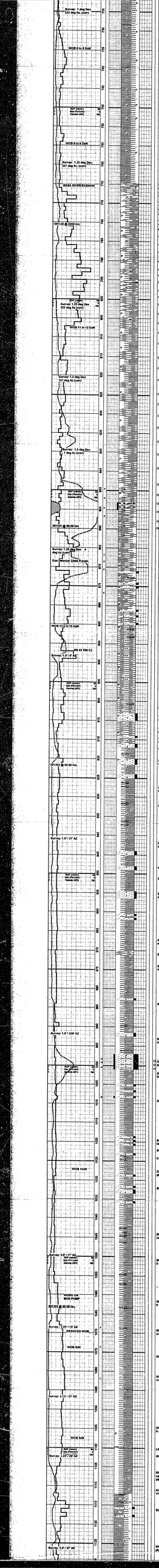
SH - med to dk gy, f gr tp, mm, fis tp, calc to loc v calc, loc f gr sl arg lst stngs, tr dissm pyr, tr fos frags, w bnd.

SH - m to dk gy, mm, bby, tr fis, calc to loc v calc, tr dissm pyr, tr fod fos frags - Crin, w bnd.

LST - lt, gy/ brn, ms to v f xl, mudstone, v arg, tr bioclst.

SH - m to dk gy, bby, fis, lsp, calc, tr dol, loc grdg to mudstone, tr pyr, tr slty, mod to w bnd.

SH - m to dk gy, bby, fis lsp, calc, tr dol, loc grdg to mudstone, tr pyr grnl, tr slty, mod to w bnd.



SH - lt to m gy, bdy, calc, dol lp, tr dissem pyr, slty, w bnd.

SH - lt to m gy, bdy, calc, dol lp, tr dissem pyr, slty, w bnd.

SH - f gy, m gy lp, bdy, sl calc to dol, loc com pyr grnls, tr slty, w bnd.

SH - f gy, m gy lp, bdy, tr fis, sl calc to dol, tr slty, loc com pyr grnsdns, w bnd.

SH - lt to m gy, gy' bb lp, bdy, fis lp, micas, sl calc, tr pyr gy, tr bb chk, sl bbl sm, mod to los p bnd.

SLTST - sy, bdy, qtz + chk, dol cmt, hard.

SH - gy' bb, bm' gy lp, bdy, fis lp, freq micas, sl calc (+pyr), com pyr gy, str A bb chk, sl HC odor, tr dl cmy fluor, s C.

SH - bk' gy, bm' gy, fis, freq micas, com pyr gy, tr bent, p to mod bnd, loc hard, sl HC odor, sl to strong fat wh C.

SH - bk' gy, bm' gy, pred fis, bdy lp, freq micas, com pyr gy, tr fossil, hydrophytic to pos, mod to m bnd, loc hard, sl HC odor, abn even bd wh C.

SH - bk' gy, bm' gy lp, bdy, fis lp, occ micas, dol, com pyr gy, mod to m bnd, hard lp, sl HC odor, abr even mdky wh C.

SH - v dk brn gy to blk, fis, m sft to m hd, sub bt, v f dissem pyr, tr m gy sl calc lam, tr pyr sl.

SH - v dk brn gy to blk, fis, m sft to m hd, sbt, v f dissem pyr, tr m gy sl calc lam, tr pyr sl.

SH - v dk gy to brn gy, fis to sflo, m sft to m hd, s wc, sub bt, tr m pres lam m gy sft bny SH lam, tr pyr vn.

EXSHAW
at 915.0 m K.B. / 915.0 m T.V.D.

SH - v dk brn gy to blk, sflo to fis, sub to bt, sl wc, tr lt mny pkg, tr pyr vn, com v f dissem pyr.

SH - v dk brn gy to blk, sbt lp bt pkg, sl wc, tr wh lmy spec, tr lt brn gy ex mnly pkg, m to tr pyr.

SH - blk, bt, m sft to m hd, pres vf ppr, w entry brn mnly pkg.

SH - blk, bt, sft, m sft to m hd, bcmg brk, pres v f ppr, w entry brn mnly pkg.

SH - blk, fis, sl brit, v bt lp, com f to mod sl dsy calcite, faint blooming cut.

CHT-dk brn gy cnt, mod, v hd, sl calc, tr wh sl dplit.

UPPER DEVONIAN - KOTCHO
at 962.0 m K.B. / 962.0 m T.V.D.

SH - dk gy, bk' gy, blky, loc frcd, sl to chl cmtd, f to c sl calc, tr pyr vn, bd.

SH - dk gy, bk' gy, mod, tr frcd, sl to chl cmtd, freq chtd frags.

SH - dk gy - brn gy, sflo - bflo, m hd - hd, pt sl calc, tr wh sl calc vn mod to dk GRY bnd, tr pyr.

SLTST - dk brn gy cnt, s hd, r arg, sl calc, pt chty, tr pyr, sl, lt vns.

SH - v dk gy - brn gy, sflo - bflo, hd, sl wc, sl bbl, v sl calc, tr sl calc vn m dsp sl, tr pyr.

SLTST - dk brn gy, s, m hd, calc cly cnt, tr sdy, tr bt frag & pkg, tr.

SH - dk brn gy cnt, fis - sflo, m hd, bd, calc, slty, tr calc vn, pres m gy bnt sl wxy lam.

SH - dk gy - brn gy, occ v dk vn, fis - sflo, m hd - hd, sl calc, tr pyr & calc vn, tr m gy bnt sl wxy lam.

SH - dk brn gy, fis - sflo, m hd, sl calc, pt sl sdy, tr v f dissem pyr, tr m cst sl mdy lam.

SH - dk brn gy, fis - sflo, m hd, sl calc, pt sl sdy, tr sl bbl / bt pkg, tr v f dm pyr.

SH - dk - v dk brn gy, fis - sflo, m hd, sl sdy, v sl - sl calc, tr pyr vn, tr m bnt mdy ( ).

SLTST - dk brn gy, v arg, m hd, sl calc cly cnt, tr pyr, tr bt pkg, tr.

SH - dk brn gy cnt, s fis, m hd, sl sdy - slty, sl calc, tr bt pkg, mdy lam.

SLTST - m lt gy brn, cl, m hd, calc cnt, sl arg - arg, pt sl sdy, tr.

SH - m lt gy brn, sflo, m hd, sdy - slty, tr mnr, tr pyr vn.

SLTST - m lt gy brn, arg, tr sdy, calc cmt, tr pyr vn, tr, lt vns.

SH - m lt gy brn cnt, s fis, m hd, sl wxy bdr, sl calc / dol, tr sdy - slty lp, tr mnr, mnr lo sdy lam.

SLTST - m lt gy brn, arg, tr sdy, calc, m hd, tr pyr', tr.

SH - m lt gy brn, sflo, m hd, sl wxy, sl calc / dol, tr slty, occ sd gr, tr mnr, mnr SLTST.

SLTST - lt gy brn, arg, tr sdy, calc cnt, tr pyr vn, tr.

SH - m lt gy brn, sflo, m hd, sl wxy, sl calc / dol, sl slty.

SLTST - m dk brn gy, m hd - hd, calc cnt, arg, pt sd arg sm, mnr, tr

SH - m lt gy brn - brn gy cnt, sflo - fis, m hd, sl calc / dol, tr mny, some slty str, tr calc lam, tr bt pkg.

SH - blk, fis, bd , tr pyr vn.

SH - m lt gr' brn gy cnt, fis - sflo, sl wxy bdr, m hd - m sft, sl bt, sl calc, / dol, tr mnr, tr slty str, tr calc vn.

SH - sfa, bcmg m lt - m gr' brn gy cnt.

SH - m gr' brn gy, fis, m hd, sl wxy bdr, calc / dol, v sl mnr, tr - tr wh calc str mat.

SLTST - crm - bf cnt, sl, sdy, calc / dol cmt, tr, p lg por, frd mnrn bkr cut.

SH - m gr' brn gy, fis - sflo, m hd, sl wxy, sl calc, tr dk cst bt pkg, tr calc vn, tr dissd bnm.

SH - m - mdl gr' brn gy, sl calc vn mat.

SLTST - vn - m brn gy, sl, arg, m hd - firm, calc cmt, sl bt - bt, tr.

SH - sfa, sdy - varve lp, tr pyr vn.

LST - bf, v f sl, m hd, dol, sl arg,tr chl calc vn, dim.

SH - lt gy brn, fis, m hd, calc - v calc, dol, tr pel / crin fos ghst struct.

SLTST - lt brn gy, sl, calc / dol cmt, m hd, pt arg, tr.

SH - m brn gy, fis - sflo, m hd, calc - v calc, dol, tr clay vn calc vn, tr bt sm, pt sdy, tr chr qtz pres, pt gridp Dtrd.

SH - sfa, m - m dk gr' brn gy, calc, dol,pt sl sdy, tr bt sm, tr calc vn.

SH - m lt gy brn - brn gy cnt, fis, m hd, sl wxy, calc, dol, v - tr calc vn.

SH - m gr' brn gy, fis - sflo, m hd, calc - sl calc, pt sl sdy, tr sl wh sm calc vn mat / nodus.

SH - sfa, fis - sflo, sl calc - calc , tr calc vn.

SH - m - mdk brn gy, fis, m hd, sl calc, v sl sdy tp, tr calc vn mat, v tr bt pkg, tr mdy pel.

SH - m dk brn gy, fis, sl wxy bdr, sl calc - calc, pt v sl sdy, tr sm, tr pyr sl.

LST - m brn gy, m sl, hd - m hd, v arg, dol, dim.

SH - sfa, m k brn gy cnt, fis, sl calc.

SH - m dk - dk brn gy, s fis bdbk, m hd - hd, sl sdy tp, sl calc - calc, tr calc vn, pres lt col bt coat, tr f pyr bleb, pres sft m brn bm.

SH - dk gy cnt, sfa - sl bbly, m hd - hd, sl calc, tr cr calc vn mat, tr - pres m brn cst sft wxy lam / pkg.

SLTST - m brn gy, m hd, arg cmt, pt sl / pt v calc, tr pyr' tl.

SH - m dk gy, sfa, v sl calc, pres m brn cst sft wxy / gxy pkg.

SH - m dk gy col, sfls, m hd, v sl calc, sl bit, rr mica, tr sl mrly ptg.

SLTST - m brn gy, v arg, m hd, calc cmt, tr mm, tt.

SH - a/a, more sfls sl bky habit, sl slty - slty, sl mm, tr Sltst lam.

SH - dk gy, fis, m hd, sl calc, pt sl slty, tr mm, uniform sl bit stn, rr calc vn, occc sft wxy ptg.

SH - a/a, bcmg sl calc - calc, sl slty, sl bit stn, more freq wxy ptg.

SH - dk gy, fis - sfls, m hd, sl bit, pt sl slty, tr calc, tr wxy ptg, rr calc vn

SLTST - m gy, m hd, v arg, calc cmt, sl bit stn, tt, N vss.

SH - dk gy, fis - sfls, m hd, v sl bit stn, sl calc, tr mm, rr pyr, some slty calc str, tr sks.

SLTST - m dk brn gy, m hd, arg, v calc cmt, mm, tt, N vss.

SH - dk gy, fis - sfls, m hd, sl slty - slty, calc, tr mm, slty str.

SH - dk gy, fis - sfls, m hd, calc - sl calc.

SLTST - a/a, v arg, calc tr bit, tt.

SLTST - m dk gy - brn gy, m hd, arg - v arg, v calc cmt, v mm, tr bit stn, tt, N vss.

SLTST - m dk - dk gy - brn gy, m hd , arg - v arg, calc cmt, mm, pt bit stn, tt.

SH - dk - v dk gy, sfls - fis, mhd, slty - v slty, calc, tr bit - bit, mm.

SLTST - dk gy - brn gy, m hd, v arg, calc, mm, sl bit stn, tt.

SH - dk - v dk gy, fis - sfls, m hd, bit, pt v slty, sl calc - calc, mm.

SH - blk - v dk brn gy, fis, plty, m hd, sl brit, v bit, calc, tr slty lam, tr pyr blebs.

SLTST - dk gy - brn gy, m hd, v arg, calc cmt, mm, tt, N flu / cut.

SH - blk- pt bcmg, v dk - dk gy, sl calc - calc, pt slty.

SLTST - dk gy, v arg, m hd, v calc, mm, tt.

SH - dk - v dk gy, fis, m hd, sl bit / bit ptg, tr lt col sft sl calc ptg.

SLTST - m gy, v arg, calc cmt m, ttsl mm, sl calc, tr lmy str.

SH - dk gy - brn' gy, fis - sfls, m hd, sl wxy, calc, mm, rr bit ptg, mrly str, tr pyr xl / vn.

SLTST - m dk brn gy, v arg, calc, m hd, tr pyr xl, mm, tt.

SH - dk brn' gy, m hd, calc, lb SLTST.

UPPER DEVONIAN - TETCHO
at 1292.0 m K.B. / 1292.0 m T.V.D.

SLTST - m dk brn gy, v arg, calc, tr pyr, tt.

LST - bf - lt gy brn col, mx - vf xl, m hd, pt sl chlky, arg, v f disem pyr xl, tr - p bd por, N vss.

SLTST - m brn gy, v arg, calc, tt, rr SS - clr vit v f xl, a, w srtd, sl cmt, hd, p por, gil stn, N vss.

SH - m gy - gn' gy, sfls, m hd, pt slty, sl calc, tr mm.

LST - crm - bf, mx - v f xl, m hd, sl arg, dns.

SH - dk gy - gn gy col, sfls - fis, m hd, sl calc, pt slty, tr mm, tr pyr, tr calc vn.

SLTST - m dk brn gy, v arg, calc, mm tr bit, tr pyr xl.

LST - crm - bf - lt brn gy, mx - v f xl, m hd, tr arg, tr pyr', tr pel ghst struct, dns.

SH - m gn' gy, fis, sl wxy lstr, calc, tr pyr, rr slty bit str.

LST - crm - lt gy brn, v f xl, m hd, pt chlky, dns.

LST - bf - lt gy brn, mx - v f xl, m hd, sl arg, tr pyr', dns.

SH - m gn' gy, s fis - fis, m hd, pt slty, tr pyr xl.

SLTST - m gn' gy col, v arg, m hd - hd , calc, sl mm, tt.

SH - m dk gn' gy, fis - sfls, m hd, calc, tr slty str, mnr lb SLTST & LST.

LST - lt brn gy, v f xl - f pel, m hd - hd, sl arg, slty, pt pyr, dns.

SH - m dk gn' gy, fis -s fis, m hd, calc, tr slty str.

SLTST - m gn' gy, m hd, arg, sdy, calc cmt, tt.

SS - lt brn, qtzc, v f gr, a - A, mod w srtd, sl calc sl cmt, m hd - hd, slty, sl arg - arg, rr pyr, tr lg pr, N vss.

SLTST - m lt gy brn, m hd, arg, sdy, calc / sl cmt, tr mm, tt.

SS - lt br, qtzc, v f gr, a - A, hd, sl sl calc cmt, v slt, tr arg, tr por, N vss.

SH - m gn' gy, fis, m hd, pt slty, sl calc, tr mm.

SLTST - m lt gn' brn, m hd - hd, sl calc sl cmt, tr pyr, tt

SS - lt gy brn, qtzc, v f gr, a - A, mod w srtd, sl calc sl cmt, w lnd, slty, tr arg, tr pyr, tr lg por, N vss.

SH - m - m dk gn' gy col, fis, plty, m hd, sl wxy lstr, v sl - sl calc, tr m, tr calc vn, rr pyr.

SS - lt gy brn , v f gr, a - A, w srtd, hd, sl calc sl cmt, slty, tr arg, tr lg por - tt, N vss.

SLTST - m brn' gn' gy col, m hd - hd, sl calc, v arg, sdy, tr mm, tt.

SH - m - m dk gn, gy, fis, m hd, sl wxy, sl calc.

SS - lt - m gn' gy brn col, v f gr, a - A, w srtd, hd, sl calc - calc sl cmt, slty, tr arg, mm, tt - tr lg por.

SLTST - m bgn' gy col, sdy, arg, m hd, sl calc, m hd, tr mm, tt.

SS - lt gn' gy - gy col, qtzc, v f gr, a - A, mod w srtd, sl calc sl cmt, hd, slty, sl arg, mm, rr pyr, rr - tr vit m R qtz flt, tr carb flecks, tt tr por.

SLTST - m gn' gy, m hd, sdy, arg, sl calc, tr mm, tt.

SH - m - dk gn' gy, fis, m hd, sl wxy, sl calc, pt slty, sl mm, rr pyr, tr sft wxy str.

SLTST - m gn' gy, m hd, sl calc, sdy, arg, tt.

SH - m dk gn' gy col, fis, m hd, sl wxy, v sl calc, tr mm, tr slty str, tr wxy ptg, tr calc vn, mnr SLTST & SS lb.

SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm.

SLTST - m gn' gy, m hd, sl calc, m hd - hd, sdy, arg, tr mm, tt.

SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm.

SS - lt - m lt gn' gy, v f gr, a - A, mod w srtd, hd, sl calc sl cmt, slty, arg, tt - tr por, rr LST - bf, mx, hd, slty, tr Crin rmn, dns.

SH - dk gn' gy, m hd, pt v slty, v sl calc, tr mm, SS & SLTST strgs.

SH - m dk gn' gy, fis, m hd, v sl calc, tr slty str, sl mm, tr lse m sz R qtz gr.

SLTST - m gn' gy, m hd, sl calc, arg, sdy, tt.

SS - lt gn' gy - gy, v f gr, a, hd - m hd, sl calc sl cmt, v slty, arg, mm, tr lse clr m qtz, rr pyr, rr bit flks, tt - tr lg por, N vss.

SH - a/a, pt slty, pt sdy, rr blk bit ptg, lb SLTST & SS.

SS - lt gy - gn' gy, v f gr, a - A, mod w srtd, hd, calc sl cmt, v slty, arg, mm, tt - tr por.

SLTST - m gn' gy - gy, m hd, sl calc, arg, sdy, mm, tt.

SH - m dk gn' gy, fis, m hd, pt v slty, sl calc, pt sl bit.

SLTST - m gy, m hd, sl calc, m hd, sdy, arg, pt sl bit, tr mm, tt.

SH - m dk gy col, fis, m hd, pt slty, sl calc, tr pyr bleb, sl mm, tr sl bit ptg.

LST - bf, mx, hd, sl chky tex, slty, arg, rr bit ptg, dns.

SLTST - m - dk gy, m hd, v calc cmt, sdy, arg, tr mm, tr pyr', com bit stn & ptg, tt.

LST - lt brn, mx, hd, slty, arg, v f disemm pyr xl, rr bit stn, dns.

SLTST - a/a, arg, sdy, v calc, bit stn.

LST - lt brn, mx, hd, slty, arg, v f disem pyr xl, rr bit stn, dns.

LST - lt - m gy brn, mx, hd, slty, arg, tr v f disem pyr & bit flks, tr pel / lndst fos frag, dns.

SH - m dk gy, fis - sfls, m hd, calc, v slty, sdy str, tr mm, tr bit stn / ptg.

SLTST - m dk gy bit stn, m hd, calc, arg, sdy, tt.

SS - lt - m gy brn, v f gr, hd, calc / sl cmt, v slty, arg, tr bit stn, tt - tr por.

LST - lt - m gy brn, mx, hd, slty, arg, dns.

UPPER DEVONIAN - FORT SIMPSON
at 1506.0 m K.B. / 1506.0 m T.V.D.

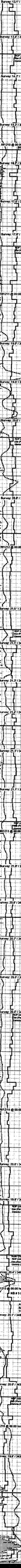
SH - m dk gy - sl gn' gy, fis - sfls, m hd, sl bit, pt v slty, pres v f disem pyr, tr calc str.

SLTST - m gy - gn' gy, m hd, calc, sdy, arg, mm, tr sl bit stn l/p, tt.

SH - m gy - gn' gy col, fis - sfls, sl wxy, m hd, v sl - sl calc, v f pyr, some slty str, rr LST - crm, mx, sl chlky. scat m sd gr, dns.

SH - m gy - gn' gy, fis, m hd, sl calc, sl mm, tr pyr, lmy str.

SH - m dk gy - sl gn' gy col, fis - sfls, sl wxy, v sl - sl calc, m hd, sl mm, lmy str, tr calc vn, tr pyr, occ SLTST strgs.



m hd, sl mxn, tmy sty, tr calc vn, tr pyr, occ SLTST strgs.

BH - m ch olive gy cot, fis, sl wxy tst, m hd, v sl calc, sl mxn, tr pyr, rr sdy & sdy strg, rr calc vn coat.

BH - m ch olive gy cot, fis, m hd, sl wxy tst, v sl calc, tr mxn, tr sdy str, tr calc vn, tr pyr st, rr ch sl bit pkg.

SLTST - m- gy cod, m hd, v arg, sdy, sl calc, sl mxn, rr pyr, sl.

BH - m ch olive gy cot, fis, m hd, sl soapy, - v sl calc, tr mxn, tr calc vn, rr pyr, some sdy & sdy str, rr cb bit pkg.

BH - sdy, tr - pres calc vn coat, pt f sdy - sdy str.

BH - m ch olive gy, fis - sdy, m hd, v sl calc, sl mxn - mxn, tr sdy & sdy calc vn, rr bit bit pkg.

BH - m ch - ch olive gy cot, fis, sl soapy, tr calc vn, some sl ch bit pkg, rr bit bit stdt frag.

SS - m ch gy, v f gr, mod w srtd, v sdy, arg, sl bit, tl.

BH m ch - ch olive gy, fis, v sl calc, rr pyr vn, tr sl bit tp.

BH - ch olive gy, sdy - sl bdy, m hd, sl sdy, pres - tr v f pyr xl, tr sl bit pkg, rr slp to stn frag.

CHT - bf cot, mxn, v hd, sl calc, tr dpk.

BH - ch olive gy cod, fis, bcalc vn, rr - tr bit bit stdt frag.

SH - ch olive gy cod, fis, pt sdy, m hd, v sl calc, sl mxn, tr ch cal sl bit pkg.

BH - ch gy - sl olive gy, fis, tr sdy, m hd, non calc, sl mxn, rr ch vn, tr pyr, rr cr wn calc, rr cb cal wxx qz stwrd.

BH - ch gy cod, fis, m hd, non calc, sl sdy, rr calc vn mat, rr CHT - ch brn, bmd, v hd.

BH - ch gy - sl olive gy cod, fis, m hd, tr calc vn.

BH - ch gy, fis, m hd, non calc, pt sl sdy, sl mxn - pt mxn, rr SLTST - m ch gy, v arg, sl calc, m hd, mxn, tr sdy silty SS.

BH - ch gy - sl olive gy cod, fis, m hd, sl mxn, rr calc vn, tr SS - m - m ch brn gy, v f gr, a, mod w srtd, hd, v sl calc sl cmt, v sdy, arg, sl mxn, tl, grdg SLTST.

BH - ch gy cod, fis, sl sdy, m hd, non calc, rr - tr v f dbam vn, rr calc vn, rr bit frag.

SS - m - f brn gy, v f gr, a, mod w srtd, hd v hd, sl calc sl cmt, v sdy, arg, tl.

BH - ch gy, fis, sl sdy, sl bit mxn, tr calc vn, tr bit bit pkg, rr sh qtz, rr sdy & sdy tam.

SLTST - m - ch gy, m hd, sdy, arg, sl calc sl cmt, tr mxn, tr pyr, tr, tl.

SS - f - m gy brn, qtzx, v f gr, a, mod w srtd, v sl calc sl cmt, hd - v hd, sdy, arg, tr f pyr, tr sbit stn, tr - tr lg pos, tr vvs.

SLTST - m brn gy, m hd - hd, sdy, sl cmt, arg, tl.

SS - f - m gy brn, qtzx, v f gr, hd - v hd, sl cmt, sdy, tr pyr, tl.

BH - ch gy, fis, m hd, non calc, sl mxn, tr tbn sdy & sdy lb - lam, rr f pyr sl

SLTST - m - ch gy, m hd, sdy, arg, tr pyr, sl.

BH - m gy, f - v sl vcol ch &lowst qtz / bdy cst, tl, mod srtd, m hd, tr - f qtz mx tly, tr calc sl cmt, pt pyr, f - p lg pos, tl flu or cut.

BH - ch brn/ gy cot, fis, m hd, sl wxy, mxn.

BH - ch brn/ gy, fis, sl wxy, pt sdy.

SLTST - ch brn/ gy hd, sdy, arg, mxn, sl calc sl cmt, tl.

SS - scat fw f - v sl ch & frosd qtz / lt cst chc, fl, mod srtd, tr calc sl cmt, pt pyr, p - lt pos, lt vvs.

SLTST - ch - m ch brn/ gy, m hd, sl calc, tr sdy, arg, tr mxn, tl.

BH - ch gy - brn/ gy, fis, m hd, pt - sl calc, tr sdy, tr mxn - mxn.

SS - m brn/ gy, v f - f / scat m gr, f / fl, mod srtd, sl calc sl cmt, arg, mxn, tr lg pos.

BH - ch gy / brn/ gy, fis, m hd, pt sl calc, tr sdy - v sdy, tr mxn, tr SH & SLTST.

SLTST - m ch gy - brn/ gy, m hd, sdy, arg, sl calc, hd, tr mxn.

SH - m brn gy, v f gr, hd, sl cmt, sl calc - v sdy, tr sl mxn.

BH - ch gy - sl brn/ gy, fis, m hd, non calc, pt sdy, tr sdy & sdy str.

SLTST - m ch gy - sl brn/ gy, m hd - hd, sdy, arg, sl calc - calc, sl cmt, tl.

SS - m gy - brn/ gy, qtzx, v f gr, a, mod w srtd, hd, calc sl cmt, tr mxn, v ch bit pkg, tr - tr pyr.
LST - f - m brn gy / cmm chdy - mtx/, mx, hd, sdy, sl arg, pt pyr, tr pal , dmc.

SH - bfc, sfm - smcr, m sft, v bf, sl calc, pt pyr/, pt sdy.

SS - m gy, v f gr, a, hd, calc sl cmt, scat f - fl qtz & chl, tr pyr, tr bit stn, tr pyr - p pyr.

SLTST - m brn/ gy, m hd, calc sly cmt, m hd, arg, pres ch bit stn.

SH - m - m ch brn/ gy cot, fis, m hd, sl calc - calc cmt, v arg, tr vs, pt / bit bit stn.

SH - m ch brn/ gy, fis, sdy - v sdy, tr - pres bit stn & pkg.

SLTST -ms, tr - pres - v ch bit stn & pkg, rr pyr cubes, rr ch cal Ctd.

SLTST - m - v ch stn brn/ gy, m hd, calc sly cmt, v arg, pres - com bit bit stn & pkg, tr pyr cubes.

SH - m - mxd brn/ gy / com bit - v ch gy bit stn & pkg.

SLTST - m brn gy & v ch gy stn, m hd, v arg, pt v bit, tr mxn, tr pyr, tr.

SH - m brn/ gy / bit - v ch gy stn, m hd - m sft, sl calc, sdy - v sdy, tr m brn sft wxy pkg, tr - pres f pyr.

SH - bfc - v ch gy cot, fis, m sft - m hd, sl wxy tly - v bf, sdy, tr mxn - mxn, rr pyr.

SH - bfc, fis, m hd - m sft, v bf, sdy - sl sdy , mxn , rr pyr, tr - pres m, pp brn wxy pkg.

SH - v ch gy - bfc, fis, m hd, sdy - v sdy, sl calc, tr m, tr wh calc spec tly - v f pyr sl sdy bm, pkg - v arg SLTST.

SLTST - ch - v ch gy, v arg, sl calc - calc, tl.

SH - v ch gy - bfc, sfm - sl bdy, v bf, m hd - hd, sft, sl calc tly, tr wh calc vn mat, rr pyr, tr gy sil lamd.

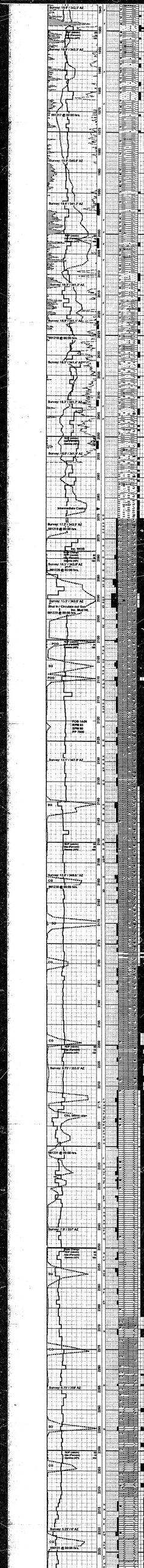
SH - bfc - v ch gy, sfm - sl bdy, m hd - hd, sl bdy, tr calc vn, tr - tr pyr.

SLTST - ch - v ch gy, m hd - hd, calc - v calc, dol, v arg, com bit stn, tl.

UPPER DEVONIAN - HORN RIVER
at 1936.0 m K.B. / 1911.0 m T.V.D.

SH - bfc - v ch brn/ gy, sfm - fis, hd, v bf, pt sl calc, sdy, tr mxn, tr pyr vn mat, tr wh calc frac infill, tr cr wh qtz vn.

SLTST - bfc - v ch gy stn, hd, calc, pt sdy, v arg, bit stn, tl - tr pyr.


Survey: 19.8° / 343.9° AZ
Survey: 13.7° / 343.7° AZ
081237 @ 00:00 hrs.
Survey: 13.9° / 345.8° AZ
Survey: 15.0° / 341.7° AZ
Survey: 15.2° / 341.7° AZ
Survey: 16.8° / 341.7° AZ
091218 @ 00:00 hrs.
Survey: 18.7° / 341.4° AZ
Survey: 18.7° / 341.7° AZ
Survey: 18.0° / 341.9° AZ
Intermediate Casing
Survey: 17.2° / 343.3° AZ
091219 @ 00:00 hrs.
Survey: 15.7° / 343.0° AZ
Survey: 15.7° / 343.0° AZ
Shut In / Circulate out Gas
Inc. Mud Wt.
091220 @ 00:00 hrs.
Survey: 13.7° / 347.9° AZ
Survey: 13.7° / 347.9° AZ
091230 @ 00:00 hrs.
Survey: 13.0° / 348.6° AZ
Survey: 9.75° / 353.0° AZ
Csg. 20in@ 180m
091231 @ 00:00 hrs.
Survey: 7.9° / 357 AZ
Survey: 6.75° / 359° AZ
Survey: 5.25° / 0° AZ
090219 @ 00:00 hrs.
MIDDLE DEVONIAN - HAHANNI
at 2069.8 m K.B. / 2037.2 m T.V.D.
MIDDLE DEVONIAN - HEADLESS
at 2339.0 m K.B. / 2146.0 m T.V.D.
MIDDLE DEVONIAN - LANDRY
at 2290.7 m K.B. / 2263.9 m T.V.D.
MIDDLE DEVONIAN - ARNICA
at 2310.0 m K.B. / 2273.1 m T.V.D.

DOL - a/a. tr - pres dk arg stn.

LST - lt - m gy brn col, cx / tr chlky Pel / Pel ghst, hd, dol, sl arg, dns.

DOL - wh - some bf - lt brn gy sl lmy arg vn, m - c xl, hd, sl lmy, rr pyr / sphal min', tr (10%) blk xblt vn / ptg, tr calc xl - qtz prsm, some dsy dog tooth xl, str p pos' fr bd - vug - pp por.

DOL - wh, f - c xl, m hd, sl lmy, pres (25%) lt - m brn arg blt stn vug lining / vn, tr qtz prsm - calc xl - dsy rhmb, p tr fr bd por, N flu / cut.

LST - m - dk brn, cx / fos - pel lp, arg, dol, dns.

DOL - a/a, pres - com (30%) dk brn gy col, mx, hd, abun arg blt stng, tr dsy xl, p bd - vug - pp por.

SH - m gy - blk, sfis, m hd, sl calc.

DOL - bf col, f gr, suc tex, hd, sl calc - calc, tr slty - slty, tr pp vug dsy xl lining, rr blt stng, p - str por.

LST - dk brn, mx - cx, hd, arg, tr pyr', dns.

UNCONFORMITY
at 2371.0 m K.B. / 2333.0 m T.V.D.

DOL - a/a, more wh dsy c xl, tr xblt stn, p por, some yel' flu calc.

DOL - lt - m gy & brn, pred f gr, suc tex, hd, lmy, rr pyr, rr pyr' Sh ptg, pres xblt vn & ptg, tr wh Dol spar, rr qtz prsm - calc rx, str p - rr to fr bd por.

DOL - a/a, most f gr, abun mlky wh m - c sz Dol spar, p vug - pp por.

DOL - lt - m gy & brn, f - vf gr, sl suc, hd, lmy, com wh m - c Dol spar, p por, tr LST strgr.

DOL - lt - m gy & brn, f - vf gr, abun wh Dol spar, tr clr qtz & rx calc, tr chlky lmy str, rr xblt, p pos' fr vug - pp por.

DOL - wh / m gy col arg blt stn str, f - m gr, hd, rr clr vlt qtz - rx calc, tr - p bd - pp por.

DOL - wh - lt gy col, m - c xl, hd, sl lmy, pres m - dk gy arg blt discol on dsy xl, p vug - pp por

LST - m - dk brn' gy col, mx, blky, hd, sl arg, sl dol, rr pyr', dns.

DOL - lt - m lt brn' gy col, f - m grnst, hd, sl arg, lmy, tr fos - Pel, pres (20%) m - dk gy col arg blt stng, p - tr bd por.

DOL - a/a, com (40%) mlky wh m - c sz Dol spar, p - pos' fr vug - pp por..

DOL - bf - m lt brn' gy col, pred f grnst, hd, lmy, sl arg, com dk col xblt stn & tr blk xblt ptg, rr pyr, pres (25%) wh Dol spar, p por.

DOL - bf - lt brn gy, f - vf xl, hd, lmy - tr v lmy, sl arg, pres xblt stn - ptg, tr c - m sz euh Dol spar, p por.

DOL - dk gy sl sp, v f gr, m hd, v lmy, com - abun dd oil stn, tr bd, rr pyr, pres c wh Dol sparp vug - pp por.

DOL - bf, mx, blky, hd, lmy, dns - tr frac por.

LST - lt gy col, mx, blky, hd, v dol, dns.

DOL - bf - crm col, f xl, hd, lmy, pt v sl arg, mx - v f xl lb, tr dk col blt str, pres wh dsy - clr qtz & calc xl, p bd - vug - pp por.

DOL - crm - bf - lt gy col, mx - v f xl, blky, hd, lmy - v lmy, tr - rr wh dsy xl vn, tr xblt stn, tr bd - pos p - fr pp por.

LOWER DEVONIAN - SOMBRE
at 2449.0 m K.B. / 2412.0 m T.V.D.

DOL - crm - bf, mx, blky, hd, lmy, tr lt brn gy cx lam / tr f xl pyr, tr - rr xblt stng, dns - tr frac por.

DOL - lt brn, cx, tr vf f disem pyr.

DOL - crm - bf, mx, hd, blky, lmy, dns - tr frac por.

DOL - crm - bf - lt gy, v f xl / lb mx - cx - f xl var, blky, hd, lmy - v lmy, tr dsy wh m - c sz xl lp, tr - rr p bd - vug - pp por.

DOL - crm - bf, v f xl - mx, hd, lmy - v lmy, some m - c xl vn / calc - qtz xl, tr - str p por.

LST - m brn, mx, hd, dol, arg, dns.

DOL - lt gy brn, f - vf xl, suc tex, m hd - hd, pres dk dd oil stng & ptg, tr pyr xl, str p - pos' fr por.

LOWER DEVONIAN - CAMSELL
at 2486.0 m K.B. / 2448.8 m T.V.D.

LST - crm - pale gy, cx - mx, hd - v hd,, v dol, sl slty, dns, mnr Anhy - lt gy - wh, mx, chlky in spl.

DOL - bf - crm col, v f gr, sl suc, hd, lmy, rr pyr, tr vn / f - m sz xl / clr vlt qtz & calc, tr - p por.

LST - lt gy, cx, blky, hd - v hd, v dol, slty , tr anhy', dns - tr frac por.

DOL- lt gy - bf, mx, hd - v hd, blky, tr v f disem pyr, v lmy, tr clr slt, dns.

DOL - crm - lt & m gy col, v f xl, m hd, lmy - v lmy, pt sl arg, tr slty, tr str / f xl - rr wh dol spar& tr - pres dk blt stn, tr - occ p bd - pp - frac por.

LST - pale gy col, cx, hd - v hd, dol, tr clr vlt slt, tr v f disem pyr, dns - tr qtz lined vn - frac.

DOL - bf - lt brn, v f - f xl, hd, lmy, tr m - c sz dsy xl vn, rr pyr - dd oil stn, tr bd - vug por.

DOL - bf - lt brn, v f xl, suc, m hd, lmy pres xblt, p - tr fr bd por.

DOL - crm - bf, mx - v f xl, lmy - v lmy, tr f xl vn / pyr & xblt, dns - tr bd por.

LST - pale gy - brn, cx, v dol, hd - v hd, tr slty, tr v f pyr, tr qtz - calc vn, dns - tr por.

DOL - crm - bf - lt gy, v f xl, hd, lmy - v lmy, tr slt, tr dsy xl vn - pp, pres m - c mlky wh Dol spar, rr pyr, tr - some p por.

DOL - lt brn gy, mx, hd - v hd, blky, lmy, tr disem pyr xl, dns - tr frac por.

LST - pale gy col, cx, hd - v hd, v dol, tr - pres slt sz clr A qtz, tr frac por - dns.

DOL - bf col, v f - f gr, m hd, suc tex, lmy, tr pyr, tr blk dd oil stn, p bd por.

DOL - lt brn & gy, cx - mx, hd - v hd, lmy - v lmy, tr pyr, dns - tr qtz & calc filled frac - vn.

DOL - crm - lt gy, v f xl, hd, lmy, sl arg, tr pyr, rr blt, tr coarser xl vn, tr por.

DOL - crm - lt gy col, v f xl, hd, lmy, tr v f pyr, dns - tr por.

DOL - bf - lt gy, cx, hd - v hd, v lmy, sl arg, tr slty, tr pyr, tr sl - calc xl vn & dsy xl, dns - tr frac.

DOL - crm - pale gy col, v f xl - mx, hd, v lmy, tr f - m sz xl vn & pp, tr xblt, dns - tr bd por.

DOL - bf - lt gy, cx - mx, hd - v hd, lmy, rr anhy', tr slty, sl arg lp, dns.

LST - bf - lt brn' gy, cx - mx, blky, hd - v hd, v dol, sl slty, sl arg, tr calc vn, dns - tr por.

DOL - bf - lt gy, mx, hd, v lmy, sl slty, tr calc vn, tr dsy c sz Dol rhmb, dns tr pp - frac por.

DOL - crm - bf - lt brn gy col, v f xl, hd, lmy, tr dsy wh Dol xl, tr rx calc - qtz xl, tr pyr xl, tr blk xblt stn & ptg, tr - occ p bd - pp por.

DOL - bf, mx - cx, hd - v hd, lmy, tr slty, tr ch calc vn, tr sft chlky lmy mat, dns - tr por.

DOL - crm - bf - lt gy, v f xl, hd, lmy, tr blt stn, tr dsy xl, tr bd - pp por.

DOL - crm - bf, mx - cx, hd, tr indst m sz Pel, pt sl chlky, tr slty, sl arg, dns.

DOL - crm - lt brn gy & gy, v fxl, hd, lmy, tr m - c sz dsy Dol - clr calc & sl xl, tr - pres dd oil stn & ptg, tr - p bd - pp por.

DOL - crm - lt gy, vf xl - mx, hd, lmy, sl slty, tr indst Pel, tr calc xl - v , rr - tr xblt stn, tr - occ p por.

DOL - crm - bf, mx, hd - v hd, lmy, com indst f - m sz Pel, pt sl chlky / wh lmy str, tr calc vn, dns - tr frac por.

DOL - bf - m lt brn gy, cx- mx, hd - v hd, lmy, dns.

DOL - lt brn gy - bf - crm col, mx - v f xl, hd, lmy, dns - tr bd por str.

DOL - crm - bf, v f xl, hd, lmy, tr clr calc vn & mfrcs, tr por - dns.

DOL - crm - bf, v f xl - mx, hd - m hd, lmy, sl slty, v f pyr, rr gn' gy arg str, tr f - m calc xl vn / tr blk xblt stng, tr bd por.

DOL - lt - m brn' gy, mx - cx, hd - v hd, lmy - v lmy, tr slty, fnt Pel, tr v f disem pyr, tr calc filled mfrcs, dns.

DOL - m - lt brn' gy col, cx - mx, blky, hd - v hd, lmy, tr v f disem pyr, dns.

DOL - m gy col, cx- mx, blky, hd - v hd, lmy - v lmy, sl slty, rr fos frag, tr calc vn, tr chlky lmy str, tr clr qtz xl, dns - tr pp - frac por.

DOL - crm - bf, mx - v f xl, hd, lmy, sl slty, com indst f sz fos frag - Pel, v f disem pyr, tr calc vn, rr wh Dol spar, tr bd por.

DOL- bf - lt - m brn' gy col, cx - mx, blky, hd - v hd, dns - tr frac por.

DOL - bf - crm, mx - v f xl, com f - m sz fos frag - Pel, lmy, sl chlky lp, pres - com clr wh calc vn- Dol spar - qtz xl, rr x blt, p org - pp por.

DOL - crm - bf - lt brn' gy, f - c blocl, sl chlky mx mtx, sl slty, pres - com f - m mlky wh Dol spar, tr arg str, tr - p org - pp por.

LST - dk brn, cx, hd - v hd, arg, dns.

DOL - a/a, m - vf sz m - c sz blocl, some vf xl str, tr Dol spar - calc vn, tr por..

DOL - bf - lt brn' gy, mx - v f xl, hd, lmy, sl slty, com indst f - m sz Pel - fos, tr clr calc xl, dns - tr por.

DOL - bf - lt brn' gy, mx - v f xl, lmy, com indst Pel, tr clr calc xl, tr bd por.

DOL - bf - lt brn' gy col, mx - cx, hd, lmy, dns.

DOL - crm - bf - lt brn' gy, mx - v f xl, hd, lmy, sl slty, abun indst Pel - Amphipora, tr sft chly wh lmy mat, pres f - m sz Dol - calc xl - qtz xl, tr bd & pp por - dns.

DOL - bf - m lt brn gy col, cx - mx, blky, hd - v hd, lmy, sl slty, indst, Pel - Amphipora, dns - tr frac por.

DOL - lt - m brn gy, mx - some cx, hd, lmy - v lmy, sl slty, com indst Pel, tr chlky wh lmy vn, rr - tr xl lined pp - mfrcs, tr f - m dsy Dol xl, tr bd - pp - frac por - dns.

DOL - a/a, pt bcmg more cx, pres - com f - c sz mlky wh Dol spar - clr rx calc & qtz prsm, tr - pos' p str por.

DOL - bf - m brn' gy, mx - pt cx / pres v f xl lam - vn, hd, lmy, indst Pel - Amphipora, pres - tr clr calc & Dol spar, tr bd por.

BEST
COPY
ON FILE

N.E.B. COPY 1857

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

PROVINCE: NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: I-61-60-50-123-15
Well: CDN FOREST ET AL FLETT RA
Company: CANADIAN FOREST OIL LTD.

Schlumberger

NATURAL GAMMA-RAY SPECTROSCOPY LOG

LOCATION: I-61-60-50-123-15
300I616050123150 (UWI)

Elev.: K.B. 262.5 m; G.L. 255 m; D.F. 262.2 m

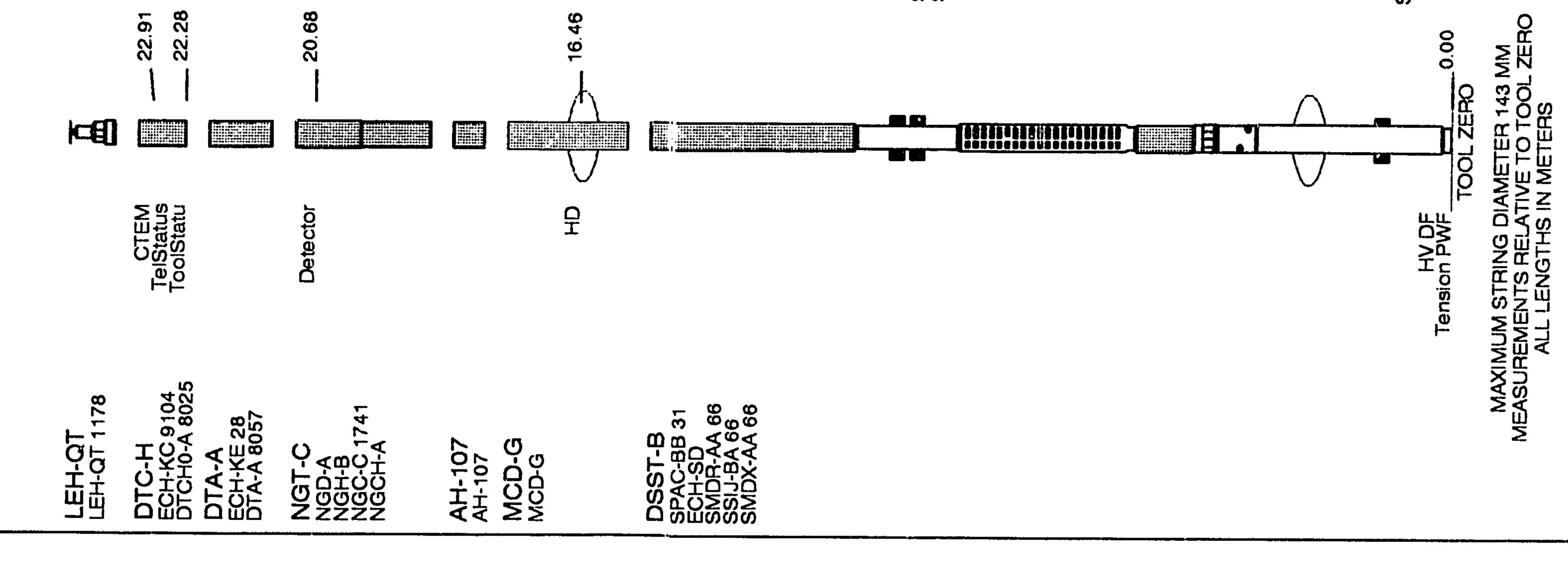
Permanent Datum: GROUND LEVEL — Elev.: 255 m
Log Measured From: KELLY BUSHING — 7.5 m above Perm. Datum
Drilling Measured From: KELLY BUSHING

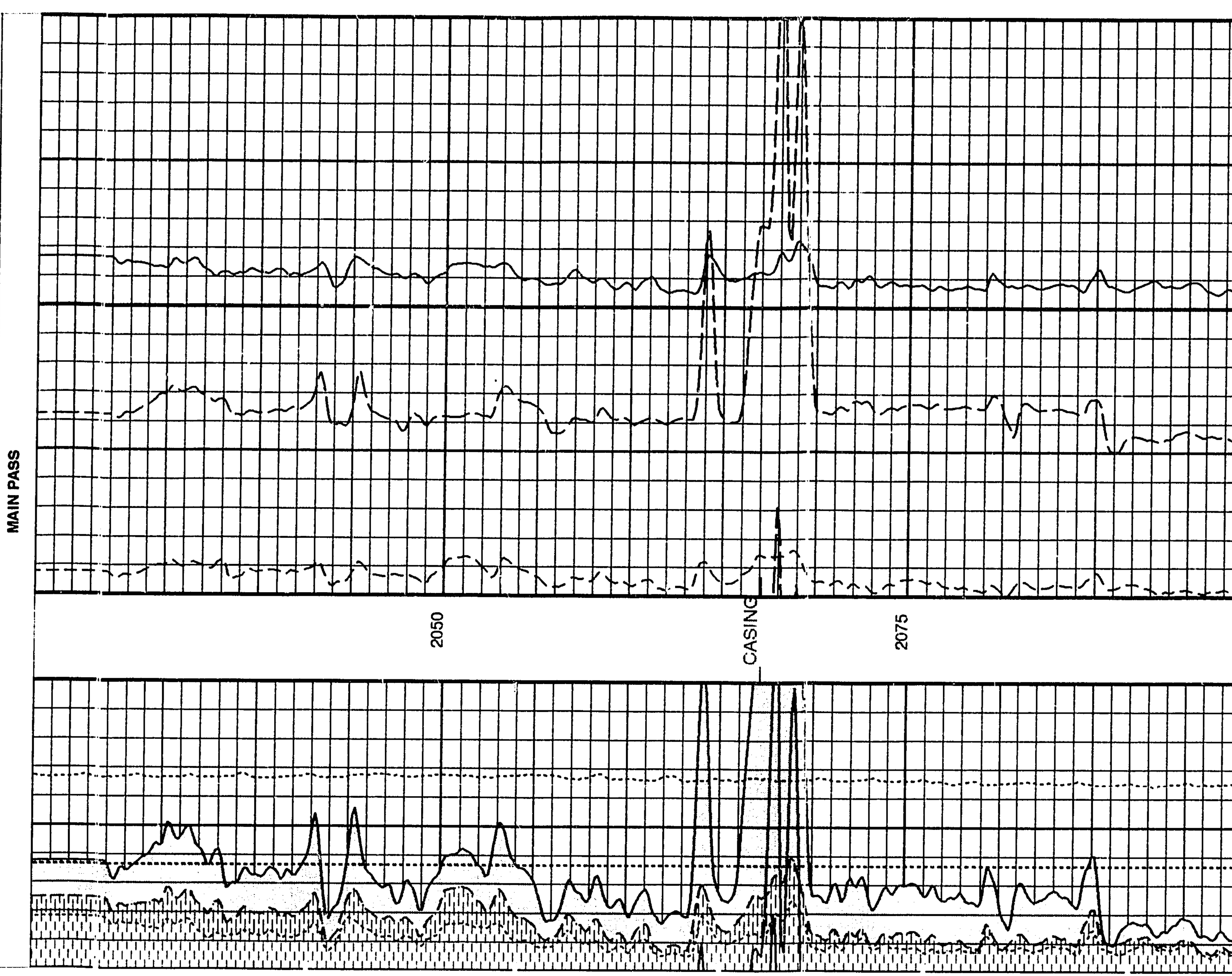
API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

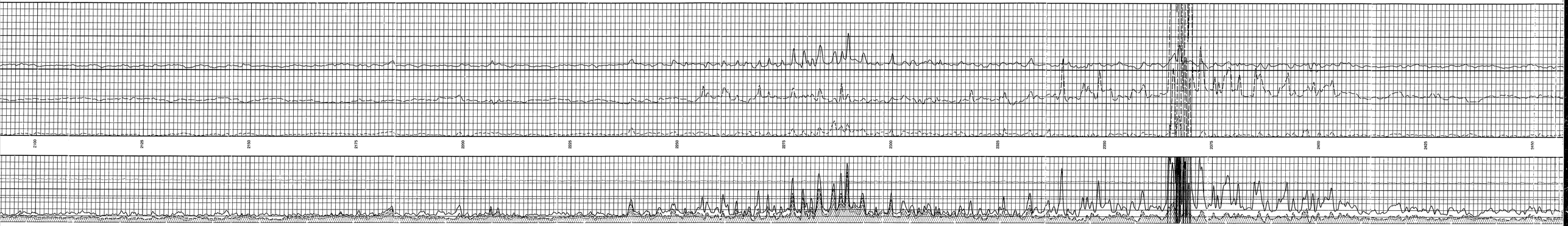
Logging Date		9-JAN-1999			
Run Number		THREE			
Depth Driller		2660 m			
Schlumberger Depth		2660 m			
Bottom Log Interval		2640 m			
Top Log Interval		2067 m			
Casing Driller Size @ Depth		244.500 mm @ 2067.7 m		@	
Casing Schlumberger		2067 m			
Bit Size		216.000 mm			
Type Fluid In Hole		GEL CHEM			
MUD Density	Viscosity	1160 kg/m3	62 s		
Fluid Loss	PH	8.2 cm3	10.2		
Source Of Sample		FLOWLINE			
RM @ Measured Temperature		0.240 ohm.m @ 21 degC		@	
RMF @ Measured Temperature		0.210 ohm.m @ 14 degC		@	
RMC @ Measured Temperature		0.170 ohm.m @ 12 degC		@	
Source RMF	RMC	MEASURED	MEASURED		
RM @ MRT	RMF @ MRT	0.069 @ 125	0.052 @ 125	@	@
Maximum Recorded Temperatures		125 degC	125 / 125		
Circulation Stopped	Time	10-JAN-1999	1:00		
Logger On Bottom	Time	9-JAN-1999	13:40		
Unit Number	Location	2025	GRANDE PRAIRIE		
Recorded By		TONY DANIEL/SEBASTION KIRSTEIN			
Witnessed By		BRIAN BELLMAN			

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth				
Casing Schlumberger				
Bit Size				
Type Fluid In Hole				
Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature				
RMF @ Measured Temperature				
RMC @ Measured Temperature				
Source RMF / RMC				
RM @ MRT / RMF @ MRT				
Maximum Recorded Temperatures				
Circulation Stopped / Time				
Logger On Bottom / Time				
Unit Number / Location				
Recorded By				
Witnessed By				

EQUIPMENT DESCRIPTION



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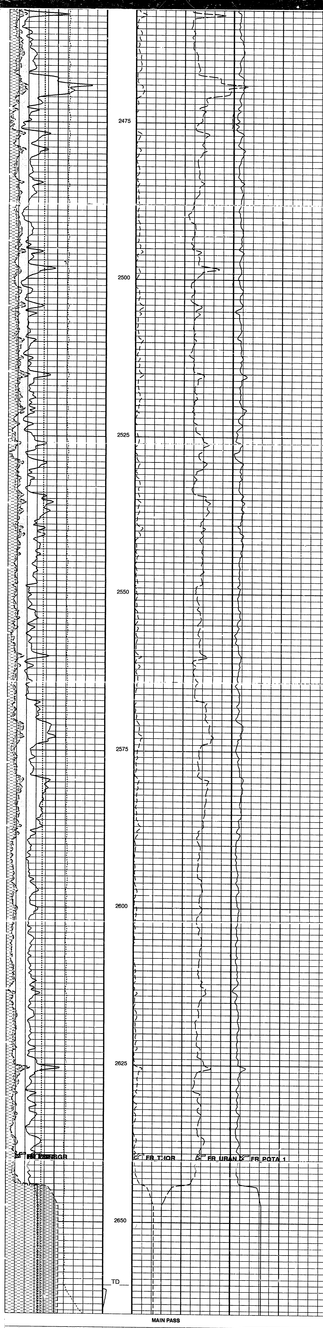


MAIN PASS

Contoured Gamma Ray (CGR) 0 (GAPI) 100
Potassium (POTA) 0 (---) 0.093
Spectroscopy Gamma Ray (SGR) 0 (GAPI) 150
Bit Size (BS) 125 (MM) 375
Uranium From CGR to SGR
Potassium From URT1 to POTA
Thorium From POTA to CGR
Tension (TENS) 25000 (N) 0

Thorium (THOR) 0 (PPM) 40.9
Potassium (POTA) (---) 0.1
Uranium (URAN) -10 (PPM) 30

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
CBAR	Constant Barite	1	
CGMI	Specto Computed Gamma Ray Minimum	0	GAPI
CGMX	Specto Computed Gamma Ray Maxim	150	GAPI
CKD	Specto Computed Density	1180.00	K/M3
DOC	Depth Offset	0.00	M
DOFSRL	Depth Offset Repeat Analysis	0.0	M
KSMN	Potassium Minimum	0	
KSMX	Potassium Maximum	0.2	
LSRFI	Trigger for MAXS First Reading Label	0.25	
PFIL	NGT Filtering Option	STI	
PFUD	Pattern Fitting	KALMAN	
PP	Pierbach Processing	NORMAL	
SGMI	Specto Gamma Ray Minimum	0	GAPI
SGMX	Specto Gamma Ray Maxim	160	GAPI
SPVD	TVD of Starting Point	0	M
STCT	STI Stuck Threshold	1	M
TD	Total Depth - Driller	1,234	M
TDL	Total Depth - Logger	2660.00	M
TMID	Alternate Depth Point Tie-In Point	2660.00	M
TVD	TVD of Tie-In Point	2660.00	M
TSMI	Thorium Minimum	20.47.22	M
TSMA	Thorium Maximum	0	PPM
URMI	Uranium Minimum	12	PPM
URMA	Uranium Maximum	0	PPM
	Tension Scale	2	(TON)

Format: NGT_8 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:18

OP System Version: 9C0-413

		MCM	
DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .032	FN:46 PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50 PRODUCER	10-Jan-1999 14:18		
CUST	DSSTB .034	FN:51 CUSTOMER	10-Jan-1999 14:18		

Input DLIS Files

DEFAULT	DSSTB .032	FN:46 PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50 PRODUCER	10-Jan-1999 14:18	2664.6 M	2028.0 M
CUST	DSSTB .034	FN:51 CUSTOMER	10-Jan-1999 14:18	2664.6 M	2028.0 M

OP System Version: 9C0-413

		MCM	
DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

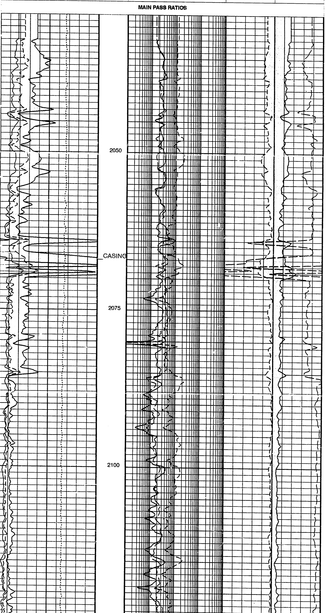
PIP SUMMARY

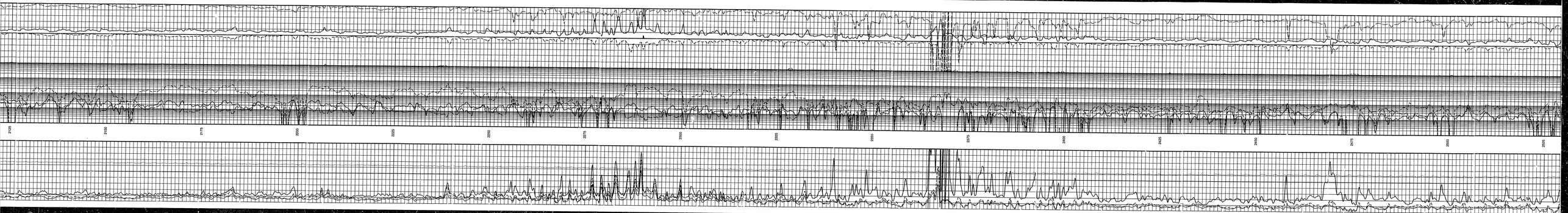
Time Mark Every 60 S

Tension (TENS) 25000 (N) 0
Uranium From CGR to SGR
Spectroscopy Gamma Ray (SGR) 0 (GAPI) 150
Potassium (POTA) 0 (---) 0.093
Contoured Gamma Ray (CGR) 0 (GAPI) 100

URSA (URSA) 0.1 (---) 1000
THOR-POTA From THOR to POTA_1
Thorium Potassium Ratio (TPRA) 0.1 (---) 1000.20
Uranium (URAN) (PPM) -10 (---) 0
TURA (TURA) 0.01 (---) 100.20
Thorium (THOR) (PPM) 0.0 (---) 40.9
Potassium (POTA) 0.01 (---) 0.09

MAIN PASS RATIOS

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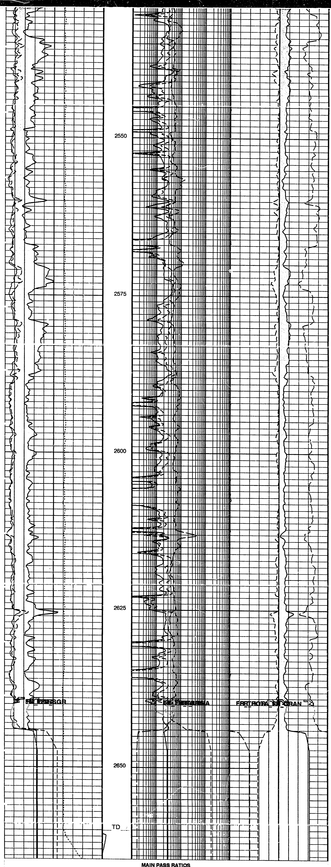


Concealed Gamma Ray (CGR) 0 (GAPI) 150	TURA (TURA) 0.01 (---) 100.20	Thorium (THOR) (PPM)	Potassium (POTA) 0.0 (---) 0.05
Potassium (POTA) 0 (---) 0.092	Thorium Potassium Ratio (TPRA) 0.1 (---) 1000.20	Uranium (URAN) (PPM) 0	
Spectroscopy Gamma Ray (SGR) 0 (GAPI) 150	UPRA (UPRA) 0.1 (---) 1000	THOR-POTA From THOR to POTA_1	
Uranium From CGR to SGR			
Tension (TENS) 20000 (N) 0			

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
DB	Bit Size	216.000	MM
CBAR	Centered Barite	1	
CBIM	Spectro Computed Gamma ray Minimum	0	GAPI
CBSH	Spectro Computed Gamma Ray Shale	100	GAPI
DFD	Drilling Fluid Density	1160.00	K/M3
DO	Depth Offset	0.0	M
DOPL	Depth Offset Repeat Analysis	0.0	M
KMIN	Potassium Minimum	0	
KSH	Potassium Shale	0.03	
LBFN	TCaption for MAGS First Reading Label	0.0	
MFO	HDT Filtering Option	KALMAN	
PMOD	Potassium Mode		%
SGC	Spectro Gain Calibrating	NORMAL	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
STHI	STI Shale Threshold	0	M
STKT	STI Mass Threshold	1.0	M
TDD	Total Depth - Driller	2620.00	M
TDL	Total Depth - Logger	2600.00	M
TWD	Water Depth Of Tie-In Point	0.00	M
TWO	TVD Of Tie-In Point	2000.00	M
THMI	Thorium Minimum	0	PPM
THSH	Thorium Shale	12	PPM
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: NGTRefine Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:16

OP System Version: 9C0-413

DSST-B	9C0-413	MCD-G	9C0-413
NSTC	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB.032	FN:46 PRODUCER	10-Jan-1999 12:55	2664.6 M 2028.0 M

Output DLIS Files

DEFAULT	DSSTB.034	FN:50 PRODUCER	10-Jan-1999 14:16
CUST	DSSTB.034	FN:51 CUSTOMER	10-Jan-1999 14:16

Input DLIS Files

DEFAULT	DSSTB.032	FN:46 PRODUCER	10-Jan-1999 12:55	2664.6 M 2028.0 M

Output DLIS Files

DEFAULT	DSSTB.034	FN:50 PRODUCER	10-Jan-1999 14:16
CUST	DSSTB.034	FN:51 CUSTOMER	10-Jan-1999 14:16

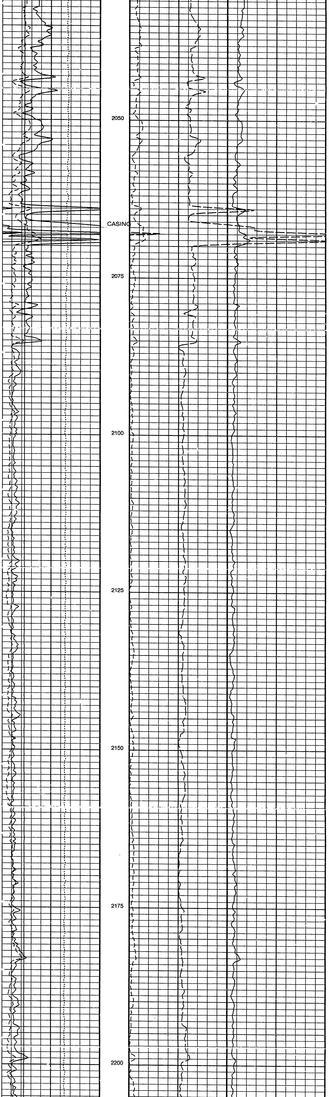
OP System Version: 9C0-413

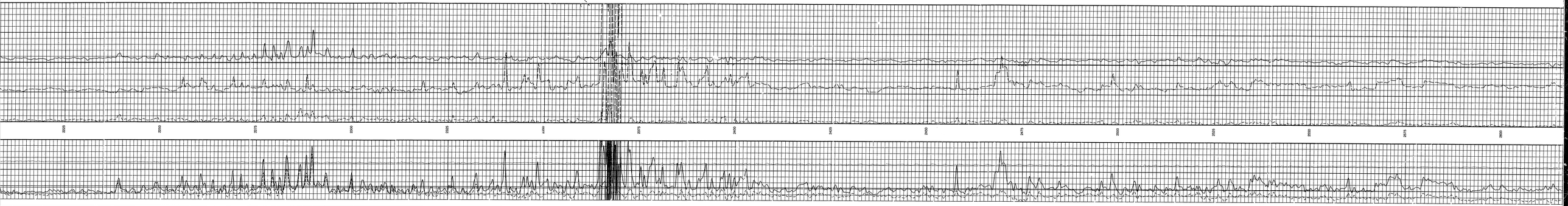
DSST-B	9C0-413	MCD-G	9C0-413
NSTC	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

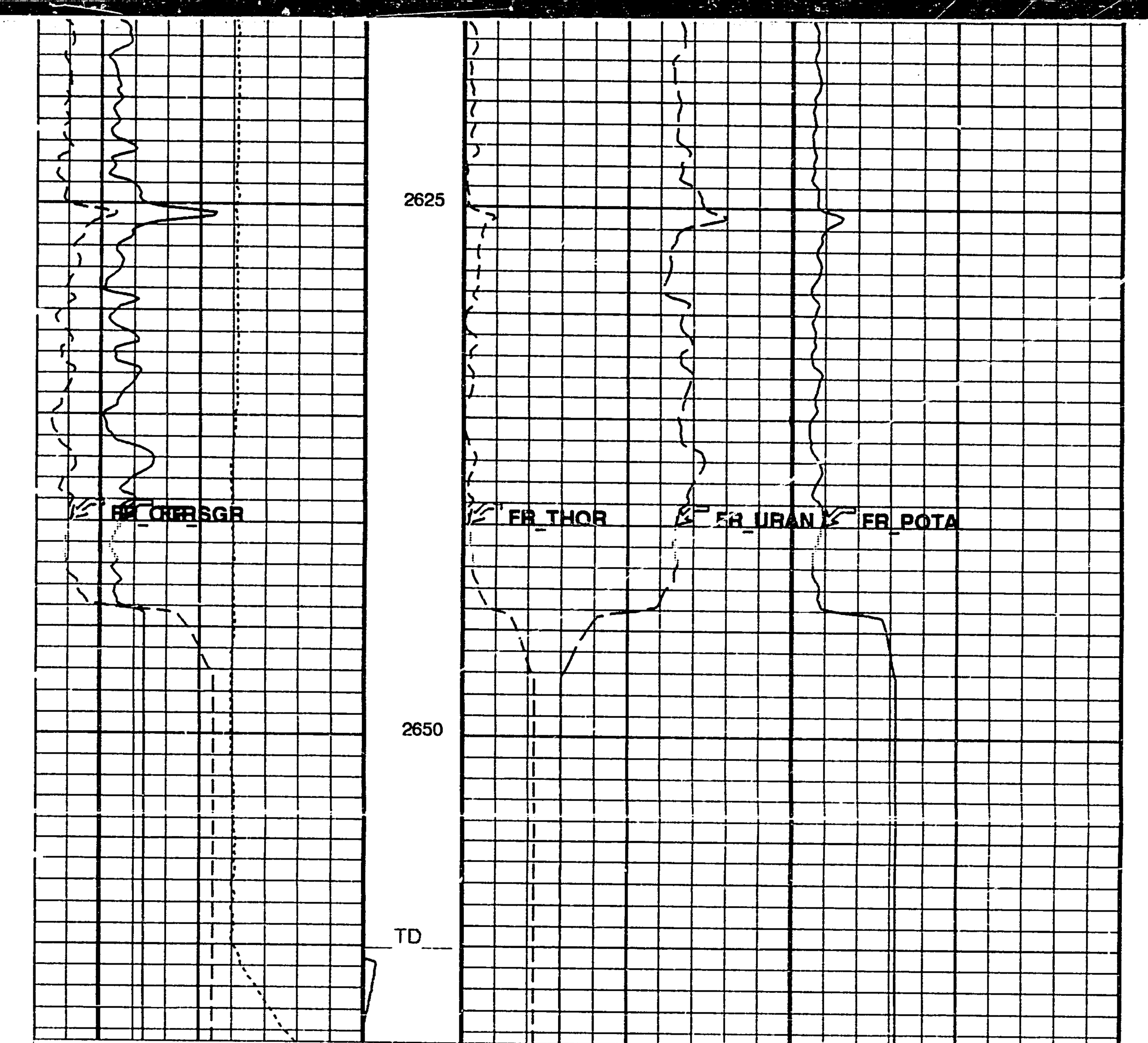
PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 20000 (N) 0			
Spectroscopy Gamma Ray (SGR) 0 (GAPI) 150	MAIN PASS	LOG QUALITY	
Downhole HV (DHHV) 1200 (V) 2000	Uranium (URAN) -10 (PPM) 30		
Concealed Gamma Ray (CGR) 0 (GAPI) 150	Thorium (THOR) 0 (PPM) 40.0	Potassium (POTA) 0 (---) 0.1	




2225
2250
2275
2300
2325
2350
2375
2400
2425
2450
2475
2500
2525
2550
2575
2600



Computed Gamma Ray (CGR)		
0	(GAPI)	150
Downhole HV (DHVF)		
1200	(V)	2000
Spectroscopy Gamma Ray (SGR)		
0	(GAPI)	150
Tension (TENS)		
25000	(N)	0

Thorium (THOR)			Potassium (POTA)		
0	(PPM)	40	0	(----)	0.1
Uranium (URAN)					
-10	(PPM)				30

MAIN PASS | LOG QUALITY

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
CBAR	Constant Barite	1	
CGMI	Spectro Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectro Computed Gamma Ray Shale	100	GAPI
DFD	Drilling Fluid Density	1160.00	K/M3
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	0.0	M
KMIN	Potassium Minimum	0	
KSHA	Potassium Shale	0.02	
LBFR	Trigger for MAXIS First Reading Label	STI	
NFO	NGT Filtering Option	KALMAN	
PMUD	Potassium Mud	0	%
PP	Playback Processing	NORMAL	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
SPVD	TVD of Starting Point	0	M
STKT	STI Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	12	PPM
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: NGT_LQC Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:16

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .032	FN:46	PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50	PRODUCER	10-Jan-1999 14:16
CUST	DSSTB .034	FN:51	CUSTOMER	10-Jan-1999 14:16

Input DLIS Files

DEFAULT	DSSTB .032	FN:46	PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M
DEFAULT	DSSTB .030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M	2590.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50	PRODUCER	10-Jan-1999 14:16
CUST	DSSTB .034	FN:51	CUSTOMER	10-Jan-1999 14:16

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

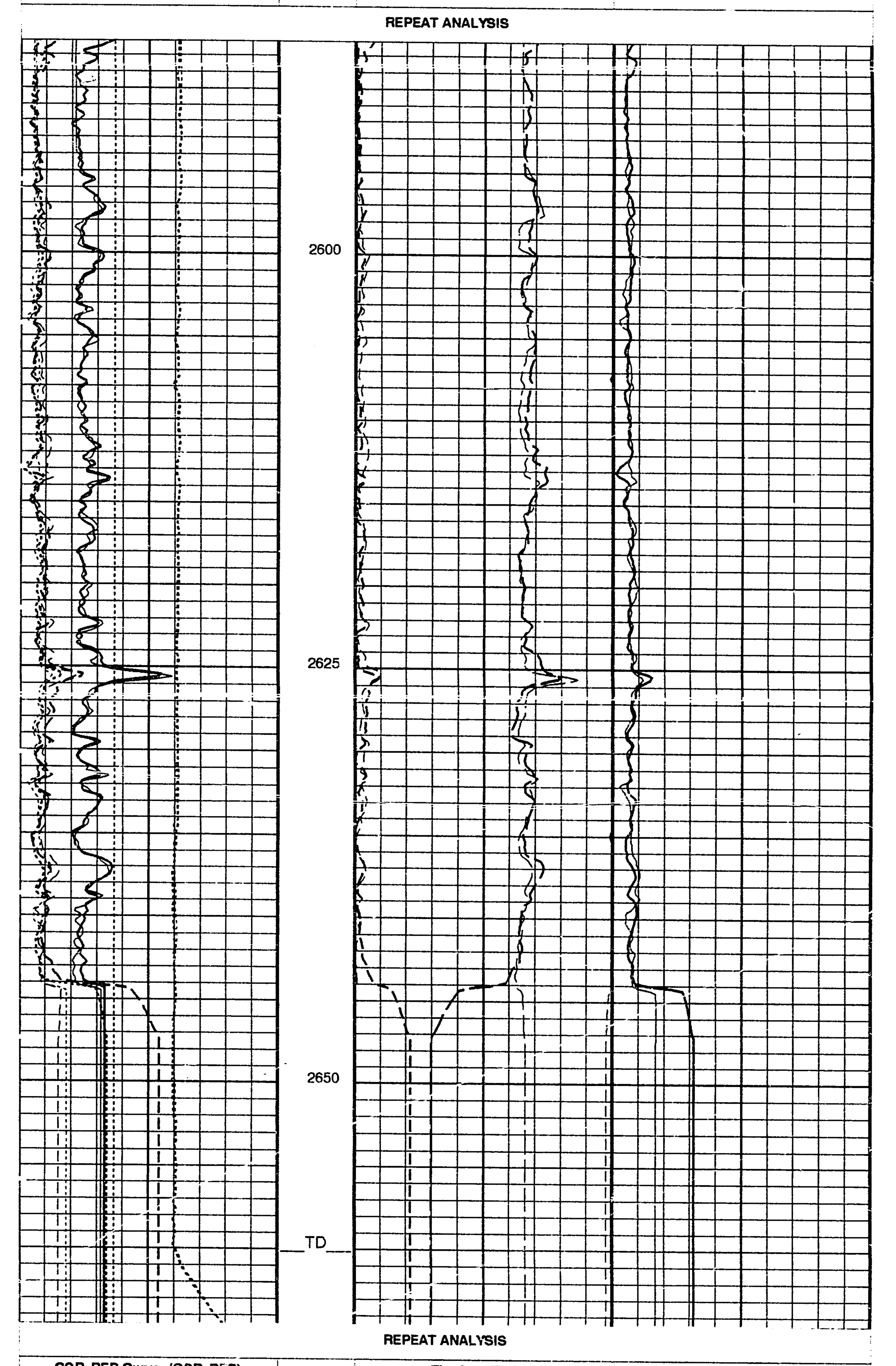
PIP SUMMARY

Time Mark Every 60 S

TENS_REP Curve (TENS_REP)		
25000	(N)	0
Tension (TENS)		
25000	(N)	0
Spectroscopy Gamma Ray (SGR)		
0	(GAPI)	150
Potassium (POTA)		
0	(----)	0.093
Computed Gamma Ray (CGR)		
0	(GAPI)	150
SGR_REP Curve (SGR_REP)		
0	(GAPI)	150
POTA_REP Curve (POTA_REP)		
0	(----)	0.093
CGR_REP Curve (CGR_REP)		
0	(GAPI)	150

URAN_REP Curve (URAN_REP)					
-10	(PPM)				30
Uranium (URAN)					
-10	(PPM)				30
THOR_REP Curve (THOR_REP)			POTA_1_REP Curve (POTA_REP)		
0	(PPM)	40	0	(----)	0.1
Thorium (THOR)			Potassium (POTA)		
0	(PPM)	40	0	(----)	0.1

REPEAT ANALYSIS



REPEAT ANALYSIS

Thorium (THOR)			Potassium (POTA)		
0	(PPM)	40	0	(----)	0.1
THOR_REP Curve (THOR_REP)			POTA_1_REP Curve (POTA_REP)		
0	(PPM)	40	0	(----)	0.1
Uranium (URAN)					
-10	(PPM)				30
URAN_REP Curve (URAN_REP)					
-10	(PPM)				30

CGR_REP Curve (CGR_REP)		
0	(GAPI)	150
POTA_REP Curve (POTA_REP)		
0	(----)	0.093
SGR_REP Curve (SGR_REP)		
0	(GAPI)	150
Computed Gamma Ray (CGR)		
0	(GAPI)	150
Potassium (POTA)		
0	(----)	0.093
Spectroscopy Gamma Ray (SGR)		
0	(GAPI)	150
Tension (TENS)		
25000	(N)	0
TENS_REP Curve (TENS_REP)		
25000	(N)	0

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
BS	Bit Size	216.000	MM
CBAR	Constant Barite	1	
CGMI	Spectro Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectro Computed Gamma Ray Shale	100	GAPI
DFD	Drilling Fluid Density	1160.00	K/M3
DO	Depth Offset	0.0	M
DORL	Depth Offset Repeat Analysis	0.0	M
KMIN	Potassium Minimum	0	
KSHA	Potassium Shale	0.02	
NFO	NGT Filtering Option	KALMAN	
PMUD	Potassium Mud	0	%
PP	Playback Processing	NORMAL	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	12	PPM
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: NGT_REP Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:16

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .032	FN:46	PRODUCER	10-Jan-1999 12:55	2664.6 M	2028.0 M
DEFAULT	DSSTB .030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M	2590.0 M

Output DLIS Files

DEFAULT	DSSTB .034	FN:50	PRODUCER	10-Jan-1999 14:16
CUST	DSSTB .034	FN:51	CUSTOMER	10-Jan-1999 14:16

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Mechanical Caliper - G Wellsite Calibration - Electronics Calibration							
Before: 10-JAN-1999 11:43							
MCDG Counts Plus	377.0	N/A	376.3	N/A	N/A	N/A	
MCDG Counts Zero	103.0	N/A	103.0	N/A	N/A	N/A	
Mechanical Caliper - G Wellsite Calibration - Caliper Calibration							
Before: 10-JAN-1999 11:44							
Diameter Large Ring	304.8	N/A	326.0	N/A	N/A	N/A	MM
Diameter Small Ring	203.2	N/A	223.2	N/A	N/A	N/A	MM
Natural Gamma Spectroscopy - C Wellsite Calibration - Background Measurement							
Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33							
WINDOW 1 Background	100.0	40.17	40.64	N/A	N/A	100.0	CPS
WINDOW 2 Background	50.00	13.59	13.71	N/A	N/A	50.00	CPS
WINDOW 3 Background	10.00	3.861	3.729	N/A	N/A	10.00	CPS
WINDOW 4 Background	6.000	1.443	1.373	N/A	N/A	6.000	CPS
WINDOW 5 Background	10.00	1.623	1.384	N/A	N/A	10.00	CPS
SGR Background	30.00	15.88	15.92	N/A	N/A	N/A	GAPI
Natural Gamma Spectroscopy - C Wellsite Calibration - Normalized Jig Measurement							
Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:36							
WINDOW 1 Jig	376.0	382.9	380.6	N/A	N/A	22.56	CPS
WINDOW 2 Jig	167.0	164.3	164.9	N/A	N/A	10.02	CPS
WINDOW 3 Jig	24.00	23.86	23.90	N/A	N/A	1.440	CPS
WINDOW 4 Jig	14.00	14.19	13.74	N/A	N/A	2.800	CPS
WINDOW 5 Jig	22.50	20.28	20.77	N/A	N/A	4.500	CPS
SGR Jig	162.0	162.0	161.6	N/A	N/A	7.000	GAPI
Natural Gamma Spectroscopy - C Master Calibration - Master Quality Control Values							
Master: 10-JAN-1999 11:08							
Photomultiplier Res. CARC3	8.000	9.066	--	--	--	--	
APU WINDOW Jig	1350	887.0	--	--	--	--	CPS
APL WINDOW Jig	1350	886.6	--	--	--	--	CPS

The NGT PCSL Value is set to 196.719 KEV

Mechanical Caliper - G / Equipment Identification

Primary Equipment:
Mechanical Caliper Device - G — MCD - G

Auxiliary Equipment:

Mechanical Caliper - G Wellsite Calibration — Electronics Calibration

Phase	MCDG Counts Plus	Value	Phase	MCDG Counts Zero	Value
Before		376.3	Before		103.0
	320.5 (Minimum) 377.0 (Nominal) 433.5 (Maximum)			87.55 (Minimum) 103.0 (Nominal) 118.4 (Maximum)	

Before: 10-JAN-1999 11:43

Mechanical Caliper - G Wellsite Calibration — Caliper Calibration

Phase	Diameter Large Ring MM	Value	Phase	Diameter Small Ring MM	Value
Before		326.0	Before		223.2
	259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)			172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)	

Before: 10-JAN-1999 11:44

Natural Gamma Spectroscopy - C / Equipment Identification

Primary Equipment:
NGT Cartridge — NGC - C — 1741
NGT Sonde — NGD - A

Auxiliary Equipment:
NGT Cartridge Housing — NGCH - A
NGT Sonde Housing — NGH - B
Gamma Source Radioactive — GSR - U

Natural Gamma Spectroscopy - C Wellsite Calibration — Background Measurement

Phase	WINDOW 1 Background CPS	Value	Phase	WINDOW 2 Background CPS	Value	Phase	WINDOW 3 Background CPS	Value
Master		40.17	Master		13.59	Master		3.861
Before		40.64	Before		13.71	Before		3.729
	0 (Minimum) 100.0 (Nominal) 400.0 (Maximum)			0 (Minimum) 50.00 (Nominal) 200.0 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)	
Phase	WINDOW 4 Background CPS	Value	Phase	WINDOW 5 Background CPS	Value	Phase	SGR Background GAPI	Value
Master		1.443	Master		1.623	Master		15.88
Before		1.373	Before		1.384	Before		15.92
	0 (Minimum) 6.000 (Nominal) 24.00 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	

Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33

Natural Gamma Spectroscopy - C Wellsite Calibration — Normalized Jig Measurement

Phase	WINDOW 1 Jig CPS	Value	Phase	WINDOW 2 Jig CPS	Value	Phase	WINDOW 3 Jig CPS	Value
Master		382.9	Master		164.3	Master		23.86
Before		380.6	Before		164.9	Before		23.90
	354.0 (Minimum) 376.0 (Nominal) 398.0 (Maximum)			155.0 (Minimum) 167.0 (Nominal) 179.0 (Maximum)			21.50 (Minimum) 24.00 (Nominal) 26.50 (Maximum)	
Phase	WINDOW 4 Jig CPS	Value	Phase	WINDOW 5 Jig CPS	Value	Phase	SGR Jig GAPI	Value
Master		14.19	Master		20.28	Master		162.0
Before		13.74	Before		20.77	Before		161.6
	12.50 (Minimum) 14.00 (Nominal) 15.50 (Maximum)			20.00 (Minimum) 22.50 (Nominal) 25.00 (Maximum)			150.0 (Minimum) 162.0 (Nominal) 174.0 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration — Quality Control Values

Phase	DHVF Jig V	Value	Phase	Quality Windows Ratio Jig	Value
Master		1328	Master		2.330
Before		1328	Before		2.308
	1088 (Minimum) 1450 (Nominal) 1813 (Maximum)			2.150 (Minimum) 2.240 (Nominal) 2.330 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration — Quality Control Values Check

Phase	Thorium peak Form Factor Jig	Value
Before		-0.005182
	[illegible] (Minimum) 0 (Nominal) [illegible] (Maximum)	

Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Master Calibration — Master Quality Control Values

Phase	Photomultiplier Res. CARC3	Value	Phase	APU WINDOW Jig CPS	Value	Phase	APL WINDOW Jig CPS	Value
Master		9.066	Master		887.0	Master		886.6
	4.500 (Minimum) 8.000 (Nominal) 11.50 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)	
Phase	Thorium peak Form Factor Jig	Value						
Master		-0.05029						
	-0.1000 (Minimum) 0 (Nominal) 0.1000 (Maximum)							

Master: 10-JAN-1999 11:08

COMPANY	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2640 m
		SCHLUMBERGER DEPTH	2660 m
WELL	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

NATURAL GAMMA-RAY SPECTROSCOPY LOG

N.E.B. COPY 1857

COMPANY: CANADIAN FOREST OIL LTD.
WELL: CDN FOREST ET AL FLETT RAPIDS
FIELD: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

Schlumberger

NATURAL GAMMA-RAY SPECTROSCOPY LOG TRUE VERTICAL DEPTH

LOCATION		Elev.:	K.B. 262.5 m
141-60-50-123-15			G.L. 255 m
300W180500123150 (LSW)			D.F. 262.2 m
Permanent Datum:	GROUND LEVEL	Elev.:	255 m
Log Measured From:	KELLY BUSHING	7.5 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No.	UNIT	SECTION	GRID AREA
N/A	I	61	60-50-123-15

Logging Date	9-JAN-1999						
Run Number	THREE						
Depth Driller	2600 m						
Schlumberger Depth	2590 m						
Bottom Log Interval	2640 m						
Top Log Interval	2067 m						
Casing Driller Size @ Depth	244.500 mm	@	2067.7 m				
Casing Schlumberger	2067 m						
Bit Size	216.000 mm						
Type Fluid in Hole	GEL CHEM						
Density / Viscosity	1160 kg/m3	62 s					
Fluid Loss / PH	8.2 cm3	10.2					
Source Of Sample	FLOWLINE						
RM @ Measured Temperature	0.240 ohm.m	@	21 degC				
RMF @ Measured Temperature	0.210 ohm.m	@	14 degC				
RMC @ Measured Temperature	0.170 ohm.m	@	12 degC				
Source: RMF / RMC	MEASURED		MEASURED				
RM @ MRT	0.093 @ 125	0.092	@ 125				
Maximum Recorded Temperatures	125 degC	125	125				
Circulation Stopped	Time	9-JAN-1999	1:00	Time			
Logger On Bottom	Time	9-JAN-1999	13:40				
Unit Number	Location	2025	GRANDE PRAIRIE				
Recorded By		TONY DANIELSE/BASTION KIRSTEN					
Witnessed By		BRIAN BELLMAN					

	Run 1	Run 2	Run 3	Run 4
Logging Date				
Run Number				
Depth Driller				
Schlumberger Depth				
Bottom Log Interval				
Top Log Interval				
Casing Driller Size @ Depth	@	@	@	@
Casing Schlumberger				
Bit Size				
Type Fluid in Hole				
Density / Viscosity				
Fluid Loss / PH				
Source Of Sample				
RM @ Measured Temperature	@	@	@	@
RMF @ Measured Temperature	@	@	@	@
RMC @ Measured Temperature	@	@	@	@
Source: RMF / RMC				
RM @ MRT	@	@	@	@
Maximum Recorded Temperatures				
Circulation Stopped	Time	Time	Time	Time
Logger On Bottom	Time	Time	Time	Time
Unit Number / Location				
Recorded By				
Witnessed By				

ALL ALLEGATIONS ARE DENIED AND IN PARTICULAR ANY CLAIM OF NEGLIGENCE FROM SCHLUMBERGER OR ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS, WHICH MAY BE ALLEGED TO HAVE BEEN CAUSED BY OR CONTRIBUTED TO BY THE ACTS OR OMISSIONS OF SCHLUMBERGER OR ITS DIRECTORS, OFFICERS, EMPLOYEES OR AGENTS, IN PERFORMING THEIR DUTIES, IS HEREBY DENIED. ANY RISK OR LIABILITY ARISING OUT OF THE OPERATION OF EQUIPMENT WHICH MAY BE IN THE CUSTODY OF SCHLUMBERGER IS HEREBY DISCLAIMED BY THE CUSTOMER. SCHLUMBERGER'S ARE PROVIDED WITH NO WARRANTY, EXPRESSED OR IMPLIED, WITH RESPECT TO THE ACCURACY OF ANY OPINION, INTERPRETATION, RESEARCH ANALYSIS, RECOMMENDATION OR OTHER DATA FURNISHED BY SCHLUMBERGER AT CUSTOMER'S REQUEST. THIS WARRANTY EXPRESSLY EXCLUDES ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL SCHLUMBERGER BE LIABLE FOR ANY SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES. THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDY SHALL BE LIMITED TO THE PAYMENT OF CLAIMS ARISING HEREUNDER IN AN AMOUNT EQUAL TO THE AMOUNT PAID FOR THE SERVICE GIVING RISE TO THE CLAIM. IN NO EVENT SHALL SCHLUMBERGER'S LIABILITY ARISING OUT OF THE PERFORMANCE OF THIS AGREEMENT EXCEED THE COST OF THE SERVICE GIVING RISE TO THE CLAIM.

OTHER SERVICES
CS1 CSS
CS2 CSS
CS3 CSS
CS4 CSS
CS5 CSS

REMARKS: RUN NUMBERS 2

ALL RUNS TO TOOL AND INTERVALS AS PER FIELD CONFIRMED
ALL LOT CALCULATIONS BASED ON FIRST PASS, DB AND SECOND PASS AND
PROVED WITH FIRST PASS ECAT
PROVED WITH FIRST PASS ECAT JAN 1999, BEFORE THE EDMC
CIRCULATION STOPPED 1:00 AM
CIRCULATION STARTED 1:00 AM
CIRCULATION STOPPED 1:00 AM
CIRCULATION STARTED 1:00 AM

RUN	TOOL STRING	INTERVAL		
2	1000767 1000767	2640	START	2067
		2067	STOP	

RUN	TOOL STRING	INTERVAL		
1	1000767 1000767	2640	START	2067
		2067	STOP	

BENGUL CHORES-A
BENGUL CHORES-A
FLUID LOSS
FLUID LOSS

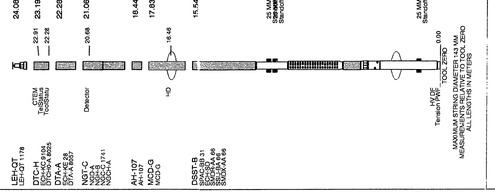
EQUIPMENT DESCRIPTION

RUN 1

SURFACE EQUIPMENT

GSR01
WATER STRS-A

DOWNHOLE EQUIPMENT



Input DLIS Files					
DEFAULT	DSSTB .034	FR:50 PRODUCER(1)	10-Jan-1999 14:16	2664.6 M	2038.0 M

Output DLIS Files					
DEFAULT	DSSTB .036	FR:54 PRODUCER	10-Jan-1999 14:36	2626.8 M	1997.7 M
CART	DSSTB .039	FR:55 CUSTOMER	10-Jan-1999 14:39	2626.8 M	1997.7 M

OP System Version: 9C0-413

	MCD-G	9C0-413
	DTA-A	9C0-413

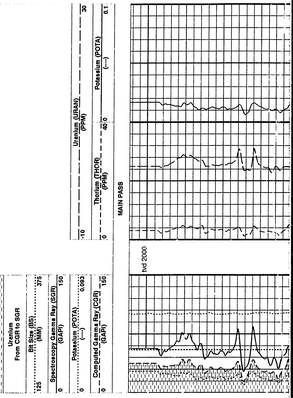
PIP SUMMARY

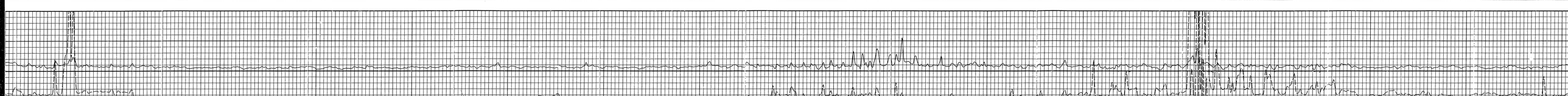
Time Mark Every 60.0 S
Speed(FPM) 3600.0 (N)

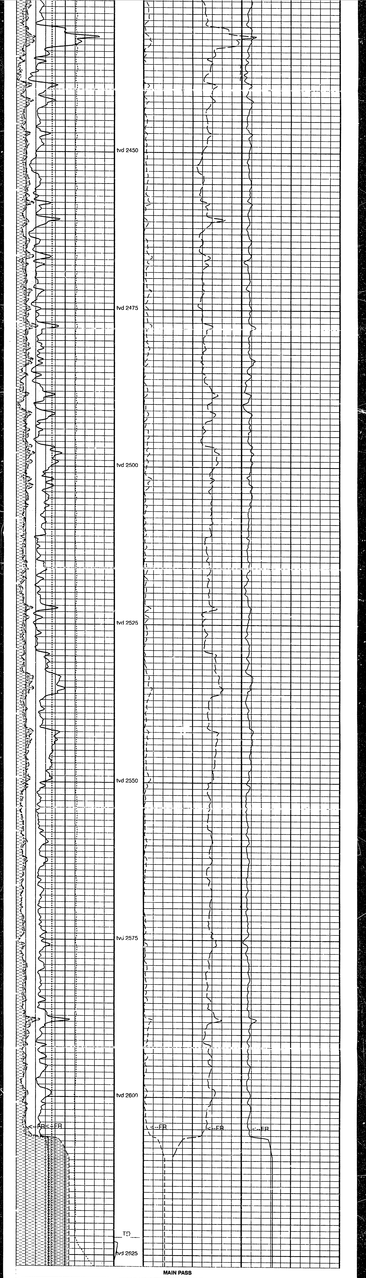
0	Tension From DTA (LBF)	0	10000
0	Tension From DTA (LBF)	0	10000
125	Gamma Ray (GAPI)	125	150
0	Spectroscopy Gamma Ray (GAPI)	0	150
0	Potassium (POTA)	0	0.045
0	Computed Gamma Ray (GAPI)	0	150

0	Uranium (URAN) (PPM)	0	30
0	Thorium (THOR) (PPM)	40.0	0.1

MAIN PASS




Tel 2025
CASING
Tel 2050
Tel 2075
Tel 2100
Tel 2125
Tel 2150
Tel 2175
Tel 2200
Tel 2225
Tel 2250
Tel 2275
Tel 2300
Tel 2325
Tel 2350
Tel 2375
Tel 2400
Tel 2425



MAIN PASS

Computed Gamma Ray (CGR) (GAPI) 0 – 150
Thorium (THOR) (PPM) 0 – 40.0
Potassium (POTA) (---) 0 – 0.1
Potassium (POTA) (---) 0 – 0.093
Uranium (URAN) (PPM) -10 – 30
Spectroscopy Gamma Ray (SGR) (GAPI) 0 – 150
Bit Size (BIS) (MM) 125 – 375

Uranium From CGR to SGR
Potassium From LIT1 to POTA
Thorium From POTA to CGR
Tension (TENS) 25000 (N) – 0

Time Mark Every 60 S

PIP SUMMARY

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
CSIZ	Casing Size	219.000	MM
DBAR	Dividend Barite	0	
CGMI	Spectro Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectro Computed Gamma Ray Shale	100	GAPI
DCF	Density Cross Plot Density	1162.00	K/M3
DO	Depth Offset	0.0	M
KBMI	Potassium Minimum	0	
KBSH	Potassium Shale	0.02	
KFCT	Potassium Conversion	KALI.CONV	
PBVBADP	Alternate depth channel playback enabled	YES	
PMVD	Potassium Mode		%
PSI	Pressure Sensor Missing	OFF	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
STHT	Stick Height Offset	0	M
STKT	STI Stuck Threshold	1.0	M
TDD	Total Depth - Driller	2650.00	M
TDL	Total Depth - Logger	2650.00	M
TMD	Total Measured Depth of Tie-In Point	2680	M
TVD	TVD Of Tie-In Point	2647.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	12	PPM
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: NGT_S Vertical Scale: 1:240 Graphics File Created: 13-Jan-1999 14:37

OP System Version: 9C0-413

		MCM	
DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB.034	FN:50	PRODUCER	10-Jan-1999 16:16	2664.9 M	2020.0 M

Output DLIS Files

DEFAULT	DSSTB.036	FN:54	PRODUCER	10-Jan-1999 14:36	
CUST	DSSTB.036	FN:55	CUSTOMER	10-Jan-1999 14:36	

Input DLIS Files

DEFAULT	DSSTB.030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M	2590.0 M

Output DLIS Files

DEFAULT	DSSTB.035	FN:52	PRODUCER	10-Jan-1999 14:32	2627.1 M	2552.4 M
CUST	DSSTB.035	FN:53	CUSTOMER	10-Jan-1999 14:32	2627.1 M	2552.4 M

OP System Version: 9C0-413

		MCM	
DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

PIP SUMMARY

Time Mark Every 60 S

Tension (TENS) 25000 (N) – 0

Thorium From POTA to CGR

Potassium From LIT1 to POTA

Uranium From CGR to SGR

Bit Size (BIS) (MM) 125 – 375

Potassium (POTA) (---) 0 – 0.093

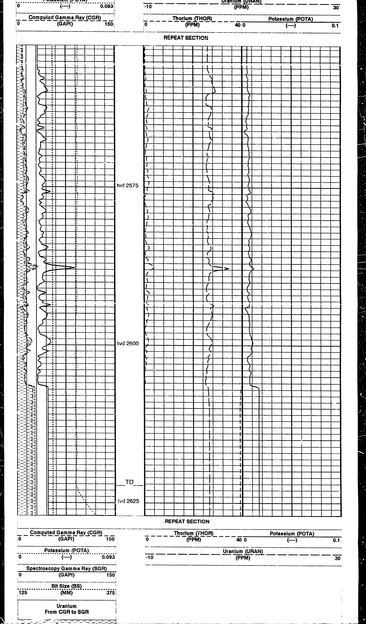
Uranium (URAN) (PPM) -10 – 30

Computed Gamma Ray (CGR) (GAPI) 0 – 150

Thorium (THOR) (PPM) 0 – 40.0

Potassium (POTA) (---) 0 – 0.1

REPEAT SECTION



REPEAT SECTION

Computed Gamma Ray (CGR) (GAPI) 0 – 150

Thorium (THOR) (PPM) 0 – 40.0

Potassium (POTA) (---) 0 – 0.1

Potassium (POTA) (---) 0 – 0.093

Uranium (URAN) (PPM) -10 – 30

Spectroscopy Gamma Ray (SGR) (GAPI) 0 – 150

Bit Size (BIS) (MM) 125 – 375

Uranium From CGR to SGR

Potassium
From LHT1 to POTA

Thorium
From POTA to CGR

Tension (TENS)
25000 (N) 0

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
ALTDPCHAN	Alternate depth channel name	TVDE	
BS	Bit Size	216.000	MM
CBAR	Constant Barite	1	
CGMI	Spectro Computed Gamma Ray Minimum	0	GAPI
CGSH	Spectro Computed Gamma Ray Shale	100	GAPI
DFD	Drilling Fluid Density	1160.00	K/M3
DO	Depth Offset	0.0	M
KMIN	Potassium Minimum	0	
KSHA	Potassium Shale	0.02	
NFO	NGT Filtering Option	KALMAN	
PBVSADP	Alternate depth channel playback enabled	YES	
PMUD	Potassium Mud	0	%
PP	Playback Processing	OFF	
SGMI	Spectro Gamma Ray Minimum	0	GAPI
SGSH	Spectro Gamma Ray Shale	100	GAPI
SPVD	TVD of Starting Point	0	M
TIMD	Along-hole depth of Tie-in Point	2080	M
TIVD	TVD of Tie-in Point	2047.22	M
TMIN	Thorium Minimum	0	PPM
TSHA	Thorium Shale	12	PPM
UMIN	Uranium Minimum	0	PPM
USHA	Uranium Shale	3	PPM

Format: NGT_5 Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 14:32

OP System Version: 9C0-413

MCM

DSST-B	9C0-413	MCD-G	9C0-413
NGT-C	9C0-413	DTA-A	9C0-413
DTC-H	9C0-413		

Input DLIS Files

DEFAULT	DSSTB .030	FN:42	PRODUCER	10-Jan-1999 12:31	2664.9 M	2590.0 M

Output DLIS Files

DEFAULT	DSSTB .035	FN:52	PRODUCER	10-Jan-1999 14:32
CUST	DSSTB .035	FN:53	CUSTOMER	10-Jan-1999 14:32

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Mechanical Caliper - G Wellsite Calibration - Electronics Calibration							
Before: 10-JAN-1999 11:43							
MCDG Counts Plus	377.0	N/A	376.3	N/A	N/A	N/A	
MCDG Counts Zero	103.0	N/A	103.0	N/A	N/A	N/A	
Mechanical Caliper - G Wellsite Calibration - Caliper Calibration							
Before: 10-JAN-1999 11:44							
Diameter Large Ring	304.8	N/A	326.0	N/A	N/A	N/A	MM
Diameter Small Ring	203.2	N/A	223.2	N/A	N/A	N/A	MM
Natural Gamma Spectroscopy - C Wellsite Calibration - Background Measurement							
Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33							
WINDOW 1 Background	100.0	40.17	40.64	N/A	N/A	100.0	CPS
WINDOW 2 Background	50.00	13.59	13.71	N/A	N/A	50.00	CPS
WINDOW 3 Background	10.00	3.861	3.729	N/A	N/A	10.00	CPS
WINDOW 4 Background	6.000	1.443	1.373	N/A	N/A	6.000	CPS
WINDOW 5 Background	10.00	1.623	1.384	N/A	N/A	10.00	CPS
SGR Background	30.00	15.88	15.92	N/A	N/A	N/A	GAPI
Natural Gamma Spectroscopy - C Wellsite Calibration - Normalized Jig Measurement							
Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38							
WINDOW 1 Jig	376.0	382.9	380.6	N/A	N/A	22.56	CPS
WINDOW 2 Jig	167.0	164.3	164.9	N/A	N/A	10.02	CPS
WINDOW 3 Jig	24.00	23.86	23.90	N/A	N/A	1.440	CPS
WINDOW 4 Jig	14.00	14.19	13.74	N/A	N/A	2.800	CPS
WINDOW 5 Jig	22.50	20.28	20.77	N/A	N/A	4.500	CPS
SGR Jig	162.0	162.0	161.6	N/A	N/A	7.000	GAPI
Natural Gamma Spectroscopy - C Master Calibration - Master Quality Control Values							
Master: 10-JAN-1999 11:08							
Photomultiplier Res. CARC3	8.000	9.066	--	--	--	--	
APU WINDOW Jig	1350	887.0	--	--	--	--	CPS
APL WINDOW Jig	1350	886.6	--	--	--	--	CPS

The NGT PCSL Value is set to 196.719 KEV

Mechanical Caliper - G / Equipment Identification

Primary Equipment:
Mechanical Caliper Device - G MCD - G

Auxiliary Equipment:

Mechanical Caliper - G Wellsite Calibration
Electronics Calibration

Phase	MCDG Counts Plus	Value	Phase	MCDG Counts Zero	Value
Before		376.3	Before		103.0
	320.5 (Minimum) 377.0 (Nominal) 433.5 (Maximum)			87.55 (Minimum) 103.0 (Nominal) 118.4 (Maximum)	

Before: 10-JAN-1999 11:43

Mechanical Caliper - G Wellsite Calibration
Caliper Calibration

Phase	Diameter Large Ring MM	Value	Phase	Diameter Small Ring MM	Value
Before		326.0	Before		223.2
	259.1 (Minimum) 304.8 (Nominal) 350.5 (Maximum)			172.7 (Minimum) 203.2 (Nominal) 233.7 (Maximum)	

Before: 10-JAN-1999 11:44

Natural Gamma Spectroscopy - C / Equipment Identification

Primary Equipment:
NGT Cartridge NGC - C 1741
NGT Sonde NGD - A

Auxiliary Equipment:
NGT Cartridge Housing NGCH - A
NGT Sonde Housing NGH - B
Gamma Source Radioactive GSR - U

Natural Gamma Spectroscopy - C Wellsite Calibration
Background Measurement

Phase	WINDOW 1 Background CPS	Value	Phase	WINDOW 2 Background CPS	Value	Phase	WINDOW 3 Background CPS	Value
Master		40.17	Master		13.59	Master		3.861
Before		40.64	Before		13.71	Before		3.729
	0 (Minimum) 100.0 (Nominal) 400.0 (Maximum)			0 (Minimum) 50.00 (Nominal) 200.0 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)	
Phase	WINDOW 4 Background CPS	Value	Phase	WINDOW 5 Background CPS	Value	Phase	SGR Background GAPI	Value
Master		1.443	Master		1.623	Master		15.88
Before		1.373	Before		1.384	Before		15.92
	0 (Minimum) 6.000 (Nominal) 24.00 (Maximum)			0 (Minimum) 10.00 (Nominal) 40.00 (Maximum)			0 (Minimum) 30.00 (Nominal) 120.0 (Maximum)	

Master: 10-JAN-1999 11:27 Before: 10-JAN-1999 11:33

Natural Gamma Spectroscopy - C Wellsite Calibration
Normalized Jig Measurement

Phase	WINDOW 1 Jig CPS	Value	Phase	WINDOW 2 Jig CPS	Value	Phase	WINDOW 3 Jig CPS	Value
Master		382.9	Master		164.3	Master		23.86
Before		380.6	Before		164.9	Before		23.90
	354.0 (Minimum) 376.0 (Nominal) 398.0 (Maximum)			155.0 (Minimum) 167.0 (Nominal) 179.0 (Maximum)			21.50 (Minimum) 24.00 (Nominal) 26.50 (Maximum)	
Phase	WINDOW 4 Jig CPS	Value	Phase	WINDOW 5 Jig CPS	Value	Phase	SGR Jig GAPI	Value
Master		14.19	Master		20.28	Master		162.0
Before		13.74	Before		20.77	Before		161.6
	12.50 (Minimum) 14.00 (Nominal) 15.50 (Maximum)			20.00 (Minimum) 22.50 (Nominal) 25.00 (Maximum)			150.0 (Minimum) 162.0 (Nominal) 174.0 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration
Quality Control Values

Phase	DHVF Jig V	Value	Phase	Quality Windows Ratio Jig	Value
Master		1328	Master		2.330
Before		1328	Before		2.308
	1088 (Minimum) 1450 (Nominal) 1813 (Maximum)			2.150 (Minimum) 2.240 (Nominal) 2.330 (Maximum)	

Master: 10-JAN-1999 11:21 Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Wellsite Calibration
Quality Control Values Check

Phase	Thorium peak Form Factor Jig	Value
Before		-0.005182
	-0.2000 (Minimum) 0 (Nominal) 0.2000 (Maximum)	

Before: 10-JAN-1999 11:38

Natural Gamma Spectroscopy - C Master Calibration
Master Quality Control Values

Phase	Photomultiplier Res. CARC3	Value	Phase	APU WINDOW Jig CPS	Value	Phase	APL WINDOW Jig CPS	Value
Master		9.066	Master		887.0	Master		886.6
	4.500 (Minimum) 8.000 (Nominal) 11.50 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)			700.0 (Minimum) 1350 (Nominal) 1600 (Maximum)	
Phase	Thorium peak Form Factor Jig	Value						
Master		-0.05029						
	-0.1000 (Minimum) 0 (Nominal) 0.1000 (Maximum)							

Master: 10-JAN-1999 11:08

Directional Survey Manually-Entered Inclinometry Summary

Tie In Point : Measured Depth True Vertical Depth

2080.00 M 2047.22 M

Depth	Deviation	True Vertical Depth	Depth	Deviation	True Vertical Depth
0.00 M	0.00 DEG	0.01 M	1655.60 M	20.60 DEG	1648.53 M
569.60 M	0.00 DEG	569.61 M	1665.20 M	21.20 DEG	1657.50 M
588.00 M	0.75 DEG	588.01 M	1674.80 M	21.20 DEG	1666.45 M
599.00 M	0.50 DEG	599.01 M	1684.50 M	21.10 DEG	1675.50 M
618.00 M	0.25 DEG	618.01 M	1694.20 M	21.00 DEG	1684.55 M
667.00 M	0.25 DEG	667.01 M	1703.80 M	21.10 DEG	1693.51 M
714.00 M	1.00 DEG	714.01 M	1713.00 M	21.30 DEG	1702.08 M
724.00 M	1.00 DEG	724.00 M	1722.80 M	21.40 DEG	1711.21 M
743.00 M	1.25 DEG	743.00 M	1732.50 M	21.30 DEG	1720.25 M
764.00 M	1.25 DEG	764.00 M	1751.90 M	21.10 DEG	1738.33 M
783.00 M	1.25 DEG	782.99 M	1761.60 M	21.00 DEG	1747.39 M
792.00 M	1.25 DEG	791.99 M	1771.30 M	20.90 DEG	1756.44 M
802.00 M	1.25 DEG	801.99 M	1780.90 M	20.70 DEG	1765.42 M
821.00 M	1.50 DEG	820.98 M	1790.60 M	20.50 DEG	1774.50 M
839.00 M	1.50 DEG	838.97 M	1800.10 M	20.40 DEG	1783.40 M
866.00 M	1.25 DEG	865.97 M	1809.90 M	20.20 DEG	1792.59 M
893.00 M	1.00 DEG	892.96 M	1819.60 M	20.30 DEG	1801.69 M
940.00 M	1.00 DEG	939.95 M	1829.30 M	20.20 DEG	1810.79 M
992.00 M	1.00 DEG	991.95 M	1839.00 M	20.00 DEG	1819.90 M
1049.00 M	3.00 DEG	1048.91 M	1848.70 M	19.90 DEG	1829.02 M
1067.00 M	3.25 DEG	1066.88 M	1858.30 M	20.20 DEG	1838.04 M
1087.00 M	3.13 DEG	1086.85 M	1868.30 M	20.40 DEG	1847.42 M
1102.00 M	3.25 DEG	1101.83 M	1877.30 M	20.10 DEG	1855.86 M
1126.00 M	3.00 DEG	1125.79 M	1887.10 M	20.00 DEG	1865.07 M
1146.00 M	2.75 DEG	1145.77 M	1896.60 M	20.00 DEG	1873.99 M
1175.00 M	2.10 DEG	1174.74 M	1906.30 M	19.80 DEG	1883.11 M
1211.00 M	1.60 DEG	1210.72 M	1916.00 M	19.80 DEG	1892.24 M
1233.00 M	1.50 DEG	1232.71 M	1925.70 M	19.80 DEG	1901.37 M
1281.00 M	1.50 DEG	1280.70 M	1945.20 M	19.80 DEG	1919.71 M
1367.80 M	1.50 DEG	1367.47 M	1954.80 M	19.90 DEG	1928.74 M
1380.90 M	1.30 DEG	1380.56 M	1974.30 M	19.90 DEG	1947.08 M
1390.70 M	1.00 DEG	1390.36 M	1983.90 M	19.90 DEG	1956.11 M
1400.30 M	0.90 DEG	1399.96 M	1993.70 M	19.60 DEG	1965.33 M
1409.09 M	0.80 DEG	1408.75 M	2003.50 M	19.30 DEG	1974.57 M
1419.70 M	1.20 DEG	1419.36 M	2013.20 M	19.30 DEG	1983.73 M
1429.50 M	2.10 DEG	1429.15 M	2022.90 M	18.90 DEG	1992.89 M
1439.10 M	3.50 DEG	1438.74 M	2034.50 M	18.50 DEG	2003.88 M
1448.80 M	5.10 DEG	1448.41 M	2042.20 M	18.30 DEG	2011.19 M
1458.40 M	6.60 DEG	1457.96 M	2051.30 M	18.10 DEG	2019.83 M
1468.10 M	7.80 DEG	1467.59 M	2055.60 M	18.00 DEG	2023.92 M
1477.90 M	8.70 DEG	1477.29 M	2080.00 M	16.50 DEG	2047.22 M
1487.70 M	9.60 DEG	1486.96 M	2091.00 M	15.50 DEG	2057.79 M
1497.40 M	10.40 DEG	1496.51 M	2130.00 M	13.10 DEG	2095.58 M
1507.00 M	11.30 DEG	1505.94 M	2160.00 M	12.00 DEG	2124.87 M
1516.80 M	12.00 DEG	1515.54 M	2207.00 M	9.75 DEG	2171.02 M
1526.60 M	12.50 DEG	1525.12 M	2246.00 M	7.88 DEG	2209.56 M
1536.20 M	13.10 DEG	1534.48 M	2284.00 M	6.75 DEG	2247.25 M
1546.00 M	13.40 DEG	1544.02 M	2320.00 M	5.25 DEG	2283.05 M
1555.60 M	14.20 DEG	1553.34 M	2359.00 M	5.25 DEG	2321.88 M
1568.40 M	15.30 DEG	1565.72 M	2399.00 M	5.00 DEG	2361.72 M
1578.20 M	16.20 DEG	1575.15 M	2436.00 M	4.50 DEG	2398.60 M
1587.90 M	17.00 DEG	1584.45 M	2475.00 M	4.00 DEG	2437.49 M
1597.50 M	17.60 DEG	1593.61 M	2513.00 M	4.00 DEG	2475.40 M
1607.20 M	18.10 DEG	1602.84 M	2522.00 M	3.50 DEG	2484.38 M
1616.90 M	18.50 DEG	1612.05 M	2561.00 M	2.75 DEG	2523.32 M
1626.60 M	19.00 DEG	1621.24 M	2600.00 M	2.75 DEG	2562.27 M
1636.40 M	19.50 DEG	1630.49 M	2648.00 M	1.50 DEG	2610.24 M
1646.00 M	20.00 DEG	1639.53 M	2660.00 M	1.19 DEG	2622.24 M

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2605 m
		SCHLUMBERGER DEPTH	2622.24 m
WELL:	CDN FOREST ET AL FLETT RAPIDS	DEPTH DRILLER	2660 m
FIELD:	FLETT RAPIDS	KELLY BUSHING	262.5 m
PROVINCE:	NORTH WEST TERRITORIES	DRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

NATURAL GAMMA-RAY
SPECTROSCOPY LOG
TRUE VERTICAL DEPTH

N.E.B. COPY

COMPANY: CANADIAN FOREST OIL LTD.
WELL: CDN FOREST ET AL FLETT RAPIDS
FIELD: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

PROVINCE NORTH WEST TERRITORIES
Field: FLETT RAPIDS
Location: 141-60-50-120-15
Well: CDN FOREST ET AL FLETT RAPIDS
Company: CANADIAN FOREST OIL LTD.

LOCATION
Permanent Datum: Ground Level
Log Measured From: Kelly Bushing
Drilling Measured From: Kelly Bushing

Elev.	K.B.	293.5 ft
	D.F.	292.5 ft
	G.L.	283.5 ft

Date: 10-Jan-99
Run Number: ONE
Depth Driller: 2037.0 m
Depth Logger: 2033.2 m
Bottom Log Interval: 2032.8 m
Top Log Interval: 1997.0 m
Casing Driller Size @ Depth: 244.5 mm @ 283.0 m
Casing Logger Size @ Depth: 244.5 mm @ 283.0 m
Bit Size: 216.0 mm
Type Fluid in Hole: WATER GEL
Density: 1.0 g/cm³
Viscosity: 40 s
PH: 9.0
Fluid Loss: 0 ml
Source of Sample: FLOWING
Rm @ Meas Temp: 0.0000 Ω-m @ 0.0 °C
Rmf @ Meas Temp: 0.0000 Ω-m @ 0.0 °C
Rmc @ Meas Temp: 0.0000 Ω-m @ 0.0 °C
Source Rmf / Rmc: MEASURED / MEASURED
Rm @ BHT: 0.0000 Ω-m @ 0.0 °C
Max Rec Temp: 0.0 °C
Equipment Number: 5001
Location: 5A
Recorded By: R. LEWIS
Witnessed By: J. ROBERTS

APPROVED:
Date: 10-Jan-99
Time: 0:00
Signature:

Schlumberger
MICRO-IMAGER LOG

FORMATION:
NORTH WEST TERRITORIES

Run	Logged Interval (m)	Type Log	Bit Size (mm)	Casing Driller Size @ Depth (mm @ m)	Casing Logger Size @ Depth (mm @ m)	Bit Run	Max Rec Temp (°C)	Equipment Number	Location	Recorded By	Witnessed By
Run 1	1997.0 - 2032.8	MIC	216.0	244.5 @ 283.0	244.5 @ 283.0		0.0	5001	5A	R. LEWIS	J. ROBERTS
Run 2											
Run 3											
Run 4											

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 OUR GENERAL TERMS AND CONDITIONS AS SET FORTH IN OUR CURRENT PRICE SCHEDULE.

OTHER SERVICES:
OB1: DLL LDT-CNL-ECAS-GR
OB2: NGT-GR
OB3: FMI-GR
OB4: LDWD-TG
OB5:
OB6:
OB7:
OB8:
OB9:
OB10:

OTHER SERVICES2
OB1:
OB2:
OB3:
OB4:
OB5:
OB6:

REMARKS: RUN NUMBER 1
ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST
PROVIDED WITH FIRST PASS: 12.00 D-JAN-1999, 200 NEXT SECOND PASS AND FIN GR TURN TIME
PROVIDED WITH FIRST PASS: 12.00 D-JAN-1999, 20 UM, SPEAD TUE 0.2HO
TWO FIRST PASS WITH NO ECAS
DIPOLE TAKE 75 P-U, UPPER DIPOLE AND SHORED F MODES

REMARKS: RUN NUMBER 2
ALL PRESENTATIONS AND INTERVALS AS PER CLIENT REQUEST
PROVIDED WITH FIRST PASS: 20:00 D-JAN-1999, 200 NEXT SECOND PASS AND FIN GR TURN TIME
PROVIDED WITH FIRST PASS: 12.00 D-JAN-1999, 20 UM, SPEAD TUE 0.2HO
TWO FIRST PASS WITH NO ECAS
DIPOLE TAKE 75 P-U, UPPER DIPOLE AND SHORED F MODES

REQ. NABORS 28E
PROVIDED WITH 4 NOZZLE FINALS
OPERATORS: DAVID "NOT HIGH" BOYD AND MARK "FEEDO" WIESNAPUNICKEL

RUN 1				RUN 2			
SERVICE ORDER #:		1000767 WCI-413		SERVICE ORDER #:			
PROGRAM NAME:				PROGRAM NAME:			
PLUG LOGS:				PLUG LOGS:			
LOGGING INTERVAL	START	STOP		LOGGING INTERVAL	START	STOP	

EQUIPMENT DESCRIPTION

RUN 1 RUN 2

SURFACE EQUIPMENT
CMTU-LT 1037
DTM-B

DOWNHOLE EQUIPMENT

Input DLIS Files

DEFAULT	FBSTA .049	FN:76 PRODUCER	10-Jan-1999 20:01	2663.2 M	2037.4 M

Output DLIS Files

DEFAULT	FBSTA .053	FN:93 PROD VIDEO	10-Jan-1999 20:07	
CUST	FBSTA .052	FN:94 CUSTOMER	10-Jan-1999 20:07	

OP System Version: 9C0-413

FBST-A	WCI-413	SGT-N	WCI-413	
DTA-A	WCI-413	DTCH	WCI-413	

PIP SUMMARY

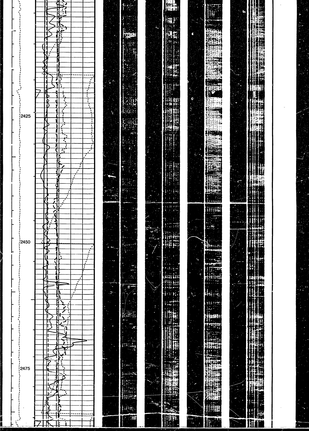
- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 10 S

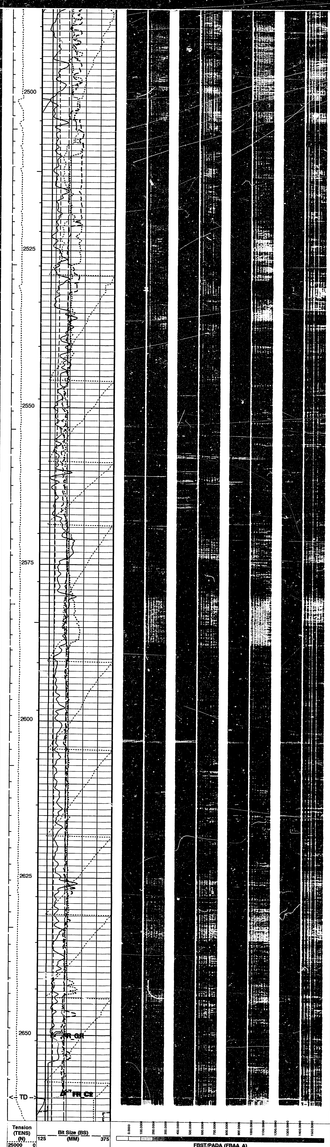
Pad One Azimuth (PIAZ)
FBST2 (DEG) 360
Deviation (DEVIN)
FBST2 (DEG) 90
Stuck Sensor (STST)
(#) 1
Hole Azimuth (HAZIM)
FBST2 (DEG) 360
Gamma Ray (GR)
FBST2 (API) 150
Caliper 2 (C2)
FBST2 (MM) 370
Caliper 1 (C1)
FBST2 (MM) 370

MAIN PASS

Tension (TENS)
FBST2 (LBS) 0 — 0.00 Bit Size (BS)
FBST2 (MM) 216 — 370

FBST2/PASS (FBAA_A)





FMI image.

Resistive (White) to Conductive (Black)

Format: FMI_IMAGE Vertical Scale: 1:240 Graphics File Created: 19-Jan-1999 22:08

OP System Version: 9C0-413

MCM

FBST-A	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413

Parameters

DLIS Name	Description	Value	
ARWO	Accelerometer Filtering Mode	MOVING_AVERAGE	
BHCHAN	Borehole depth channel name	TVDE	
BS	Bit Size	216.0	MM
CO	Depth Offset	0.0	M
FGCO	FMI Gain Offset and GAIN Correction	.NO	
FDBD	FMI Dead Buttons detection	OFF	
FDBP	FMI Dead Buttons Patching	OFF	
FIIO	FMI Image Equalization	OFF	
FLIO	FMI Logging Mode	STAD	
ICMO	Image Computation Mode	AUTOMATIC_SELECTION	
LBFN	Trigger for RAW3 First Excitation Label	GTI	
MDIP	Magnetic Field Declination	27.1258	DEG
PIPEADP	Pipe Adaptive Processing (pipe/hole enabled	.YES	
PP	Playback Processing	NORMAL	
SDFF	Shut-Off	25.4	MM
SDFP	FMI Shut-Off Setting Point	0	M
STHT	STT Stuck Threshold	1.0	M
TDD	Total Depth - Driller	2650.00	M
TDL	Total Depth - Logger	2650.00	M
TDNO	Along Hole depth of Tie-In Point	0.00	M
TIVD	TVD of Tie-In Point	2647.22	M
TVD_FBST	Gain Value(Ohm.xsms)	4.40	
XGAIN	Emex Gain Mode	EmexMenu_GainMano	
XVOL	Emex Voltage	6	V

Input DLIS Files

DEFAULT	FBSTA .049	FN:76 PRODUCER	10-Jan-1999 20:51	2663.2 M	2637.6 M

Output DLIS Files

DEFAULT	FBSTA .053	FN:83 PRODUCER	10-Jan-1999 22:07		
CUST	FBSTA .053	FN:84 CUSTOMER	10-Jan-1999 22:07		

Input DLIS Files

DEFAULT	FBSTA .049	FN:76 PRODUCER	10-Jan-1999 20:51	2663.2 M	2637.6 M

Output DLIS Files

DEFAULT	FBSTA .053	FN:83 PRODUCER	10-Jan-1999 22:07		
CUST	FBSTA .053	FN:84 CUSTOMER	10-Jan-1999 22:07		

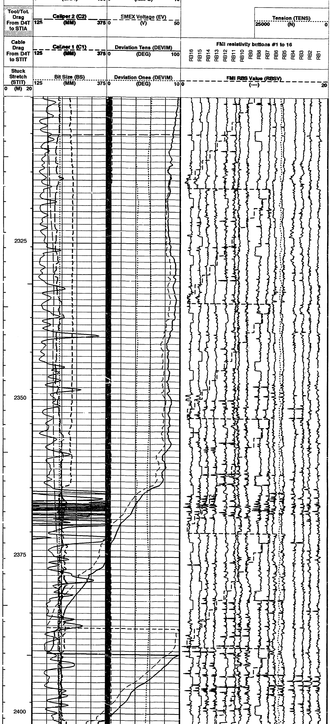
OP System Version: 9C0-413

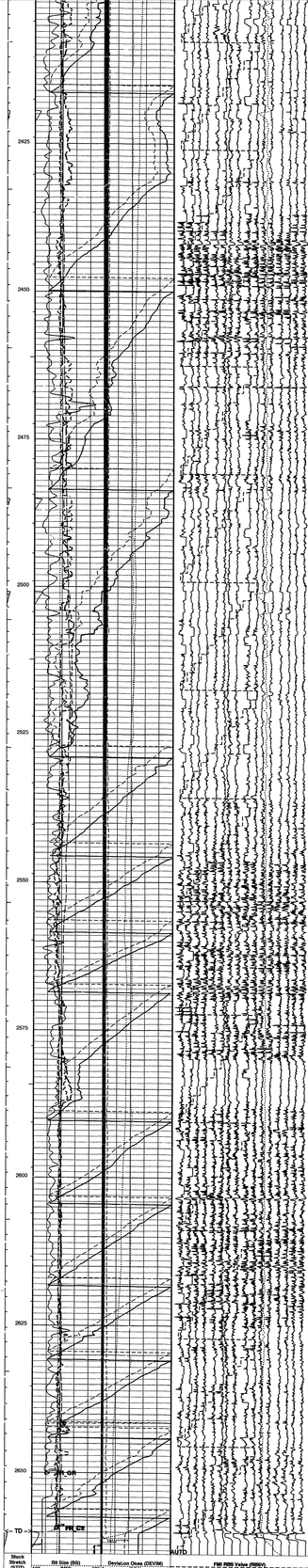
MCM

FBST-A	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- Integrated Cement Volume Minor Pip Every 0.1 M3
- Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S





Stock Stretch (STIT) 0 (in) 30

Bit Size (BS) (MM) 125 375.0

Deviation Class (DEVIM) (DEG) 10.0

FMI RMS Value (RMVA) (---) 20

Cable Drag From D41 to ITIT 125

Caliper 1 (C1) (MM) 375.0

Deviation Tens (DEVIM) (DEG) 100

FMI resistivity buttons #1 to 16

R16 R15 R14 R13 R12 R11 R10 R9 R8 R7 R6 R5 R4 R3 R2 R1

ToolTub. Drag From D41 to STIA 125

Caliper 2 (C2) (MM) 375.0

EMEX Voltage (EV) (V) 50

Tension (TENS) (N) 25000 0

Gamma Ray (GR) (GAPI) 0 150.0

EMEX Intensity (EI) (AMPS) 0 12

MAIN PASS

Hole Azimuth (HAZIM) (DEG) -90 360

Pad One Azimuth (PIAZ_FBST) (DEG) -90 360

Relative Bearing (RB_FBST) (DEG) -90 360

Stuck Stretch (STIT) 0 (in) 30

Deviation From F2 to DEVI 1

Quality From C1 to C2

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- -1 Integrated Cement Volume Minor Pip Every 0.1 M3
- -1 Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
DFV	Depth Offset	218.000	MM
DO	Depth Offset	0.0	M
FBEF	Emex filtering activation	OFF	
FBEM	Instrumental Computation Mode	AUTOMATIC_SELECTION	
LBFR	Trigger for Start Of First Reading Label	1	
MDEC	Magnetic Declination	27.1204	DEG
PM	Playback Processing	NORMAL	
RBS	Resistivity Button Selection	AUTO	
RBSE	Resistivity button interval	1	
SOFF	Stand-Off	-0.4	MM
SPID	TVD of Starting Point	0	M
TDD	Total Depth - Driller	1,924	M
TDL	Total Depth - Logger	2662.00	M
TSL	Total Depth - Logger	2660.00	M
TVD	TVD Measured Below Rotary Table	0.000	M
TVDI	TVD At Current Point	1047.37	M
XGMO	Emex & Gain Modes	EmexMedia_GainMedium	
XIOC	Emex Voltage	5	V

Format: FMI_LQC Vertical Scale: 1:240 Graphics File Created: 10-Jan-1999 22:08

OP System Version: 9C0-413

MCM

		SGT-N	9C0-413
		DTC-H	9C0-413
FBST-A	9C0-413		
DTA-A	9C0-413		

Input DLIS Files

DEFAULT	FBSTA.049	FN:76 PRODUCER	10-Jan-1999 20:51	2663.2 M 2637.6 M

Output DLIS Files

DEFAULT	FBSTA.053	FN:83 PRODUCER	10-Jan-1999 22:07	
CUST	FBSTA.053	FN:84 CUSTOMER	10-Jan-1999 22:07	

Input DLIS Files

DEFAULT	FBSTA.048	FN:74 PRODUCER	10-Jan-1999 20:36	2660.1 M 2589.4 M

Output DLIS Files

DEFAULT	FBSTA.055	FN:90 PRODUCER	10-Jan-1999 22:35	2660.6 M 2589.9 M
CUST	FBSTA.055	FN:87 CUSTOMER	10-Jan-1999 22:35	2660.6 M 2589.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 3.36 M3

Cement Volume = 0.02 M3 (assuming 177.80 MM casing O.D.)

Computed from 2660.0 M to 2590.0 M using data channel(s) C1 C2

OP System Version: 9C0-413

MCM

		SGT-N	9C0-413
		DTC-H	9C0-413
FBST-A	9C0-413		
DTA-A	9C0-413		

PIP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
- -1 Integrated Cement Volume Minor Pip Every 0.1 M3
- -1 Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S

Pad One Azimuth (PIAZ_FBST) (DEG) -90 360

Deviation (DEVIM) (DEG) -10 90

Stuck Stretch (STIT) 0 (in) 30

Hole Azimuth (HAZIM) (DEG) -90 360

Gamma Ray (GR) 0 (GAPI) 150

Caliper 2 (C2) 125 (MM) 375

Caliper 1 (C1) 125 (MM) 375

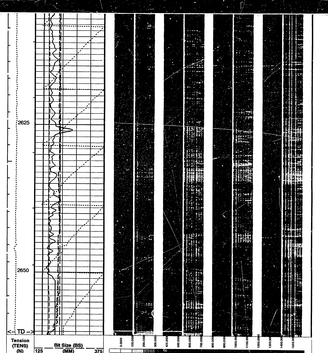
REPEAT SECTION

Tension (TENS) (N) 25000

Bit Size (BS) 125 (MM) 375

FBST:PIAZA (PIAZA_A) (DEG)

2600



PP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S

FMI Image.

Resistive (White) to Conductive (Black)

Format: FMI_IMAGE Vertical Scale: 1:240 Graphic File Created: 10-Jan-1999 22:35

OP System Version: 9C0-413

MCM

FBST-A	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
ALTSPCHAN	Alternate depth channel name	TVDE	
DS	Bit Size	216.000	MM
EDTR	Edit Trailer Record	0.0	M
EGCO	FMI EMEX and GAIN Correction	NO	
FDBD	FMI Dead Bullone detection	OFF	
FDCO	FMI Dead Cycle Correction	OFF	
FEQ	FMI Image Equalization	OFF	
FLM	FMI Logging Mode	STAT	
FMPM	FMI Image Normalization Mode	AUTOMATIC_SELECTION	
LMFS	Trigger for MAXIS First Reading Label	0	
MDEC	Magnetic Field Declination	27.1358	DEG
MSDSP	Mud Sample Display playback enabled	OFF	
OP	Playback Processing	NORMAL	
SOFF	Stand-Off	-25.4	MM
STAT	FMI Logging Polled	0.0	M
STHT	STT Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIME	Time from depth of Tie-In Point	0.000	SEC
TIVD	TVD of Tie-In Point	2047.22	M
TVD_FBST	TVD of Bit Depth (Fbest)	0.000	M
XDMO	Error & Gain Modes	EmesMono_GainMono	
XVOL	Emes Voltage	0	V

Input DLIS Files

DEFAULT	FBSTA.048	FN:74 PRODUCER	10-Jan-1999 20:36	2660.1 M 2589.4 M

Output DLIS Files

DEFAULT	FBSTA.048	FN:74 PRODUCER	10-Jan-1999 20:36	2660.1 M 2589.4 M

Input DLIS Files

DEFAULT	FBSTA.048	FN:74 PRODUCER	10-Jan-1999 20:36	2660.1 M 2589.4 M

Output DLIS Files

DEFAULT	FBSTA.055	FN:66 PRODUCER	10-Jan-1999 22:35	2660.0 M 2589.9 M
CUST	FBSTA.055	FN:67 CUSTOMER	10-Jan-1999 22:35	2660.0 M 2589.9 M

Integrated Hole/Cement Volume Summary

Hole Volume = 3.36 M3
Cement Volume = 0.82 M3 (assuming 177.80 MM (casing O.D.))
Computed from 2660.0 M to 2589.9 M using data channel(s) C1 C2

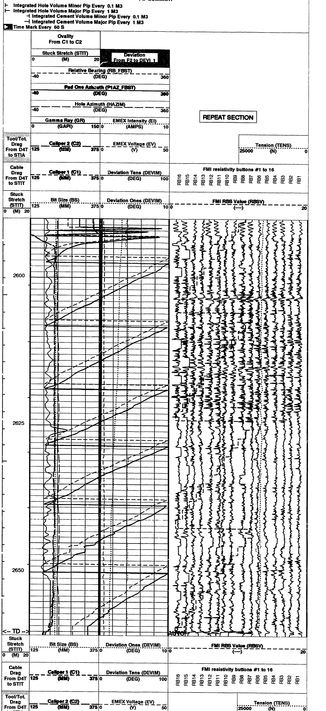
OP System Version: 9C0-413

MCM

FBST-A	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413

PP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S



PP SUMMARY

- Integrated Hole Volume Minor Pip Every 0.1 M3
- Integrated Hole Volume Major Pip Every 1 M3
  - Integrated Cement Volume Minor Pip Every 0.1 M3
  - Integrated Cement Volume Major Pip Every 1 M3
- Time Mark Every 60 S

Parameters

DLIS Name	Description	Value	
AFMO	Accelerometer Filtering Mode	MOVING_AVERAGE	
DS	Bit Size	216.000	MM
FEQ	FMI Image Equalization	OFF	
FSEP	Dress filtering activation	OFF	
IDMO	Inclinometry Computation Mode		
FMPM	FMI Image Normalization Mode	AUTOMATIC_SELECTION	
MDEC	Magnetic Field Declination	27.1358	DEG
NP	Playback Processing	NORMAL	
RBSM	Relative Bearing Computation	AUTO	
RBSM	Auto RBS change Limit	0	
SOFF	Stand-Off	-25.4	MM
STAT	FMI Logging Polled	0.0	M
STHT	STT Stuck Threshold	1.524	M
TDD	Total Depth - Driller	2660.00	M
TDL	Total Depth - Logger	2660.00	M
TIME	Time from depth of Tie-In Point	0.000	SEC
TIVD	TVD of Tie-In Point	2047.22	M
XDMO	Error & Gain Modes	EmesMono_GainMono	
XVOL	Emes Voltage	0	V

Format: FMI_LQC Vertical Scale: 1:240 Graphic File Created: 10-Jan-1999 22:35

OP System Version: 9C0-413

MCM

FBST-A	9C0-413	SGT-N	9C0-413
DTA-A	9C0-413	DTC-H	9C0-413

Input DLIS Files

DEFAULT	FBSTA.048	FN:74 PRODUCER	10-Jan-1999 20:36	2660.1 M 2589.4 M

Output DLIS Files

DEFAULT	FBSTA.055	FN:66 PRODUCER	10-Jan-1999 22:35	2660.0 M 2589.9 M
CUST	FBSTA.055	FN:67 CUSTOMER	10-Jan-1999 22:35	2660.0 M 2589.9 M

Calibration and Check Summary

Measurement	Nominal	Master	Before	After	Change	Limit	Units
Full-Bore Scanner - A Wellsite Calibration - Caliper Calibration							
Before: 10-JAN-1999 18:14							
Caliper #1 Small Jig	209.2	N/A	201.6	N/A	N/A	N/A	MM
Caliper #1 Large Jig	304.8	N/A	299.0	N/A	N/A	N/A	MM
Caliper #2 Large Jig	304.8	N/A	299.8	N/A	N/A	N/A	MM
Caliper #2 Large Jig	304.8	N/A	299.0	N/A	N/A	N/A	MM
Full-Bore Scanner - A Wellsite Calibration - CRCUIZ2 ACCELEROMETER FROM HAS BEEN READ CORRECTLY							
Before: 10-JAN-1999 18:16							
TEMPERATURE REFERENCE :	N/A	N/A	50	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	99	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	11	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	470	N/A	N/A	N/A	
Full-Bore Scanner - A Wellsite Calibration - CRCUIZ3 MAGNETOMETER FROM HAS BEEN READ CORRECTLY							
Before: 10-JAN-1999 18:16							
TEMPERATURE REFERENCE :	N/A	N/A	24	N/A	N/A	N/A	DEGC
YEAR OF CALIBRATION :	N/A	N/A	99	N/A	N/A	N/A	
MONTH OF CALIBRATION :	N/A	N/A	12	N/A	N/A	N/A	
SERIAL NUMBER :	N/A	N/A	188	N/A	N/A	N/A	
Scintillation Gamma Ray - N Wellsite Calibration - Detector Calibration							
Before: 9-JAN-1999 8:38							
Gamma Ray (Calibrator)	160.0	N/A	162.0	N/A	N/A	14.76	GAPI
Gamma Ray (Calibrator)	160.0	N/A	162.0	N/A	N/A	15.00	GAPI

Full-Bore Scanner - A / Equipment Identification

Primary Equipment:	
Full-Bore Scanner Sonde	FBSS - A
Full-Bore Scanner Sonde Cartridge	FBSC - A
GPIT Cartridge - C	GPIC - C
Insulating Sub	AIU - MS
Full-Bore Scanner Control Cartridge	FBCC - A
Auxiliary Equipment:	
Electronic Cartridge Housing	ECH - MRA

Full-Bore Scanner - A Wellsite Calibration

Caliper Calibration

Phase	Caliper #1 Small Jig MM		Value	Phase	Caliper #1 Small Jig MM		Value
Before	201.6		201.6	After			199.9
2001	2002	2003	2004	2005	2006	2007	
Before	After	Before	After	Before	After	Before	After

Phase	Caliper #1 Large Jig MM		Value	Phase	Caliper #2 Large Jig MM		Value
Before	299.0		299.0	After			299.0
2001	2002	2003	2004	2005	2006	2007	
Before	After	Before	After	Before	After	Before	After

Define: 10-JAN-1999 18:14

Scintillation Gamma Ray - N / Equipment Identification

Primary Equipment:		
Scintillation Gamma Cartridge	SGC - SA	9080
Scintillation Gamma Detector	SGD - TAA	21097
Auxiliary Equipment:		
Scintillation Gamma Housing	SGH - A	9489
Gamma Source Radioactive	GSR - MV	1997

Scintillation Gamma Ray - N Wellsite Calibration

Detector Calibration

Phase	Gamma Ray Background GAPI		Value	Phase	Gamma Ray Jig - Bkgd GAPI		Value	Phase	Gamma Ray (Calibrator) GAPI		Value
Before	23.48		23.48	Before	163.5		163.5	Before			162.0
2001	2002	2003	2004	2005	2006	2007					
Before	After	Before	After	Before	After	Before	After				

Define: 9-JAN-1999 8:38

JAN 1 4 1999

COMPANY:	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2660.0 m
WELL:	CDN FOREST ET AL FLETT RAPIDS	SCHLUMBERGER DEPTH	2660 m
FIELD:	FLETT RAPIDS	DEPTH DRILLER	2660 m
PROVINCE:	NORTH WEST TERRITORIES	KELLY BUSHING	262.5 m
		GRILL FLOOR	262.2 m
		GROUND LEVEL	255 m

Schlumberger

FORMATION MICRO-IMAGER LOG

LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT

N E B COPY 1851 NEB

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS I-6

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

Schlumberger

PERFORATION DEPTH CONTROL LOG

N 60 - 40' W 123 - 26'
UWI: 200-161-2050-12315-0

Elev.: K.B. 262.5 m
G.L. 255 m
D.F.

Permanent Datum:	GROUND LEVEL	Elev.:	255 m
Log Measured From:	KELLY BUSHING	7.5 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

	API Serial No. WID #1851	SECTION	TOWNSHIP	RANGE
PROVINCE/NORTH WEST TERRITORIES				
Field: FLETT RAPIDS				
Location: N 60 - 40' W 123 - 26'				
Well: CDN FOREST ET AL FLETT RA				
Company: CANADIAN FOREST OIL LTD.				
Logging Date	22-FEB-1999			
Run Number	ONE			
Depth Driller	2660 m			
Schlumberger Depth	2104.8 m			
Bottom Log Interval	2099 m			
Top Log Interval	1998 m			
Casing Fluid Type	3% KCL			
Salinity				
Density				
Fluid Level	2051 m			
BIT/CASING/TUBING STRING				
Bit Size				
From				
To				
Casing/Tubing Size	177.800 mm			
Weight	43.16 kg/m			
Grade				
From	1899 m			
To	2657 m			
Maximum Recorded Temperatures				
Logger On Bottom: Time	22-FEB-1999 13:30			
Unit Number / Location	163 GRANDE PRAIRIE			
Recorded By	C. HARKNESS			
Witnessed By	R. WESHMAR			

	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 INTERPRETATION. 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
CP11 RCI LOG
OTHER SERVICES2
CS52 COMPLETION RECORD
CS53
CS63
CS64
CS65
REMARKS: RUN NUMBER 1
DEPTH CORRELATED TO BOND LOG (COMPUTALOG) DATED 02/11/99
INTERVAL TO BE PERFORATED: 2086.0 - 2088.0 MKB

RUN WITH 88.9 MM TUBING IN THE WELL

	RUN 1	RUN 2
SERVICE ORDER #:	8201417	
PROCEDURE VERSION:	4.0.0.3	
FLUID LEVEL:	2051 m	
LOGGED INTERVAL: START		START
STOP		STOP

EQUIPMENT DESCRIPTION

RUN 1	RUN 2
SURFACE EQUIPMENT	
N.M.RC	
GSR-UY	
DOWNHOLE EQUIPMENT	
CALR CALR	2.13 — 1.32 CCL
SGT-E ECS-C ECS-D SGD-NA	1.07 — 0.30 Gamma Ray; 0.00 Tension; TOOL ZERO

MAXIMUM STRING DIAMETER 88 MM
MEASUREMENTS FROM TOOL ZERO
ALL LENGTHS IN METERS

Input DLIS Files

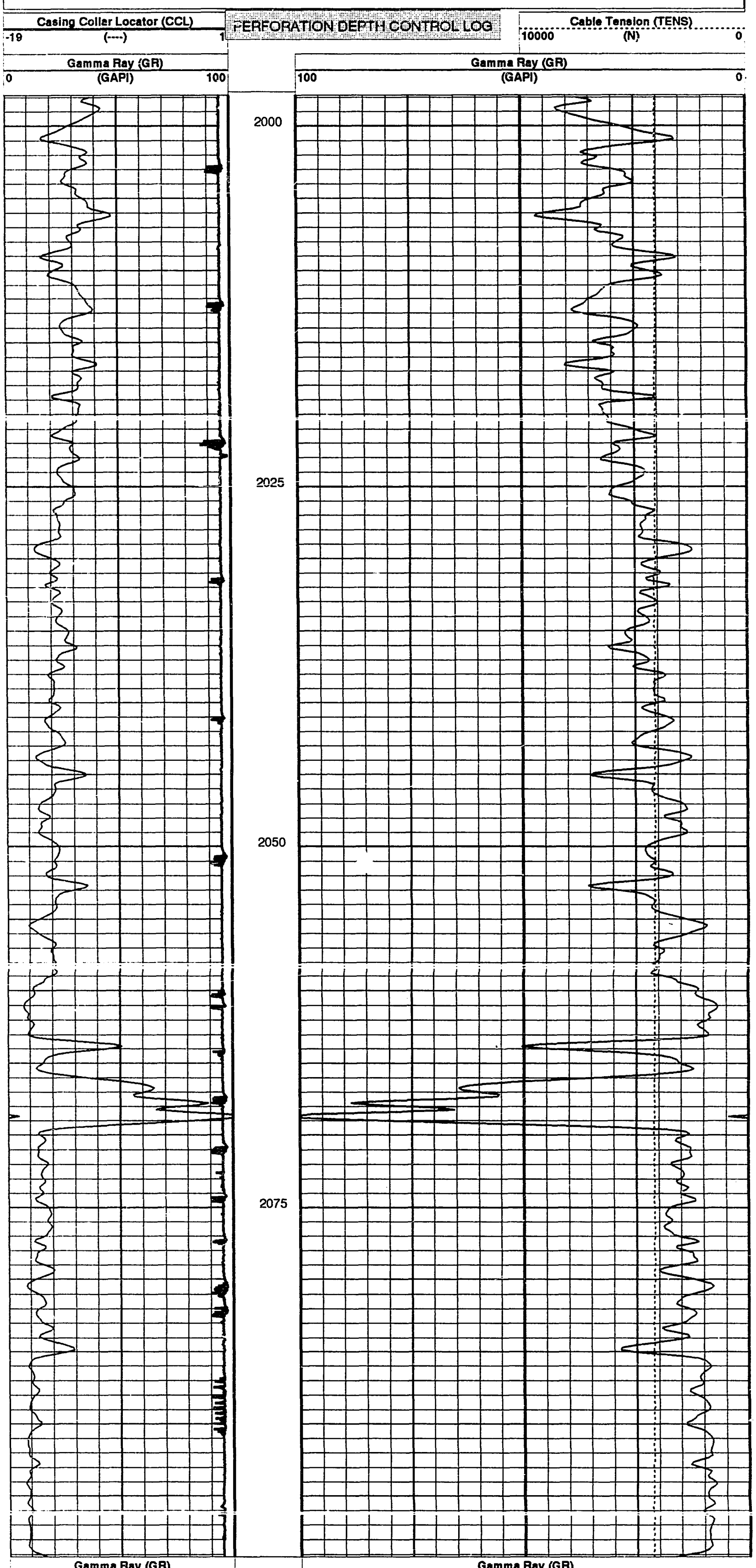
DEFAULT	SGTE .002	FN:1	PRODUCER	22-Feb-1999 13:40	2098.9 M	1997.5 M

Output DLIS Files

DEFAULT	SGTE .006	FN:5	PRODUCER	22-Feb-1999 14:17	2099.2 M	1997.8 M

OP System Version: 9C0-413
MCM

SGT-E 9C0-413 CAL-R SKKWX-1000



Format: CORRELATION Vertical Scale: 1:240 Graphics File Created: 22-Feb-1999 14:18

OP System Version: 9C0-413
MCM

SGT-E 9C0-413 CAL-R SKKWX-1000

Input DLIS Files

DEFAULT	SGTE .002	FN:1	PRODUCER	22-Feb-1999 13:40	2098.9 M	1997.5 M

Output DLIS Files

DEFAULT	SGTE .006	FN:5	PRODUCER	22-Feb-1999 14:17

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS I-61

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

BOTTOM LOG INTERVAL	2099 m
SCHLUMBERGER DEPTH	2104.8 m
DEPTH DRILLER	2660 m
KELLY BUSHING	262.5 m
DRILL FLOOR	
GROUND LEVEL	255 m

Schlumberger

PERFORATION DEPTH CONTROL LOG

NEB COPY

1851

COMPANY: CANADIAN FOREST OIL LTD.

WELL: CDN FOREST ET AL FLETT RAPIDS I-61

FIELD: FLETT RAPIDS

PROVINCE: NORTH WEST TERRITORIES

Schlumberger

COMPLETION RECORD

Company: CANADIAN FOREST OIL LTD.
Well: CDN FOREST ET AL FLETT RAPIDS
Location: N 60 - 40' W 123 - 26'
Field: FLETT RAPIDS
PROVINCE: NORTH WEST TERRITORIES

LOCATION: N 60 - 40' W 123 - 26'
UWI: 200-I61-2050-12315-0

Elev.: K.B. 262.5 m; G.L. 255 m; D.F.

Permanent Datum:	GROUND LEVEL	Elev.:	255 m
Log Measured From:	KELLY BUSHING	7.5 m	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		

API Serial No. WID #1851	SECTION	TOWNSHIP	RANGE

Logging Date	22-FEB-1999	
Run Number	ONE	
Depth Driller	2660 m	
Schlumberger Depth	2104.8 m	
Bottom Log Interval	2090.5 m	
Top Log Interval	2020 m	
Casing Fluid Type	3% KCL	
Salinity		
Density		
Fluid Level	2051 m	
BIT/CASING/TUBING STRING		
Bit Size		
From		
To		
Casing/Tubing Size	177.800 mm	
Weight	43.16 kg/m	
Grade		
From		1899 m
To	2657 m	
Maximum Recorded Temperatures		
Logger On Bottom / Time	22-FEB-1999 / 13:30	
Unit Number / Location	163 / GRANDE PRAIRIE	
Recorded By	C. HARKNESS	
Witnessed By	B. WEISHAAR	

	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
OS1: PDC LOG
OS2: COMPLETION RECORD
OS3:
OS4:
OS5:

OTHER SERVICES2
OS1:
OS2:
OS3:
OS4:
OS5:

REMARKS: RUN NUMBER 1
DEPTH CORRELATED TO PDC LOG (SLB) DATED 22 FEB 99.
PERFORATION INTERVAL: 2085.0 - 2093.0 MKB
GUN DATA: 54.0 MM ENERJET, 20 SHOTS/METER, 45 DEGREE PHASING, 14 GRAM RDX
CHARGES
API DATA:
CASING HOLE DIAMETER: 7.9 MM
PENETRATION: 584.2 MM

GUN #1: LOADED 4.8 M, 2085.0 -2089.8 MKB, CCL TO TOP SHOT: 1.04 M
GUN #2: LOADED 4.0 M, 2089.0 -2093.0 MKB, CCL TO TOP SHOT: 1.5 M
THE GUNS OVERLAP BY 0.8 M AS REQUESTED BY CLIENT
SOME DISCREPANCIES IN TIE IN AND POSITIONING PASSES CAUSED BY GUN
HANGING UP ON OBJECTS IN TUBING STRING
PASSES WERE REPEATED TO ATTEMPT TO GET RUNS WITHOUT HANG-UPS BUT
HANG-UPS PERSISTED AND ARE NOTED ON LOGS

REMARKS: RUN NUMBER 2

RUN 1		RUN 2	
SERVICE ORDER #:	6051417	SERVICE ORDER #:	
PROGRAM VERSION:	9C0-413	PROGRAM VERSION:	
FLUID LEVEL:	2051 m	FLUID LEVEL:	
LOGGED INTERVAL START	STOP	LOGGED INTERVAL START	STOP

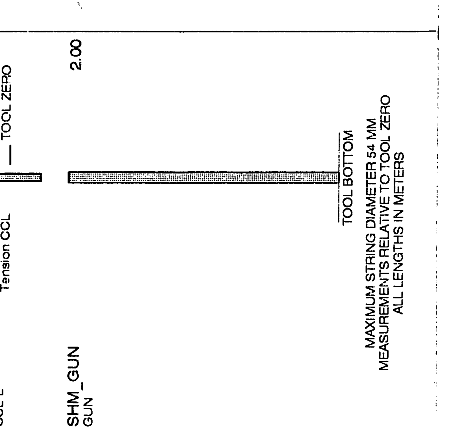
EQUIPMENT DESCRIPTION

RUN 1 — SURFACE EQUIPMENT

SHM-AA

RUN 2

DOWNHOLE EQUIPMENT



Casing Collar Locator (CCL) -19 (----) 1
Shifted Casing Collar Locator (SCCL) -10 (----) 10
Tension (TENS) 20000 (N) 0

Time Mark Every 60 S

PIP SUMMARY

Parameters

DLIS Name	Description	Value	
	POSITIONING PASS 2089.0 - 2093.0 MKB		
CCLD	CCL reset delay	305	MM
CCLT	CCL detection level	0.3	V

Format: PERFO Vertical Scale: 1:240 Graphics File Created: 22-Feb-1999 20:30

OP System Version: 9C0-413

SHM_GUN	SKKWX-1000	CCL-L	SKKWX-1000
	MCM		

Output DLIS Files

DEFAULT GUN .021 FN:20 PRODUCER 22-Feb-1999 20:30

COMPANY	CANADIAN FOREST OIL LTD.	BOTTOM LOG INTERVAL	2090.5 m
WELL	CDN FOREST ET AL FLETT RAPIDS I-61	SCHLUMBERGER DEPTH	2104.8 m
FIELD	FLETT RAPIDS	DEPTH DRILLER	2660 m
PROVINCE	NORTH WEST TERRITORIES	KELLY BUSHING	262.5 m
		DRILL FLOOR	
		GROUND LEVEL	255 m

Schlumberger

COMPLETION RECORD

ADDITIONAL INFORMATION

Geological Report

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1505 - 1515	40	SHALE - medium dark grey to slightly greenish grey, fissile to subfissile, medium hard, slightly bituminous, part very silty, presence very fine disseminated pyrite, trace calcareous streaks.
	30	SILTSTONE - as above.
	20	SANDSTONE - as above.
	10	LIMESTONE - as above.
1515 - 1525	80	SHALE - medium to medium dark grey to slightly greenish grey, slightly calcareous to calcareous trace very fine pyrite crystal, trace silty streaks.
	20	SILTSTONE - medium greenish grey, medium hard, calcareous, arenaceous, argillaceous, micromicaceous, slightly bituminous stain in part, tight.
	rare	LIMESTONE - cream, mudstone, medium hard, scattered medium size sand grains, dense.
1525 - 1535	100	SHALE - medium grey to greenish grey, fissile, medium hard, slightly waxy lustre, slightly calcareous, slightly micromicaceous, trace very fine pyrite crystals, calcareous streaks.
1535 - 1550	100	SHALE - medium dark grey to green grey, very slightly to slightly calcareous.
1550 - 1570	100	SHALE - medium dark grey to olive grey color, fissile, slightly waxy, medium hard, very slightly calcareous, slightly micromicaceous, rare pyrite, trace calcite veining, trace arenaceous and silty stringers.
1570 - 1580	90	SHALE - medium dark grey to olive grey, part silty, trace calcite veining, trace pyrite, rare dark color bituminous partings.
	10	SILTSTONE - medium grey, medium hard, calcareous clay cement, trace sand grains, slightly micromicaceous, rare pyrite, tight.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1860 - 1865	80	SHALE - dark grey to slightly brownish grey, part silty, trace arenaceous with silty streaks.
	20	SILTSTONE - medium dark grey, medium hard to hard, part arenaceous, calcareous silica cement, tight.
1865 - 1870	30	SILTSTONE - as above, becoming dark with increasing bituminous stain.
	30	SANDSTONE - medium grey, very fine grained, subangular, moderate well sorted, hard, calcareous silica cement, very silty, trace micromicaceous, some dark color bituminous part, tight to trace porosity, no visual shows.
	20	SHALE - as above.
	20	LIMESTONE - light to medium grey brown, chalky micritic texture in part, microcrystalline, silty, slightly argillaceous, part pyritic, trace peloids, dense, no fluorescence, no cut fluorescence.
1870 - 1872	40	SHALE - as above, part black, subfissile to amorphous, medium soft, very bituminous, slightly calcareous, trace silty, trace very fine pyrite.
	20	SILTSTONE - as above.
	20	SANDSTONE - as above.
	20	LIMESTONE - as above.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1872 - 1875	50	SHALE - medium to dark grey to slightly brownish grey, fissile, medium hard, silty, trace very fine pyrite, presence black bituminous staining.
	30	SILTSTONE - medium brownish grey, calcareous clay cement, argillaceous, presence dark bituminous staining, tight.
	20	SANDSTONE - medium grey, very fine grained with loose fine to coarse subrounded quartz and chert, subangular, hard, slightly calcareous, silica cement, trace fine pyrite, bituminous staining, tight.
1875 - 1880	50	SILTSTONE - medium brownish grey, slightly calcareous to calcareous, very argillaceous, trace micromicaceous, black bituminous staining in part.
	30	SHALE - as above, trace very dark grey to black, very bituminous, trace pyritic.
	20	SANDSTONE - light grey brown, very fine grained, hard to very hard, very silty, tight.
1880 - 1885	40	SHALE - medium dark brownish grey, silty to very silty.
	40	SILTSTONE - as above.
	20	SANDSTONE - as above.
1885 - 1895	70	SILTSTONE - medium to very dark stain brownish grey, calcareous clay cement, bituminous, very argillaceous, rare to trace pyrite cubes.
	30	SHALE - as above, presence to common black bituminous staining.
	rare	CHERT - medium brown, translucent, very hard.

SAMPLE RECORD

INTERVAL (metres)	LITH (%)	DESCRIPTION
1945 - 1950	70	SHALE - as above.
	20	SILTSTONE - medium dark grey, salt and pepper, hard, very calcareous, argillaceous, micromicaceous, trace pyrite.
	10	SANDSTONE - medium grey, salt and pepper, quartzitic, hard, very calcareous, very silty, tight.
1950 - 1955	90	SHALE - black, subfissile to fissile, hard, brittle, very bituminous, micromicaceous, trace calcareous filled microfractures.
	10	SILTSTONE - as above.
1955 - 1960	100	SHALE - as above, microfractures present, trace very fine pyrite crystals, trace marlstone partings, rare siltstone laminae.
1960 - 1970	80	SHALE - black, subfissile, very bituminous, part silty, slightly calcareous, micromicaceous, trace pyrite veining and crystals, medium to light grey waxy claystone partings.
	20	SILTSTONE - black to very dark stain medium grey color, hard, calcareous cement, part arenaceous, argillaceous, micromicaceous, pyritic, tight.
1970 - 1985	100	SHALE - black to very dark brownish grey, subfissile to slightly blocky, bituminous, hard, slightly silty to silty, calcareous to slightly calcareous, trace pyrite veining, scattered fine pyrite crystals, trace siltstone and light colored marlstone laminae.
1985 - 1995	100	SHALE - becoming black to very dark brownish grey, subfissile, medium hard, part slightly earthy, bituminous, trace calcite veining.