

FINAL WELL REPORT

N.E.B. COPY

FINAL WELL REPORT

CHEVRON CANADA RESOURCES

CHEVRON ET AL LIARD 2K-29

Grid: 60° 28' 40.8", 123° 35' 05.3"

DATE: April 30, 2003

COMPANY REPRESENTATIVE: Dan Kamieniecki

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A. INTRODUCTION

Chevron Canada Resources drilled a 3599 m MD delineation well which spudded on January 26, 2003 and rig released to completions March 20, 2003 to evaluate gas potential in the Nahanni formation.

The drilling contractor was Akita Drilling Rig #58E, based out of Calgary, Alberta. The drilling rig used was a Diesel Electric land rig rated for 5000 m. The rig had a 174 m³ mud system and was equipped with two boilers.

The well was drilled on Significant Discovery License # 99, in which Chevron has a 43.4318 % working interest. Authority to Drill #WID 1980 was issued to Chevron on December 31, 2002.

The well, which was located approximately 30 km north of the Ft. Liard settlement, lies on the eastern flank of the Franklin Mountains along the southwestern margin of the Nahanni disturbed belt. The exact surface co-ordinates of the well are as follows:

Latitude: 60°28'40.8" N
Longitude: 123°35'05.3" W

Cancor Rathole Inc. moved a rathole rig onto the location on January 17, and in 7 hours completed drilling the 660 mm conductor hole, which had a total depth of 20 m. The conductor hole was drilled without fluid, and was pressure cemented into place using 8.4 m³ of Class G + 3% CaCl₂ + 0.2% D-46 + 0.1% D-65 with 5.5 m³ cement returns. The conductor was 508 mm, 9.53 WT, 192.2 kg/m, and was welded to form total length of 21 m. The first 8 m of conductor hole was drilled through overburden clay with small boulders; the remaining 12 m was drilled through hard shale.

The Akita 58E drilling rig was moved onto the location starting January 18, 2003. A 549 mm Class I diverter was rigged up and pressure tested. The well spudded on January 26, 2003 at 13:30 hours to drill the 349 mm surface hole to a depth of 276 m. Directional tools were picked up and angle built along a 330 degree azimuth to 38 degrees with build rates of 3 degrees / 30 m. The surface hole ended in the Flett formation.

The 244.5 mm K-55 59.53 kg/m LT&C casing landed at 734 m MD (692 m TVD), and was cemented with Lead of 43 tonnes of 1-1-4 + 0.5% D65 + 0.2% D46 + 4.0% D20, followed by Tail of 10 tonnes "G" + 1% S1 + 0.2% D46. There were good mud returns throughout the cement job, with 8.0 m³ cement returns with no slump back.

The BOP's were installed and pressure tested. The choke manifold and lines, HCR, inside and outside kill line valves, check valves, upper pipe rams, lower pipe rams upper and lower kelly cock, stabbing valve, inside BOP, mudlines and BRs were pressure tested to 1,400 kPa low and 34,500 kPa high. The casing and casing head valves were tested to 1,500 kPa low and 15,000 kPa high. The annular was tested to 1,400 kPa low and 17,500 kPa high.

The float collar and shoe were drilled out on February 7, 2003. A Formation integrity test (FIT) was done at 745 m, to total applied pressure of 18.1 kPa/m. The 222.3 mm main hole was directionally drilled ahead to 3075 m MD (2532 m TVD). Trajectory was maintained at 37 degrees along a 330 degree azimuth to 2838 m MD (2388.8 m TVD) then built at +/-5 degrees / 30 m to 65 degrees. The Nahanni was penetrated at 3056 m MD (2525 m TVD). No openhole logs were run over this section.

The 177.8mm 38.69 kg/m L-80 Hydril SLX casing was landed @ 3074 m, and cemented with lead of 40 T (52.4m³) Hilite 1400 + 0.3% D65 + 0.2% D46 + 0.4% D28 followed by 7 T (6.2m³) Class "G" + 35% D66 + 0.2% D46 + 0.5% D65 + 0.5% D167 + 0.5% D28 with 3m³ cement returns to surface. The casing was pressure tested to 25000 kPa. The BOP's were nipped down spacer spool removed and 279mm x 179mm 35,000 kPa tubing head was nipped up and pressure tested to 35,000 kPa, the 346mm 34,500 kPa BOP's were nipped up and tested to 1400/34500 kPa. The annular was tested to 1,400 kPa low and 17,500 kPa high.

The float collar and shoe were drilled out on March 05, 2003. The well drilled ahead in the Nahanni with directional tools to 3599 m MD (2619 m TVD), which is the total depth of the well. At this point the open hole was attempted to be logged by Schlumberger on TLC (pipe conveyed):

Run No 01: HRLA-CNL-LDT-FMI Interval 3075 m – 3195 m, bridged at 3200 m.

Run No 02: FMS-EMS Tool failed in casing at 3047 m.

Run no 03: FMS-EMS Interval 3075 m – 3150 m, bridged at 3151 m.

Run No 04: Cased hole CNL-GR-Temp Interval 3040 m to surface.

The well showed potential, therefore the rig was turned over to production operations on March 21, 2003.

The 127 mm production tubing was run on March 24, 2003 and had a landed depth of 3086 m. On March 28, 2003 Akita rig 58 was moved off location.

On March 29, 2003 Trican coil tubing equipment and Precision Well Services testing equipment was rigged up on location. Several runs with coil tubing were made in an attempt to retrieve the blanking plug from the packer tailpipe. The blanking plug was not retrieved and the tailpipe above the blanking plug was perforated to allow flow from the well.

On April 6, 2003 a flow and build up test was conducted on the well using surface readout pressure recorders. The well stabilized at 1050 e3 m³/d at 13,050 kpa. The well encountered tubing to annulus communication during the production test. The source of the communication is believed to be the packer assembly. The annulus was displaced to nitrogen pending barge access to allow the mobilization of rig equipment to repair the tubing to annulus communication.

The testing and coil tubing equipment were moved off location April 9, 2003.

B. GENERAL DATA

1. Well Name: Chevron et al Liard 2K-29
Authority to Drill a Well No: WID #1980
Exploration Agreement Number: SDL #99
Location Unit: K
Section: 29
Grid Area: 60°28', 123°35'
Classification: Delineation
2. Surface Well Location: (Nad 27) 2K-29
Coordinates: Latitude: 60°28'40.8"N
Longitude: 123°35'05.3"W
UTM: North: 6704585.16
East: 467851.06

Bottom Hole Well Location: (Nad 27)
Coordinates: Latitude:
Longitude:
UTM: North: 6706465.77
East: 466967.27
3. Unique Well Identifier: 302/K2960301233/00
4. Operator: Chevron Canada Resources
5. Contractor: Akita Drilling

- | | | |
|-----|-----------------------------|--|
| 6. | Drilling Unit: | Rig #58E, Diesel Electric, Land Rig |
| 7. | Position Keeping: | Not Applicable, Land Rig |
| 8. | Support Craft (Helicopter): | Winter access over Ice Bridge across Ft. Liard River |
| 9. | Drilling Unit Performance: | Satisfactory |
| 10. | Difficulties and Delays: | None above normal operating parameters in this environment. |
| 11. | Total Well Cost: | \$0.25MM for access road & lease preparation
\$5.95MM to drill
\$1.8MM to complete, stimulate and test |

C. SUMMARY OF DRILLING OPERATIONS

- | | | |
|----|-------------------------------|--|
| 1. | Elevations: | |
| | Ground:..... | 409.9 m above sea level |
| | KB: | 416.6 m above sea level |
| | KB To Casing Flange:..... | 6.73 m (KB to CF) |
| 2. | Total Depth: | |
| | MD: | 3599.0 mKB |
| | TVD: | 2619.0 mKB |
| 3. | Date and Hour Spudded: | January 26, 2003 @ 13:30 hours |
| 4. | Date Drilling Completed (TD): | March 15, 2003 |
| 5. | Date of Rig Release: | March 20, 2003 @ 24:00 hours (released to completion operations) |
| 6. | Well Status: | Suspended pending production facilities |
| 7. | Hole Sizes and Depths: | |
| | Conductor Hole: | 660 mm to 20 mKB |
| | Surface Hole: | 349/311 mm to 738 mKB |
| | Intermediate Hole: | 244.5 mm to 3075 mKB |
| | Main Hole: | 155.6 mm to 3599 mKB |

8. Casing and Cementing Record:

Conductor Hole:

Casing Size: 508 mm
 Casing Weight: 192.2 kg/m
 Number of Joints: 2
 Thread: n/a
 Depth Set: 20 m (KB)
 Cut Height: Surface
 Cut off Depth: Surface
 Date Set: January 17, 2003
 Cement Volume: 11.1 Tonnes
 Cement Type: Class G
 Additives: 3% CaCl₂ + 0.2% D-46 + 0.1% D-65

Surface Hole:

Casing Size: 244.5 mm
 Casing Weight: 59.5 kg/m
 Casing Grade: K-55
 Casing Make: Siderca
 Number of Joints: 52
 Thread: LT&C
 Depth Set: 734 m (KB)
 Cut Height: ground
 Date Set: February 04, 2003
 Float Shoe Depth: 734 m
 Float Collar Depth: 720 m
 Cut Off Depth: ground

	<u>Lead</u>	<u>Tail</u>
Cement Volume:	43T	10T
Cement Type:	1:1:4	Class G
Additives:	0.5% D65	1.0% S1
	0.2% D46	0.2% D46
	4.0% D20	

Cement Top: Surface

Casing Bowl Size: 244.5 mm x 279 mm, 34,500 kPa, screw on.
 Casing Bowl Make: ABB Vetco

Intermediate Hole:

Casing Size: 177.8 mm
Casing Weight: 38.69 kg/m
Casing Grade: L-80
Casing Make: Algoma
Number of Joints: 223
Thread: Hydril SLX
Depth Set (MD): 3074 m MD
Cut Height: Surface
Date Set: March 02, 2003
Float Shoe Depth: 3074 m
Float Collar Depth: 3046 m
Cut Off Depth: Surface

	<u>Lead</u>	<u>Tail</u>
Cement Volume:	40T (52.4 m ³)	7T (6.2 m ³)
Cement Type:	Hi-lite 1400	Class G

Additives:	0.3% D65	0.6% D167
	0.2% D46	0.5% D28
	0.4% D28	35% D66
		0.2% D46
		0.5% D65

Cement Top: Surface
Casing Bowl Size: 244.5 mm x 279 mm, 34,500 kPa
Casing Bowl Make: ABB Vetco

9. Drilling Fluid:

Conductor Hole: Drilled without fluids to 20 m.

Surface Hole: Gel-Chem Spud Mud

Properties:

Viscosity:	65-70 sec/L
Weight:	1050 - 1150 kg/m ³
pH:	8.6
Water loss:	9.0-10.0 cc
Solids:	3-9%
Gels:	5 / 19
Filter Cake:	2 mm
PV / YP:	21 / 12.5

Intermediate:
Properties:

Oil Base Invert
Viscosity: 70 sec/L
Weight: 1050 - 1150 kg/m³
pH: n/a
Fluid loss: 8cc
Solids: 14-18%
Gels: 3 / 12
Filter Cake: Unavailable
PV / YP: 25 / 8
Electric Stability: 900 volts

Main:
Properties:

Clay Based Non-Dispersed
Viscosity: 60 sec/L
Weight: 1035 - 1060 kg/m³
pH: 10.2
Water loss: 8-12 cc
Solids: 4%
Gels: 2 / 43
Filter Cake: 2 mm
PV / YP: 18 / 6

10. Fishing Operations: n/a

11. Well Kicks and Well Control Operations: n/a

12. Leakoff Tests:

Surface
Depth: 742 m
Fluid Density: 1000 kg/m³
Gradient: 18.1 kPa/m
Equivalent Mud Weight 1845 kg/m³
Casing Setting Depth: 734 mKB

13. Time Distribution: A daily time distribution can be found on the daily reports.

Time Break Down

<u>Activity</u>	<u>Hours</u>
Drilling	497
Dir Surveying	57.50
Circulating / Condition	103.75
Run Casing / Cementing	81.50
WOC	3.25
Rig Service	25.75
Rig Repair	28.50
Tripping, Reaming	247.50
Pickup, Laydown Pipe	62
Logging	47.50
Rig Up / Rig Down	90.25
Nipple up BOP's	42.75
Test BOP's	56.25
Safety Meeting	25.75
Other	20.50

14. Deviation Survey: *See Appendix 1*

15. Abandonment Plugs: n/a

16. Completion Record:

Start Date: March 21, 2003
Finish Date: April 8, 2003
Contractors: Akita, Weatherford
Summary: Ran 127 mm 26.79 kg/m Hydril 513 L-80 tubing,
landed at 3086.69 mKB, and a 177.8 mm Weatherford
Incoloy permanent packer was set at 3040.55 mKB

17. Stimulation and Test Summary:

Date: April 6, 2003
OH Interval: 3075 - 3599 m
Swab / Flow Results: As per Precision Energy Services Field Notes
Stimulation / Comments: Well has not been stimulated at this point

18. Final Well Configuration: *See Appendices 2, 3 & 4*

D: GEOLOGY

GEOLOGICAL SUMMARY

The geological information in its entirety was submitted to the NEB April 25, 2003. Log tops are as follows:

Log Tops

Formation	Subsea Depth(m)	mKB Depth	TVD (m)	Lithology
Mattson	+918	0	0	Sandstone/shale
Flett	+780	138	138	Limestone
Upper Besa River	+0.2	961	917.8	Shale
1 st Black Shale	-969.9	2054	1887.9	Shale
Lower Besa River	-1397.05	2534	2315.05	Shale
2 nd Black Shale	-1967.7	3172	2885.7	Shale
Nahanni	-2183.0	3423	3101.0	dolomite
Faulted 2 nd Black Shale	-2457.87	3763	3375.87	Shale
Total Depth	-2464.87	3770	3382.87	Dolomite

WELL EVALUATION

The following logs were run:

Intermediate Logging Run

Run #	Log Name	Depth (m)
22-11-2002	Open hole logging waiver	734 - 3074

Total Depth Logging Run

Run #1	Log Name	Depth (m)
16-03-2003	Temperature Log	3072 - 3170
16-03-2003	PEX - HiRes Laterolog - Array	3072 - 3178
16-03-2003	PEX - Compensated Neutron - Lithodensity	3072 - 3189
16-03-2003	FMI	3082 - 3198
18-03-2003	Open hole logging Waiver	~3200 - 3599

DRILL STEM TESTS: n/a

GAS, OIL, & WATER ANALYSES

Gas analysis indicates that the gas composition is as expected for the Fort Liard area; dry gas that is essentially 75% ethane, 20% CO₂, and 5% others (N₂, H₂S, etc.). This result is similar to what was found in the offset wells, Chevron et al Liard K-29 well and Chevron et al Liard M-25. Produced water during the production test was found to be workover fluids and water of condensation. *See appendix 8 for further details.*

FORMATION STIMULATION AND TEST RESULTS

The Nahanni formation has not been stimulated at this point due to the blanking plug being left in the packer tailpipe. A rig operation is required to repair the tubing to annulus communication. The blanking plug will be removed from the packer tailpipe during the rig operations. The well is to be stimulated after the successful removal of the blanking plug.

The well was tested on a 3 point flow test using both downhole and surface readout gauges. The well flow was tested for 24 hours at 3 rates and shut in for a 6 hour build up. The final stabilized flow rate was 1050 c3m³/d at 13,050 kpa and the stabilized shut in wellhead pressure was 19,789 kpa. High pressure gas and fluid samples were taken during the flow test and sent for lab analysis.

DETAILED TEST PRESSURE DATA READINGS (Complete test data will be submitted when available.)

E. ENVIRONMENTAL / SAFETY ANALYSIS

2K-29 was drilled without a lost time incident. There was one medical first aid when an Akita floorhand slipped on the drill floor, sustaining a bruised knee. One 3rd party motor vehicle accident along the 2K-29 access road resulted in minor vehicle damage and no spill or environmental damage.

As per reporting requirements under the MVLWB license numerous small spills were reported to the NWT spill reporting hotline.

F. APPENDICES TO WELL HISTORY

Appendix 1: Deviation Survey

Final Survey

Client: CHEVRON CANADA RESOURCES	Survey Computation Method: Minimum Curvature
File: FT. LIARD (CDN - NAD27)	DLS Computation Method: Lubinski
Structure: Chevron 2K-29 year 2002	Vertical Section Azimuth: 330.500°
Well: 2K-29	Vertical Section Origin: N 0.000 m, E 0.000 m
Borehole: Borehole1	TVD Reference: Borehole: KB
UWAP#: 418.7 m above MDL	Magnetic Declination: 24.829°
Date: March 04, 2003	Total Field Strength: 68770.596 nT
Grid Convergence: -0.50889169°	Dip: 78.88°
Scale Factor: 0.99961256	Declination Date: February 02, 2003
Location: N 60 28 40.331, W 123 35 5 338	Magnetic Declination Model: BOGM2002
: N 6704886.160 m, E 467891.060 m	North Reference: True North
Coordinate System: NAD27 UTM Zone 10N	Coordinate Reference To: Wellhead (True)

Comment	MD (m)	Incl (°)	Azimuth (°)	TVD (m)	VBec (m)	NS (m)	EW (m)	Clearance (m)	CI Azimuth (°)	DLS (°/30m)
Tie-In	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	—
	96.50	1.05	296.90	96.49	0.74	0.40	-0.79	0.88	296.90	0.33
	170.00	0.38	312.20	169.99	1.53	0.87	-1.57	1.79	298.95	0.28
	265.55	1.35	354.30	265.53	2.86	2.20	-1.92	2.92	318.96	0.34
	286.64	2.12	6.90	286.61	3.40	2.84	-1.89	3.41	326.26	1.22
	294.62	2.85	355.50	294.58	3.70	3.18	-1.89	3.70	329.25	3.30
	304.00	3.88	351.40	303.94	4.21	3.73	-1.96	4.21	332.29	3.38
	313.20	5.03	348.20	313.12	4.88	4.43	-2.09	4.90	334.77	3.84
	322.60	6.15	346.90	322.47	5.76	5.32	-2.29	5.79	336.77	3.60
	332.50	7.18	346.10	332.30	6.66	6.44	-2.55	6.93	338.37	3.13
	341.90	8.06	344.10	341.62	8.07	7.64	-2.88	8.17	340.38	2.93
	351.50	8.49	339.90	351.12	9.42	8.96	-3.30	9.55	339.75	2.32
	360.80	9.24	337.90	360.31	10.84	10.29	-3.82	10.98	339.64	2.62
	371.00	9.53	336.00	370.37	12.49	11.82	-4.47	12.64	339.28	1.25
	380.20	10.35	335.70	379.43	14.07	13.27	-5.12	14.23	338.90	2.68
	390.40	10.83	334.80	389.46	15.94	14.97	-5.91	16.10	338.47	1.49
	400.30	11.35	334.30	399.18	17.84	16.89	-6.73	18.00	338.06	1.60
	410.10	11.63	332.70	408.78	19.79	18.44	-7.60	19.94	337.61	1.30
	419.70	12.35	330.90	418.17	21.78	20.20	-8.54	21.93	337.08	2.54
	428.50	13.08	330.40	426.75	23.72	21.89	-0.49	23.85	336.56	2.52
	438.70	13.73	331.60	436.68	26.09	23.95	-10.63	26.21	336.06	2.08
	448.60	14.95	333.70	446.27	28.54	26.13	-11.76	28.66	335.77	4.02
	457.20	16.58	332.70	454.54	30.87	28.22	-12.81	30.99	335.58	5.76
	466.90	18.03	330.30	463.81	33.75	30.75	-14.19	33.87	335.23	5.00
	475.90	18.98	330.10	472.34	36.61	33.23	-15.61	36.71	334.83	3.17
	485.00	19.70	331.60	480.93	39.62	35.86	-17.08	39.72	334.53	2.88
	494.30	20.33	333.00	489.66	42.80	38.68	-18.56	42.90	334.37	2.55
	504.30	21.15	333.00	499.02	46.34	41.84	-20.17	46.44	334.26	2.46
	513.80	22.48	333.50	507.84	49.87	44.99	-21.75	49.97	334.19	4.24
	523.10	23.60	331.40	516.39	53.52	48.23	-23.45	53.62	334.07	5.02
	532.80	24.98	331.30	525.22	57.53	51.74	-25.37	57.63	333.88	3.65
	542.20	25.15	329.30	533.74	61.51	55.20	-27.34	61.60	333.65	2.76
	552.10	25.52	327.50	542.68	65.74	58.81	-29.56	65.82	333.31	2.59
	562.00	26.53	328.20	551.58	70.08	62.49	-31.87	70.14	332.98	3.20
	571.60	27.58	328.70	560.13	74.44	66.21	-34.16	74.50	332.71	3.36
	580.90	28.52	328.50	568.34	78.81	69.94	-36.43	78.86	332.48	3.05
	590.70	29.02	329.60	576.93	83.53	73.99	-38.86	83.57	332.29	2.23
	599.80	29.65	330.10	584.86	87.99	77.84	-41.10	88.02	332.17	2.23
	610.00	30.50	330.50	593.69	93.10	82.28	-43.63	93.13	332.06	2.57
	619.70	31.90	331.00	601.98	98.12	86.66	-46.09	98.16	332.00	4.40
	629.60	33.10	331.30	610.33	103.44	91.32	-48.65	103.47	331.95	3.67
	639.30	33.92	331.10	618.42	108.80	96.02	-51.23	108.83	331.92	2.56
	648.60	34.63	330.30	626.11	114.03	100.58	-53.79	114.07	331.86	2.71
	658.80	35.38	330.30	634.46	119.88	105.67	-56.69	119.91	331.78	2.21
	668.00	37.22	329.80	657.99	137.17	120.64	-65.33	137.19	331.57	1.91
	697.70	37.50	330.10	665.70	143.06	125.74	-68.27	143.08	331.50	1.03
	707.30	37.72	329.40	673.31	148.91	130.80	-71.22	148.93	331.43	1.50

715.50	32.18	329.80	679.77	153.96	135.15	-73.78	153.97	331.37	1.91
745.59	36.85	331.40	703.64	172.28	151.11	-82.77	172.29	331.29	1.64
763.91	34.32	332.50	718.54	182.93	160.51	-87.79	182.95	331.32	4.27
773.60	33.17	333.60	726.60	188.31	165.31	-90.23	188.33	331.37	4.03
792.50	31.56	333.20	742.56	198.42	174.38	-94.76	198.44	331.48	2.58
811.60	30.56	332.50	758.92	208.26	183.13	-99.25	208.30	331.54	1.67
820.00	29.96	333.00	766.18	212.49	186.89	-101.19	212.53	331.57	2.32
841.50	28.40	333.00	784.95	222.96	196.23	-105.95	223.01	331.63	2.18
850.68	27.61	333.60	793.05	227.27	200.08	-107.89	227.32	331.67	2.74
870.00	25.95	333.20	810.30	235.96	207.86	-111.79	236.02	331.73	2.59
879.47	26.02	333.10	818.81	240.11	211.57	-113.66	240.16	331.75	0.26
889.03	26.30	332.80	827.39	244.32	215.32	-115.58	244.38	331.77	0.97
898.58	27.35	333.00	835.92	248.62	219.16	-117.54	248.66	331.79	3.31
908.21	28.38	332.80	844.43	253.12	223.16	-119.59	253.19	331.81	3.22
917.61	29.02	332.40	852.67	257.63	227.17	-121.67	257.70	331.83	2.13
927.16	29.35	331.60	861.01	262.29	231.28	-123.85	262.36	331.83	1.61
936.66	29.80	331.70	869.27	266.97	235.41	-126.08	267.05	331.83	1.43
946.23	30.30	331.50	877.56	271.77	239.61	-128.38	271.84	331.82	1.91
955.75	30.90	332.40	885.75	276.81	243.88	-130.67	276.88	331.82	2.94
964.93	31.25	331.30	893.62	281.35	248.06	-132.91	281.42	331.82	2.18
974.56	31.30	331.40	901.85	286.35	252.45	-135.31	286.42	331.81	0.22
984.10	31.22	329.80	910.00	291.30	256.76	-137.74	291.37	331.79	2.62
993.63	31.48	329.50	918.14	296.25	261.04	-140.24	296.32	331.75	0.95
1003.17	31.45	330.50	926.28	301.23	265.35	-142.73	301.30	331.72	1.64
1012.73	31.67	329.40	934.42	306.24	269.68	-145.24	306.30	331.70	1.93
1022.70	32.15	329.60	942.89	311.51	274.22	-147.91	311.57	331.66	1.48
1031.61	32.17	329.30	950.43	316.25	278.31	-150.32	316.31	331.62	0.54
1041.16	32.48	329.80	958.50	321.35	282.71	-152.91	321.41	331.59	1.29
1050.61	33.40	329.10	966.43	326.49	287.13	-155.52	326.55	331.56	3.16
1060.21	33.78	328.00	974.43	331.80	291.68	-158.29	331.85	331.51	2.24
1069.76	33.98	327.40	982.36	337.12	296.16	-161.14	337.16	331.45	1.22
1079.32	34.58	327.10	990.25	342.49	300.69	-164.05	342.53	331.38	1.96
1088.92	35.25	328.00	998.13	347.98	305.33	-167.00	348.01	331.32	2.64
1098.34	36.08	329.10	1005.78	353.47	310.01	-169.86	353.50	331.28	3.34
1107.85	36.68	330.00	1013.44	359.11	314.88	-172.72	359.14	331.25	2.53
1117.02	37.65	329.20	1020.74	364.65	319.65	-175.53	364.68	331.23	3.55
1135.95	38.55	328.60	1035.64	376.32	329.66	-181.56	376.35	331.16	1.54
1145.45	38.08	328.30	1043.09	382.21	334.67	-184.64	382.23	331.11	1.60
1154.92	38.03	327.60	1050.55	388.04	339.62	-187.74	388.06	331.07	1.38
1174.02	38.50	328.60	1065.55	399.86	349.66	-193.99	399.87	330.98	1.22
1193.18	37.33	328.90	1080.66	411.63	359.72	-200.11	411.64	330.91	1.84
1212.35	37.45	329.50	1095.89	423.26	369.72	-206.08	423.27	330.87	0.69
1231.36	37.63	330.50	1110.97	434.84	379.75	-211.87	434.85	330.84	1.00
1250.18	37.68	329.40	1125.87	446.34	389.70	-217.62	446.35	330.82	1.07
1269.30	37.60	329.10	1141.01	458.01	399.74	-223.59	458.02	330.78	0.31
1288.02	37.83	329.60	1155.82	469.46	409.59	-229.43	469.47	330.74	0.61
1306.51	37.98	328.30	1170.41	480.82	419.32	-235.29	480.82	330.70	1.32
1325.70	38.03	328.80	1185.53	492.63	429.40	-241.46	492.63	330.65	0.49
1344.80	37.73	328.40	1200.60	504.35	439.41	-247.57	504.35	330.60	0.61
1363.99	37.88	328.00	1215.77	516.10	449.41	-253.76	516.10	330.55	0.45
1382.39	38.08	327.60	1230.27	527.41	458.99	-259.80	527.41	330.49	0.52
1401.51	37.50	329.20	1245.38	539.12	468.96	-265.94	539.12	330.44	1.79
1420.49	36.53	331.80	1260.53	550.54	478.91	-271.57	550.54	330.44	2.91
1439.50	36.66	330.20	1275.80	561.88	488.82	-277.06	561.88	330.46	1.52
1458.45	37.03	330.50	1290.96	573.24	498.69	-282.68	573.24	330.45	0.65
1477.00	36.53	330.30	1305.82	584.35	508.35	-288.17	584.35	330.45	0.83
1496.41	36.88	330.10	1321.38	595.95	518.42	-293.93	595.95	330.45	0.57
1515.41	37.67	331.50	1336.50	607.45	528.46	-299.55	607.45	330.45	1.83
1533.52	37.55	331.50	1350.85	618.50	538.18	-304.82	618.50	330.47	0.20
1553.57	37.10	332.20	1366.79	630.66	548.89	-310.55	630.66	330.50	0.93
1570.97	37.28	331.70	1380.65	641.17	558.18	-315.50	641.17	330.52	0.61
1597.92	36.95	332.50	1402.14	657.43	572.55	-323.11	657.43	330.56	0.65
1616.93	36.22	332.10	1417.41	668.75	582.58	-328.38	668.75	330.59	1.21

1635.86	35.85	333.20	1432.72	679.88	592.47	-333.49	679.88	330.63	1.18
1654.90	35.25	333.60	1448.21	690.93	602.37	-338.45	690.94	330.67	1.01
1672.88	34.90	333.50	1462.92	701.25	611.62	-343.05	701.26	330.71	0.59
1693.88	35.42	331.20	1480.09	713.34	622.33	-348.66	713.34	330.74	2.03
1712.58	35.65	328.80	1495.31	724.20	631.74	-354.10	724.21	330.73	2.27
1732.10	36.72	329.60	1511.06	735.72	641.64	-360.00	735.73	330.70	1.80
1751.18	37.55	329.20	1526.27	747.24	651.55	-365.86	747.24	330.68	1.53
1770.09	38.03	328.10	1541.22	758.82	661.45	-371.89	758.82	330.65	1.31
1789.10	37.78	327.50	1556.22	770.49	671.33	-378.11	770.49	330.61	0.70
1807.92	36.55	327.90	1571.22	781.84	680.94	-384.19	781.84	330.57	2.00
1826.96	37.18	328.70	1586.45	793.26	690.66	-390.19	793.26	330.54	1.25
1846.09	37.38	327.90	1601.67	804.84	700.52	-396.28	804.84	330.50	0.82
1865.19	37.30	330.50	1616.88	816.42	710.46	-402.21	816.42	330.48	2.48
1884.36	37.05	330.60	1632.13	828.00	720.55	-407.91	828.00	330.49	0.40
1903.36	36.67	333.80	1647.33	839.39	730.63	-413.22	839.39	330.51	3.09
1922.29	25.85	334.90	1662.60	850.56	740.72	-418.07	850.56	330.56	1.66
1941.27	37.45	334.70	1677.83	861.86	750.97	-422.89	861.86	330.61	2.54
1960.36	37.97	334.20	1692.93	873.50	761.51	-427.93	873.51	330.67	0.95
1979.39	37.85	334.30	1707.94	885.17	772.04	-433.01	885.18	330.71	0.21
1998.38	37.60	336.20	1722.96	896.75	782.59	-437.87	896.76	330.77	1.88
2017.31	38.15	335.70	1737.91	908.32	793.20	-442.61	908.34	330.84	1.00
2036.30	38.85	332.90	1752.77	920.11	803.85	-447.74	920.13	330.88	2.97
2055.33	39.03	332.80	1767.57	932.06	814.49	-453.20	932.09	330.91	0.30
2074.38	38.83	331.80	1782.39	944.03	825.09	-458.76	944.05	330.93	1.04
2093.44	39.28	330.60	1797.19	956.04	835.61	-464.55	956.06	330.93	1.38
2112.36	38.73	328.50	1811.89	967.94	845.88	-470.58	967.97	330.91	2.27
2131.02	38.48	330.30	1826.04	980.83	856.97	-477.14	980.85	330.89	1.67
2152.04	38.28	330.60	1842.95	992.64	867.25	-482.96	992.66	330.89	0.43
2169.88	38.05	329.20	1856.98	1003.66	876.78	-488.49	1003.68	330.88	1.51
2189.93	38.00	329.30	1872.77	1016.01	887.40	-494.81	1016.03	330.86	0.12
2209.04	37.58	329.20	1887.87	1027.71	897.46	-500.79	1027.73	330.84	0.67
2228.10	37.48	330.00	1902.99	1039.32	907.48	-506.67	1039.34	330.82	0.78
2247.04	37.55	331.00	1918.01	1050.86	917.51	-512.35	1050.87	330.82	0.97
2265.99	37.05	328.80	1933.08	1062.34	927.45	-518.11	1062.35	330.81	2.25
2285.05	36.80	328.50	1948.22	1073.78	937.23	-524.06	1073.80	330.79	0.49
2304.05	36.75	329.50	1963.54	1085.15	946.98	-529.92	1085.17	330.77	0.95
2323.09	36.13	330.80	1978.06	1096.46	956.79	-535.55	1096.47	330.76	1.56
2342.02	36.40	330.70	1994.12	1107.66	966.58	-541.02	1107.67	330.76	0.44
2360.98	36.58	330.70	2009.36	1118.93	976.39	-546.54	1118.95	330.76	0.28
2380.13	36.35	331.60	2024.77	1130.31	986.36	-552.03	1130.33	330.77	0.91
2399.97	36.90	331.00	2040.69	1142.15	996.74	-557.72	1142.16	330.77	0.99
2418.51	36.25	330.70	2055.58	1153.20	1006.39	-563.10	1153.21	330.77	1.09
2437.90	35.80	333.40	2071.26	1164.59	1016.46	-568.44	1164.61	330.78	2.55
2456.90	36.20	332.40	2086.63	1175.75	1026.40	-573.53	1175.77	330.80	1.12
2476.00	36.30	332.90	2102.03	1187.04	1036.43	-578.72	1187.06	330.82	0.49
2495.00	36.97	332.60	2117.28	1198.37	1046.51	-583.91	1198.39	330.84	1.10
2512.87	36.89	332.70	2131.57	1209.09	1056.04	-588.84	1209.12	330.86	0.18
2532.85	37.25	330.40	2147.51	1221.13	1066.63	-594.58	1221.16	330.86	2.15
2551.79	37.03	329.70	2162.61	1232.57	1076.54	-600.29	1232.59	330.86	0.75
2569.60	36.80	332.00	2176.85	1243.26	1085.88	-605.50	1243.29	330.86	2.36
2588.20	36.80	332.70	2191.74	1254.40	1095.75	-610.67	1254.43	330.87	0.66
2597.70	36.90	332.30	2199.34	1260.09	1100.80	-613.30	1260.12	330.88	0.82
2627.31	37.93	330.70	2222.86	1278.08	1116.61	-621.89	1278.11	330.88	1.43
2646.36	38.65	329.50	2237.81	1289.88	1126.84	-627.77	1289.91	330.88	1.63
2665.10	39.05	328.70	2252.41	1301.63	1136.93	-633.81	1301.66	330.86	1.03
2684.10	38.70	328.90	2267.20	1313.55	1147.13	-639.99	1313.58	330.84	0.59
2705.51	38.50	328.30	2283.93	1326.90	1158.53	-646.94	1326.92	330.82	0.59
2724.90	38.10	327.00	2299.15	1338.91	1168.68	-653.37	1338.92	330.79	1.39
2743.60	39.10	322.50	2313.77	1350.51	1178.20	-660.11	1350.52	330.74	4.78
2753.10	38.40	322.70	2321.18	1356.40	1182.92	-663.72	1356.40	330.70	2.25
2762.70	38.10	323.50	2328.72	1362.29	1187.68	-667.29	1362.30	330.67	1.91
2772.30	37.60	324.50	2336.30	1368.14	1192.44	-670.75	1368.15	330.64	2.47
2781.80	37.20	324.50	2343.64	1373.88	1197.14	-674.10	1373.88	330.62	1.26
2791.40	37.30	325.00	2351.48	1379.66	1201.89	-677.45	1379.66	330.59	1.00

Interpolated Azm.

2800.60	37.40	323.00	2358.80	1385.21	1206.40	-680.73	1385.21	330.57	3.97
2810.10	37.60	324.80	2366.34	1390.95	1211.07	-674.14	1390.95	330.54	3.52
2819.50	37.90	325.80	2373.77	1396.68	1215.80	-687.42	1396.68	330.52	2.18
2829.00	38.30	327.10	2381.24	1402.53	1220.69	-690.66	1402.53	330.50	2.83
2838.50	39.30	328.70	2388.65	1408.48	1225.73	-693.82	1408.48	330.49	4.47
2848.10	40.20	330.30	2396.03	1414.81	1231.02	-696.93	1414.81	330.48	4.26
2857.30	41.00	330.50	2403.01	1420.60	1236.23	-699.89	1420.60	330.48	2.64
2866.80	41.50	329.50	2410.16	1426.86	1241.65	-703.02	1426.86	330.48	2.61
2872.80	41.40	330.30	2414.65	1430.83	1245.09	-705.02	1430.83	330.48	2.69
2882.30	42.00	329.70	2421.75	1437.15	1250.56	-708.17	1437.15	330.48	2.28
2891.80	43.00	330.70	2428.75	1443.57	1256.13	-711.36	1443.57	330.48	3.81
2901.20	45.00	330.60	2435.51	1450.10	1261.82	-714.56	1450.10	330.48	6.39
2910.50	46.70	331.20	2441.99	1456.77	1267.65	-717.81	1456.77	330.48	5.66
2919.30	47.90	333.20	2447.96	1463.24	1273.37	-720.82	1463.24	330.49	6.47
2929.30	49.20	333.50	2454.58	1470.72	1280.07	-724.19	1470.72	330.50	3.96
2938.60	50.20	333.10	2460.59	1477.81	1286.41	-727.37	1477.81	330.51	3.37
2947.90	51.50	332.50	2466.46	1485.01	1292.82	-730.67	1485.01	330.53	4.45
2957.70	52.50	331.90	2472.50	1492.73	1299.65	-734.27	1492.73	330.53	3.39
2967.00	53.70	331.40	2478.08	1500.17	1306.20	-737.80	1500.17	330.54	4.08
2976.80	55.00	331.90	2483.79	1508.13	1313.21	-741.58	1508.13	330.55	4.17
2986.10	56.40	330.50	2489.03	1515.81	1319.94	-745.29	1515.81	330.55	5.86
2995.60	56.80	330.20	2494.26	1523.74	1326.83	-749.21	1523.74	330.55	1.49
3005.10	57.90	328.90	2499.39	1531.74	1333.72	-753.26	1531.74	330.54	4.90
3014.60	58.80	329.10	2504.37	1539.82	1340.66	-757.43	1539.82	330.53	2.89
3024.00	60.20	329.30	2509.14	1547.92	1347.61	-761.58	1547.92	330.53	4.50
3033.50	61.60	330.00	2513.78	1556.22	1354.73	-765.77	1556.22	330.52	4.82
3043.00	62.80	330.80	2518.20	1564.62	1362.08	-769.92	1564.62	330.52	4.40
3052.60	63.80	330.30	2522.51	1573.20	1369.55	-774.14	1573.20	330.52	3.42
3059.70	65.00	331.60	2525.58	1579.60	1375.15	-777.25	1579.60	330.52	7.09
3075.29	65.68	330.80	2532.08	1593.77	1387.56	-784.07	1593.77	330.53	1.92
3082.00	66.82	329.97	2534.78	1599.91	1392.90	-787.11	1599.91	330.53	6.12
3091.06	67.13	330.42	2538.33	1608.25	1400.14	-791.25	1608.25	330.53	1.71
3100.50	67.07	330.74	2542.00	1616.94	1407.71	-795.52	1616.94	330.53	0.96
3110.24	67.82	331.02	2545.74	1625.94	1415.57	-799.90	1625.94	330.53	2.44
3120.12	67.55	332.07	2549.49	1635.08	1423.61	-804.25	1635.08	330.54	3.06
3129.67	67.12	333.47	2553.17	1643.88	1431.44	-808.29	1643.88	330.55	4.28
3139.55	67.82	333.19	2556.95	1653.00	1439.60	-812.38	1653.00	330.56	2.27
3149.09	68.65	335.06	2560.49	1661.84	1447.57	-816.25	1661.84	330.58	6.05
3158.07	69.83	333.25	2563.96	1670.97	1455.80	-820.24	1670.97	330.60	6.33
3168.73	71.43	333.97	2567.23	1680.25	1464.13	-824.37	1680.25	330.62	5.29
3178.35	71.87	336.82	2570.26	1689.35	1472.43	-828.17	1689.35	330.64	8.55
3187.95	73.53	337.70	2573.11	1698.45	1480.88	-831.71	1698.45	330.68	5.81
3197.62	74.45	337.77	2575.78	1707.67	1489.49	-835.23	1707.68	330.72	2.86
3206.99	74.93	338.92	2578.25	1716.62	1497.89	-838.57	1716.64	330.76	3.87
3216.44	75.78	339.54	2580.64	1725.66	1506.43	-841.81	1725.69	330.80	3.30
3226.18	76.48	340.75	2582.98	1734.98	1515.33	-845.02	1735.02	330.85	4.21
3236.44	77.74	342.00	2585.27	1744.80	1524.81	-848.22	1744.85	330.91	5.13
3246.20	78.58	342.22	2587.27	1754.16	1533.90	-851.15	1754.22	330.97	2.67
3255.99	79.25	343.52	2589.15	1763.55	1543.08	-853.98	1763.62	331.04	4.42
3265.61	79.88	345.09	2590.89	1772.73	1552.18	-856.54	1772.83	331.11	5.20
3275.45	80.65	345.04	2592.56	1782.12	1561.55	-859.04	1782.25	331.18	2.35
3285.29	81.93	345.47	2594.05	1791.53	1570.86	-861.51	1791.68	331.26	4.11
3295.00	82.38	346.14	2595.37	1800.80	1580.29	-863.87	1800.99	331.34	2.48
3304.88	82.40	346.64	2596.68	1810.22	1589.80	-866.18	1810.45	331.42	1.51
3314.60	82.35	346.10	2597.97	1819.49	1599.17	-868.45	1819.76	331.50	1.66
3324.00	83.58	348.35	2599.12	1828.42	1608.26	-870.51	1828.74	331.57	8.14
3333.96	84.18	350.37	2600.19	1837.79	1618.00	-872.34	1838.18	331.67	6.31
3343.72	84.20	352.67	2601.17	1846.86	1627.60	-873.77	1847.31	331.77	7.03
3353.50	84.30	354.85	2602.15	1855.80	1637.27	-874.83	1856.34	331.88	6.66
3363.00	83.35	355.17	2603.17	1864.39	1646.68	-875.65	1865.03	332.00	3.16
3372.42	84.65	354.45	2604.16	1872.93	1656.01	-876.50	1873.67	332.11	4.73
3382.20	84.93	355.17	2605.05	1881.80	1665.71	-877.38	1882.65	332.22	2.36
3391.93	84.58	356.15	2605.94	1890.57	1675.37	-878.11	1891.55	332.34	3.20

3401.30	84.45	358.42	2606.83	1898.90	1684.69	-878.55	1900.01	332.46	7.25
3410.96	84.53	358.47	2607.76	1907.39	1694.30	-878.81	1908.66	332.58	0.29
3421.27	84.43	359.47	2608.75	1916.41	1704.56	-879.00	1917.85	332.72	2.91
3431.06	85.05	359.97	2609.65	1924.92	1714.31	-879.05	1926.55	332.85	2.44
3440.74	84.43	358.59	2610.54	1933.37	1723.95	-879.17	1935.18	332.98	4.67
3450.49	85.75	357.84	2611.37	1941.97	1733.66	-879.47	1943.97	333.10	4.67
3460.23	84.25	357.67	2612.22	1950.80	1743.35	-879.85	1952.80	333.22	4.65
3469.94	84.10	358.47	2613.21	1959.16	1753.01	-880.18	1961.57	333.34	2.50
3479.76	85.00	357.07	2614.14	1967.85	1762.77	-880.56	1970.47	333.46	5.07
3489.53	86.10	358.89	2614.90	1976.49	1772.51	-880.90	1979.34	333.57	6.52
3499.30	85.97	359.19	2615.57	1985.05	1782.25	-881.06	1988.14	333.69	1.00
3508.94	83.22	0.17	2616.48	1993.43	1791.85	-881.12	1996.77	333.81	5.08
3518.73	84.50	0.47	2617.53	2001.87	1801.58	-881.06	2005.48	333.94	4.03
3529.60	86.60	0.17	2618.37	2011.28	1812.42	-881.00	2015.20	334.05	5.85
3538.23	88.35	0.74	2618.75	2018.74	1821.04	-880.93	2022.93	334.18	6.40
3548.01	89.10	1.44	2618.97	2027.16	1830.82	-880.75	2031.65	334.31	3.15
3557.75	88.28	1.32	2619.19	2035.52	1840.55	-880.51	2040.33	334.43	2.55
3567.40	89.70	359.10	2619.36	2043.90	1850.20	-880.48	2049.02	334.55	8.19
3575.57	90.40	354.77	2619.35	2051.21	1858.35	-880.91	2056.57	334.64	16.11
3584.38	91.15	352.57	2619.24	2059.31	1867.11	-881.89	2064.90	0.00	7.91
3599.00	92.00	349.00	2618.83	2073.02	1881.53	-884.22	2078.95	296.90	7.53

Bl Projection

Appendix 2: Wellbore Diagrams

Chevron et al Liard 2K-29 Surface Section: 0-738m As Drilled

Site Casing

Abb Vetco Screw on Bowl

Hole Size: 349/311mm

Surveyed Well Centre: UTM (Nad 27) N 6704585.16 E 467851.06

GRD 409.9m, KB el: 416.60m Survey Nov 12 2002

S/N 31954-01

14 5mm x 270 4mm 350psi

Objectives

1. Maintain vertical trajectory to +/-290m. Build dir to 37 degrees along a 330 Azimuth.
2. TD surface hole +/-750m. Run 244.5mm casing.
3. Cement to surface w/ primary Cement job.
3. Overall ROP 3-5m/hr (0-200m) 6-10m/hr (200-290m) 10-15m/hr (290-750m) (Directional drilling) (Drilling only)
4. Hold prespud w/ 3 crews, supervisors, support staff.
5. No PP&E Incidents, Recordables or Spills.
6. Spud to drillout 11.2 days \$900,000, Cum cost \$1,730,000

Problem Summary

1. No major drilling problems ROP greater than expected while dir drilling. Rough drilling 0 - 90m.
2. Repair time 37.25 hrs to repair Tesco ECI top drive.
3. 9.5 hrs to build mud volume and heal minor losses after trip at KOP.
4. 23.5hrs cond hole prior to running casing
5. 18.5 hrs running casing (wash to bottom from 440m)
6. Mud density climbed to 1220kg/m3, and MBT climbed from drilled Bentonite.
7. Anadril MWD failed at 738m, TD called.
8. Nipple up crew inexperienced, 5 flanges leaked

Drilling Operations Summary

1. Moved Akita 58 from rack site in FT Liard w/ Land/Mullen trucking. No incidents or safety concerns
2. Rigged up to spud. Cold windy weather.
3. Spud 349mm surface hole with a packed rotary assembly and drilled to 276m w/ 2.5m3/min 80-150 RPM and 10000 daN. Spud w/ mud, lite gel slurry, minor losses from 40 - 90m, healed w/ LCM.
4. Trip out to pick up Dir tools (Anadril) Build angle to 37 degrees along 330 azimuth.
5. Wiper trip strap out at 730m LCM's good. Drilled ahead to casing point 738m, MWD failed TD called. POOH lay down dir tools, run in hole to cond hole, picked up 1 - 228mm DC to replace 203mm motor. Hole would not clean up after wiper trips, appears to be mud rings from 590 - 640m.

Casing, Cementing and Nipple-up Operations:

1. Casing ran without incident to 450m. Cir casing to bottom, casing packing off from 620 - 640m, good to TD. Cond mud and cement.
2. WOC 4.0 hrs, back out landing j; without observing collar and j below. Casing backed off at least 1 j below landing j. Run back in screw back on to casing stump and torque to 7500 ft lbs, (maximum for connection). Pressure test to 15 mPa. Cut off casing collar and prep casing stump
3. Screw on ABB Vetco 244.5mm x 279mm, 35 mPa casing head and torque to 6000 ft lbs with top drive. Lubricate threads w/ API thread lub.
4. Nipple up 346mm x 3500 kPa Chevron class IV, SRSRRA. Pressure test 1500 kpa, 34500 kpa.
6. Casing Bowl flange elevation: _____m
7. Bulk Invert Tank arm and haul 240m3 HT-40
8. Fleet and shoe made up in Nisku.

Surveys

0.3

1

0.5

2.1

7.18

11.4

21

29.6

37.7

Csg Landed:

TD:

MD

(mKB)

Mattson

43

Flett

97

197

276

KOP

330

400

500

600

707

734

738

Casing:
52 jts 244.5mm 59.53kg/m K-55 LT&C,
Landed @ 734m KB
Float Equipment (1jt shoe track):
Ficat Shoe - DL type 500-pvts
Float Collar - DL type 700-pvts
Centralizers
1 per jt TD to 276m (311mm hole)
1 per 3 joints to surf (349mm)

Cementing:

Preflush: 1 m3 Fresh Water + 3m3 CW100
Slurry: Lead 43 tonnes 1-1-4 +0.5% D65 + 0.2% D46 + 4%D20 (45.4m3)
Tail 10 tonnes "G" + 1% S1 + 0.2% D46 (7.5m3)
Excess: 75%. Recip casing while pumping cement.
Cement returns: 8.0 m3 Full returns: throughout, no slump back

Drilling Fluid:

Water based Gel / Chem
Density: 1220 kg/m3 (max)
Viscosity: 100 s/L (max)
pH: 8.5
PV/YP: 28/13
Circ temp: 42 deg C (friction induced)
Hydraulics:
2.0 - 2.5 m3/min
AVDP: 15 m/min 349mm hole

ROP

0-160m

Rotary

3-5m/hr

Drill only

160-276m

Rotary

6-15m/hr

276-738m

Directional

15-20m/hr

BHA Summary 349mm 0-276m

Bit 349mm (re-run)

NB Stab (under gauge)

1-228mm DC

String Stab (under gauge)

1-228mm DC

String Stab (under gauge)

1-228mm DC

X/O sub

15-171mm DC

X/O sub

4- HWD

BHA Summary 311mm 276-738m

Bit 311mm (Re-run)

203mm motor (4-5 stage) w/ lower stab

set at 1.5

Anadril MWD

X/O sub

17-171mm DC's

X/O sub

12- HWD

Performance:

	Sect. Days	Sect. \$MM	Cum. Days	Cum. \$MM
Planned:	11.21	\$1.70	11.21	\$1.71
Actual:	11	\$1.95	11	\$1.95
Over (Under):	-0.21	\$0.25	0	\$0.24
Sched. Events	216	hrs	81.8	%
Unsched. Events	40	hrs	18.2	%

Bit Summary:

#	Type	IADC	D. Out	m	hr	m/hr	cond
1A	MAC43A	4-3-7	275	276	45	6.1	3-4-FC-A-E-I-CT-BHA
2A	HT03CXP	4-1-5	738	462	0.5	17.1	3-4-WT-A-E-I-NO-TD

Conclusions and Recommendations:

1. Spud W/ pre-hydrated gel. Losses from 40 - 90 m minor, healed w/ LCM.
2. ROP slow 0 - 160m, Mattson sand and Flett. Ran Re run Inserts w/ good bit life and ROP.
3. Drilled from 0 - 276m w/ bit 1A 349mm, and 276 - 738m w/ bit 2A 311mm. Motor drilling 120 RPM resulted in excellent ROP.
4. Mud density climbed to 1220kg/m3 and formation Bentonite increased viscosity, and formation of mud rings. Caution is required to stay ahead of the vis and minimize mud rings. Rig up Centrifuges and run from spud.
5. Continue to make up shoe and float in town.
6. Insure adequate pump volume to minimize cleaning problems. Stay ahead of mud rings.
7. Directional BHA was 203mm motor set @ 1.5 (stabilized) and 171mm motor and steel DC's. No problems building 3 degree/30m in 311mm hole.

Chevron et al Liard ZK-29: As drilled
Intermediate Hole: 222.3mm
Interval: 738- 3075 mKB

345mmx34.5Mpa

Class IV

KB to grd 6.70m KB to casing bowl flange: 6.73m

Csg Bowl

GRD 409.9m, KS el: 416.60m (survey Nov 12 2002)

244.5mmx279.4mmx34.5Mpa

Objectives

1. Maintain Directional trajectory. Hold along 330 Azimuth, 37 degrees to 2nd KOP @ 2800m MD. Build at 5 degree/30m to Nahanni est at 3111m MD
2. Optimize penetration rates w/ PDC and tri-cone technology and rotary steerable tools.
3. Minimize UE associated w/ hole problems, wellbore stability
4. Maintain MD as low as possible.
5. No LTA's, Medical Aids, MVA or recordables.
6. No recordable spills.

Problem Summary:

1. Anadrill Rotary Steerable assembly w/ motor and conventional MWD was run to minimize casing wear related to pipe rotation and to max ROP w/ PDC bit. The PDC was very aggressive and capable of drilling 60-100m/hr. W/ fresh HT-40 (mineral oil) and other surface constraints we were severely fanning and the motor /PDC were eroding away the bottom of the hole, requiring build rates greater than the RS tools were capable of.
2. Tri-cone bits experienced seal failures.
3. From 2746 to 3075m: rotary RPM and bit wt was backed off to attempt to max bit life.

Drilling Operations

1. Made up Anadrill Rotary steerable 6.75 tools w/ 171mm motor and conventional MWD (survey 23.5m behind bit) and HCM605 222mm PDC bit. Drilled out cement and shoe and rotated ahead in neutral to evaluate tool performance. Assembly would drill w/ very little wt, fanning severely to handle cuttings and Fresh Invert. 1st Survey indicated a drop of 4 degrees down to 33. Down link to tool and drill ahead w/ 40%, angle continued to drop, increase tool to 100% w/ no change. POOH, install flex jt above RS tools to increase capability of RS to 6 degrees/30m, drill ahead at 100% hole continues to drop angle, however w/ reduced DL's down to 2 from 4. Max wt on bit 2 dAn. Trip out to lay down RS tools after losing 10 degrees of hole angle. (Hindsite tells me that the assembly was capable of extremely fast ROP (60-100m/hr) and when fanning we were eroding away the hole beyond the capability of the RS tools build rates.
2. Ran in w/ conventional 171mm motor set @ 1.5 w/ HCM404 PDC. assembly drilled well w/ vert little sliding required. Wiper tripped at 1576m to swap pipe and evaluate hole. ROP dropped by 50% to 15m/hr. Trip out, found bit 2mm undergauge which caused stab on motor to hangup.
3. Drilled remainder of hole w/ tri-cone bits: (5-1-7 to 5-3-7)
4. No problems w/ directional control
5. No problems w/ shale stability.
6. No problems w/ background gas. weighted up at 2500m in anticipation of gas. From 950 to 1050kg/m3
7. Maintain angle along 330 Azimuth at 38 degrees to 2nd KOP at 2800m. Built angle at 5 degrees/30m to 65 degrees at the Nahanni top.
8. Drilled 18m in to Nahanni and called TD.
9. No losses or indications of fractures in the Nahanni.
10. Wiper tripped to surface, evaluate bit and dial motor back to 1.15, hole good on trip in.
11. Lay down drill string
12. Rig in Tesco external tool to makeup casing. (Allows making up, filling, rotating and reciprocating casing)
13. Casing landed at 3074m: 0.5m off bottom
14. Cemented back to surface w/ no losses.
15. Install tubing head 279mm x 179mm 35 mPa and re-nipple up 3/6mm 35 mPa BOP stack. P-test to 35 mPa
16. Pick up 89mm string, no BHA for main hole.

Formation Dev
 Surface casing
 Surface hole
 37 Degrees
 27 Degrees
 37 Degrees

MD
 (mKB)
 Surface
 141
 734
 738

ROP
 (m/hr)

Performance Summary:

Spud Well: Jan 26 2003

Under Surface: Feb 07 2003

	Sect. Days	Sect. \$MM	Cum. Days	Cum. \$MM
Planned:	30.2	12.63	41.4	\$4.37
Actual:	25	\$2.21	36	\$4.20
Over (Under):	-5.2	(\$0.42)	-5	(\$0.17)
Sched. Events	600	hrs	93.3	%
Unsched. Events	56	hrs	6.7	%
Scope Change	0.0	hrs	0.0	%

Drilling Fluid:

HT-40 (Mineral Oil)

Unweighted 915-950kg/m3 750-2500m

Weighted: 1050-1095kg/m3 2500-3075m (TD)

Properties at TD

VIS: 58

Density: 1095

PV/PV: 10/5.7

EV: 650

HTHP Filtrate: 19 @ 80 degrees C

Oil/Water: 67/13

Chlorides: 26000

Casing: Intermediate

223 its 177.8mm 38.68 kg/m L-80 Hydril SLX 0 - 3074m

Cement: volumes gauge + 40%

Interval: TD to Surface

Preflush: 4m3 Diesel + 6m3 CW101

Lead: 40T (52.4m3) HiLite 1400+ 3%D65+ 2%D66+ 4%D28

Tail: 7T (6.2m3) "G"+35%D66+ 2%D46+ 5%D65+ 5%D167+ 5%D28

Bit Summary

#	Type	IADC	D. Out	m	hr	Cond
3	HCM405	PDC	180	136	7.25	1-1 (Rotary Steerable)
4	HCM404	PDC	1688	608	43	2-2 CT-H-X-1.5-Na-Pr
5	MXS28	5-3-7	2136	448	45.25	4-8 Bi-C-F-C-T-Q
6	MXS20	5-1-7	2405	269	37	4-5 WT-H-E-1-Fc-PR
7	TD51X	5-1-7	2704	290	47	3-4 Fc-L-E-2-Fm-PR
8	TD53A	5-3-7	2746	42	10	6-8 Fc-A-F-16-Ro-Tq
9	F3H	5-3-7	2682	136	41.75	2-4 Fr-H-E-1-Bi-Bne
10	F3H	5-3-7	3075	193	50.75	3-4 Fc-H-E-2-Wt-Td

Key Learnings/ Recommendations:

1. Rotary steerable has limitations, the economics of this technology is still unclear based on drilling results in the intermediate section of this well.
2. The Hughes Christensen PDC HCM 605 is a very aggressive bit and appears to be a great match for drilling the upper shales. At this point we are unclear of the potential of this bit in terms of directional control. (Sliding w/ steerable motors).
3. The Hughes Christensen HCM404 is a proven performer and can be used as a steerable PDC.
4. Hole stability has not been an issue, density was not increased to stabilize the shales in this trajectory.
5. Wiper trips were not done.
6. Pump rates of 1.1 - 1.5 m3/min adequately cleaned hole. (1.5 top hole for effective motor performance, dropped back to 1.1 while drilling the Lower Besa shales to slow down bit RPM to extend bit life).
7. When drilling w/ PDC's, if required to run lower motor stabilization ensure that stab oil is 3-4mm undergauge to allow for normal PDC wear. We were unable to slide w/ the motor stab at 2mm under after the wiper trip.
8. The Tesco external casing running tool worked well, 10 js/hr average was slower than anticipated. Safety advantage of not requiring a pipe stabber in the derrick. Main advantage of this tool is the ability to break cir at any time and allow working the pipe.
9. Insure daily reports are complete and detailed, for effective look backs.
10. Tri-cone bearing life is an issue. (this has been on all 3 Liard wells)
11. Velco casing slips will not bite on the casing, the stack must be lifted and the slips forced to bite manually. (Velco is aware of the problem they have not agreed to change anything).
12. Oil spills, MYLWB, ensure that we have input into the reg submissions that allows work to be done on a normal state. (All spills will be reported, any volume is a spill)
13. Co-ordinate drill pipe, the 89mm pipe was racked so that a lot of moving pipe was required, from derrick to hole and back to derrick.

Lithology	Formation	MD	TVD
Besa River		141	141
Ekshaw		1307	12.1
(First Black Shale)			
Lower Besa River		1852	1608
Muskawa		2650	2241
Nahanni		3056.5	2525

Chevron et al Liard 2K-29

346mm x 34.5 Mpa Stack

Rig Released March 20, 2003

Main hole : 3075 - 3599m

Nahanni 155.6 mm hole

279 x 170mm x 34.5 Mpa

Csg Bowl

244.5mmx279 4mmx34.5Mpa

Objectives

1. Drill a directional 155.6mm hole intersecting seismic identified fractures remaining in a 40m radius cylinder through Nahanni as per directional profile.
2. Identify fractures from possible formation losses.
3. Drill a usable wellbore for evaluation and completion.
4. No PP&E incidents or reportable environmental spills.
5. Complete drilling and move rig prior to break-up.

Formation

Casing Shoe

59kg/m

K-55

MD

(mKB)

Surface

734

Dev.

Performance Summary:

	Sect. Days	Sect. \$MM	Cum. Days	Cum. \$MM
Planned:	18	\$1.43	59	\$6.33
Actual:	17.2	\$1.74	54	\$5.92
Over (Under):	-0.8	\$0.31	-11	(\$0.46)
Sched. Events	279	hrs	67.5 %	
Unsched. Events	135	hrs	32.5 %	

BHA Summary:

Drilled entire section w/ 89mm drill pipe.
Approx 5000 dAn bit wt w/ no problems
Rotary torque approx 10000 ft lbs. Torque increased by 1000 ft lbs while drilling main hole.

Drilling Fluid: Water based Gel/Polymer

Density: 1030 -1080 kg/m3 max

Viscosity: 45 s/L

pH: 11

PV/YP: 13/7.7

Circ temp: 49

Hydraulics:

85 m3/hr

AVDP: 60 n/min

3075m MD

2532m TVD

Dev 66 Degrees

Pressure: 20000 kPa (maximum)

Problem Summary:

1. Tripped out at 1900m after picking up 89mm pipe to confirm pipe strap (6 hrs).
2. Akita Elmago (electric drawworks brake) failed and had to be replaced. Required 60 tonne crane. (22.5 hrs).
3. Trip for chunked motor 8 hrs after bit trip. (total cir hrs on motor 90). (15.75 hrs)
4. Wait on Schlumberger logging tools and TLC trips related to tool failures. (66 hrs)
5. Failed logging run after centralizer hung up in casing and bridged in open hole. (24.25hrs)

Intermediate csg

177.8mm 38.7 kg/m

L-80 @ 3074m

Drilling Operations:

1. Picked up 89mm drill pipe and drilled out 177.8mm casing shoe w/ Anadri MWD motor and Hughes Chris PDC (HCM382) (6 blade).
2. Ran FIT to 18.1 kPa/m.
3. Directionally drill ahead w/ planned build and turn of 3.5 degrees /30m. ROP 5-8m/hr at 130 RPM.
4. Cir hole clean at 3308m and hoist into casing to replace Elmago brake.
5. Drilling continued to 3390m when ROP slowed down, bit out hole good.
6. Replace bit and run in wash thru bridge at 3200m.
7. Drill ahead w/ HC PDC 306, with trouble maintain tool face when sliding, motor chunked after 8.25 hrs. The motor was probably the weak link and the bit was not the issue. The 376 replaces the 382.
8. Replaced motor and PDC w/ HC 404 which has a proven directional control track record.
9. Drilled ahead to 3590m when ROP slowed down.
10. Encountered 2nd fracture at 3509m with a 9 degree dogleg.
11. Drilled ahead to 3590m when ROP slowed down. TD was called, decision made to drill ahead while waiting for Schlumberger logging tools.
12. Ran in w/ STX-30 (5-3-7) insert and attempted to drill ahead, motor chunked at 3599m, TD called.
13. Make up TLC tools run no 01: Ran Platform Express-FMI as SOC did not have FMS available. Wet connect at 2900m, bridged at 3200m worked down to 3203m, sticky pulling free. (tool configuration 127mm FMI on the bottom end of 40 m tool string). Logged from 3195m to casing shoe 3074m.
14. While waiting on Schlumberger tools ran required cased hole CNL-Gr-temp casing shoe to surface.
15. Ran in hole clean out trip while waiting, wash thru bridge at 3200 w/ motor and bit as previous trips. Spotted higher via pill in open hole.
16. Ran in FMS-EMS (temp) tools on TLC, dead short in tools at 3047m in casing. POOH repair tools and run in hole. Tools hung up at 3064m, worked down to 3150m, trip out by down tools and release Schlumberger. Tool centralizer had hung up in casing and piled up w/ CD of 156mm.
17. Run in hole w/ bit motor, 554m pipe and casing scraper, wash to bottom cir hole clean. Motor pressured up after .5 hr on bottom. POOH lay down scraper.
18. Release rig to completions. March 20, 2003 24:00 hrs.

3335m MD

2600m TVD

Dev 84 degrees

TD 3599m MD

2619 TVD

Dev 90 degrees

V-sec 1881m

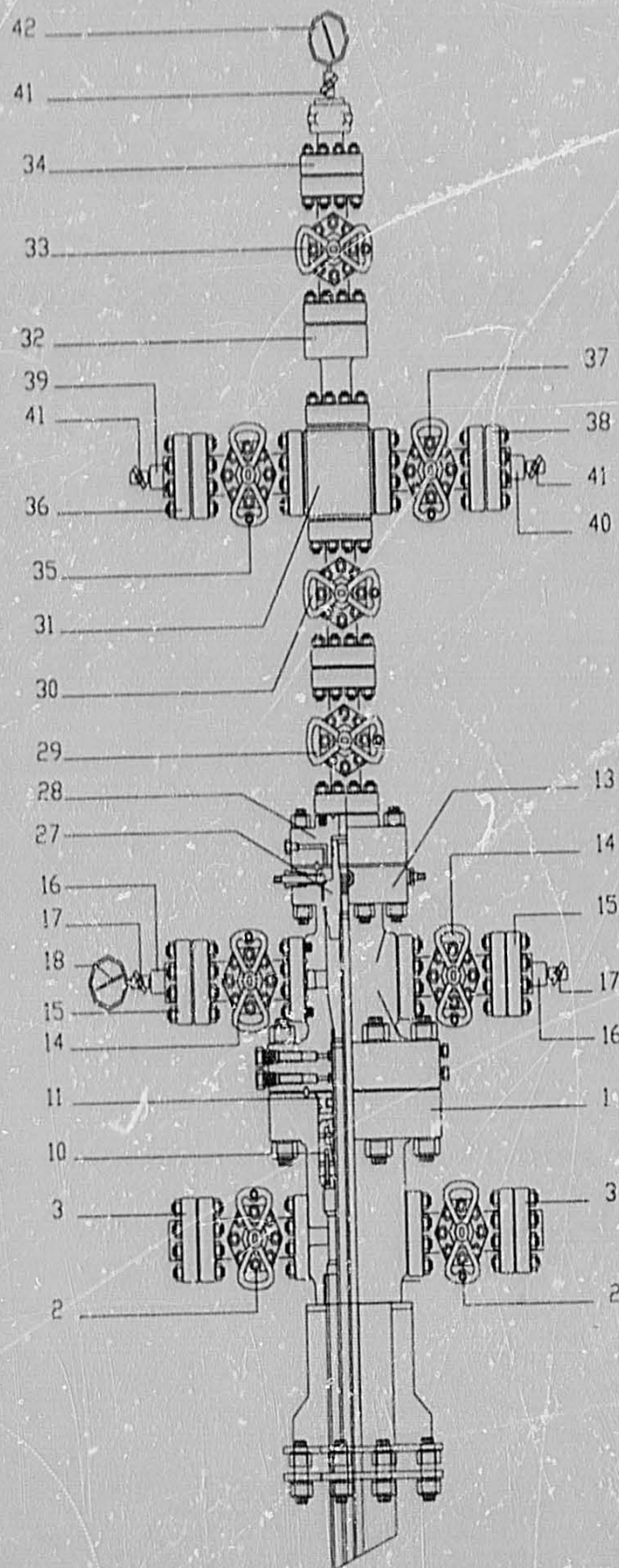
Bit Summary

#	Type	IADC	D. Out	m	hr	Cond
11	STR382DG3K	PDC	3390	360	78.75	1-2-Wt-A-X-1.5-Ct-Pr
12	STR306	PDC	3406	16	8.25	1-1-Ct-H-X-0-No-DMF
13	HOM404	PDC	3590	184	61.5	6-1-Bt-H-X-5-JD-PR
14	STX-30	5-3-7	3,599	9	8	1-1-No-A-E-I-No-DMF

Key Learnings Recommendations:

1. Ensure that communication is clear between all parties. Due to travel distances good understanding of timelines is required to minimize standby and waiting time.
2. PDC bits are capable of drilling the Nahanni, directional control. No problems w/ 404 from tool face in slide mode, however very little turn was achieved from the slides.
3. Motor chunking, oversize, bonding in high temp environments. SOC motor seized in 90 hrs, Vetco chunked in less than 10 hrs.
4. Replace motors on trips.

Appendix 3: Wellhead Diagram



Item	Description
1.	ABB CWCT casing bowl: 279.4 mm 35 mpa x 244.5mm 8rnd c/w 2 - 52.4 mm 35 mpa SSO c/w lockdown screws L, DD, PSL-2, PR-1
1a.	Landing base for casing bowl: 36" diameter x 1 1/2" thick c/w adjustable height plate
2.	ABB VGC gate valve: 52.4 mm 35 mpa flanged, full opening L, DD, PSL-2, PR-1
3.	ABB Companion flange: 52.4 mm 35 mpa x 50.8 mm LP, L, DD, PSL-2, PR-1
10.	ABB "W" casing slips: 279.4 mm x 177.8 mm automatic L, DD, PSL-2, PR-1
11.	ABB CWC-O primary test protector: 279.4 mm x 177.8 mm L, DD, PSL-2, PR-1
13.	ABB CWC tubing head: 279.4 mm 35 mpa x 179.4 mm 35 mpa c/w 2- 52.4 mm 35 mpa SSO L, EE, PSL-3, PR-1
13a.	CWC-P secondary pack-off assembly: 279.4 mm x 177.8 mm L, EE, PSL-2, PR-1
14.	ABB VGC gate valve: 52.4 mm 35 mpa flanged full opening L, DD, PSL-2, PR-1
15.	Companion flange: 52.4 mm 35 mpa x 50.8 mm LP L, DD, PSL-2, PR-1
16.	Bull plug: 50.8 mm LP XXH c/w tap 12.7 mm NPT API 18 th .
17.	Needle valve: 12.7 mm 69 mpa sour service
18.	Pressure gauge: 12.7 mm 35 mpa sour service
26.	ABB CWCT combination test plug / retrieval tool 177.8 mm nom. x required drill pipe connection.
27.	ABB CWC-F6H extended neck tubing hanger: 179.4 mm x 5.875" MCA lift thread c/w with 127 mm Hydrii SLX, 15#/ft. suspension thread c/w 127 mm BPV threads, inconel steel. L, HH, PLS-3, PR-1
28.	ABB type K adapter flange: 179.4 mm 35 mpa x 130.2 mm 35 mpa single studded c/w seal pocket, test ports, Inconel 625 clad wetted surfaces. L, EE, PSL-3, PR-1
29.	ABB VG-300 gate valve: 130.2 mm 35 mpa flanged full opening, inconel 625 clad wetted surfaces, 718 inconel stem. L, EE, PSL-3, PR-1
30.	ABB VG-300 gate valve: 130.2 mm 35 mpa flanged full opening, inconel 625 clad wetted surfaces, 718 inconel stem. L, EE, PSL-2, PR-1
31.	ABB SC studded cross: 130.2 mm x 130.2 mm x 103.2 mm x 52.4 mm, 35 mpa L, DD, PSL-2, PR-1
32.	Flanged x studded adapter: 130.2 mm flange x 79.4 mm studded 35 mpa. L, DD, PSL-2 PR-1
33.	ABB VGC gate valve: 79.4 mm 35 mpa. Flanged full opening L, EE, PSL-2 PR-1 c/w inconel 718 stem

- 34. ABB Bottom Hole Test Adapter: 79.4 mm 35 mpa c/w top cap 12.7 mm NPT tap and 88.9 mm EUE lift threads L, DD, PSL-2 PR-1
- 35. ABB VGC gate valve: 52.4 mm 35 mpa flanged full opening L, EE, PSL-2, PR-1 c/w inconel 718 stem
- 36. Companion flange: 52.4 mm 35 mpa x 50.8 mm LP L,DD, PSL-2, PR-1
- 37. ABB VG-300 gate valve: 103.2 mm 35 mpa flanged full opening L, EE, PSL-2, PR-1 inconel 625 clad wetted surfaces, 718 inconel stem
- 38. Companion flange: 104.8 mm 35 mpa x 101.6 EUE, L, DD, PSL-2 PR-1
- 39. Bull plug: 50.8 mm LP XXH c/w tap 12.7mm NPT API 18th
- 40. Bull plug: 101.6 mm EUE, XXH c/w tap 12.7 mm NPT
- 41. Needle valve: 12.7 mm 70 mpa sour service
- 42. Pressure gauge: 12.7 mm 35 mpa sour service
- 53. Landing sub: 5.875 MCA pin x 127.0 mm Hydril SLX box
- 54. Casing vent assembly, complete 50.8 mm
- 55. RX-24 stainless steel ring gasket
- 56. Companion flange: 52.4 mm 35 mpa x 50.8 mm LP L,DD, PSL-2, PR-1
- 57. Blind flange: 52.4 mm 35 mpa L, DD, PSL-2 PR-1

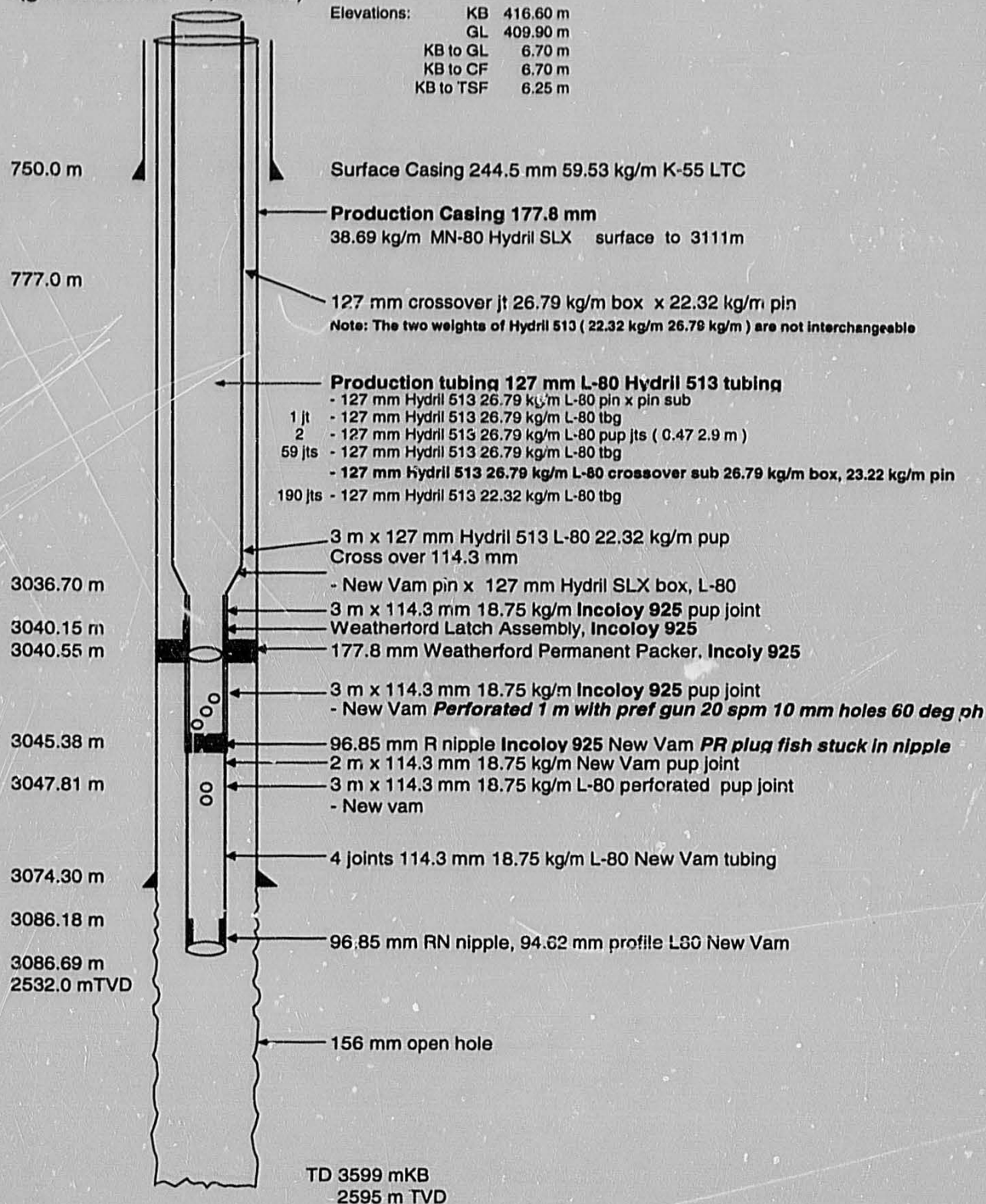
Appendix 4: Final Wellbore Diagram

Chevron Canada Resources

ChevronTexaco

Chevron et al Liard 2K-29
(grid section 60° 28', 123° 35')

Elevations:	KB	416.60 m
	GL	409.90 m
	KB to GL	6.70 m
	KB to CF	6.70 m
	KB to TSF	6.25 m



Appendix 5: Details of Formation and Production Testing
(Complete test data will be submitted when available.)

Summary

The subject well was drilled and completed by Chevron from January 26, 2003 to March 24, 2003. The Completion was done with the drilling rig from March 24, 2003 to March 27 2003. The well was tested using a three- point flow followed by build-up. The objectives of the flow and buildup test were to access the wellbore deliverability. The following is a summary of the information obtained from the flow and build-up test:

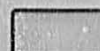
- Reservoir Permeability - 1100 md*m. Skin is estimated at $> +10$
- Sandface AOF is estimated to be $2200 \times 10^3 \text{ m}^3/\text{d}$ (80 MMcfd)

Overview

The 2K-29 wellbore is completed as an open hole completion. The 177.8 mm intermediate casing landed at a measured depth of 3075 mKB and an open hole interval was drilled at a 65 to 90 degree angle through the Nahanni reservoir to a total depth of 3599 mKB. A permanent packer was set at 3041 mKB, with an 114 mm tailpipe at 3086 mKB. An 127 mm tubing string was stung into the permanent packer.

Appendix 6: Well Stratigraphic Column

Well Stratigraphy Column

 FLETT 52

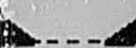
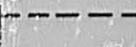
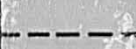
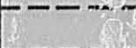
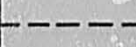
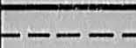
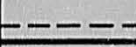
 UPPER
BESA
RIVER 140

Chevron et al Liard 2K - 29

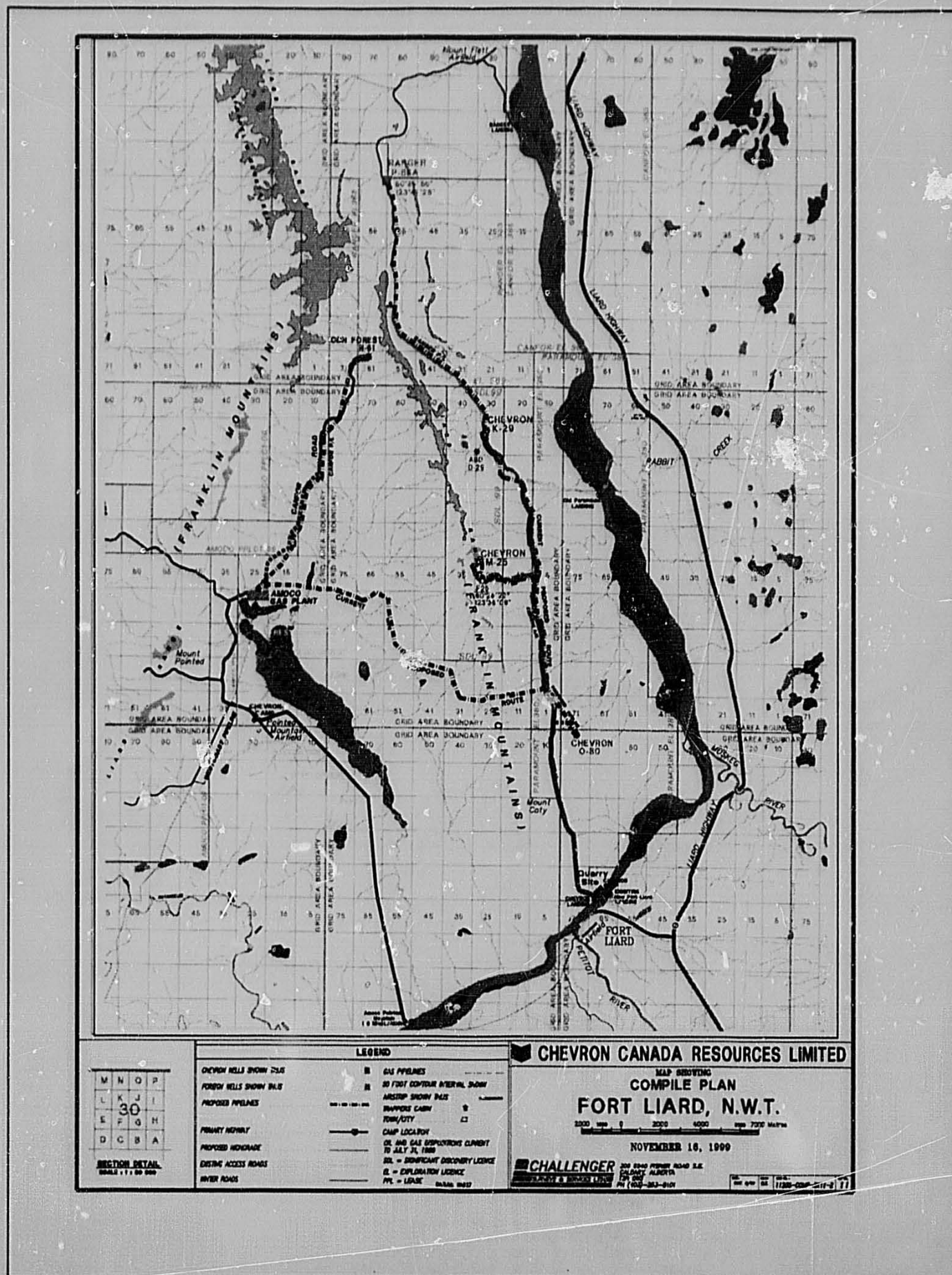
60°28' 40.3" , 123°35' 5.3"

Grd = 409.9m

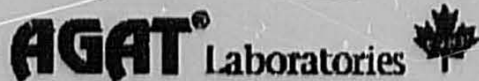
KB = 416.6m

MEASURED DEPTH (m)	LITHOLOGY	FORMATION	REMARKS
734		Surface Casing (Flett)	
		GLACIAL TILL	Increasing Sand as above with loose disaggregated very coarse grails and granules, minor Flett Limestone and Marlstone boulders, trace Granite boulder chips, rare trace Matrix Sandstone chips.
		LIMESTONE	dark brown, dark gray brown in part, cryptocrystalline to microcrystalline, medium, siliceous, very argillaceous, slightly fossiliferous, tight, to slow, trace Chert, interbedded Marlstone, dark brown to gray brown, calcareous, tight.
		MARLSTONE	medium to dark gray brown, calcareous, siliceous, hard, tight, to slow, scattered Limestone, medium brown to gray brown, dark gray brown in part, cryptocrystalline, very argillaceous, siliceous and hard, tight, to slow, trace pyrite, trace calcite, beak dimicrofractures.
1393		SHALE	Medium to dark gray, green gray in part, fissile, calcareous, marly, silty to very silty in part, trace glauconite, scattered Siltstone streaks, medium gray to green gray as above, very argillaceous, calcareous, tight, to slow.
1852		FIRST BLACK SHALE	dark gray to very dark brown gray to black, micromacaceous, fissile in part, slightly siliceous, bituminous, slightly calcareous to marly, trace siltstone, trace pyrite, trace Marlstone streaks, dark gray brown to black, microcrystalline to very fine crystalline, calcareous, hard, tight, to slow.
2649		LOWER BESA RIVER SHALE	medium to dark gray, green gray in part, micromacaceous, fissile, slightly calcareous to marly in part, trace pyrite, trace Siltstone laminae and streaks, light to medium gray, quartzose, siliceous and hard in part, slightly calcareous, tight, to slow.
		SECOND BLACK SHALE	very dark gray to black, micromacaceous, siliceous to very siliceous, moderate to well indurated, conchoidal fracture in part, bituminous, slightly calcareous in part, scattered siltstone streaks, scattered microfractures filled with calcite, trace quartz.
3056		LIMESTONE	medium to dark brown, light gray to gray brown in part, microcrystalline to coarse crystalline, clean, fragmental, fossiliferous, mainly tight with trace poor laterocrystalline porosity, trace pyrobitume, scattered siltstone, trace Dolomite, light gray to light brown gray, microcrystalline to medium crystalline, to coarse crystalline in part, calcareous, fossiliferous, poor laterocrystalline porosity, to friable, trace pyrobitume, trace black Chert.
		DOLOMITE	
3599		(Total Depth)	

Appendix 7: Locality Map



Appendix 8: Gas and Water Analyses



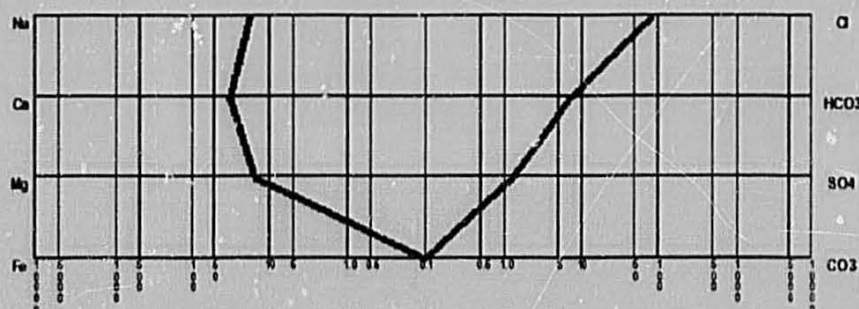
WATER ANALYSIS

Container Identification PB1A		Laboratory Number 03WF42673A	
Operator Name CHEVRON CANADA RESOURCES			
Unique Well Identifier 2-K-29	Well Name CHEVRON et al LIARD 2-K-29		Elevation KB m GRD m
Field or Area LIARD	Pool or Zone NAHANNI	Sampler's Company NORTHLAND	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs		Sampling Point FLOW LINE	Separator Reservoir Source Sampled Received
		Pressure (kPa)	
		Temperature	
Date Sampled Apr 07, 2003	Date Received Apr 09, 2003	Date Reported Apr 17, 2003	Entered By PL
Certified By PL			
Other Information 2-K-29, FIELD H2S = 5000 ppm.			

Cations				Anions				Other Measurements	
ION	mg/L	Mass Fraction	mmol/L	ION	mg/L	Mass Fraction	mmol/L	Measurement	Value
Na	407.3	0.072	17.7	Cl	2949.0	0.524	83.2	Total Dissolved Solids (Calculated) mg/L	5627
K	43.0	0.008	1.1	HCO3	434.9	0.077	7.1	Observed pH	7.10
Ca	1300.0	0.231	32.4	SO4	122.4	0.022	1.3	H2S (25°C) mg/L	68.16
Mg	370.0	0.066	15.2	CO3	Nil	Nil	Nil	Relative Density (25°C)	1.002
Fe	0.8	TRACE	TRACE	CH	Nil	Nil	Nil	Resistivity/OHM .n (25°C)	1.052
Total Cations 114.2				Total Anions 92.9				Salinity ‰	0.53

The ionic balance for this water exceeds 10%. The imbalance is caused by anions not included in the standard analysis.

Logarithmic Pattern mmol/L



Calgary AB, Ph: (403) 299-2000 Edmonton AB, Ph: (780) 469-0106 Grand Prairie AB, Ph: (780) 539-6500 Red Deer AB, Ph: (403) 346-6645
 Fort St. John BC, Ph: (250) 785-6600 Prince George BC, Ph: (250) 563-6011 Terrace BC, Ph: (250) 615-9288 Mississauga ON, Ph: (905) 501-9996

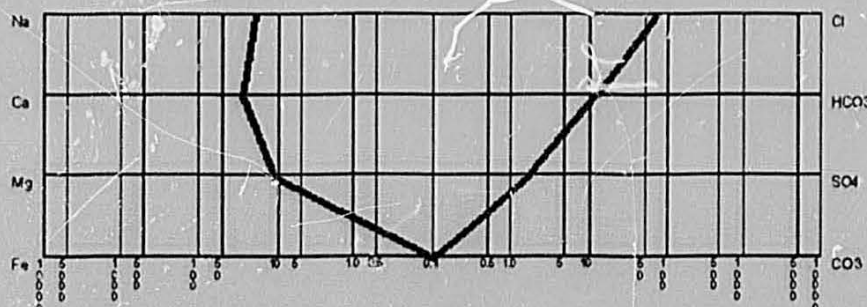


Container Identification PB2B		Laboratory Number 03WF42673B																
Operator Name CHEVRON CANADA RESOURCES																		
Unique Well Identifier 2-K-29	Well Name CHEVRON et al LIARD 2-K-29		Elevation KB m GRD m															
Field or Area LIARD	Pool or Zone NAHANNI	Sampler's Company NORTHLAND																
Test Type	Test No.	Test Recovery	Name of Sampler															
Test Interval or Perfs		Sampling Point SEPARATOR	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Separator</td> <td>Reservoir</td> <td>Source</td> <td>Sampled</td> <td>Received</td> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>Temperature</td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Separator	Reservoir	Source	Sampled	Received	Pressure (kPa)					Temperature				
Separator	Reservoir	Source	Sampled	Received														
Pressure (kPa)																		
Temperature																		
Date Sampled Apr 07, 2003	Date Received Apr 09, 2003	Date Reported Apr 17, 2003	Entered By PL Certified By PL															
Other Information 2-K-29, FIELD H2S = 5000 ppm.																		

Cations				Anions				Other Measurements	
ION	mg/L	Mass Fraction	mmol/L	ION	mg/L	Mass Fraction	mmol/L	Measurement	Value
Na	462.2	0.087	20.1	Cl	2449.0	0.461	69.1	Total Dissolved Solids (Calculated) mg/L	5311
K	48.2	0.009	1.2	HCO3	729.6	0.137	12.0	Observed pH	7.40
Ca	1170.0	0.220	29.2	SO4	167.5	0.032	1.7	H2S (25°C) mg/L	119.28
Mg	285.0	0.054	11.7	CO3	Nil	Nil	Nil	Relative Density (25°C)	1.001
Fe	0.2	TRACE	TRACE	OH	Nil	Nil	Nil	Resistivity/OHM m (25°C)	1.137
Total Cations 103.2				Total Anions 84.5				Salinity ‰	0.44

The ionic balance for this water exceeds 10%. The imbalance is caused by anions not included in the standard analysis.

Logarithmic Pattern mmol/L



Container Identification AGAT 30510		Laboratory Number 03GF42673B	
Operator Name CHEVRON CANADA RESOURCES			
Unique Well Identifier 2-K-29	Well Name CHEVRON et al LIARD 2K-29		Elevation KB m GRD m
Field or Area LIARD	Pool or Zone NAHANNI	Sampler's Company NORTHLAND	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs		Sampling Point METER RUN	Separator Reservoir Source Sampled Received Pressure (kPa) 7800 7800 7000 Temperature 78 78 21
Date Sampled Apr 07, 2003	Date Received Apr 09, 2003	Date Reported Apr 22, 2003	Entered By GE Certified By ES
Other Information FIELD H2S = 5000 ppm/LAB = 0.49%			

COMP	MOLE FRACTION		PETROLEUM LIQUID mL/m ³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H ₂	0.0002	0.0002	
He	0.0011	0.0011	
N ₂	0.0324	0.0310	
CO ₂	0.2049	0.0000	
H ₂ S	0.0050	0.0000	
C ₁	0.7564	0.9573	
C ₂	TRACE	TRACE	
C ₃	0.0000	0.0000	0.0
IC ₄	0.0000	0.0000	0.0
NC ₄	0.0000	0.0000	0.0
IC ₅	0.0000	0.0000	0.0
NC 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	0.0

Exceeds normal limits:
CO₂

GROSS HEATING VALUE MJ/m³
15°C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
28.72	36.12

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.768	0.570

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled pPc (abs) kPa	pTc K	Acid Gas Free pPc (abs) kPa	pTc K
5151	212.4	4547	187.6

RELATIVE MOLECULAR MASS

Total Gas	C ₇₊
22.2	0.0

VAPOUR PRESSURE
(Pentanes +)

H ₂ S g/m ³
0.00 kPa

Other Comments: SAMPLED @ 05:00 hrs

Container Identification		Laboratory Number																
AGAT 21318		03G142673A																
Operator Name																		
CHEVRON CANADA RESOURCES																		
Unique Well Identifier	Well Name		Elevation															
2-K-29	CHEVRON et al LIARD 2-K29		K.B. m GRD m															
Field or Area		Pool or Zone	Sampler's Company															
LIARD		NAHANNI	NORTHLAND															
Test Type	Test No.	Test Recovery	Name of Sampler															
Test Interval or Perfs		Sampling Point	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Separator</td> <td>Reservoir</td> <td>Source</td> <td>Sampled</td> <td>Received</td> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td>8700</td> <td>8700</td> <td>7000</td> </tr> <tr> <td>Temperature</td> <td></td> <td>84</td> <td>84</td> <td>21</td> </tr> </table>	Separator	Reservoir	Source	Sampled	Received	Pressure (kPa)		8700	8700	7000	Temperature		84	84	21
Separator	Reservoir	Source	Sampled	Received														
Pressure (kPa)		8700	8700	7000														
Temperature		84	84	21														
		METERRUN																
Date Sampled	Date Received	Date Reported	Entered By															
Apr 07, 2003	Apr 09, 2003	Apr 22, 2003	GE															
		Certified By																
		ES																
Other Information																		
FIELD H ₂ S = 3000 ppm/LAB = 1716 ppm																		

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m ³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H ₂	0.0002	0.0003	
H ₂	0.0011	0.0014	
N ₂	0.0314	0.0402	
CO ₂	0.2168	0.0000	
H ₂ O	0.0030	0.0000	
C ₁	0.7475	0.9581	
C ₂	TRACE	TRACE	
C ₃	0.0000	0.0000	0.0
IC ₄	0.0000	0.0000	0.0
NC ₄	0.0000	0.0000	0.0
IC ₅	0.0000	0.0000	0.0
NC 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	0.0

Exceeds normal limits.
CO₂

GROSS HEATING VALUE MJ/m³
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
28.33	36.14

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.778	0.570

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
5176	213.5	4548	187.7

RELATIVE MOLECULAR MASS

Total Gas	C ₇₊
22.5	0.0

VAPOUR PRESSURE
(Pentanes +)

0.00 kPa

H₂S g/m³

4.32



Calgary AB, Ph (403) 299-2000 Edmonton AB, Ph (780) 469-0106 Grand Prairie AB, Ph (780) 539-6500 Red Deer AB, Ph (403) 346-6645
 Fort St. John BC, Ph (250) 735-5500 Prince George BC, Ph (250) 563-8011 Terrace BC, Ph (250) 815-9256 Mississauga ON, Ph (905) 501-9995



GEOLOGICAL REPORT

N.E.B. COPY

Geological Report

on

Chevron et al Liard 2K-29

Liard 2K-29

**Well Reached Total Depth on
Mar 15, 2003 @ 09:00**

for

ChevronTexaco

Prepared For: Darcy Deibert & Rick Schmidtke
Chevron Canada Resources

Prepared By: Brock Lillico / Cathy Lillico
B. Lillico petroleum Consultants Ltd.

Brock Lillico / Cathy Lillico

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Sample Descriptions w/ Formation Tops	19-1

Well Summary

Storage Units: Metric

Well Information

Operator: ChevronTexaco
Well Name: Chevron et al Liard 2K-29
Location: Liard 2K-29
UWI: 302K296030123300
Pool: Liard
Field: Liard
State / Province: NWT
Country: Canada
License Number: Well ID 1980
Well Status: Potential Nahanni Gas Well

Surface Co-ordinates Hole Type: Deviated Fault Indicator: Yes
Latitude: 60.5000000 Longitude: 123.5000000
N / S: Latitude 60 28' 40.8" UTM 6704585.16m N
E / W: Longitude 123 35' 5.3" UTM 467851.06m W

Bottom Hole Co-ordinates Latitude: Longitude:
N / S: 1881.53m North of Surface UTM 6706466.69m N
E / W: 884.23m West of Surface UTM 468735.29m W

Elevations
Ground Elevation: 409.90 Kelly Bushing to Ground: 6.70
Kelly Bushing Elevation: 416.60 Cut (-):
Casing Flange Elevation: Fill (+):

Total Depth Measured Depth True Vertical Depth
Total Depth Driller (Tally): 3,599.00 2,618.86
Total Depth Driller (Strap or SLM):
Total Depth Logger:

Miscellaneous Depths
Plugback Depth: Water Depth Reference:
Sidetrack Depth: Water Depth:

Well Summary
Drilling Contractor: Akita Drilling Rig #58 Spud Date: Jan 26, 2003 @ 13:30
Rig Release Date: Total Depth Date: Mar 15, 2003 @ 09:00

Cores	#	Formation	Interval	Cut	Recovered	%
-------	---	-----------	----------	-----	-----------	---

Casing Summary

Casing Type	Casing Size	Landed Depth	Hole Size
Surface	244.0	734.00	311.0
Intermediate	178.0	3,074.30	222.0

ChevronTexaco
UWI 302K296030123300

Chevron et al Liard 2K-29
Liard 2K-29
Page 2-1

Well Summary

Storage Units: Metric

Logging Summary

Company	Engineer	Total Depth (MD)	Logging tools
Schlumberger	G Stewart, D Ramo	3,599.00	EMS-GPIT-FMS; no FMS log, previously logged FMI on first run in hole; logged temperature 3135m to surface.
			EMS - FMS; no interval logged; started making tool string up at 09:00hrs, lost 1.25hrs trouble shooting FMS, found and fixed problem with grounding ring in FMS; Tool shorted out on the way in the hole at 3040m.
			Cased Hole Gamma Ray - Compensated Neutron Log; 3040-surface.
			PEX 150: CNL-LDT-HRLA-FMI-GR-EMS; 3200-3072m

Daily Drilling Summary

Storage Units: Metric

Date	Depth	Progress	Rotating Hours	Avg. P.R.	Daily Costs	Formation	Operational Status @ Report Time
Jan 27, 03	86.00		9.00			Flett	Drilling 349mm hole
Jan 28, 03	136.00	70.00	21.00	3.3		Flett	Drilling 349mm hole.
Jan 29, 03	166.00	30.00	5.00	6.0		Besa River	Working on topdrive.
Jan 30, 03	276.00	110.00	13.00	8.5		Besa River	Tripping out of hole.
Jan 31, 03	276.00	0.00	0.00	0.0		Besa River	Circulating on bottom.
Feb 1, 03	606.00	330.00	22.00	15.0		Besa River	Directionally Drilling 311mm hole.
Feb 2, 03	738.00	132.00	9.00	14.7		Besa River	Pulling out of hole pumping stands out.
Feb 3, 03	738.00	0.00	0.00	0.0		Besa River	Rig up to run casing.
Feb 4, 03	738.00	0.00	0.00	0.0		Besa River	Cement Surface Casing
Feb 5, 03	738.00	0.00	0.00	0.0		Besa River	Nipple up BOP's
Feb 6, 03	738.00	0.00	0.00	0.0		Besa River	Pressure teating BOP's.
Feb 7, 03	738.00	0.00	0.00	0.0		Besa River	Pick up Directional Tools.
Feb 8, 03	787.00	49.00	7.00	7.0		Besa River	Directionally Drilling 222mm hole.
Feb 9, 03	880.00	93.00	6.00	15.5		Besa River	Drilling 222mm hole
Feb 10, 03	1,225.00	345.00	16.00	21.6		Besa River	Directionally Drilling 222mm hole.
Feb 11, 03	1,605.00	380.00	20.00	19.0		Exshaw	Directionally Drilling 222mm hole.
Feb 12, 03	1,712.00	107.00	13.00	8.2		Exshaw	Directionally Drilling 222mm hole
Feb 13, 03	1,921.00	209.00	23.00	9.1		Lower Besa River	Directionally Drilling 222mm hole
Feb 14, 03	2,118.00	197.00	23.00	8.6		Lower Besa River	Directionally Drilling 222mm hole
Feb 15, 03	2,236.00	118.00	15.00	7.9		Lower Besa River	Directionally Drilling 222mm hole
Feb 16, 03	2,379.00	143.00	23.00	6.2		Lower Besa River	Directionally Drilling 222mm hole
Feb 17, 03	2,442.00	63.00	14.00	4.5		Lower Besa River	Directionally Drilling 222mm hole.
Feb 18, 03	2,572.00	130.00	23.00	5.7		Lower Besa River	Directionally Drilling 222mm hole
Feb 19, 03	2,704.00	132.00	21.00	6.3		Muskwa	Pulling out of hole.
Feb 20, 03	2,740.00	36.00	8.00	4.5		Muskwa	Directionally Drilling 222mm hole.
Feb 21, 03	2,746.00	6.00	1.00	6.0		Muskwa	Pressure testing ROP stack.
Feb 22, 03	2,772.00	26.00	12.00	2.2		Muskwa	Directionally Drilling 222mm hole
Feb 23, 03	2,842.00	70.00	23.00	3.0		Muskwa	Directionally Drilling 222mm hole
Feb 24, 03	2,882.00	40.00	11.00	3.6		Muskwa	Running in hole.
Feb 25, 03	2,947.00	65.00	18.00	3.6		Muskwa	Directionally Drilling 222mm hole
Feb 26, 03	3,026.00	79.00	22.00	3.6		Muskwa	Directionally Drilling 222mm hole
Feb 27, 03	3,075.00	49.00	16.00	3.1		Nahanni	Strapping out of hole.

Accumulated Daily Costs:

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Daily Drilling Summary

Storage Units: Metric

Date	Depth	Progress	Rotating Hours	Avg. P.R.	Daily Costs	Formation	Operational Status @ Report Time
Feb 28, 03	3,075.00	0.00	0.00	0.0		Nahanni	Lay down drill pipe and directional tools.
Mar 1, 03	3,075.00	0.00	0.00	0.0		Nahanni	Running 178mm casing.
Mar 2, 03	3,075.00	0.00	0.00	0.0		Nahanni	Flush out BOP's and lines.
Mar 3, 03	3,075.00	0.00	0.00	0.0		Nahanni	Pressure testing choke lines.
Mar 4, 03	3,075.00	0.00	0.00	0.0		Nahanni	Picking up 89mm drill pipe and running in hole.
Mar 5, 03	3,075.00	0.00	0.00	0.0		Nahanni	Running in hole to drill out.
Mar 6, 03	3,105.00	90.00	15.00	6.0		Nahanni	Directionally Drilling 156mm hole
Mar 7, 03	3,264.00	99.00	23.00	4.3		Nahanni	Directionally Drilling 156mm hole
Mar 8, 03	3,308.00	44.00	12.00	3.7		Nahanni	Circulate Wiper Trip Gas
Mar 9, 03	3,368.00	60.00	13.00	4.6		Nahanni	Directionally Drilling 156mm hole
Mar 10, 03	3,394.00	26.00	7.00	3.7		Nahanni	Directionally Drilling 156mm hole.
Mar 11, 03	3,412.00	18.00	6.50	2.8		Nahanni	Directionally Drilling 156mm hole.
Mar 12, 03	3,494.00	82.00	23.00	3.6		Nahanni	Directionally Drilling 156mm hole.
Mar 13, 03	3,549.00	55.00	23.00	2.4		Nahanni	Directionally Drilling 156mm hole.
Mar 14, 03	3,590.00	41.00	21.00	2.0		Nahanni	Pulling out of hole.
Mar 15, 03	3,598.00	8.00	6.00	1.3		Nahanni	Directionally Drilling 156mm hole
Mar 16, 03	3,599.00	1.00	2.00	0.5		Nahanni	Running TLC logs.
Mar 17, 03	3,599.00		0.00	0.0		Nahanni	Lay down logging tools.
Mar 18, 03	3,599.00		0.00	0.0		Nahanni	Fulling out of hole.
Mar 19, 03	3,599.00		0.00	0.0		Nahanni	Wait on logging tools.
Mar 20, 03	3,599.00		0.00	0.0		Nahanni	Pull out of hole with TLC FMS-GPIT-EMS.

Accumulated Daily Costs:

ChevronTexaco
UWI 302K296030123300

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Casing Data Summary

Storage Units:

Metric

Casing Type: Surface

Casing Size:	244.0	Hole Size:	311.0
Casing Landed @:	734.00	Total Joints:	51
Casing Date:	Feb 4, 2003 @ 04:30	Plug Down Date:	Feb 4, 2003 @ 07:20

of Joints / Length / O.D. / Weight: 51 Joints; 727.35m Total Length; 244mm; 59.5kg/m.

Cementing Details: Lead 43 Tonnes (45.4m3) 1:1:4 + .5% D65 + .2% D46 + 4% D20;
Tail 10 Tonnes (7.5m3) Class G + 1% S1 + .2% D46.**Remarks:** 8m3 good returns.**Casing Type:** Intermediate

Casing Size:	178.0	Hole Size:	222.0
Casing Landed @:	3,074.30	Total Joints:	223
Casing Date:	Mar 2, 2003 @ 02:15	Plug Down Date:	Mar 2, 2003 @ 06:10

of Joints / Length / O.D. / Weight: 223 Joints; 178mm; 38.69 kg/m; Landed at 3074.3m

Cementing Details: 4m3 Deisel + 6m3 CW101 Preflush; 40 Tonnes (52.4m3) Hilite 1400 + .3%D65
+.2% D46 + .4% D28; 7 Tonnes (8.2m3) Class G + 35% D66 + .2%D46 + .5%D65
+ .5%D167 + .5%D28; Displaced with 60.8m3 H2O.**Remarks:** Good cement returns.

Bit Record

Pump Data

Pump #1	Model: Emsco	Size: F-1000	Type: triplex
Pump Rod Diameter:		Liner Size: 152.0	Stroke Length: 254
Efficiency Rating (%): 97			

Pump #2	Model: Emsco	Size: F-1000	Type: triplex
Pump Rod Diameter:		Liner Size: 152.0	Stroke Length: 254
Efficiency Rating (%): 97			

Bit Data

Storage Units: Metric

Bit #: 1	Make:	Type: MAC43	IADC Series / Type: /
Serial #: MR101	Size: 349.0 Jets / Nozzles:	15.90 / 15.90 / 17.50 /	T.F.A.:
Depth In: 20.00	Depth Out: 276.00	Made: 256.00	Rotating Hours: 45.00
	Average Drill Rate: 5.69	Total Rotating Hours: 45.00	
Bit Grade / Condition	I.A.D.C.: 3 / 4 / FC / A	/ E / I / CT / BHA /	T / B / G: / /

Remarks:

Formations Drilled: Glacial Till & Boulders; Flett, Bosa River.

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	2,000 /	15,000	R.P.M.:	60 /	70
Pump 1 S.P.M. / Volume:	35 /	1,200	Pump 2 S.P.M. / Volume:	85 /	1,200
S.P.P.:	2,900 /	5,700	Fluid Density:	1,035 /	1,090
Drift Angle:	0.000 /	1.050	Funnel Viscosity:	42 /	205

Annular Velocity	Drill Collars:	HeavyWeight Drill Pipe:	Drill Pipe:
Bottoms Up	Depth:	Theoretical:	Actual:

Bit #: 2	Make: Western	Type: HT0CXP	IADC Series / Type: /
Serial #: M15870	Size: 311.0 Jets / Nozzles:	15.90 / 15.90 / 15.90 /	T.F.A.:
Depth In: 276.00	Depth Out: 738.00	Made: 462.00	Rotating Hours: 27.00
	Average Drill Rate: 17.11	Total Rotating Hours: 72.00	
Bit Grade / Condition	I.A.D.C.: 3 / 3 / BT / A	/ E / I / WT /	T / B / G: / /

Remarks:

Formations Drilled: Bosa River

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	8,000 /	14,000	R.P.M.:	155 /	175
Pump 1 S.P.M. / Volume:	/		Pump 2 S.P.M. / Volume:	/	
S.P.P.:	13,000 /	16,000	Fluid Density:	1,075 /	1,175
Drift Angle:	2.000 /	37.700	Funnel Viscosity:	61 /	90

Annular Velocity	Drill Collars:	HeavyWeight Drill Pipe:	Drill Pipe:
Bottoms Up	Depth:	Theoretical:	Actual:

Bit Data

Storage Units:

Metric

Bit #: 3 Make: Hughes Type: HCM605 IADC Series / Type: /
Serial #: 7001549 Size: 222.0 Jets / Nozzles: 8.70 / 8.70 / 8.70 / 8.70 T.F.A.: /
Depth In: 738.00 Depth Out: 880.00 Made: 142.00 Rotating Hours: 7.50
Average Drill Rate: 18.93 Total Rotating Hours: 79.50

Bit Grade / Condition I.A.D.C.: 2 / 2 / CT / M / X / 1 / NO / BHA / T / B / G: / /

Remarks: Trip for Slide-Rotate Tools

Formations Drilled: Besa River

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	1,000	/	3,500	R.P.M.:	130 / 135
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	9,000	/	9,000	Fluid Density:	910 / 920
Drift Angle:	27.600	/	36.850	Funnel Viscosity:	43 / 44

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 4 Make: Hughes Type: HCM404 IADC Series / Type: /
Serial #: 7001449 Size: 222.0 Jets / Nozzles: 9.50 / 9.50 / 9.50 / 9.50 T.F.A.: /
Depth In: 880.00 Depth Out: 1,688.00 Made: 808.00 Rotating Hours: 43.00
Average Drill Rate: 18.79 Total Rotating Hours: 122.50

Bit Grade / Condition I.A.D.C.: 1 / 1 / CT / H / X / 2 / NO / BHA / T / B / G: / /

Remarks:

Formations Drilled: Besa River; Exshaw

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	4,000	/	10,000	R.P.M.:	140 / 140
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	8,200	/	10,400	Fluid Density:	925 / 950
Drift Angle:	32.000	/	38.500	Funnel Viscosity:	41 / 48

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 5 Make: Hughes Type: MXS28 IADC Series / Type: /
Serial #: L8628A3 Size: 222.0 Jets / Nozzles: 14.20 / 14.20 / 14.20 / T.F.A.: /
Depth In: 1,688.00 Depth Out: 2,136.00 Made: 448.00 Rotating Hours: 44.75
Average Drill Rate: 10.01 Total Rotating Hours: 167.25

Bit Grade / Condition I.A.D.C.: 4 / 8 / BT / H / F / 3 / CI / TQ / T / B / G: / /

Remarks:

Formations Drilled: Exshaw; Lower Besa River.

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	12,000	/	15,000	R.P.M.:	110 / 140
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	9,000	/	10,800	Fluid Density:	945 / 960
Drift Angle:	35.000	/	39.000	Funnel Viscosity:	48 / 55

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit Data

Storage Units:

Metric

Bit #: 6 Make: Hughes Type: MX-S20H IADC Series / Type: /
Serial #: 5006041 Size: 222.0 Jets / Nozzles: 14.20 / 14.20 / 14.20 / T.F.A.:
Depth In: 2,136.00 Depth Out: 2,405.00 Made: 269.00 Rotating Hours: 37.25
Average Drill Rate: 7.22 Total Rotating Hours: 204.50
Bit Grade / Condition I.A.D.C.: 4 / 5 / WT / H / E / 1 / FC / PR / T / B / G: / /

Remarks:

Formations Drilled: Lower Besa River

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	14,000	/	25,000	R.P.M.:	110 / 140
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	8,500	/	9,700	Fluid Density:	950 / 1,050
Drift Angle:	36.000	/	38.000	Funnel Viscosity:	54 / 58

Annular Velocity
Bottoms UpDrill Collars:
Depth:HeavyWeight Drill Pipe:
Theoretical:Drill Pipe:
Actual:

Bit #: 7 Make: Reed Type: TD51X-M IADC Series / Type: /
Serial #: U67873 Size: 222.0 Jets / Nozzles: 14.30 / 14.30 / 14.30 / T.F.A.:
Depth In: 2,405.00 Depth Out: 2,704.00 Made: 299.00 Rotating Hours: 47.25
Average Drill Rate: 6.33 Total Rotating Hours: 251.75
Bit Grade / Condition I.A.D.C.: 3 / 4 / FC / A / E / 1 / NO / FM / T / B / G: / /

Remarks:

Formations Drilled: Lower Besa River; Muskwa

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	15,000	/	30,000	R.P.M.:	110 / 140
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	9,800	/	11,200	Fluid Density:	1,050 / 1,100
Drift Angle:	36.800	/	39.000	Funnel Viscosity:	54 / 65

Annular Velocity
Bottoms UpDrill Collars:
Depth:HeavyWeight Drill Pipe:
Theoretical:Drill Pipe:
Actual:

Bit #: 8 Make: REED Type: TD53A-M IADC Series / Type: /
Serial #: VV70333 Size: 222.0 Jets / Nozzles: 14.30 / 14.30 / 14.30 / T.F.A.:
Depth In: 2,704.00 Depth Out: 2,746.00 Made: 42.00 Rotating Hours: 10.00
Average Drill Rate: 4.20 Total Rotating Hours: 261.75
Bit Grade / Condition I.A.D.C.: 6 / 8 / PB / A / F / 16 / RO / TQ / PR T / B / G: / /

Remarks:

Formations Drilled: Muskwa

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	14,000	/	20,000	R.P.M.:	110 / 140
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	11,000	/	12,000	Fluid Density:	1,085 / 1,100
Drift Angle:	38.000	/	38.500	Funnel Viscosity:	59 / 60

Annular Velocity
Bottoms UpDrill Collars:
Depth:HeavyWeight Drill Pipe:
Theoretical:Drill Pipe:
Actual:

Bit Data

Storage Units: Metric

Bit #: 9 Make: Smith Type: F-3H IADC Series / Type: /
 Serial #: MM3425 Size: 222.0 Jets / Nozzles: 14.30 / 14.30 / 14.30 / T.F.A.: /
 Depth In: 2,746.00 Depth Out: 2,882.00 Made: 136.00 Rotating Hours: 45.00
 Average Drill Rate: 3.02 Total Rotating Hours: 306.75

Bit Grade / Condition I.A.D.C.: 2 / 4 / FC / H / E / 1 / BT / BHA / T / B / G: / /

Remarks:

Formations Drilled: Muskwa

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	12,000	26,000	R.P.M.:	90	125
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	7,900	8,300	Fluid Density:	1,070	1,100
Drift Angle:	37.000	41.000	Funnel Viscosity:	57	59

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 10 Make: Smith Type: F-3H IADC Series / Type: /
 Serial #: MM3338 Size: 222.0 Jets / Nozzles: 14.30 / 14.30 / 14.30 / T.F.A.: /
 Depth In: 2,882.00 Depth Out: 3,075.00 Made: 193.00 Rotating Hours: 51.25
 Average Drill Rate: 3.77 Total Rotating Hours: 358.00

Bit Grade / Condition I.A.D.C.: 3 / 4 / BT / H / E / 2 / WT / TD / T / B / G: / /

Remarks:

Formations Drilled: Muskwa, top of Nahanni.

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	15,000	40,000	R.P.M.:	80	120
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	8,100	8,400	Fluid Density:	1,080	1,100
Drift Angle:	43.000	65.000	Funnel Viscosity:	54	62

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 11 Make: Hughes Type: R382DG3K IADC Series / Type: /
 Serial #: 1904745 Size: 156.0 Jets / Nozzles: 12.70 / 12.70 / 12.70 / 12.70 T.F.A.: /
 Depth In: 3,075.00 Depth Out: 3,390.00 Made: 315.00 Rotating Hours: 65.25
 Average Drill Rate: 4.83 Total Rotating Hours: 423.25

Bit Grade / Condition I.A.D.C.: 1 / 2 / WT / A / X / 1 / CT / PR / T / B / G: / /

Remarks:

Formations Drilled: Nahanni

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	5,000	22,000	R.P.M.:	110	120
Pump 1 S.P.M. / Volume:	80	780	Pump 2 S.P.M. / Volume:	80	780
S.P.P.:	9,500	14,000	Fluid Density:	1,000	1,070
Drift Angle:	65.000	85.000	Funnel Viscosity:	36	50

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

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Bit Data

Storage Units:

Metric

Bit #: 12 Make: Hughes Type: DP0798 IADC Series / Type: /
Serial #: 7300349 Size: 156.0 Jets / Nozzles: 12.70 / 12.70 / 12.70 / 12.70 T.F.A.: /
Depth In: 3,390.00 Depth Out: 3,406.00 Made: 16.00 Rotating Hours: 7.50
Average Drill Rate: 2.13 Total Rotating Hours: 430.75

Bit Grade / Condition I.A.D.C.: 1 / 1 / CT / H / X / 1 / NO / DMF / T / B / G: / /

Remarks:

Formations Drilled: Nahanni

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	4,000	17,000	R.P.M.:	110	120
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	9,500	12,000	Fluid Density:	1,070	1,080
Drift Angle:	84.000	84.600	Funnel Viscosity:	44	47

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 13 Make: Hughes Type: HOM404 IADC Series / Type: /
Serial #: 7102095 Size: 156.0 Jets / Nozzles: 12.70 / 12.70 / 12.70 / 12.70 T.F.A.: /
Depth In: 3,406.00 Depth Out: 3,590.00 Made: 184.00 Rotating Hours: 61.50
Average Drill Rate: 2.99 Total Rotating Hours: 492.25

Bit Grade / Condition I.A.D.C.: 6 / 7 / BT / A / X / 1 / JD / PR / T / B / G: / /

Remarks:

Formations Drilled: Nahanni

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	4,000	26,000	R.P.M.:	110	120
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	10,000	13,000	Fluid Density:	1,065	1,080
Drift Angle:	84.000	89.000	Funnel Viscosity:	42	48

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Bit #: 14 Make: Hughes Type: STX 30 IADC Series / Type: /
Serial #: 5000689 Size: 156.0 Jets / Nozzles: blank / blank / blank / T.F.A.: /
Depth In: 3,590.00 Depth Out: 3,599.00 Made: 9.00 Rotating Hours: 7.75
Average Drill Rate: 1.16 Total Rotating Hours: 500.00

Bit Grade / Condition I.A.D.C.: 2 / 3 / WT / A / E / 1 / NO / DMF / TD T / B / G: / /

Remarks:

Formations Drilled: Nahanni

Drilling Parameters

	Min	Max		Min	Max
Force on Bit:	5,000	28,000	R.P.M.:	110	120
Pump 1 S.P.M. / Volume:	/	/	Pump 2 S.P.M. / Volume:	/	/
S.P.P.:	12,500	13,800	Fluid Density:	1,070	1,080
Drift Angle:	90.000	92.000	Funnel Viscosity:	43	45

Annular Velocity
Bottoms Up

Drill Collars:
Depth:

HeavyWeight Drill Pipe:
Theoretical:

Drill Pipe:
Actual:

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
96.50	96.49	1.050	296.90	0.40	-0.79	0.74	0.33
170.00	169.99	0.380	312.20	0.87	-1.57	1.54	0.28
265.55	265.53	1.350	354.30	2.20	-1.92	2.87	0.34
286.64	286.61	2.120	6.90	2.84	-1.89	3.40	1.22
294.62	294.58	2.850	355.50	3.18	-1.89	3.70	3.30
304.00	303.94	3.880	351.40	3.73	-1.96	4.21	3.38
313.20	313.12	5.030	348.20	4.43	-2.09	4.88	3.84
322.60	322.47	6.150	346.90	5.32	-2.29	5.75	3.60
332.50	332.30	7.180	346.10	6.44	-2.55	6.85	3.13
341.90	341.62	8.060	344.10	7.64	-2.88	8.05	2.93
351.50	351.12	8.490	339.90	8.96	-3.30	9.40	2.32
360.80	360.31	9.240	337.90	10.29	-3.82	10.82	2.62
371.00	370.37	9.530	336.00	11.82	-4.47	12.47	1.25
380.20	379.43	10.350	335.70	13.27	-5.12	14.05	2.68
390.40	389.46	10.830	334.80	14.97	-5.91	15.92	1.49
400.30	399.18	11.350	334.30	16.69	-6.73	17.81	1.60
410.10	408.78	11.630	332.70	18.44	-7.60	19.76	1.30
419.70	418.17	12.350	330.90	20.20	-8.54	21.75	2.54
426.50	426.75	13.080	330.40	21.89	-9.49	23.69	2.52
438.70	436.68	13.730	331.60	23.95	-10.63	26.05	2.08
448.60	446.27	14.950	333.70	26.13	-11.76	28.50	4.02
457.20	454.54	16.580	332.70	28.22	-12.81	30.84	5.76
466.90	463.81	18.030	330.30	30.75	-14.19	33.72	5.00
475.90	472.34	18.980	330.10	33.23	-15.61	36.58	3.17
485.00	480.93	19.700	331.60	35.86	-17.08	39.59	2.88
494.30	489.66	20.330	333.00	38.68	-18.56	42.77	2.55
504.30	499.02	21.150	333.00	41.84	-20.17	46.30	2.46
513.80	507.84	22.480	333.50	44.99	-21.75	49.33	4.24
523.10	516.39	23.800	331.40	48.23	-23.45	53.48	5.02
532.80	525.22	24.980	331.30	51.74	-25.37	57.48	3.65
542.20	533.74	25.150	329.30	55.20	-27.34	61.46	2.76
552.10	542.68	25.520	327.50	58.81	-29.56	65.70	2.59
562.00	551.58	26.530	328.20	62.49	-31.87	70.04	3.20
571.60	560.13	27.580	328.70	66.21	-34.16	74.40	3.36
580.90	568.34	28.520	328.50	69.94	-36.43	78.78	3.05

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
590.70	576.93	29.020	329.60	73.99	-38.86	83.49	2.23
599.80	584.86	29.650	330.10	77.84	-41.10	87.95	2.23
610.00	593.69	30.500	330.50	82.28	-43.63	93.06	2.57
619.70	601.90	31.900	331.00	86.66	-46.09	98.09	4.40
629.60	610.33	33.100	331.30	91.32	-48.65	103.40	3.67
639.30	618.42	33.920	331.10	96.02	-51.23	108.76	2.56
648.60	626.11	34.630	330.30	100.58	-53.79	113.99	2.71
658.80	634.46	35.380	330.30	105.67	-56.69	119.85	2.21
668.50	642.33	36.100	331.00	110.60	-59.47	125.51	2.56
678.40	650.30	36.750	330.40	115.73	-62.35	131.39	2.25
688.00	657.97	37.220	329.80	120.74	-65.23	137.16	1.85
697.70	665.68	37.500	330.10	125.83	-68.17	143.05	1.03
707.30	673.28	37.720	329.40	130.89	-71.13	148.91	1.50
715.50	679.75	38.180	329.80	135.24	-73.68	153.95	1.91
745.59	703.62	36.850	331.40	151.20	-82.68	172.27	1.64
763.91	718.51	34.320	332.50	160.61	-87.69	182.92	4.27
773.60	726.57	33.170	333.60	165.41	-90.13	188.30	4.03
792.50	742.54	31.560	333.20	174.45	-94.66	198.40	2.58
811.60	758.90	30.560	332.50	183.22	-99.16	208.24	1.67
820.00	766.15	29.960	333.00	186.98	-101.09	212.66	2.32
841.55	785.01	27.920	333.07	196.28	-105.82	222.87	2.84
850.68	793.09	27.610	333.60	200.00	-107.73	227.12	1.30
870.00	810.34	25.950	333.20	207.66	-111.03	235.81	2.59
879.47	818.85	26.020	333.10	211.56	-113.50	239.95	0.26
889.03	827.43	26.300	332.80	215.32	-115.42	244.16	0.97
898.58	835.95	27.350	333.00	219.15	-117.38	248.46	3.31
908.21	844.47	28.380	332.80	223.16	-119.43	252.96	3.22
917.61	852.71	29.020	332.40	227.17	-121.51	257.46	2.13
927.16	861.05	29.350	331.60	231.28	-123.70	262.12	1.61
936.66	869.31	29.800	331.70	235.41	-125.92	266.80	1.43
946.23	877.59	30.300	331.00	239.61	-128.22	271.60	1.91
955.75	885.79	30.900	332.40	243.88	-130.52	276.44	2.94
964.93	893.65	31.250	331.30	248.06	-132.75	281.17	2.18
974.56	901.88	31.300	331.40	252.44	-135.15	286.17	0.22
984.10	910.04	31.220	329.80	256.76	-137.58	291.12	2.62

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
993.63	918.18	31.480	329.50	261.04	-140.09	296.08	0.95
1,003.17	926.31	31.450	330.50	265.35	-142.57	301.06	1.64
1,012.73	934.46	31.670	329.40	269.68	-145.08	306.06	1.93
1,022.70	942.92	32.150	329.60	274.22	-147.76	311.33	1.48
1,031.61	950.47	32.170	329.30	278.30	-150.17	316.07	0.54
1,041.16	958.54	32.480	329.80	282.71	-152.75	321.18	1.29
1,050.61	966.47	33.400	329.10	287.13	-155.37	326.32	3.16
1,060.21	974.46	33.780	328.00	291.66	-158.14	331.63	2.24
1,069.76	982.39	33.980	327.40	296.16	-160.98	336.95	1.22
1,079.32	990.29	34.580	327.10	300.69	-163.89	342.33	1.96
1,088.92	998.16	35.250	328.00	305.33	-166.84	347.82	2.64
1,098.34	1,005.82	36.080	329.10	310.01	-169.71	353.31	3.34
1,107.85	1,013.47	36.680	330.00	314.88	-172.57	358.95	2.53
1,117.02	1,020.78	37.650	329.20	319.65	-175.37	364.49	3.55
1,135.95	1,035.68	38.550	328.60	329.65	-181.40	376.17	1.54
1,145.45	1,043.13	38.080	328.30	334.67	-184.49	382.06	1.60
1,154.92	1,050.59	38.030	327.60	339.62	-187.58	387.89	1.38
1,174.02	1,065.58	38.500	328.60	349.66	-193.83	399.71	1.22
1,193.18	1,080.70	37.330	328.80	359.72	-199.95	411.48	1.84
1,212.35	1,095.93	37.450	329.50	369.72	-205.92	423.12	0.59
1,231.36	1,111.00	37.630	330.50	379.75	-211.71	434.71	1.00
1,250.18	1,125.90	37.680	329.40	389.70	-217.47	446.20	1.07
1,269.30	1,141.04	37.600	329.10	399.73	-223.44	457.88	0.31
1,288.02	1,155.85	37.830	329.60	409.59	-229.27	469.33	0.61
1,306.51	1,170.44	37.980	328.30	419.32	-235.13	480.69	1.32
1,325.70	1,185.56	38.030	328.80	429.40	-241.30	492.50	0.49
1,344.80	1,200.64	37.730	328.50	439.41	-247.40	504.23	0.55
1,363.99	1,215.80	37.880	328.00	449.41	-253.59	515.98	0.53
1,382.39	1,230.30	38.080	327.60	459.00	-259.62	527.30	0.52
1,401.51	1,245.42	37.500	329.20	468.97	-265.76	539.01	1.79
1,420.49	1,260.57	36.530	331.80	478.92	-271.39	550.43	2.91
1,439.50	1,275.83	36.650	330.20	488.83	-276.88	561.76	1.52
1,458.45	1,291.00	37.030	330.50	498.70	-282.51	573.12	0.67
1,477.00	1,305.86	36.530	330.27	508.36	-287.99	584.23	0.24
1,496.41	1,321.42	36.880	330.14	518.42	-293.76	595.83	0.55

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
1,515.41	1,336.54	37.670	331.47	528.47	-299.37	607.34	1.78
1,533.52	1,350.89	37.550	331.54	538.18	-304.64	618.38	0.21
1,553.57	1,366.83	37.100	332.24	546.90	-310.37	630.53	0.93
1,570.97	1,380.69	37.280	331.72	558.19	-315.31	641.04	0.62
1,597.92	1,402.18	36.950	332.54	572.56	-322.91	657.29	0.66
1,616.93	1,417.45	36.220	332.12	582.60	-328.18	668.61	1.22
1,635.86	1,432.75	35.850	333.22	592.49	-333.29	679.73	1.18
1,654.90	1,448.24	35.250	333.62	602.39	-338.24	690.78	1.01
1,672.88	1,462.96	34.900	333.52	611.64	-342.84	701.09	0.59
1,693.86	1,480.13	35.420	331.24	622.36	-348.45	713.17	2.02
1,712.58	1,495.35	35.650	328.77	631.77	-353.88	724.04	2.33
1,732.10	1,511.10	36.720	329.59	641.86	-359.78	735.56	1.80
1,751.18	1,526.31	37.550	329.19	651.58	-365.65	747.08	1.36
1,770.09	1,541.26	38.030	328.09	661.47	-371.68	758.66	1.31
1,789.10	1,556.26	37.780	327.52	671.35	-377.90	770.34	0.68
1,807.92	1,571.25	36.550	327.92	680.97	-383.97	781.70	2.00
1,826.96	1,586.49	37.180	328.67	690.68	-389.98	793.11	1.22
1,846.09	1,601.71	37.380	327.92	700.54	-396.07	804.70	0.78
1,865.19	1,616.89	37.300	330.47	710.49	-402.00	816.28	2.43
1,884.36	1,632.17	37.050	330.64	720.58	-407.69	827.86	0.42
1,903.36	1,647.37	36.670	333.82	730.66	-413.00	839.25	3.07
1,922.29	1,662.64	35.850	334.87	740.75	-417.85	850.41	1.63
1,941.27	1,677.86	37.450	334.67	751.00	-422.68	861.69	2.54
1,960.36	1,692.97	37.970	334.17	761.53	-427.72	873.33	0.95
1,979.39	1,707.98	37.850	334.32	772.06	-432.80	884.99	0.24
1,998.38	1,723.00	37.600	336.19	782.61	-437.67	896.56	1.85
2,017.31	1,737.94	38.150	335.69	793.23	-442.41	908.11	1.00
2,036.30	1,752.81	38.850	332.87	803.87	-447.54	919.90	2.99
2,055.33	1,767.61	39.030	332.79	814.51	-453.00	931.84	0.29
2,074.38	1,782.43	38.830	331.82	825.11	-458.56	943.80	1.01
2,093.44	1,797.23	39.280	330.59	835.63	-464.35	955.81	1.41
2,112.36	1,811.93	38.730	328.52	845.90	-470.38	967.71	2.24
2,133.02	1,828.08	38.480	330.32	857.00	-476.94	980.60	1.67
2,152.04	1,842.99	38.280	330.57	867.27	-482.76	992.41	0.40
2,169.88	1,857.01	38.050	329.22	876.81	-488.29	1,003.43	1.46

Directional Survey Points

Storage Units: Meins

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
2,189.93	1,872.81	38.000	329.32	887.42	-494.60	1,015.78	0.12
2,209.04	1,887.91	37.530	329.17	897.49	-500.59	1,027.49	0.67
2,228.10	1,903.02	37.480	330.02	907.50	-506.47	1,039.10	0.83
2,247.04	1,918.05	37.550	331.02	917.54	-512.14	1,050.64	0.97
2,265.99	1,933.12	37.050	328.82	927.48	-517.89	1,062.12	2.25
2,285.05	1,948.36	36.800	328.49	937.26	-523.85	1,073.57	0.50
2,304.05	1,963.58	36.750	329.47	947.00	-529.71	1,084.94	0.93
2,323.09	1,978.90	36.130	330.77	956.81	-535.35	1,096.25	1.56
2,342.02	1,994.16	36.400	330.69	966.58	-540.82	1,107.44	0.43
2,360.98	2,009.40	36.580	330.70	976.41	-546.34	1,118.72	0.28
2,380.13	2,024.80	36.350	331.60	986.38	-551.83	1,130.10	0.91
2,399.97	2,040.73	36.900	331.00	996.76	-557.52	1,141.93	0.99
2,418.51	2,055.62	36.250	330.70	1,006.41	-562.90	1,152.97	1.09
2,437.90	2,071.30	35.800	333.40	1,016.48	-568.24	1,164.37	2.55
2,456.90	2,086.67	36.200	332.40	1,026.42	-573.33	1,175.52	1.12
2,476.00	2,102.07	36.300	332.90	1,036.45	-578.52	1,186.80	0.49
2,495.00	2,117.32	36.970	332.60	1,046.53	-583.71	1,198.12	1.10
2,512.87	2,131.60	36.880	332.70	1,056.07	-588.64	1,208.85	0.18
2,532.85	2,147.55	37.250	330.40	1,066.65	-594.38	1,220.88	2.15
2,551.79	2,162.65	37.030	329.70	1,076.56	-600.09	1,232.32	0.75
2,569.60	2,176.89	36.800	332.00	1,085.90	-605.30	1,243.01	2.36
2,588.20	2,191.78	36.800	332.70	1,095.77	-610.47	1,254.14	0.68
2,597.70	2,199.38	36.900	332.30	1,100.82	-613.10	1,259.83	0.82
2,627.31	2,222.90	37.930	330.70	1,116.63	-621.69	1,277.81	1.43
2,646.36	2,237.85	38.650	329.50	1,126.86	-627.57	1,289.62	1.63
2,665.10	2,252.45	39.050	328.70	1,136.95	-633.61	1,301.37	1.03
2,684.10	2,267.24	38.700	328.90	1,147.15	-639.79	1,313.29	0.59
2,705.51	2,283.97	38.500	328.30	1,158.55	-646.75	1,326.65	0.59
2,724.90	2,299.19	38.100	327.00	1,168.70	-653.17	1,338.66	1.39
2,743.60	2,313.81	39.100	322.50	1,178.22	-659.91	1,350.27	4.78
2,753.10	2,321.21	38.400	322.70	1,182.94	-663.52	1,356.17	2.25
2,762.70	2,328.75	38.100	323.50	1,187.70	-667.09	1,362.07	1.81
2,772.30	2,336.33	37.600	324.50	1,192.46	-670.55	1,367.93	2.47
2,781.80	2,343.88	37.200	324.50	1,197.16	-673.90	1,373.67	1.26
2,791.40	2,351.52	37.300	325.00	1,201.91	-677.26	1,379.46	1.00

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
2,800.60	2,358.84	37.400	323.00	1,206.42	-680.54	1,385.01	3.97
2,810.10	2,366.37	37.600	324.80	1,211.09	-683.94	1,390.77	3.52
2,819.50	2,373.81	37.900	325.80	1,215.82	-687.22	1,396.50	2.18
2,829.00	2,381.28	38.300	327.10	1,220.71	-690.46	1,402.35	2.83
2,838.50	2,388.69	39.300	328.70	1,225.75	-693.62	1,408.30	4.47
2,848.10	2,396.07	40.200	330.30	1,231.04	-696.73	1,414.44	4.26
2,857.30	2,403.05	41.000	330.50	1,236.25	-699.69	1,420.43	2.64
2,866.80	2,410.19	41.500	329.50	1,241.67	-702.82	1,426.69	2.61
2,872.80	2,414.69	41.400	330.30	1,245.11	-704.82	1,430.66	2.69
2,882.30	2,421.79	42.000	329.70	1,250.58	-707.98	1,436.98	2.28
2,891.80	2,428.79	43.000	330.70	1,256.15	-711.16	1,443.40	3.81
2,901.20	2,435.55	45.000	330.60	1,261.84	-714.37	1,449.93	6.39
2,910.50	2,442.03	46.700	331.20	1,267.67	-717.61	1,456.60	5.66
2,919.30	2,448.00	47.900	333.20	1,273.39	-720.62	1,463.06	6.47
2,929.30	2,454.62	49.200	333.50	1,280.09	-723.99	1,470.54	3.96
2,938.60	2,460.63	50.200	333.10	1,286.43	-727.17	1,477.62	3.37
2,947.90	2,466.50	51.500	332.50	1,292.84	-730.47	1,484.82	4.45
2,957.70	2,472.54	52.500	331.90	1,299.67	-734.07	1,492.54	3.39
2,967.00	2,478.12	53.700	331.40	1,306.22	-737.60	1,499.97	4.08
2,976.80	2,483.83	55.000	331.90	1,313.23	-741.39	1,507.93	4.17
2,986.10	2,489.07	56.400	330.50	1,319.96	-745.09	1,515.61	5.86
2,995.60	2,494.30	56.800	330.20	1,326.85	-749.01	1,523.54	1.49
3,005.10	2,499.43	57.900	328.90	1,333.74	-753.06	1,531.54	4.90
3,014.60	2,504.41	58.800	329.10	1,340.68	-757.23	1,539.63	2.89
3,024.00	2,509.18	60.200	329.30	1,347.63	-761.38	1,547.73	4.50
3,033.50	2,513.80	61.600	330.00	1,354.80	-765.57	1,556.03	4.82
3,043.00	2,518.23	62.800	330.80	1,362.10	-769.72	1,564.43	4.40
3,052.60	2,522.55	63.800	330.30	1,369.57	-773.94	1,573.01	3.42
3,059.70	2,525.61	65.000	331.60	1,375.17	-777.05	1,579.41	7.09
3,075.29	2,532.12	65.680	330.80	1,387.58	-783.87	1,593.57	1.92
3,082.00	2,534.82	66.820	330.00	1,392.92	-786.91	1,599.71	6.06
3,091.06	2,538.37	67.130	330.40	1,400.16	-791.05	1,608.05	1.59
3,100.50	2,542.04	67.080	330.80	1,407.74	-795.32	1,616.75	1.18
3,110.24	2,545.77	67.820	331.00	1,415.60	-799.69	1,625.74	2.35
3,120.12	2,549.52	67.550	332.10	1,423.63	-804.05	1,634.88	3.20

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
3,129.67	2,553.20	67.130	333.50	1,431.47	-808.08	1,643.68	4.27
3,139.55	2,556.99	67.820	333.20	1,439.63	-812.17	1,652.79	2.26
3,149.09	2,560.53	68.650	335.10	1,447.60	-816.03	1,661.62	6.13
3,158.87	2,563.99	69.830	333.30	1,455.83	-820.01	1,670.74	6.31
3,168.73	2,567.26	71.430	334.00	1,464.17	-824.14	1,680.02	5.27
3,178.35	2,570.29	71.880	336.80	1,472.47	-827.94	1,689.11	8.41
3,187.95	2,573.15	73.530	337.70	1,480.92	-831.48	1,698.19	5.81
3,197.62	2,575.81	74.450	337.77	1,489.52	-835.01	1,707.40	2.86
3,206.99	2,578.29	74.930	338.92	1,497.92	-838.34	1,716.34	3.87
3,216.44	2,580.68	75.780	339.54	1,506.47	-841.58	1,725.36	3.30
3,226.18	2,583.01	76.480	340.75	1,515.37	-844.79	1,734.66	4.21
3,236.44	2,585.30	77.740	342.00	1,524.84	-847.99	1,744.46	5.13
3,246.20	2,587.30	78.580	342.22	1,533.93	-850.92	1,753.80	2.67
3,255.99	2,589.19	79.250	343.52	1,543.11	-853.75	1,763.16	4.42
3,265.61	2,590.93	79.880	345.09	1,552.22	-856.31	1,772.32	5.20
3,275.45	2,592.59	80.650	345.04	1,561.59	-858.61	1,781.67	2.35
3,285.29	2,594.08	81.930	345.47	1,571.00	-861.29	1,791.05	4.11
3,295.00	2,595.41	82.380	346.14	1,580.32	-863.65	1,800.30	2.48
3,304.88	2,596.72	82.400	346.64	1,589.84	-865.95	1,809.69	1.51
3,314.60	2,598.01	82.350	346.10	1,599.20	-868.22	1,818.92	1.66
3,324.00	2,599.16	83.580	348.35	1,608.30	-870.28	1,827.82	8.14
3,333.96	2,600.22	84.180	350.37	1,618.03	-872.11	1,837.16	6.31
3,343.72	2,601.21	84.200	352.67	1,627.64	-873.54	1,846.18	7.03
3,353.50	2,602.19	84.300	354.85	1,637.31	-874.60	1,855.07	6.66
3,363.00	2,603.21	83.350	355.17	1,646.72	-875.42	1,863.62	3.16
3,372.42	2,604.19	84.650	354.45	1,656.05	-876.27	1,872.11	4.73
3,382.20	2,605.08	84.930	355.17	1,665.75	-877.15	1,880.94	2.36
3,391.93	2,605.97	84.580	356.15	1,675.41	-877.88	1,889.67	3.22
3,401.30	2,606.87	84.450	358.42	1,684.73	-878.33	1,897.94	7.25
3,410.96	2,607.79	84.530	358.47	1,694.34	-878.59	1,906.38	0.29
3,421.27	2,608.79	84.430	359.47	1,704.60	-878.77	1,915.35	2.91
3,431.06	2,609.68	85.050	359.97	1,714.35	-878.82	1,923.80	2.44
3,440.74	2,610.57	84.430	358.59	1,723.98	-878.94	1,932.20	4.57
3,450.49	2,611.41	85.750	357.84	1,733.69	-879.24	1,940.74	4.67
3,460.23	2,612.25	84.250	357.67	1,743.39	-879.62	1,949.22	4.65

Directional Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
3,469.94	2,613.24	84.100	358.47	1,753.04	-879.95	1,957.83	2.50
3,479.76	2,614.17	85.000	357.07	1,762.81	-880.33	1,966.46	5.07
3,489.53	2,614.93	86.100	358.89	1,772.55	-880.67	1,975.05	6.52
3,499.30	2,615.61	85.970	359.19	1,782.29	-880.83	1,983.56	1.00
3,508.94	2,616.51	83.220	0.17	1,791.89	-880.99	1,991.88	9.08
3,518.73	2,617.56	84.500	0.47	1,801.62	-880.85	2,000.27	4.03
3,529.60	2,618.40	86.600	0.17	1,812.46	-880.77	2,009.61	5.85
3,538.23	2,618.78	88.350	0.74	1,821.08	-880.70	2,017.03	6.40
3,548.01	2,619.00	89.100	1.44	1,830.85	-880.52	2,025.39	3.15
3,557.75	2,619.22	88.280	1.32	1,840.59	-880.28	2,033.69	2.55
3,567.40	2,619.39	89.720	359.10	1,850.24	-880.25	2,042.01	8.23
3,575.57	2,619.38	90.400	354.77	1,858.39	-880.69	2,049.28	16.09
3,584.38	2,619.27	91.150	352.57	1,867.15	-881.66	2,057.34	7.91
3,599.00	2,618.86	92.000	349.00	1,881.57	-884.00	2,070.99	7.53

Directional Survey Points

Storage Units: Metric

Survey Type: drift / wireline

Measured Depth	T.V.D.	Drift Angle (°)	Azimuth (°)	+N / -S Distance	+E / -W Distance	Vertical Section	DogLeg Severity
80.00		0.500					
117.00		0.500					
144.00		0.750					
201.00		0.750					

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	Drift Angle (°)	TVD	Measured Depth	Drift Angle (°)	TVD
96.50	1.050	96.49	580.90	28.520	568.34
170.00	0.380	169.99	590.70	29.020	576.93
265.55	1.350	265.53	599.80	29.650	584.86
286.64	2.120	286.61	610.00	30.500	593.69
294.62	2.850	294.58	619.70	31.900	601.98
304.00	3.880	303.94	629.60	33.100	610.33
313.20	5.030	313.12	639.30	33.920	618.42
321.60	6.150	322.47	648.60	34.630	626.11
332.50	7.180	332.30	658.80	35.380	634.46
341.90	8.060	341.82	668.50	36.100	642.33
351.50	8.490	351.12	678.40	36.750	650.30
360.80	9.240	360.31	688.00	37.220	657.97
371.00	9.530	370.37	697.70	37.500	665.68
380.20	10.350	379.43	707.30	37.720	673.28
390.40	10.830	389.46	715.50	38.180	679.75
400.30	11.350	399.18	745.59	36.850	703.62
410.10	11.630	408.78	763.91	34.320	718.51
419.70	12.350	418.17	773.60	33.170	726.57
428.50	13.080	426.75	792.50	31.560	742.54
438.70	13.730	436.68	811.60	30.560	758.90
448.60	14.950	446.27	820.00	29.960	766.15
457.20	16.580	454.54	841.55	27.920	785.01
466.90	18.030	463.81	850.68	27.610	793.09
475.90	18.980	472.34	870.00	25.950	810.34
485.00	19.700	480.93	879.47	26.020	818.85
494.30	20.330	489.66	889.03	26.300	827.43
504.30	21.150	499.02	898.58	27.350	835.95
513.80	22.480	507.84	908.21	28.380	844.47
523.10	23.800	516.39	917.61	29.020	852.71
532.80	24.980	525.22	927.16	29.350	861.05
542.20	25.150	533.74	936.66	29.800	869.31
552.10	25.520	542.68	946.23	30.300	877.59
562.00	26.530	551.58	955.75	30.900	885.79
571.60	27.580	560.13	964.93	31.250	893.65

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	Drift Angle (°)	TVD	Measured Depth	Drift Angle (°)	TVD
974.56	31.300	901.88	1,458.45	37.030	1,291.00
984.10	31.220	910.04	1,477.00	36.530	1,305.86
995.63	31.480	918.18	1,496.41	36.880	1,321.42
1,003.17	31.450	926.31	1,515.41	37.670	1,336.54
1,012.73	31.670	934.46	1,533.52	37.550	1,350.89
1,022.70	32.150	942.92	1,553.57	37.100	1,366.83
1,031.61	32.170	950.47	1,570.97	37.280	1,380.69
1,041.16	32.480	958.54	1,597.92	36.950	1,402.18
1,050.61	33.400	966.47	1,616.93	36.220	1,417.45
1,060.21	33.780	974.46	1,635.86	35.850	1,432.75
1,069.76	33.980	982.39	1,654.90	35.250	1,448.24
1,079.32	34.580	990.29	1,672.88	34.900	1,462.96
1,088.92	35.250	998.16	1,693.88	35.420	1,480.13
1,098.34	36.080	1,005.82	1,712.58	35.650	1,495.35
1,107.85	36.680	1,013.47	1,732.10	36.720	1,511.10
1,117.02	37.650	1,020.78	1,751.18	37.550	1,526.31
1,135.95	38.550	1,035.68	1,770.09	38.030	1,541.26
1,145.45	38.080	1,043.13	1,789.10	37.780	1,556.26
1,154.92	38.030	1,050.59	1,807.92	36.550	1,571.25
1,174.02	38.500	1,065.58	1,826.96	37.180	1,586.49
1,193.18	37.330	1,080.70	1,846.09	37.380	1,601.71
1,212.35	37.450	1,095.93	1,865.19	37.300	1,616.89
1,231.36	37.630	1,111.00	1,884.36	37.050	1,632.17
1,250.18	37.680	1,125.90	1,903.36	36.670	1,647.37
1,269.30	37.600	1,141.04	1,922.29	35.850	1,662.64
1,288.02	37.830	1,155.85	1,941.27	37.450	1,677.86
1,306.51	37.980	1,170.44	1,960.36	37.970	1,692.97
1,325.70	38.030	1,185.56	1,979.39	37.850	1,707.98
1,344.80	37.730	1,200.64	1,998.38	37.600	1,723.00
1,363.99	37.880	1,215.80	2,017.31	38.150	1,737.94
1,382.39	38.080	1,230.30	2,036.30	38.850	1,752.81
1,401.51	37.500	1,245.42	2,055.33	39.030	1,767.61
1,420.49	36.530	1,260.57	2,074.38	38.830	1,782.43
1,439.50	36.650	1,275.83	2,093.44	39.280	1,797.23

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	Drift Angle (°)	TVD	Measured Depth	Drift Angle (°)	TVD
2,112.36	38.730	1,811.93	2,753.10	38.400	2,321.21
2,133.02	38.480	1,828.00	2,762.70	38.100	2,328.75
2,152.04	38.280	1,842.99	2,772.30	37.600	2,336.33
2,169.65	38.050	1,857.01	2,781.80	37.200	2,343.88
2,189.93	38.000	1,872.81	2,791.40	37.300	2,351.52
2,209.04	37.580	1,887.91	2,800.60	37.400	2,358.84
2,228.10	37.480	1,903.02	2,810.10	37.600	2,366.37
2,247.04	37.550	1,918.05	2,819.50	37.900	2,373.81
2,265.99	37.050	1,933.12	2,829.00	38.300	2,381.28
2,285.05	36.800	1,948.36	2,838.50	39.300	2,388.69
2,304.05	36.750	1,963.58	2,848.10	40.200	2,396.07
2,323.09	36.130	1,978.90	2,857.30	41.000	2,403.05
2,342.02	36.400	1,994.15	2,866.80	41.500	2,410.19
2,360.98	36.580	2,009.40	2,872.80	41.400	2,414.69
2,380.13	36.350	2,024.80	2,882.30	42.000	2,421.79
2,399.97	36.800	2,040.73	2,891.80	43.000	2,428.79
2,418.51	36.250	2,055.62	2,901.20	45.000	2,435.55
2,437.90	35.800	2,071.30	2,910.50	46.700	2,442.03
2,456.90	36.200	2,086.67	2,919.30	47.900	2,448.00
2,476.00	36.300	2,102.07	2,929.30	49.200	2,454.62
2,495.00	36.970	2,117.32	2,938.60	50.200	2,460.63
2,512.87	36.880	2,131.60	2,947.90	51.500	2,466.50
2,532.85	37.250	2,147.55	2,957.70	52.500	2,472.54
2,551.79	37.030	2,162.65	2,967.00	53.700	2,478.12
2,569.60	36.800	2,176.89	2,976.80	55.000	2,483.83
2,588.20	36.800	2,191.78	2,986.10	56.400	2,489.07
2,597.70	36.900	2,199.38	2,995.60	56.800	2,494.30
2,627.31	37.930	2,222.90	3,005.10	57.900	2,499.43
2,646.36	38.650	2,237.85	3,014.60	58.800	2,504.41
2,665.10	39.050	2,252.45	3,024.00	60.200	2,509.18
2,684.10	38.700	2,267.24	3,033.50	61.600	2,513.80
2,705.51	38.500	2,283.97	3,043.00	62.800	2,518.23
2,724.90	38.100	2,299.19	3,052.60	63.800	2,522.55
2,743.60	39.100	2,313.81	3,059.70	65.000	2,525.61

Deviation Survey Points

Storage Units: Metric

Survey Type: electronic / MWD

Measured Depth	Drift Angle (°)	TVD	Measured Depth	Drift Angle (°)	TVD
3,075.29	65.680	2,532.12	3,401.30	84.450	2,606.87
3,082.00	66.820	2,534.82	3,410.96	84.530	2,607.79
3,091.06	67.130	2,538.37	3,421.27	84.430	2,608.79
3,100.50	67.080	2,542.04	3,431.06	85.050	2,609.68
3,110.24	67.820	2,545.77	3,440.74	84.430	2,610.57
3,120.12	67.550	2,549.52	3,450.49	85.750	2,611.41
3,129.67	67.130	2,553.20	3,460.23	84.250	2,612.25
3,139.55	67.820	2,556.99	3,469.94	84.100	2,613.24
3,149.09	68.650	2,560.53	3,479.76	85.000	2,614.17
3,158.87	69.830	2,563.99	3,489.53	86.100	2,614.93
3,168.73	71.430	2,567.26	3,499.30	85.970	2,615.61
3,178.35	71.880	2,570.29	3,508.94	83.220	2,616.51
3,187.95	73.530	2,573.15	3,518.73	84.500	2,617.56
3,197.62	74.450	2,575.81	3,529.60	86.600	2,618.40
3,206.99	74.930	2,578.29	3,538.23	88.350	2,618.78
3,216.44	75.780	2,580.68	3,548.01	89.100	2,619.00
3,226.18	76.480	2,583.01	3,557.75	88.280	2,619.22
3,236.44	77.740	2,585.30	3,567.40	89.720	2,619.39
3,246.20	78.580	2,587.30	3,575.57	90.400	2,619.38
3,255.99	79.250	2,589.19	3,584.38	91.150	2,619.27
3,265.61	79.880	2,590.93	3,599.00	92.000	2,618.86
3,275.45	80.650	2,592.59			
3,285.29	81.930	2,594.08			
3,295.00	82.380	2,595.41			
3,304.88	82.400	2,596.72			
3,314.60	82.350	2,598.01			
3,324.00	83.580	2,599.16			
3,333.96	84.180	2,600.22			
3,343.72	84.200	2,601.21			
3,353.50	84.300	2,602.19			
3,363.00	83.350	2,603.21			
3,372.42	84.650	2,604.19			
3,382.20	84.930	2,605.08			
3,391.93	84.580	2,605.97			

Deviation Survey Points

Storage Units: Metric

Survey Type: drift / wireline

Measured Depth	Drift Angle (°)	TVD	Measured Depth	Drift Angle (°)	TVD
80.00	0.500				
117.00	0.500				
144.00	0.750				
201.00	0.750				

Drilling Fluid Summary

Storage Units:

Metric

Drilling Fluid Type:	Light Gel Chem	From:	0	To:	738
Drilling Fluid Type:	Invert HT-40 Base Oil	From:	738	To:	3,075
Drilling Fluid Type:	Polymer Clay Free	From:	3,075	To:	3,599

Formation Top Summary

Storage Units:

Metric

Kelly Bushing Elevation:
Ground Elevation:

416.60
409.90

Casing Flange Elevation:

**** All Depths measured from Kelly Bushing Elevation ****

Group Formation Member	Prognosis (TVD)	Sample Top (MD)	Sample Top (TVD)	Log Top (MD)	Log Top (TVD)	Subsea	Thickness
FLETT	55.00	55.50	55.49	52.00	51.99	364.61	
BESA RIVER	141.00	141.00	140.99	140.00	139.99	276.61	
Exshaw 1st Black Sha	1,243.60	1,397.00	1,241.85	1,392.50	1,238.29	-821.69	
LOWER BESA RIVER	1,525.60	1,852.00	1,606.41	1,851.50	1,606.01	-1,189.41	
MUSKWA	2,284.00	2,650.00	2,240.69	2,649.00	2,239.91	-1,823.31	
NAHANNI	2,540.00	3,056.50	2,524.23	3,057.50	2,524.66	-2,108.06	

Formation Evaluations

Storage Units: Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: FLETT
Member:
Boundary Type: angular unconformable
Fault Type:

Era:
Series:
Period: Mississippian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	55.50	55.49	361.11	
Log Top	52.00	51.99	364.61	

Evaluation:

The Flett is Limestone, medium brown to dark gray to dark brown gray, cryptocrystalline to microcrystalline, mudstone, argillaceous to very argillaceous, siliceous and hard, cherty, slightly fossiliferous, trace Crinoids, trace Gastropods, tight, trace microfractures with some fracture porosity at 90-92m, no shows, trace stylolites, trace pyrite, scattered Chert, dark gray, dark brown gray in part, hard, opaque, bedded, interbedded Marlstone, dark brown to dark gray brown, calcareous, tight, minor Shale, dark gray to dark brown gray, calcareous, hard, siliceous. Background gas while drilling Flett Limestone was very low ranging from .0009% to .0074% with no peaks.

Conclusion:

The Flett has no hydrocarbon production potential.

Formation Evaluations

Storage Units: Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

*All Depths Measured from Kelly Bushing Elevation*Group:
Formation: BESA RIVER
Member:
Boundary Type: conformable
Fault Type:Era:
Series:
Period: Mississippian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	141.00	140.99	275.61	
Log Top	140.00	139.99	276.61	

Evaluation:

The Upper Besa River is SHALE, medium gray, brown gray in part, fissile in part, calcareous to very calcareous grading to Marlstone, slightly siliceous and moderately indurated, moderately soft for most part, slightly bentonitic in part, slightly bituminous, slightly fossiliferous with scattered shell fragments, trace Brachiopods, trace Ostracods, trace Brachiopods, trace calcite healed microfractures, trace slickenside, trace pyrite, trace open microfractures with sparry calcite crystals at 310-315m, trace Limestone LIMESTONE, medium gray, gray brown in part, cryptocrystalline, mudstone, slightly argillaceous to marly, fossiliferous, Brachiopods, trace spicules, Crinoids, bioclastic in part, tight with trace fracture porosity, no shows, trace open fractures with sparry dogtooth calcite crystals to 2mm at 340-360m, scattered MARLSTONE, medium gray brown, cryptocrystalline, calcareous, slightly siliceous, slightly fossiliferous, tight, no shows, trace calcite healed microfractures, scattered Ironstone at 265-268m, medium tan brown, hard, tight. At 400-630m is scattered Siltstone, medium gray to green gray, argillaceous to very argillaceous, calcareous, trace glauconite, tight, no shows. There was a shift in background gas levels at 173m while drilling Upper Besa River Shale. Above 173m gas ranged from .00087% to .0012%. For the remainder of surface hole, 173-738m, gas ranged from .02% to .2% with peaks at 315m .29% in fractures and at 537m .21% in a carbonaceous section. The intermediate hole was drilled with invert oil based mud, and the interval 738-1397m, background gas ranged from .02% to .5% with peaks at 964m 1.13%, 1237m 1.27%, 1305m .53%, the interval 1357-1363m had high gas 3.2% to 4.96%, and another peak at 1381m 8.68%.

Conclusion:

The Upper Besa River has no hydrocarbon production potential.

Formation Evaluations

Storage Units:

Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: Exshaw 1st Black Shale
Member:
Boundary Type: conformable
Fault Type:

Era:
Series:
Period: Mississippian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	1,397.00	1,241.85	-825.25	
Log Top	1,392.50	1,238.29	-821.69	

Evaluation:

The Exshaw is SHALE, dark gray to black, very dark gray brown in part, medium gray brown in part, micromicaceous, fissile, slightly calcareous in part, bituminous, slightly sideritic in part, trace fossil remnants, trace Crinoids, trace disseminated pyrite with minor fine to coarse grained pyrite spherules, trace loose coarse calcite crystals, scattered microfractures mainly filled with anhydrite, minor slickenside, rare trace microfractures healed with quartz, trace hexagonal quartz, scattered Marlstone, dark brown to dark tan brown, calcareous, slightly fossiliferous, trace Ostracods, tight, no shows, trace pyrite, trace very fossiliferous brown Limestone stringers. Background gas while drilling Exshaw Shale ranged from 1% to 5% with many peaks including 1398m 5.58%, 1417m 5.59%, 1438m 5.07%, 1474m 7.13%, 1512m 6.38%, 1524m 7.47%, 1549m 4.46%, and 1719m 6.11%.

Conclusion:

The Exshaw Shale is bituminous and organic, looks like a good source rock, but has little hydrocarbon production potential.

Formation Evaluations

Storage Units:

Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: LOWER BESA RIVER
Member:
Boundary Type: conformable
Fault Type:

Era:
Series:
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	1,852.00	1,606.41	-1,189.81	
Log Top	1,851.50	1,606.01	-1,189.41	

Evaluation:

The Lower Besa River is SHALE, medium gray, medium green gray in part, to dark gray in part, pearly lustre in part, micromicaceous, fissile, mainly moderately soft with harder sideritic streaks, slightly bentonitic in part, calcareous to marly streaks, slightly fossiliferous, trace slickenside, trace siderite stringers, trace pyrite, slightly siliceous with trace clear quartz birdseye inclusions at 2050-2090m, trace fractures with calcite crystals and hexagonal quartz crystals to medium crystalline size, trace Limestone streaks, medium to dark brown to gray brown, cryptocrystalline, argillaceous, slightly fossiliferous, tight, no shows, trace thin Siltstone laminations, medium gray, very siliceous and hard, trace Shale streaks, very dark gray to black, micromicaceous, fissile, slightly dolomitic, slightly bituminous. Background gas levels through the Lower Besa River is divided into 3 intervals of increasing gas with depth: 1852-2050m .21% - .74% with peaks at 1921m 1.39%, and 1929m 1.03%; 2050-2107m .52% - 1.3% with peak at 2088m 1.99%; 2107-2650m 1.08% - 3.75% with peaks at 2287m 3.44%, 2604m 3.4%, and 2611m 3.75%.

Conclusion:

The Lower Besa River has little hydrocarbon production potential.

Formation Evaluations

Storage Units:

Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: MUSKWA
Member:
Boundary Type: conformable
Fault Type:

Era:
Series:
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	2,650.00	2,240.91	-1,824.09	
Log Top	2,649.00	2,239.91	-1,823.31	

Evaluation:

The Muskwa is SHALE, very dark gray to black, dark brown gray in part, micromicaceous, fissile to blocky, siliceous and hard in part, to very siliceous grading to Chert, slightly bituminous, trace slickenside, pyritic in part with scattered disseminated microcrystalline pyrite, trace microfractures, trace open fractures with trace fracture porosity at 2820-2880m, trace thin quartz healed microfractures, rare trace loose quartz crystal shards, abundant fractures open in part with coarse calcite fracture filling, abundant loose coarse to very coarse calcite crystals, trace very coarse hexagonal quartz crystals, minor black Chert, trace Marlstone, dark gray brown to black, dolomitic to calcareous, siliceous, slightly bituminous, tight. The lower third of Muskwa, below 2800m, becomes slightly calcareous and slightly softer. At the base of the Muskwa is Marlstone, dark brown to brown gray, microcrystalline, calcareous, fossiliferous, trace Crinoids, tight, trace Limestone streaks, medium gray brown, microcrystalline, slightly argillaceous, fossiliferous, trace Crinoids, tight, no shows. Background gas while drilling Muskwa ranged from 1.0% to 3.62% with no significant peaks.

Conclusion:

The Muskwa looks like a good source rock, but has little potential for hydrocarbon production.

Formation Evaluations

Storage Units:

Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Group:
Formation: NAHANNI
Member:
Boundary Type: conformable
Fault Type:

Era:
Series:
Period: Devonian
Stage:
Age (Approx): Million years.

	Measured Depth	True Vertical Depth	Subsea	Thickness
Sample Top	3,056.50	2,524.23	-2,107.63	
Log Top	3,057.50	2,524.66	-2,108.06	

Evaluation:

The Nahanni was penetrated at an angle of 64 degrees and 2524m TVD. The well was gradually flattened out to 90 degrees, with a TVD at 2619m, over the course of the 525 meters of open hole. The entire section of Nahanni is DOLOMITE, off white to light to medium gray, medium to dark gray brown host rock, very fine to coarse crystalline, slightly fossiliferous, porosity ranged from fairly tight to streaks of poor to fair fracture and intercrystalline porosity, trace to abundant pyrobitumen, trace to scattered clear to off white Dolomite rhombs, trace Dolomite rosettes, minor quartz crystal shards, hexagonal crystals in part, and hexagonal with twinning in part, trace Chert below 3410m, medium gray to medium to dark brown. Sample quality deteriorated through the long reach high angle section of hole. Tumbling of cuttings ground them into fine particles and lag time was increased to 150% of theoretical. Gas data and samples showed 4 major sections of interest:

3125-3200m DOLOMITE, off white to light to medium gray, medium brown gray in part, very fine to coarse crystalline, poor to fair intercrystalline and fracture porosity, intercrystalline porosity mainly plugged with pyrobitumen, abundant drusy Dolomite rhombs, trace rosette crystal clusters, increasing clear quartz crystal shards, minor hexagonal quartz crystals. Background gas was fairly high through this section ranging from .6% to 3.9% with most of the interval over 1%;

3293-3346m DOLOMITE, off white to light gray coarse crystals to medium brown to medium gray brown matrix, very fine to coarse crystalline, fossiliferous, streaks poor to fair intercrystalline and fracture porosity, minor pyrobitumen with bubbled surfaces in part, pyrobitumen plugging intercrystalline porosity in part, scattered open fractures with increasing acicular hexagonal quartz crystals and drusy Dolomite rhombs, trace rosettes, scattered quartz crystal shards. This interval had the highest background gas while drilling, ranging from .91% to 6.21%; At 3308m, mud density was raised from 1030kg/m³ to 1070kg/m³ to control gas. Connection gas started showing up at 3308m, also, just moving the pipe up and down was enough swabbing to reduce ECD to the point the well wanted to flow.

3483-3530m DOLOMITE, off white to light gray to medium to dark brown to gray brown, very fine to coarse crystalline, slightly fossiliferous, indicated poor to fair intercrystalline and fracture porosity, scattered to abundant pyrobitumen, some pyrobitumen has bubbled surface, hardness ranging from moderately hard with conchoidal fracture to very soft with graphite feel, trace drusy Dolomite crystals, trace quartz crystal shards, trace hexagonal crystals, trace brown Chert. Background gas was low through this interval ranging from .02% to .2%. If this section has good permeability, the porosity may have been flushed with drilling mud moving the gas away from the drillbit, and yielding low gas readings. What makes this section interesting is the amount of pyrobitumen. Some samples were over 10% pyrobitumen with rounded surfaces, bubbled surfaces, and very coarse rhombohedral moulds;

3575-3590m DOLOMITE, off white to light gray, medium brown to gray brown matrix, very fine to coarse crystalline, streak poor to fair fracture and intercrystalline porosity, abundant pyrobitumen, plugging intercrystalline porosity in part, bubbled surface in part, brittle, conchoidal fracture in part, trace quartz crystal shards, rare trace hexagonal quartz. Background gas ranged from .03% to .23%, fairly low and again the amount of pyrobitumen makes this section interesting. Although these four intervals are highlighted because of gas response, sample porosity, and pyrobitumen, there are many peaks through the Nahanni, and these may have some fracture porosity, and contribute to gas production.

Formation Evaluations

Storage Units:

Metric

Kelly Bushing Elevation: 416.60
Ground Elevation: 409.90

Casing Flange Elevation:

All Depths Measured from Kelly Bushing Elevation

Conclusion:

The Nahanni has excellent potential for gas production at this location. Chromatograph readings show hydrocarbon gas is all Methane, with only a trace of Ethane. Also present is varying amounts of CO₂ ranging from less than .01% to .03%. Four intervals identified by gas response, sample porosity, and pyrobitumen are: 3125-3200m; 3293-3346m; 3483-3530m; 3575-3590m.

Sample Descriptions

Storage Units:

Metric

15.00 to 21.00 (6.00)	Cement from conductor
21.00 to 25.00 (4.00)	Glacial Till with Limestone boulders; dark gray, cryptocrystalline, very argillaceous, hard, tight
25.00 to 30.00 (5.00)	Glacial Till some loose sand grains, quartz, very coarse grained to granules, subangular to rounded, frosted, disaggregated, scattered Limestone and Marlstone boulders
30.00 to 35.00 (5.00)	Glacial Till increasing Sand as above with loose disaggregated very coarse grains and granules, minor Flett Limestone and Marlstone boulders, trace granite boulder chips, rare trace Mattson Sandstone chips
35.00 to 40.00 (5.00)	Glacial Till as above, increasing granite boulder chips, scattered Limestone and Marlstone, trace Sandstone
40.00 to 45.00 (5.00)	Glacial Till as above, loose disaggregated sand, coarse grained to granules, subrounded to well rounded, scattered calcareous Shale, argillaceous Limestone, trace Sandstone, scattered granite fragments
45.00 to 50.00 (5.00)	Glacial Till as above, increasing loose sand grains, medium to very coarse grained to granules, scattered dark gray to black Shale, scattered argillaceous Limestone, trace Chert, increasing tan brown Mattson Sandstone chips, scattered granite fragments
50.00 to 55.00 (5.00)	Glacial Till with increasing coarse sand, granules, pebbles, and cobbles, quartz, chert, some granite, trace gabbro, abundant Limestone
55.00 to 60.00 (5.00)	LIMESTONE dark gray to dark brown gray, cryptocrystalline, mudstone, argillaceous to very argillaceous, siliceous and hard, cherty, slightly fossiliferous, trace Crinoids, trace Gastropods, tight, no shows, scattered Chert, dark gray, dark brown gray in part, hard, opaque, bedded
60.00 to 65.00 (5.00)	LIMESTONE dark brown, dark gray brown in part, cryptocrystalline to microcrystalline, mudstone, siliceous, very argillaceous, slightly fossiliferous, tight, no shows, trace Chert, interbedded Marlstone, dark brown to dark gray brown, calcareous, tight
65.00 to 70.00 (5.00)	MARLSTONE dark brown to dark gray brown, calcareous, siliceous, tight, no shows, scattered LIMESTONE, medium to dark brown to gray brown, cryptocrystalline to microcrystalline, very argillaceous, siliceous and hard, slightly fossiliferous with trace Crinoids, tight, no shows,

Sample Descriptions

Storage Units:

Metric

70.00 to 75.00
(5.00)

LIMESTONE

medium brown, cryptocrystalline to microcrystalline, siliceous, argillaceous to very argillaceous, fossiliferous, tight, no shows, trace stylolites, interbedded Marlstone, medium to dark brown to gray brown, calcareous, siliceous, tight, no shows, trace Chert

75.00 to 80.00
(5.00)

LIMESTONE

as above, medium to dark brown to gray brown, cryptocrystalline to microcrystalline, very argillaceous grading to Marlstone, siliceous, fossiliferous, tight, no shows

80.00 to 85.00
(5.00)

LIMESTONE

mainly medium brown as above, medium to dark gray brown in part, cryptocrystalline to microcrystalline, siliceous and hard, argillaceous to very argillaceous grading to Marlstone, fossiliferous, tight, no shows, minor Shale, dark gray to dark brown gray, calcareous, hard, siliceous

85.00 to 90.00
(5.00)

LIMESTONE

mainly medium brown, to dark brown to gray brown in part, cryptocrystalline to microcrystalline, siliceous and hard, argillaceous to very argillaceous, slightly fossiliferous, tight, no shows, trace microfractures, scattered Marlstone, medium to dark gray brown, calcareous, siliceous, tight, no shows, scattered Chert

90.00 to 95.00
(5.00)

LIMESTONE

as above, medium brown to gray brown, cryptocrystalline to microcrystalline, siliceous, argillaceous to very argillaceous, tight with trace fracture porosity, no shows, scattered microfractures, trace stylolites, trace Shale, very dark gray to black, fissile, slightly calcareous

95.00 to 100.00
(5.00)

MARLSTONE

medium to dark brown to gray brown, calcareous grading to argillaceous Limestone in part, siliceous and hard, tight, no shows

100.00 to 105.00
(5.00)

MARLSTONE

medium to dark gray brown, calcareous, siliceous, hard, tight, no shows, scattered Limestone, medium brown to gray brown, dark gray brown in part, cryptocrystalline, very argillaceous, siliceous and hard, tight, no shows, trace pyrite, trace calcite healed microfractures

105.00 to 110.00
(5.00)

MARLSTONE

dark gray to dark brown gray, calcareous, siliceous and hard, tight, no shows, scattered LIMESTONE, medium to dark gray brown, cryptocrystalline, mudstone, very argillaceous, siliceous, tight, no shows, trace disseminated pyrite

110.00 to 115.00
(5.00)

MARLSTONE

dark gray brown as above, calcareous, siliceous, hard, tight, interbedded LIMESTONE, medium to dark gray brown, cryptocrystalline, mudstone, very argillaceous, siliceous and hard, fossiliferous, trace Crinoids, tight, no shows, trace Shale streaks, dark gray to black, fissile, slightly calcareous in part

Sample Descriptions

Storage Units:

Metric

115.00 to 120.00 (5.00)	MARLSTONE dark gray brown as above, calcareous, siliceous, tight, scattered LIMESTONE as above, medium to dark gray brown, very argillaceous, siliceous, slightly fossiliferous, tight, no shows, trace Shale laminations
120.00 to 125.00 (5.00)	LIMESTONE medium to dark gray brown, cryptocrystalline, argillaceous to very argillaceous, siliceous and hard, slightly fossiliferous, trace Crinoids, tight, no shows, interbedded Marlstone, dark brown gray, calcareous, siliceous, slightly bituminous, tight, no shows, increasing Shale streaks
125.00 to 130.00 (5.00)	LIMESTONE mainly medium brown, gray brown in part, cryptocrystalline to microcrystalline, argillaceous, siliceous, tight, no shows, trace stylolites, trace pyrite, interbedded Marlstone, medium to dark brown to gray brown, calcareous, siliceous, hard, tight, no shows
130.00 to 135.00 (5.00)	MARLSTONE medium to dark gray brown as above, calcareous, siliceous, hard, tight, no shows, decreasing Limestone as above, trace Shale streaks, dark gray, micromicaceous, slightly calcareous, slightly bituminous
135.00 to 141.00 (6.00)	MARLSTONE medium tan brown to gray brown, calcareous grading to calcareous Shale, slightly siliceous, hard, tight, no shows
141.00 to 145.00 (4.00)	SHALE medium gray, brown gray in part, fissile in part, calcareous to very calcareous grading to Marlstone, slightly siliceous and moderately indurated, slightly bituminous, slightly fossiliferous, trace calcite healed microfractures, trace pyrite, trace Limestone stringers
145.00 to 150.00 (5.00)	SHALE dark gray, dark brown gray in part, fissile, calcareous, marly, moderately soft, slightly fossiliferous, trace slickenside, trace microfractures
150.00 to 155.00 (5.00)	SHALE medium gray as above, calcareous to very calcareous, marly, fissile, slightly fossiliferous, trace pyrite
155.00 to 160.00 (5.00)	SHALE medium gray, fissile, calcareous to very calcareous, marly, moderately soft to well indurated and siliceous in part, slightly fossiliferous, trace pyrite, trace Limestone stringers
160.00 to 165.00 (5.00)	SHALE medium gray, fissile, calcareous, marly, moderately soft, trace pyrite, trace Limestone streaks
165.00 to 170.00 (5.00)	SHALE medium gray, fissile, calcareous to very calcareous in part, marly, moderately soft, slightly fossiliferous, trace calcite healed microfractures, trace pyrite

Sample Descriptions

Storage Units:

Metric

170.00 to 175.00 (5.00)	SHALE medium gray / as above, calcareous, slightly fossiliferous, mainly soft, slightly more indurated in part
175.00 to 180.00 (5.00)	SHALE medium gray, micromicaceous, fissile, calcareous, marly, fossiliferous with scattered shell fragments, trace pyrite
180.00 to 185.00 (5.00)	SHALE medium gray, micromicaceous, fissile, calcareous to very calcareous in part, marly, slightly fossiliferous with minor shell fragments, trace pyrite, trace Limestone streaks
185.00 to 190.00 (5.00)	SHALE medium gray, fissile, slightly calcareous, slightly bituminous, moderately soft, slightly fossiliferous, trace Brachiopods, trace pyrite
190.00 to 195.00 (5.00)	SHALE medium gray as above, calcareous, moderately soft to slightly harder in part, trace calcite healed microfractures
195.00 to 200.00 (5.00)	LIMESTONE medium brown to gray brown, cryptocrystalline, argillaceous to very argillaceous grading to Marlstone, well indurated, tight, no shows, interbedded SHALE as above
200.00 to 205.00 (5.00)	MARLSTONE medium gray brown, cryptocrystalline, calcareous, slightly siliceous, slightly fossiliferous, tight, no shows, trace calcite healed microfractures, scattered medium gray Shale as above
205.00 to 210.00 (5.00)	MARLSTONE medium to dark brown to gray brown, cryptocrystalline, very calcareous, well indurated, tight, no shows, trace microfractures, trace dark brown Chert
210.00 to 215.00 (5.00)	SHALE mainly medium gray, to dark gray in part, micromicaceous, fissile, slightly calcareous, scattered slickenside, trace microfractures
215.00 to 220.00 (5.00)	SHALE medium to dark gray, fissile, slightly calcareous in part, scattered slickenside, trace microfractures
220.00 to 225.00 (5.00)	SHALE medium to dark gray as above, abundant slickenside, trace microfractures
225.00 to 230.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, soft, scattered slickenside, trace pyrite, trace microfractures

Sample Descriptions

Storage Units:

Metric

230.00 to 235.00 (5.00)	MARLSTONE dark brown to dark gray brown, microcrystalline, calcareous, tight, no shows, minor calcite healed microfractures, interbedded Shale as above, medium to dark gray, fissile, trace slickenside
235.00 to 240.00 (5.00)	MARLSTONE dark brown as above, dark gray brown in part, calcareous, tight, no shows, trace microfractures, increasing interbedded SHALE, medium to dark gray, fissile, soft, trace slickenside
240.00 to 245.00 (5.00)	MARLSTONE medium to dark brown as above, streak of medium gray and very hard Marlstone, calcareous, tight, no shows, interbedded SHALE as above
245.00 to 250.00 (5.00)	SHALE mainly medium gray, dark gray in part, fissile, slightly calcareous in part, slightly fossiliferous, moderately soft, trace slickenside, trace microfractures, scattered Marlstone as above, medium to dark gray brown, calcareous, hard, tight, no shows, trace microfractures
250.00 to 255.00 (5.00)	SHALE medium to dark gray, fissile, moderately soft in part, slightly calcareous in part, trace pyrite, trace siderite, trace slickenside, minor Marlstone, medium to dark brown to gray brown, calcareous, tight, no shows, trace microfractures
255.00 to 260.00 (5.00)	SHALE medium to dark gray as above, fissile, slightly calcareous in part, soft, trace slickenside, scattered Marlstone streaks, medium to dark brown to gray brown, cryptocrystalline to microcrystalline, calcareous, tight, no shows, trace microfractures
260.00 to 265.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, very slightly calcareous in part, slightly fossiliferous, scattered siderite, minor pyrite, scattered Marlstone, medium to dark brown to gray brown, microcrystalline, calcareous, hard, tight, no shows
265.00 to 270.00 (5.00)	SHALE medium to dark gray as above, fissile, slightly calcareous in part, minor slickenside, scattered microfractures, trace pyrite, scattered Ironstone, medium tan brown, hard, tight
270.00 to 275.00 (5.00)	SHALE mainly dark gray, medium gray in part, micromicaceous, fissile, scattered pyrite
275.00 to 280.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous in part, moderately soft to slightly indurated when calcareous, slightly bituminous, minor siderite, trace pyrite
280.00 to 285.00 (5.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous, trace slickenside, increasing siderite, trace pyrite

Sample Descriptions

Storage Units:

Metric

285.00 to 290.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous in part, fossiliferous, trace pyritized Gastropod, trace slickenside, trace siderite
290.00 to 295.00 (5.00)	SHALE as above, increasing dark gray, micromicaceous, fissile, moderately soft, slightly fossiliferous, minor siderite, trace pyrite
295.00 to 300.00 (5.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly fossiliferous, pyritic with scattered pyrite laminations and inclusions
300.00 to 305.00 (5.00)	SHALE medium to dark gray as above, fissile, trace slickenside, minor pyrite
305.00 to 310.00 (5.00)	SHALE mainly dark gray, medium to dark gray in part, micromicaceous, fissile, slightly calcareous, slightly bituminous, trace slickenside, trace pyrite, trace open microfractures with sparry calcite crystals
310.00 to 315.00 (5.00)	SHALE mainly dark gray as above, fissile, trace open microfractures with sparry dogtooth calcite crystals to 1mm (very coarse crystalline), trace pyrite
315.00 to 320.00 (5.00)	SHALE mainly dark gray, medium to dark gray in part, micromicaceous, fissile, slightly calcareous in part, slightly bituminous, trace slickenside, trace siderite, trace pyrite
320.00 to 325.00 (5.00)	SHALE mainly dark gray as above, micromicaceous, fissile, trace pyrite, trace siderite, trace slickenside
325.00 to 330.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, very slightly calcareous in part, trace siderite, trace pyrite, trace slickenside
330.00 to 335.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, scattered pyrite laminations and nodules, trace slickenside
335.00 to 340.00 (5.00)	SHALE medium to dark gray as above, micromicaceous, fissile, moderately soft, trace slickenside, trace pyrite, trace siderite, trace Limestone stringers, medium to dark brown, cryptocrystalline, very argillaceous, tight, no shows
340.00 to 345.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, trace slickenside, trace pyrite, interbedded LIMESTONE, medium gray, gray brown in part, cryptocrystalline, mudstone, slightly argillaceous to marly, fossiliferous, Brachiopods, trace spicules, tight, no shows

Sample Descriptions

Storage Units:

Metric

345.00 to 350.00
(5.00)

SHALE

medium to dark gray, micromicaceous, fissile, moderately soft, minor pyrite, interbedded LIMESTONE as above, medium gray to gray brown, cryptocrystalline, argillaceous to very argillaceous, slightly fossiliferous, tight, no shows

350.00 to 355.00
(5.00)

LIMESTONE

medium gray to gray brown, cryptocrystalline to microcrystalline, fossiliferous, Brachiopods, Crinoids, bioclastic in part, tight with trace fracture porosity, no shows, trace open fractures with sparry dogtooth calcite crystals to 2mm, interbedded SHALE, medium to dark gray as above, trace Marlstone, medium to dark brown, microcrystalline, calcareous, tight, no shows

355.00 to 360.00
(5.00)

SHALE

medium to dark gray, micromicaceous, fissile, slightly calcareous in part, moderately soft, minor LIMESTONE as above, medium gray, fossiliferous, tight with trace fracture porosity, no shows, scattered microfractures, calcite healed in part, open in part with sparry calcite crystals

360.00 to 365.00
(5.00)

SHALE

medium gray, micromicaceous, fissile, calcareous, marly, soft, trace Limestone streaks

365.00 to 370.00
(5.00)

SHALE

medium gray, micromicaceous, fissile, calcareous, marly, fossiliferous, trace Brachiopods, trace pyrite

370.00 to 375.00
(5.00)

SHALE

medium gray as above, slightly calcareous, soft, trace Limestone streaks, medium gray brown, cryptocrystalline to microcrystalline, argillaceous, fossiliferous, tight, no shows

375.00 to 380.00
(5.00)

SHALE

medium gray as above, micromicaceous, fissile, slightly calcareous, trace pyrite, trace microfractures

380.00 to 385.00
(5.00)

SHALE

medium to dark gray, micromicaceous, fissile, calcareous, marly, moderately soft, trace pyrite

385.00 to 390.00
(5.00)

SHALE

as above, calcareous, marly, slightly fossiliferous, trace Brachiopods, trace pyrite, minor Siltstone, medium gray, calcareous, very argillaceous, tight, no shows

390.00 to 395.00
(5.00)

SHALE

medium to dark gray, micromicaceous, fissile, calcareous, marly, slightly fossiliferous, trace siderite, trace pyrite, trace sparry calcite crystals

395.00 to 400.00
(5.00)

SHALE

medium gray, fissile, calcareous to very calcareous in part, marly, slightly fossiliferous, trace Brachiopods, trace siderite, minor Siltstone, medium gray, very argillaceous, calcareous, tight, no shows

Sample Descriptions

Storage Units:

Metric

400.00 to 405.00
(5.00)

SHALE

medium gray to green gray, fissile, slightly calcareous, silty to very silty, trace microfractures, interbedded Siltstone, medium gray to green gray, argillaceous to very argillaceous, calcareous, tight, no shows

405.00 to 410.00
(5.00)

SHALE

medium gray to green gray as above, fissile, soft, silty to very silty, trace glauconite, trace pyrite, trace microfractures, interbedded Siltstone as above, medium gray to green gray, very argillaceous, calcareous, trace glauconite, tight, no shows

410.00 to 415.00
(5.00)

SHALE

medium to dark gray, green gray in part, fissile, calcareous, marly, silty to very silty in part, trace glauconite, scattered Siltstone streaks, medium gray to green gray as above, very argillaceous calcareous, tight, no shows

415.00 to 420.00
(5.00)

SHALE

medium gray, fissile, calcareous, slightly bentonitic, slightly bituminous in part, silty in part, trace Siltstone streaks

420.00 to 425.00
(5.00)

SHALE

medium gray as above, slightly calcareous to very calcareous in part, slightly silty in part, bentonitic, slightly fossiliferous, trace pyrite

425.00 to 430.00
(5.00)

SHALE

medium to dark gray to green gray, fissile, slightly bentonitic, calcareous, slightly fossiliferous, trace calcite healed microfractures

430.00 to 435.00
(5.00)

SHALE

medium gray as above, bentonitic, calcareous, silty to very silty in part, trace pyrite

435.00 to 440.00
(5.00)

SHALE

mainly medium gray, to dark gray in part, micromicaceous, fissile, calcareous, bentonitic, silty to very silty in part, scattered Siltstone, medium gray, very argillaceous grading to silty Shale, slightly calcareous, tight, no shows

440.00 to 445.00
(5.00)

SHALE

medium gray as above, bentonitic, slightly calcareous, silty in part, minor Siltstone as above

445.00 to 450.00
(5.00)

SHALE

medium gray to green gray, micromicaceous, fissile, slightly calcareous, slightly bentonitic, silty in part, trace pyrite, scattered Siltstone, medium gray to green gray, argillaceous to very argillaceous, slightly calcareous, tight, no shows

450.00 to 455.00
(5.00)

SHALE

medium gray, dark gray in part, fissile, slightly calcareous, slightly silty in part, abundant slickenside, trace pyrite

Sample Descriptions

Storage Units:

Metric

455.00 to 460.00 (5.00)	SHALE medium gray as above, scattered slickenside, interbedded Siltstone, medium gray to green gray, argillaceous to very argillaceous, slightly calcareous, siliceous and hard in part, tight, no shows, trace siderite
460.00 to 465.00 (5.00)	SHALE medium to dark gray, brown gray in part, micromicaceous, fissile, silty to very silty in part, slightly fossiliferous, minor pyrite, scattered Siltstone, medium gray to brown gray, argillaceous to very argillaceous, slightly siliceous and hard in part, slightly calcareous in part, tight, no shows, minor siderite
465.00 to 470.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, trace pyrite, trace slickenside, trace Siltstone stringers
470.00 to 475.00 (5.00)	SHALE medium to dark gray as above, trace pyrite, trace Siltstone streaks
475.00 to 480.00 (5.00)	SHALE medium to dark gray, green gray in part, fissile, slightly silty in part, trace pyrite
480.00 to 485.00 (5.00)	SHALE medium to dark gray as above, fissile, slightly silty in part, minor pyrite, trace Siltstone streaks, minor siderite
485.00 to 490.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, minor pyrite, trace siderite, trace slickenside, trace calcite healed microfractures
490.00 to 495.00 (5.00)	SHALE medium to dark gray as above, minor pyrite, trace siderite, scattered slickenside
500.00 to 510.00 (10.00)	SHALE medium gray to green gray, dark gray in part, fissile, trace pyrite, trace slickenside
510.00 to 520.00 (10.00)	SHALE medium gray to green gray, fissile, pyritic with scattered disseminated microcrystalline pyrite to large pyrite inclusions and nodules, trace slickenside, trace siderite
520.00 to 530.00 (10.00)	SHALE medium gray to dark gray, green gray in part, fissile, pearly luster in part, slightly silty in part, minor pyrite, trace siderite, trace slickenside
530.00 to 540.00 (10.00)	SHALE medium gray to green gray, dark gray in part, fissile, moderately soft, slightly silty in part, slightly carbonaceous with coaly streak, trace pyrite

Sample Descriptions

Storage Units: Metric

540.00 to 550.00 (10.00)	SHALE medium gray, fissile, slightly bentonitic in part, soft, silty in part, interbedded Siltstone, medium gray to gray brown, quartzose, sandy grading to very fine grained Sandstone in part, siliceous and very hard in part, vitreous, slightly argillaceous to very argillaceous in part, tight, no shows, trace pyrite, trace siderite
550.00 to 560.00 (10.00)	SHALE medium gray, fissile, slightly calcareous in part, slightly bentonitic, moderately soft, slightly silty in part, trace Siltstone streaks, medium gray to brown gray in part, quartzose, siliceous in part, argillaceous to very argillaceous in part, very slightly calcareous in part, tight, no shows, trace pyrite
560.00 to 570.00 (10.00)	SHALE mainly medium gray, to dark gray in part, fissile, slightly calcareous in part, very slightly silty in part, minor pyrite, trace siderite, trace Limestone streaks
570.00 to 580.00 (10.00)	SHALE medium gray, fissile, micromicaceous, moderately soft, trace pyrite, trace siderite, trace Siltstone streaks, medium gray to green gray, quartzose, slightly calcareous, argillaceous to very argillaceous, siliceous and hard in part, tight, no shows
580.00 to 590.00 (10.00)	SHALE medium gray to green gray, fissile, calcareous in part, moderately soft, scattered pyrite, trace Siltstone streaks, medium gray to green gray, calcareous, very argillaceous, tight, no shows
590.00 to 600.00 (10.00)	SHALE as above, medium gray to green gray, to dark gray in part, fissile, moderately soft, slightly calcareous, trace pyrite, trace slickenside, trace Siltstone streaks
600.00 to 610.00 (10.00)	SHALE medium gray to green gray, fissile, moderately soft, slightly calcareous, trace slickenside, trace Siltstone streaks, trace pyrite
610.00 to 620.00 (10.00)	SHALE medium gray to green gray as above, to dark gray in part, fissile, slightly calcareous, slightly fossiliferous, trace Crinoids, trace siderite, trace pyrite, trace loose calcite crystals, trace slickenside
620.00 to 630.00 (10.00)	SHALE medium gray to green gray, fissile, slightly calcareous, slightly fossiliferous, trace Brachiopods, trace pyrite, trace thin microfractures, trace hard siliceous Siltstone streak
630.00 to 640.00 (10.00)	SHALE medium gray to green gray as above, fissile, slightly calcareous, trace thin microfractures healed with calcite, trace slickenside, trace pyrite
640.00 to 650.00 (10.00)	SHALE medium gray to green gray as above, fissile, pearly luster in part, very slightly calcareous, slightly fossiliferous, trace Crinoids, trace slickenside, trace pyrite

Sample Descriptions

Storage Units:

Metric

650.00 to 660.00 (10.00)	SHALE medium gray to green gray, fissile, slightly bentonitic in part, very slightly calcareous, slightly fossiliferous, silty streaks in part, trace pyrite
660.00 to 670.00 (10.00)	SHALE medium gray to green gray, fissile, bentonitic in part, very slightly calcareous, silty and sandy in part, micromicaceous, trace pyrite, trace slickenside
670.00 to 680.00 (10.00)	SHALE medium gray to green gray, fissile to splintery, fossiliferous, trace Crinoids, very slightly calcareous in part, trace microfractures, trace slickenside, trace pyrite
680.00 to 690.00 (10.00)	SHALE mainly medium gray, medium green gray in part, fissile, splintery in part, very slightly calcareous in part, fossiliferous, trace Brachiopods, Crinoids, Ostracods, trace pyrite
690.00 to 700.00 (10.00)	SHALE medium gray to green gray, fissile, slightly calcareous in part, bentonitic in part, moderately soft, trace pyrite, trace siliceous Siltstone streaks
700.00 to 710.00 (10.00)	SHALE medium gray, fissile, moderately soft, slightly bentonitic in part, slightly fossiliferous, trace silty streaks, trace pyrite, trace slickenside
710.00 to 720.00 (10.00)	SHALE medium gray to green gray, fissile, pearly luster in part, slightly calcareous in part, slightly fossiliferous, trace Crinoids, trace pyrite, trace microfractures, rare trace slickenside
720.00 to 730.00 (10.00)	SHALE medium gray to green gray in part, fissile, slightly bentonitic in part, moderately soft, trace microfractures with anhydrite infill, trace pyrite
735.00 to 740.00 (5.00)	SHALE medium gray to green gray in part, fissile, slightly bentonitic in part, moderately soft, trace pyrite, trace slickenside, trace Anhydrite healed microfractures
740.00 to 745.00 (5.00)	SHALE medium gray to green gray in part, to dark gray in part, micromicaceous, fissile, slightly bentonitic, slightly calcareous in part, trace Limestone streaks, trace Chert, trace pyrite
745.00 to 750.00 (5.00)	SHALE medium gray to green gray, fissile, slightly bentonitic, soft, abundant cement sloughing from surface casing job
750.00 to 755.00 (5.00)	SHALE medium gray to green gray, micromicaceous, fissile, slightly bentonitic, soft, slightly fossiliferous, trace Ostracods, minor pyrite

Sample Descriptions

Storage Units:

Metric

755.00 to 760.00
(5.00)

SHALE

medium gray to green gray as above, micromicaceous, fissile, slightly bentonitic, soft, slightly calcareous, fossiliferous, trace pyrite, minor cement from casing job

760.00 to 770.00
(10.00)

SHALE

medium gray to green gray, micromicaceous, fissile, slightly bentonitic, slightly calcareous, fossiliferous, trace Ostracods, Crinoids, trace pyrite, rare trace calcite healed microfractures, trace Marlstone stringers, medium gray brown, calcareous, tight, rare trace Chert

770.00 to 780.00
(10.00)

SHALE

medium gray to green gray as above, micromicaceous, fissile, slightly calcareous and moderately indurated in part, bentonitic and soft in part, slightly fossiliferous, trace spicules, trace microfractures with calcite veins to 1mm, sparry calcite crystals in part, trace pyrite, trace siderite, trace Marlstone stringers

780.00 to 790.00
(10.00)

SHALE

medium gray to green gray, to dark gray in part, fissile, slightly bentonitic in part, slightly calcareous to marly, fossiliferous, trace Ostracods, minor calcite healed microfractures, trace pyrite

790.00 to 800.00
(10.00)

SHALE

medium gray to green gray to dark gray in part, micromicaceous, fissile, fossiliferous, trace Crinoids, slightly calcareous in part, sideritic and well indurated in part, trace pyrite, trace Ironstone stringers, medium tan brown

800.00 to 810.00
(10.00)

SHALE

medium gray to green gray as above, micromicaceous, fissile, slightly calcareous in part, slightly fossiliferous, trace pyrite, trace Limestone stringers

810.00 to 820.00
(10.00)

SHALE

mainly medium gray, green gray in part, micromicaceous, fissile, slightly calcareous, slightly bentonitic, trace fossil fragments, trace Brachiopods, trace microfractures, trace pyrite, trace sparry calcite crystals, trace Siltstone stringer, medium brown gray, quartzose, sandy with very fine grained sand, slightly calcareous, siliceous and hard, slightly argillaceous, tight, no shows

820.00 to 830.00
(10.00)

SHALE

medium gray to green gray, to dark gray in part, micromicaceous, fissile, calcareous to marly, slightly fossiliferous, trace Brachiopods, trace pyrite, trace thin microfractures

830.00 to 840.00
(10.00)

SHALE

medium gray to green gray as above, calcareous to marly, trace thin microfractures, trace pyrite

840.00 to 850.00
(10.00)

SHALE

medium gray to green gray, micromicaceous, fissile, calcareous, bentonitic, soft, slightly fossiliferous, trace microfractures

Sample Descriptions

Storage Units:

Metric

850.00 to 860.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, bentonitic in part, slightly calcareous, slightly fossiliferous, scattered slickenside
860.00 to 870.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, slightly calcareous, trace pyrite
870.00 to 880.00 (10.00)	SHALE medium gray to green gray, dark gray in part, micromicaceous, fissile, slightly calcareous, soft, slightly fossiliferous, trace Ostracods, trace pyrite, minor slickenside
880.00 to 890.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, slightly fossiliferous, trace slickenside, trace calcite healed microfractures
890.00 to 900.00 (10.00)	SHALE medium gray to green gray as above, dark gray in part, micromicaceous, fissile, moderately soft, slightly fossiliferous, increasing slickenside, trace microfractures
900.00 to 910.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, slightly fossiliferous, trace slickenside, minor disseminated pyrite
910.00 to 920.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, moderately soft, slightly fossiliferous, trace pyrite
920.00 to 930.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, slightly fossiliferous, trace Brachiopods, trace slickenside
930.00 to 940.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, very slightly calcareous in part, trace slickenside, trace calcite veins, trace darker gray laminations
940.00 to 950.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, moderately soft, slightly fossiliferous, trace slickenside
950.00 to 960.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, moderately soft, trace slickenside
960.00 to 970.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, increasing slickenside, trace pyrite
970.00 to 980.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, very slightly bentonitic, soft, trace slickenside, trace microfractures and calcite veins

Sample Descriptions

Storage Units:

Metric

980.00 to 990.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, very slightly bentonitic, slightly calcareous in part, trace anhydrite veins
990.00 to 1,000.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, slightly fossiliferous, trace slickenside, trace thin calcite veins
1,000.00 to 1,010.00 (10.00)	SHALE medium gray to green gray, becoming darker gray in part, micromicaceous, fissile, slightly fossiliferous, very slightly silty in part, trace pyrite, trace microfractures, trace slickenside
1,010.00 to 1,020.00 (10.00)	SHALE medium gray to green gray, to dark gray in part, micromicaceous, fissile, slightly fossiliferous with trace shell fragments, trace pyrite
1,020.00 to 1,030.00 (10.00)	SHALE medium gray to green gray, dark gray to dark green gray in part, micromicaceous, fissile, slightly fossiliferous, minor shell fragments, trace thin calcite veins
1,030.00 to 1,040.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, very slightly calcareous, slightly fossiliferous, trace slickenside
1,040.00 to 1,050.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous in part, slightly fossiliferous, trace thin microfractures, trace Marlstone streaks, dark brown, calcareous, tight, trace pyrite
1,050.00 to 1,060.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous, moderately soft, slightly fossiliferous, trace pyrite
1,060.00 to 1,070.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous in part, marly in part, trace pyrite
1,070.00 to 1,080.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly bentonitic in part, very slightly calcareous, slightly fossiliferous, trace Crinoids, trace slickenside
1,080.00 to 1,090.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous, trace microfractures, trace slickenside
1,090.00 to 1,100.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly fossiliferous, trace slickenside, trace microfractures

Sample Descriptions

Storage Units:

Metric

1,100.00 to 1,110.00 (10.00)	SHALE mainly medium gray, to dark gray in part, micromicaceous, fissile, slightly fossiliferous, calcareous in part, trace microfractures, trace pyrite, trace Limestone streaks, medium to dark brown, cryptocrystalline to microcrystalline, slightly argillaceous, trace fossil remnants, tight, no shows
1,110.00 to 1,120.00 (10.00)	SHALE medium gray to green gray, dark gray in part, micromicaceous, fissile, slightly bentonitic, slightly calcareous, slightly fossiliferous, trace pyrite
1,120.00 to 1,130.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, bentonitic, slightly calcareous, moderately soft, trace Marlstone stringers
1,130.00 to 1,140.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous to marly, bentonitic in part, slightly fossiliferous, trace microfractures, trace pyrite
1,140.00 to 1,145.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous, slightly fossiliferous, trace Brachiopods, trace pyrite, trace Marlstone streaks, dark brown, microcrystalline, calcareous, tight, no shows
1,145.00 to 1,150.00 (5.00)	SHALE as above, increasing Marlstone, dark brown to dark gray brown, microcrystalline, calcareous, tight, no shows
1,150.00 to 1,160.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous, slightly fossiliferous, trace Crinoids, minor microfractures, trace slickenside, trace pyrite scattered Limestone, dark brown to gray brown, cryptocrystalline to microcrystalline, very argillaceous grading to Marlstone, tight, no shows
1,160.00 to 1,170.00 (10.00)	SHALE medium to dark gray, fissile, calcareous to very calcareous in part, fossiliferous with scattered shell fragments, trace thin microfractures
1,170.00 to 1,180.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous to very calcareous in part, slightly fossiliferous with trace shell fragments, scattered Marlstone, dark brown to dark gray brown, calcareous, tight
1,180.00 to 1,190.00 (10.00)	SHALE mainly medium gray, to dark gray in part, micromicaceous, fissile, calcareous to very calcareous grading to Marlstone in part, slightly fossiliferous
1,190.00 to 1,200.00 (10.00)	SHALE mainly medium gray, dark gray in part, micromicaceous, fissile, calcareous, slightly fossiliferous, trace calcite veins, trace Marlstone stringers

Sample Descriptions

Storage Units:

Metric

1,200.00 to 1,210.00 (10.00)	SHALE medium gray, dark gray in part, micromicaceous, fissile, calcareous to very calcareous in part, marly, slightly fossiliferous, trace slickenside, trace pyrite
1,210.00 to 1,220.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous to very calcareous grading to Marlstone in part, slightly fossiliferous, trace pyrite
1,220.00 to 1,230.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous to very calcareous in part, marly, slightly fossiliferous, trace pyrite
1,230.00 to 1,240.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, calcareous, trace pyrite
1,240.00 to 1,250.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous, marly, slightly fossiliferous, trace Marlstone streaks
1,250.00 to 1,260.00 (10.00)	SHALE medium gray, green gray in part, dark gray in part, micromicaceous, fissile, calcareous to marly
1,260.00 to 1,270.00 (10.00)	SHALE mainly medium gray as above, dark gray in part, green gray in part, micromicaceous, fissile, calcareous to very calcareous in part, marly, slightly fossiliferous, trace disseminated pyrite
1,270.00 to 1,280.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous, trace calcite healed microfractures
1,280.00 to 1,290.00 (10.00)	SHALE mainly medium gray, to green gray in part, dark gray in part, micromicaceous, fissile, calcareous, marly, trace pyrite, trace microfractures
1,290.00 to 1,300.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous to marly, moderately soft, trace slickenside
1,300.00 to 1,310.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, calcareous to very calcareous in part, trace pyrite
1,310.00 to 1,320.00 (10.00)	SHALE mainly medium gray, grading to dark gray in part, micromicaceous, fissile, slightly calcareous to very calcareous in part, slightly fossiliferous, marly, trace pyrite
1,320.00 to 1,330.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous, marly, slightly fossiliferous, trace pyrite, trace slickenside

Sample Descriptions

Storage Units: Metric

1,330.00 to 1,340.00 (10.00)	SHALE as above
1,340.00 to 1,350.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, calcareous, marly, slightly fossiliferous, trace pyrite
1,350.00 to 1,355.00 (5.00)	SHALE as above, calcareous, marly, slightly fossiliferous
1,355.00 to 1,360.00 (5.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous to calcareous, slightly bituminous, minor coarse drusy loose calcite crystals (fracture porosity ?)
1,360.00 to 1,370.00 (10.00)	SHALE medium to dark gray with increasing dark gray, micromicaceous, fissile, trace microfractures, trace loose coarse calcite crystals, trace Anhydrite veins
1,370.00 to 1,380.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous, trace microfractures with calcite infill in part, anhydritic infill in part
1,380.00 to 1,390.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous to very calcareous grading to Marlstone in part, slightly fossiliferous, trace microfractures, trace anhydrite veins, rare trace Limestone stringers
1,390.00 to 1,397.00 (7.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous to very calcareous in part grading to Marlstone
1,397.00 to 1,410.00 (13.00)	SHALE dark gray to black, very dark gray brown in part, micromicaceous, fissile, slightly calcareous in part, bituminous, scattered microfractures mainly filled with anhydrite, minor slickenside, scattered Marlstone, dark brown to dark tan brown, calcareous, slightly fossiliferous, trace Ostracods, tight, no shows, trace pyrite
1,410.00 to 1,420.00 (10.00)	SHALE dark gray to black, dark brown gray in part, micromicaceous, fissile, slightly bituminous, very slightly calcareous in part, trace slickenside, minor microfractures mainly filled with anhydrite, calcite in part, minor Marlstone streaks as above
1,420.00 to 1,430.00 (10.00)	SHALE dark gray to very dark gray, dark brown gray in part, micromicaceous, fissile, slightly bituminous, slightly sideritic, trace anhydrite healed microfractures
1,430.00 to 1,440.00 (10.00)	SHALE dark gray to very dark gray, to black in part, micromicaceous, fissile, slightly sideritic in part, trace fossil remnants, trace disseminated pyrite, trace loose coarse calcite crystals, trace slickenside, rare trace microfractures with anhydrite filling

Sample Descriptions

Storage Units: Metnc

1,440.00 to 1,450.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly bituminous in part, very slightly calcareous in part
1,450.00 to 1,460.00 (10.00)	SHALE medium to dark gray to very dark gray, micromicaceous, fissile, slightly bituminous in part, trace pyrite, trace slickenside, trace very fossiliferous brown Limestone stringers
1,460.00 to 1,470.00 (10.00)	SHALE medium to dark gray to very dark gray in part, micromicaceous, fissile, slightly bituminous, trace pyrite
1,470.00 to 1,480.00 (10.00)	SHALE medium to dark gray, to very dark gray in part, micromicaceous, fissile, slightly bituminous in part, moderately soft
1,480.00 to 1,490.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly fossiliferous, trace Crinoids, slightly bituminous in part, trace pyrite
1,490.00 to 1,500.00 (10.00)	SHALE medium to dark gray, dark brown gray in part, micromicaceous, fissile, trace pyrite
1,500.00 to 1,510.00 (10.00)	SHALE dark gray to very dark gray, micromicaceous, fissile, trace pyrite with minor fine to coarse grained pyrite spherules
1,510.00 to 1,520.00 (10.00)	SHALE medium to dark gray as above, to very dark gray in part, dark brown gray in part, micromicaceous, fissile, trace pyrite, rare trace anhydrite healed microfractures
1,520.00 to 1,530.00 (10.00)	SHALE dark gray to very dark gray as above, dark brown gray in part, micromicaceous, fissile, slightly bituminous
1,530.00 to 1,540.00 (10.00)	SHALE dark gray, dark brown gray in part, very dark gray in part, micromicaceous, fissile, moderately soft, trace pyrite, trace anhydrite inclusions and fracture filling
1,540.00 to 1,550.00 (10.00)	SHALE dark gray to very dark gray to black as above, micromicaceous, fissile, slightly more indurated in part, trace pyrite
1,550.00 to 1,560.00 (10.00)	SHALE very dark gray to black, micromicaceous, fissile, slightly bituminous in part, trace pyrite
1,560.00 to 1,570.00 (10.00)	SHALE dark gray to black as above, micromicaceous, fissile, slightly fossiliferous, slightly bituminous, trace pyrite

Sample Descriptions

Storage Units:

Metric

1,570.00 to 1,580.00 (10.00)	SHALE dark gray to black as above, micromicaceous, fissile, slightly bituminous, scattered pyrite, trace Marlstone streak, dark gray brown, calcareous to sideritic, tight
1,580.00 to 1,590.00 (10.00)	SHALE very dark gray to black, micromicaceous, fissile, becoming slightly siliceous and moderately indurated, slightly bituminous, trace pyrite
1,590.00 to 1,600.00 (10.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, slightly siliceous, moderately indurated, slightly bituminous, trace pyrite, trace Marlstone streaks, dark brown to brown gray, calcareous to sideritic, hard, bituminous, tight
1,600.00 to 1,610.00 (10.00)	SHALE dark gray to very dark gray to black, dark brown gray in part, micromicaceous, fissile, slightly siliceous, moderately indurated, trace pyrite, trace Marlstone streaks as above
1,610.00 to 1,620.00 (10.00)	SHALE dark gray to black as above, micromicaceous, fissile, moderately indurated, minor pyrite
1,620.00 to 1,630.00 (10.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, moderately indurated, slightly bituminous, trace fossil remnants, trace pyrite
1,630.00 to 1,640.00 (10.00)	SHALE very dark gray to black as above, dark brown gray in part, micromicaceous, fissile, slightly siliceous, increasing pyrite, minor slickenside
1,640.00 to 1,650.00 (10.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, moderately indurated, slightly siliceous, slightly bituminous, minor pyrite, trace slickenside, rare trace microfractures healed with quartz, trace hexagonal quartz
1,650.00 to 1,660.00 (10.00)	SHALE dark gray to brown gray to black as above, micromicaceous, fissile, moderately indurated, trace pyrite, trace slickenside
1,660.00 to 1,665.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, slightly siliceous, moderately indurated, slightly bituminous, trace slickenside
1,665.00 to 1,670.00 (5.00)	SHALE dark brown gray to black as above, moderately indurated, minor pyrite
1,670.00 to 1,675.00 (5.00)	SHALE very dark gray to dark brown gray to black, micromicaceous, fissile, slightly siliceous and hard, slightly bituminous, trace pyrite, trace slickenside

Sample Descriptions

Storage Units:

Metric

1,675.00 to 1,680.00 (5.00)	SHALE very dark gray to black as above, dark brown gray in part, micromicaceous, fissile, moderately to well indurated, increasing slickenside
1,680.00 to 1,685.00 (5.00)	SHALE very dark gray to dark brown gray to black, micromicaceous, fissile, slightly siliceous and hard, slightly bituminous, scattered pyrite, minor slickenside
1,685.00 to 1,690.00 (5.00)	SHALE very dark gray to dark brown gray to black as above, micromicaceous, fissile, slightly siliceous and hard, slightly bituminous, scattered pyrite, minor slickenside, trace microfractures with calcite veins
1,690.00 to 1,695.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, siliceous, moderately to well indurated, slightly bituminous, minor slickenside, trace pyrite
1,695.00 to 1,700.00 (5.00)	SHALE dark gray to black as above, increasing slickenside
1,700.00 to 1,705.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile, slightly siliceous and moderately indurated, bituminous, trace pyrite
1,705.00 to 1,710.00 (5.00)	SHALE very dark gray to black as above, slightly siliceous, slightly calcareous to marly, bituminous, scattered slickenside
1,710.00 to 1,715.00 (5.00)	SHALE very dark gray to black as above, siliceous, well indurated, bituminous, minor slickenside
1,715.00 to 1,720.00 (5.00)	SHALE very dark gray to black as above, siliceous, well indurated, bituminous, slightly calcareous to marly in part, trace slickenside, trace pyrite
1,720.00 to 1,730.00 (10.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, bituminous, slightly siliceous and well indurated, slightly calcareous to marly in part, trace slickenside, trace pyrite, trace thin calcite veins
1,730.00 to 1,735.00 (5.00)	SHALE very dark gray to black as above, siliceous, increasing slickenside
1,735.00 to 1,740.00 (5.00)	SHALE dark gray to very dark brown gray to black, micromicaceous, fissile in part, slightly siliceous, bituminous, slightly calcareous to marly, trace slickenside, trace pyrite, trace Maristone streaks, dark gray brown to black, microcrystalline to very fine crystalline, calcareous, hard, tight, no shows

Sample Descriptions

Storage Units:

Metric

1,740.00 to 1,745.00 (5.00)	SHALE very dark gray to black as above, micromicaceous, fissile to blocky, bituminous, siliceous, slightly calcareous to marly, well indurated, trace slickenside, trace pyrite, scattered Marlstone, very dark gray to black, dark gray brown in part, microcrystalline, calcareous, tight, no shows
1,745.00 to 1,750.00 (5.00)	SHALE as above increasing Marlstone, dark gray to black, calcareous, tight, no shows
1,750.00 to 1,755.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky in part, bituminous, well indurated, trace slickenside, scattered Marlstone as above, dark gray brown to black, microcrystalline, calcareous, tight, no shows
1,755.00 to 1,760.00 (5.00)	SHALE dark gray to black, dark brown gray in part, micromicaceous, bituminous, slightly calcareous to marly in part, trace slickenside, trace pyrite, trace Marlstone stringers as above
1,760.00 to 1,765.00 (5.00)	SHALE dark gray to dark brown gray to black, micromicaceous, fissile to blocky in part, bituminous, well indurated, slightly calcareous with trace calcareous white specks in part, trace slickenside, trace pyrite
1,765.00 to 1,770.00 (5.00)	SHALE dark gray to black as above, moderately to well indurated, slightly siliceous, minor slickenside, trace Marlstone stringers
1,770.00 to 1,775.00 (5.00)	SHALE very dark gray to black as above, bituminous, slightly siliceous, trace Marlstone stringers
1,775.00 to 1,780.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, moderately indurated, bituminous, slightly calcareous in part, scattered Marlstone, dark gray to dark brown gray to black, microcrystalline to very fine crystalline, dolomitic to sideritic, tight, no shows
1,780.00 to 1,785.00 (5.00)	SHALE dark gray to black as above, interbedded Marlstone as above, dark gray to black, microcrystalline to very fine crystalline, dolomitic to sideritic, tight, no shows
1,785.00 to 1,790.00 (5.00)	SHALE dark gray to very dark gray, to black in part, dark brown gray in part, micromicaceous, siliceous, moderately to well indurated, bituminous, scattered Marlstone, dark gray to dark brown gray, microcrystalline to very fine crystalline, dolomitic to sideritic, tight, no shows, minor Ironstone, medium to dark tan brown, cryptocrystalline to microcrystalline, hard, tight

Sample Descriptions

Storage Units:

Metric

1,790.00 to 1,795.00 (5.00)	SHALE dark gray to very dark gray, to black in part, micromicaceous, slightly siliceous, sideritic in part, well indurated, scattered Ironstone as above, tan brown, hard, tight, scattered Marlstone as above
1,795.00 to 1,800.00 (5.00)	SHALE dark gray to very dark gray to dark brown gray, micromicaceous, siliceous, sideritic, well indurated and hard, minor Ironstone, dark gray brown, cryptocrystalline, very argillaceous grading to sideritic Shale
1,800.00 to 1,805.00 (5.00)	SHALE dark gray to dark brown gray as above, to black in part, micromicaceous, sideritic, siliceous, well indurated, interbedded Ironstone, dark gray brown, very argillaceous, tight
1,805.00 to 1,810.00 (5.00)	SHALE dark gray to dark brown gray to black as above, slightly calcareous with minor calcareous white specks in part, sideritic, well indurated, scattered Ironstone as above, grading to sideritic Marlstone
1,810.00 to 1,815.00 (5.00)	SHALE dark gray to black, micromicaceous, sideritic to very sideritic, hard, scattered Marlstone, dark gray to dark brown gray, microcrystalline to very fine crystalline, sideritic to very sideritic grading to argillaceous Ironstone, tight
1,815.00 to 1,820.00 (5.00)	SHALE dark gray to very dark gray to black, micromicaceous, slightly sideritic, siliceous in part, moderately to well indurated, decreasing Marlstone as above
1,820.00 to 1,825.00 (5.00)	SHALE dark gray to black as above, micromicaceous, bituminous, slightly calcareous to sideritic, well indurated, trace pyrite
1,825.00 to 1,830.00 (5.00)	SHALE dark gray to black as above, micromicaceous, siliceous, sideritic in part, trace pyrite, scattered Marlstone, dark gray to brown gray to black, microcrystalline, sideritic, tight
1,830.00 to 1,835.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous, well indurated, bituminous, sideritic streaks, trace Marlstone streaks
1,835.00 to 1,840.00 (5.00)	SHALE dark gray to black as above, bituminous, trace Marlstone streaks
1,840.00 to 1,845.00 (5.00)	SHALE dark gray to black as above, micromicaceous, siliceous, bituminous, minor Marlstone, dark brown gray to black, sideritic, hard, tight, no shows
1,845.00 to 1,852.00 (7.00)	SHALE dark gray to dark brown gray to black, micromicaceous, siliceous, well indurated, trace medium gray soft Shale, trace Marlstone streaks as above

Sample Descriptions

Storage Units:

Metric

1,852.00 to 1,860.00 (8.00)	SHALE medium gray, micromicaceous, fissile, moderately soft, scattered Shale, very dark gray to black, dark brown gray in part, micromicaceous, moderately to well indurated, bituminous, slightly siliceous, trace pyrite
1,860.00 to 1,870.00 (10.00)	SHALE medium gray, micromicaceous, fissile, moderately soft, slightly bentonitic in part, trace dark gray to black Shale (Exshaw sloughing?)
1,870.00 to 1,880.00 (10.00)	SHALE medium gray as above, micromicaceous, fissile, moderately soft, decreasing black Shale as above
1,880.00 to 1,890.00 (10.00)	SHALE medium gray as above, medium green gray in part, to dark gray in part, pearly lustre in part, micromicaceous, fissile, moderately soft
1,890.00 to 1,900.00 (10.00)	SHALE medium gray as above, micromicaceous, fissile, moderately soft, slightly bentonitic in part
1,900.00 to 1,910.00 (10.00)	SHALE medium gray to green gray, to dark green gray in part, micromicaceous, fissile, slightly bentonitic, moderately soft, trace slickenside
1,910.00 to 1,920.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, moderately soft, marly streaks
1,920.00 to 1,930.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, moderately soft, slightly bentonitic in part, calcareous to marly streaks
1,930.00 to 1,940.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, soft, marly streaks in part, trace siderite stringers
1,940.00 to 1,950.00 (10.00)	SHALE medium gray as above, micromicaceous, fissile, moderately soft, trace pyrite
1,950.00 to 1,960.00 (10.00)	SHALE medium gray to medium to dark green gray, micromicaceous, fissile to sub fissile, mainly soft with harder sideritic streaks, slightly fossiliferous
1,960.00 to 1,970.00 (10.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile to sub fissile, soft in part to sideritic and moderately indurated
1,970.00 to 1,980.00 (10.00)	SHALE medium gray to green gray in part, micromicaceous, fissile, soft, slightly calcareous to marly in part. scattered SHALE, dark gray to dark green gray, micromicaceous, fissile to splintery, sideritic in part

Sample Descriptions

Storage Units:

Metric

1,980.00 to 1,990.00 (10.00)	SHALE dark gray to dark green gray, micromicaceous, fissile, slightly calcareous to sideritic, scattered medium gray soft Shale as above, calcareous to marly
1,990.00 to 2,000.00 (10.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile, calcareous, marly, sideritic in part, trace Limestone streaks, medium to dark brown to gray brown, cryptocrystalline, argillaceous, tight, no shows
2,000.00 to 2,010.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, calcareous in part, slightly sideritic in part, scattered Limestone, medium brown to gray brown, cryptocrystalline, argillaceous, tight, no shows
2,010.00 to 2,020.00 (10.00)	SHALE medium to dark gray to green gray, micromicaceous, fissile, calcareous, marly, moderately soft, trace pyrite
2,020.00 to 2,030.00 (10.00)	SHALE medium to dark gray, to green gray in part, micromicaceous, fissile, slightly calcareous to marly
2,030.00 to 2,040.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile to sub fissile, slightly calcareous to marly in rare part, trace pyrite
2,040.00 to 2,050.00 (10.00)	SHALE medium to dark gray to green gray as above, increasing dark gray, micromicaceous, fissile, moderately soft
2,050.00 to 2,060.00 (10.00)	SHALE dark gray to black, micromicaceous, fissile to sub fissile, slightly bituminous, moderately soft, trace pyrite
2,060.00 to 2,070.00 (10.00)	SHALE medium to dark gray, very dark gray to black in part, micromicaceous, fissile, moderately soft, slightly calcareous to marly in part, slightly bituminous in part, trace pyrite
2,070.00 to 2,080.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, moderately soft, slightly calcareous to marly in part, slightly bituminous in part, trace pyrite, streaks of Shale, very dark gray to black, bituminous
2,080.00 to 2,090.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, slightly calcareous to marly in part, moderately soft, scattered SHALE, very dark gray to black, micromicaceous, fissile, bituminous, slightly siliceous with trace clear quartz birdseye inclusions

Sample Descriptions

Storage Units:

Metric

2,090.00 to 2,100.00 (10.00)	SHALE medium gray to green gray, to dark gray to very dark gray in part, micromicaceous, fissile, moderately soft, scattered pyrite
2,100.00 to 2,110.00 (10.00)	SHALE mainly medium gray, medium to dark gray in part, micromicaceous, fissile, moderately soft, trace birdseye clear quartz inclusions, trace pyrite
2,110.00 to 2,120.00 (10.00)	SHALE medium to dark gray to black, micromicaceous, fissile, siliceous in part, scattered pyrite
2,120.00 to 2,130.00 (10.00)	SHALE dark gray to black, dark brown gray in part, micromicaceous, fissile, bituminous, moderately indurated, slightly siliceous with trace clear quartz inclusions, trace pyrite, minor medium gray Shale as above
2,130.00 to 2,140.00 (10.00)	SHALE medium to dark gray, very dark gray to black in part, micromicaceous, fissile to sub fissile, bituminous, siliceous inclusions, trace pyrite
2,140.00 to 2,150.00 (10.00)	SHALE medium to dark gray to very dark gray to black as above, micromicaceous, fissile to sub fissile, siliceous with quartz and cherty inclusions, slightly bituminous, trace fractures with calcite crystals and hexagonal quartz crystals to medium crystalline size
2,150.00 to 2,160.00 (10.00)	SHALE medium to dark gray to very dark gray as above, micromicaceous, fissile, slightly calcareous to marly in part, slightly siliceous, bituminous in part, trace slickenside, trace fractures with quartz and calcite infill, minor pyrite
2,160.00 to 2,170.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous to marly in part, slightly bituminous in part, moderately soft, trace slickenside, trace microfractures with quartz and calcite infill, trace coarse grain size quartz crystal shards, trace pyrite
2,170.00 to 2,180.00 (10.00)	SHALE medium gray to green gray, decreasing dark gray as above, micromicaceous, fissile, trace slickenside, minor pyrite, trace black Chert, trace clear quartz shards
2,180.00 to 2,190.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, siliceous in part with trace black chert and clear quartz shards, trace Limestone streaks, medium brown to gray brown, microcrystalline, fossiliferous, slightly argillaceous, tight, no shows
2,190.00 to 2,200.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, very slightly silty in part, slightly calcareous to marly in part, trace pyrite, trace slickenside

Sample Descriptions

Storage Units:

Metric

2,200.00 to 2,210.00 (10.00)	SHALE medium to dark gray as above with decreasing dark gray, micromicaceous, fissile, slightly silty in part, slightly calcareous to marly in part, slightly bituminous, trace pyrite, trace clear quartz shards, trace thin Siltstone laminations, medium gray, very siliceous and hard, trace Limestone streaks, medium gray brown, cryptocrystalline, argillaceous, slightly fossiliferous, tight, no shows
2,210.00 to 2,220.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly silty in part, trace pyrite, scattered Siltstone streaks, light to medium gray, quartzose, siliceous and hard, slightly calcareous, argillaceous in part, tight, no shows
2,220.00 to 2,230.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly silty in part, scattered Siltstone, light to medium gray, quartzose, siliceous and hard in part, slightly calcareous, argillaceous in part, tight, no shows
2,230.00 to 2,240.00 (10.00)	SHALE medium gray to green gray to dark gray in part, micromicaceous, fissile, slightly calcareous to marly in part, trace pyrite, trace Siltstone stringers
2,240.00 to 2,250.00 (10.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile, slightly calcareous to marly in part, trace pyrite, trace Siltstone laminations and streaks, light to medium gray, quartzose, siliceous and hard in part, slightly calcareous, tight, no shows
2,250.00 to 2,260.00 (10.00)	SHALE medium to dark gray to green gray as above, micromicaceous, fissile, trace Siltstone laminations as above
2,260.00 to 2,270.00 (10.00)	SHALE medium to dark gray, micromicaceous, fissile, slightly calcareous, moderately soft, trace pyrite, trace Siltstone laminations, trace Limestone streaks
2,270.00 to 2,280.00 (10.00)	SHALE medium gray to green gray, to dark gray in part, micromicaceous, fissile to sub fissile, slightly calcareous, marly, trace pyrite
2,280.00 to 2,285.00 (5.00)	SHALE medium gray to green gray, dark gray in part, micromicaceous, fissile, slightly calcareous, trace pyrite
2,285.00 to 2,295.00 (10.00)	SHALE dark gray to dark brown gray to black, micromicaceous, fissile to blocky, slightly bituminous, moderately indurated
2,295.00 to 2,305.00 (10.00)	SHALE medium gray to green gray, dark gray to black in part, micromicaceous, fissile, slightly bituminous in part, green gray with pearly lustre in part, trace slickenside

Sample Descriptions

Storage Units:

Metric

2,305.00 to 2,310.00 (5.00)	SHALE mainly medium gray, micromicaceous, fissile, slightly calcareous, slightly bentonitic and soft in part, trace pyrite, trace Siltstone streaks
2,310.00 to 2,315.00 (5.00)	SHALE medium gray to green gray as above, to dark gray in part, micromicaceous, fissile, slightly bentonitic, very slightly calcareous in part, trace Siltstone stringers and laminations
2,315.00 to 2,320.00 (5.00)	SHALE medium gray to green gray as above, micromicaceous, slightly silty in part with trace Siltstone streaks, trace pyrite
2,320.00 to 2,325.00 (5.00)	SHALE medium gray to green gray, micromicaceous, fissile to splintery, trace pyrite
2,325.00 to 2,330.00 (5.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, moderately soft, silty in part, trace pyrite, trace Siltstone laminations
2,330.00 to 2,340.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, slightly dolomitic in part, silty in part, trace pyrite, trace slickenside, trace Limestone streaks
2,340.00 to 2,350.00 (10.00)	SHALE medium gray to green gray, dark gray in part, micromicaceous, fissile, trace slickenside, trace Siltstone streaks
2,350.00 to 2,360.00 (10.00)	SHALE medium to dark gray to green gray, micromicaceous, fissile, moderately soft, slightly fossiliferous, trace pyrite, slightly silty in part with trace Siltstone laminations, trace Limestone stringers
2,360.00 to 2,370.00 (10.00)	SHALE medium to dark gray to green gray as above, micromicaceous, fissile, slightly calcareous to dolomitic in part, slightly silty in part, trace Siltstone laminations, medium gray to green gray, quartzose, dolomitic, slightly siliceous in part, tight, no shows, trace Shale streaks, very dark gray to black, micromicaceous, fissile, slightly dolomitic, slightly bituminous
2,370.00 to 2,380.00 (10.00)	SHALE medium to dark gray to green gray as above, micromicaceous, fissile, slightly calcareous to dolomitic, slightly silty with minor Siltstone laminations
2,380.00 to 2,390.00 (10.00)	SHALE medium to dark gray to green gray, micromicaceous, fissile, slightly dolomitic, trace pyrite, trace Siltstone laminations, trace siderite streaks
2,390.00 to 2,400.00 (10.00)	SHALE medium to dark gray to green gray as above, micromicaceous, fissile, trace pyrite, scattered Marlstone, dark brown to dark gray brown, calcareous, sideritic in part, tight

Sample Descriptions

Storage Units:

Metric

2,400.00 to 2,410.00 (10.00)	SHALE medium to dark gray to green gray, micromicaceous, fissile, slightly calcareous in part, slightly silty, bituminous in part, trace pyrite, trace Marlstone, dark brown to dark gray brown, calcareous, tight, no shows
2,410.00 to 2,420.00 (10.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile, calcareous to marly in part, trace slickenside, rare trace Siltstone streaks, light gray, quartzose, calcareous, siliceous, tight
2,420.00 to 2,430.00 (10.00)	SHALE mainly medium gray, green gray in part, dark gray in part, micromicaceous, fissile, slightly calcareous in part, slightly silty in part, trace pyrite, trace slickenside, trace clear quartz shards
2,430.00 to 2,440.00 (10.00)	SHALE medium gray to green gray as above, dark gray in part, micromicaceous, fissile, slightly calcareous in part, moderately soft, trace pyrite, trace Siltstone streaks
2,440.00 to 2,450.00 (10.00)	SHALE medium gray to green gray, dark gray in part, micromicaceous, fissile, slightly silty, very slightly calcareous in part, trace Siltstone laminations, trace light brown Chert, trace pyrite
2,450.00 to 2,460.00 (10.00)	SHALE mainly medium gray as above, to green gray in part, dark gray in part, micromicaceous, fissile, slightly bentonitic and soft in part, slightly silty in part, trace pyrite
2,460.00 to 2,470.00 (10.00)	SHALE medium to dark gray to green gray as above, micromicaceous, fissile, slightly calcareous to marly, trace Marlstone streaks, dark brown gray, calcareous, tight, trace Siltstone laminations
2,470.00 to 2,480.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile to subfissile, slightly calcareous to marly in part, trace slickenside, trace Anhydrite healed microfractures
2,480.00 to 2,490.00 (10.00)	SHALE medium gray to gray green, micromicaceous, fissile, moderately soft, increasing slickenside, trace pyrite
2,490.00 to 2,500.00 (10.00)	SHALE medium gray to gray green as above, micromicaceous, fissile, moderately soft, slightly calcareous in part, trace slickenside, trace pyrite
2,500.00 to 2,510.00 (10.00)	SHALE mainly medium gray, green gray in part, micromicaceous, fissile, moderately soft, trace pyrite, rare trace clear quartz shards

Sample Descriptions

Storage Units

Metric

2,510.00 to 2,520.00 (10.00)	SHALE mainly medium gray, green gray in part, micromicaceous, fissile to subfissile, trace slickenside
2,520.00 to 2,530.00 (10.00)	SHALE medium gray as above, micromicaceous, fissile, soft, decreasing slickenside
2,530.00 to 2,535.00 (5.00)	SHALE medium gray to green gray, grading to dark green gray in part, micromicaceous, fissile, trace slickenside
2,535.00 to 2,540.00 (5.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile to subfissile, trace slickenside
2,540.00 to 2,550.00 (10.00)	SHALE medium gray to green gray, micromicaceous, fissile, trace slickenside, rare trace clear quartz shards
2,550.00 to 2,560.00 (10.00)	SHALE medium gray as above, green gray in part, micromicaceous, fissile, moderately soft, trace pyrite
2,560.00 to 2,570.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, trace pyrite
2,570.00 to 2,580.00 (10.00)	SHALE medium gray to medium to dark green gray, micromicaceous, fissile, slightly silty in part, trace pyrite, trace Siltstone stringers
2,580.00 to 2,590.00 (10.00)	SHALE medium gray to green gray, to dark green gray in part, micromicaceous, fissile, moderately soft, trace slickenside, trace pyrite
2,590.00 to 2,600.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile to subfissile, trace pyrite, trace dark gray to black Shale streaks
2,600.00 to 2,610.00 (10.00)	SHALE medium gray to green gray as above, micromicaceous, fissile, scattered Shale, dark gray to black, micromicaceous, fissile to blocky, slightly bituminous, moderately indurated, trace pyrite
2,610.00 to 2,620.00 (10.00)	SHALE medium to dark gray with increasing dark gray, micromicaceous, fissile, black and slightly bituminous in part, trace slickenside
2,620.00 to 2,630.00 (10.00)	SHALE medium to dark gray, green gray in part, micromicaceous, fissile to subfissile, moderately soft, trace pyrite, trace Siltstone stringers

Sample Descriptions

Storage Units:

Metric

2,630.00 to 2,640.00 (10.00)	SHALE medium to dark gray, dark green gray in part, micromicaceous, fissile, slightly silty in part, trace pyrite, trace Siltstone laminations
2,640.00 to 2,650.00 (10.00)	SHALE medium to dark gray as above, micromicaceous, fissile, trace pyrite, trace dark gray to black Shale streaks
2,650.00 to 2,655.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky, siliceous and hard in part, slightly bituminous
2,655.00 to 2,660.00 (5.00)	SHALE dark gray to black as above, dark brown gray in part, micromicaceous, slightly bituminous, slightly siliceous, moderately to well indurated, pyritic in part with scattered disseminated microcrystalline pyrite
2,660.00 to 2,665.00 (5.00)	SHALE dark gray to black, micromicaceous, fissile to blocky in part, siliceous and well indurated in part, bituminous, trace pyrite, trace Marlstone, very dark gray brown to black, calcareous to dolomitic, tight
2,665.00 to 2,670.00 (5.00)	SHALE dark gray to black as above, bituminous, siliceous and hard, scattered disseminated pyrite
2,670.00 to 2,675.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky in part, bituminous, slightly siliceous, scattered disseminated pyrite
2,675.00 to 2,680.00 (5.00)	SHALE dark gray to black as above, trace medium to dark gray, scattered pyrite
2,680.00 to 2,685.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky, siliceous and well indurated, bituminous, trace pyrite
2,685.00 to 2,690.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, fissile to blocky, siliceous, slightly bituminous, scattered pyrite
2,690.00 to 2,695.00 (5.00)	SHALE dark gray to black as above, siliceous, bituminous, scattered pyrite, trace Marlstone, dark gray brown to black, dolomitic, slightly bituminous, tight
2,695.00 to 2,700.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous and hard, slightly bituminous, abundant pyrite, trace Marlstone streaks, dark gray brown to black as above, dolomitic, tight

Sample Descriptions

Storage Units:

Metric

2,700.00 to 2,705.00 (5.00)	SHALE dark gray to black as above, siliceous, bituminous, abundant pyrite, trace microfractures with pyrite and quartz infill, scattered Marlstone as above
2,705.00 to 2,710.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky in part, siliceous to very siliceous and hard, slightly bituminous, trace pyrite
2,710.00 to 2,715.00 (5.00)	SHALE very dark gray to black as above, very siliceous and hard, trace pyrite, minor Marlstone, dark gray to dark gray brown to black, microcrystalline, calcareous to dolomitic, siliceous, tight
2,715.00 to 2,720.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky, siliceous to very siliceous, well indurated and hard, slightly bituminous, trace pyrite, trace slickenside, trace thin quartz healed microfractures, trace Marlstone streaks, dark gray, dolomitic, tight
2,720.00 to 2,725.00 (5.00)	SHALE dark gray to black as above, siliceous to very siliceous, slightly bituminous, trace pyrite, trace Marlstone, dark gray to dark brown gray to black, dolomitic, siliceous, tight
2,725.00 to 2,730.00 (5.00)	SHALE very dark gray to black as above, micromicaceous, fissile to blocky, siliceous to very siliceous, bituminous, minor pyrite, trace Marlstone stringers
2,730.00 to 2,735.00 (5.00)	SHALE dark gray to black as above, siliceous to very siliceous, moderately to well indurated, bituminous, minor pyrite, trace thin quartz healed microfractures, trace slickenside
2,735.00 to 2,740.00 (5.00)	SHALE very dark gray to black as above, siliceous to very siliceous grading to Chert, hard, trace pyrite
2,740.00 to 2,745.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky, very siliceous grading to Chert, very hard, minor slickenside, trace pyrite
2,745.00 to 2,750.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky, siliceous to very siliceous, bituminous, trace pyrite, scattered slickenside, trace microfractures with quartz infilling, rare trace loose quartz crystal shards
2,750.00 to 2,755.00 (5.00)	SHALE very dark gray to black as above, very siliceous grading to black Chert in part, cuttings chips are sharp fissile shards, trace silicified microfractures, minor pyrite

Sample Descriptions

Storage Units:

Metric

2,755.00 to 2,760.00 (5.00)	SHALE very dark gray to black as above, very siliceous and hard, very pyritic with scattered disseminated pyrite, trace black Chert
2,760.00 to 2,765.00 (5.00)	SHALE very dark gray to black as above, very siliceous, slightly bituminous, well indurated, scattered pyrite, minor black Chert, minor Marlstone, dark gray brown to black, microcrystalline, calcareous, siliceous, tight
2,765.00 to 2,770.00 (5.00)	SHALE very dark gray to black as above, siliceous to very siliceous grading to black Chert in part, scattered pyrite, scattered Marlstone, very dark gray to brown gray, microcrystalline, calcareous, siliceous, pyritic, tight
2,770.00 to 2,775.00 (5.00)	SHALE dark gray to black as above, siliceous to very siliceous, slightly bituminous, scattered pyrite, increasing interbedded Marlstone, dark gray to brown gray to black, microcrystalline, calcareous, siliceous, pyritic in part, tight
2,775.00 to 2,780.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile to blocky in part, siliceous to very siliceous, well indurated, bituminous, slightly calcareous in part, trace microfractures, scattered Marlstone, dark gray to dark brown gray, microcrystalline, calcareous, siliceous, tight
2,780.00 to 2,785.00 (5.00)	SHALE very dark gray to black as above, siliceous to very siliceous, bituminous, trace slickenside, trace pyrite, rare trace open microfractures with very coarse hexagonal quartz crystals, trace white calcite crystals, trace Marlstone streaks
2,785.00 to 2,790.00 (5.00)	SHALE very dark gray to black as above, siliceous to very siliceous and hard, bituminous, trace microfractures with calcite infill
2,790.00 to 2,795.00 (5.00)	SHALE dark gray to black, micromicaceous, fissile to blocky, siliceous to very siliceous, well indurated, bituminous, increasing slickenside
2,795.00 to 2,800.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile, siliceous to very siliceous, well indurated, trace conchoidal fracture, cuttings are sharp black shards, trace slickenside, trace pyrite, trace Marlstone streaks
2,800.00 to 2,805.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, slightly calcareous in part, well indurated, trace pyrite, trace slickenside, trace calcite healed microfractures to 1mm
2,805.00 to 2,810.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, slightly calcareous in part, well indurated to very hard, trace pyrite, trace slickenside, trace loose calcite crystals

Sample Descriptions

Storage Units:

Metric

2,810.00 to 2,815.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile, blocky in part, siliceous to very siliceous, hard, bituminous, slightly calcareous in part, trace calcite healed microfractures, trace slickenside
2,815.00 to 2,820.00 (5.00)	SHALE very dark gray to black as above, siliceous, trace microfractures with increasing calcite crystals, scattered slickenside
2,820.00 to 2,825.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous, bituminous, hard, abundant slickenside, scattered calcite crystals lining fractures, trace open fractures with trace fracture porosity
2,825.00 to 2,830.00 (5.00)	SHALE very dark gray to black, micromicaceous, fissile, siliceous and hard, bituminous, slightly calcareous in part, scattered slickenside, minor calcite healed fractures with scattered loose calcite crystals, scattered clear to off white quartz crystals, trace Marlstone, very dark gray to black, microcrystalline, calcareous, tight
2,830.00 to 2,835.00 (5.00)	SHALE very dark gray to black as above, siliceous and hard, slightly calcareous to very calcareous in part, bituminous, trace pyrite, scattered fractures with calcite and quartz crystal filling
2,835.00 to 2,840.00 (5.00)	SHALE dark gray to black, micromicaceous, siliceous, slightly calcareous with trace calcareous white specks and calcite healed microfractures, scattered slickenside
2,840.00 to 2,845.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous and hard, slightly calcareous in part, bituminous, minor slickenside, trace microfractures with increasing calcite and decreasing quartz crystals, trace pyrite, trace Marlstone, very dark gray to black, microcrystalline, calcareous, tight
2,845.00 to 2,850.00 (5.00)	SHALE very dark gray to black as above, siliceous to very siliceous, hard, slightly calcareous, scattered slickenside, minor microfractures, trace Marlstone, dark gray to dark brown gray to black, microcrystalline, calcareous, tight
2,850.00 to 2,855.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous, hard, conchoidal fracture, bituminous, slightly calcareous in part, minor slickenside, trace microfractures
2,855.00 to 2,860.00 (5.00)	SHALE very dark gray to black as above, siliceous and hard, scattered fractures cemented with calcite, trace open fractures with coarse hexagonal quartz crystals, poor fracture porosity, trace slickenside

Sample Descriptions

Storage Units:

Metric

2,860.00 to 2,865.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, poor fracture porosity, abundant fractures with coarse calcite fracture filling, abundant loose coarse to very coarse calcite crystals, minor slickenside, trace pyrite
2,865.00 to 2,870.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, trace fracture porosity, open fractures with coarse to very coarse calcite crystals, trace very coarse quartz crystals, scattered slickenside
2,870.00 to 2,875.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous, trace conchoidal fracture, bituminous, slightly calcareous in part, scattered fractures with calcite and quartz infilling, scattered slickenside
2,875.00 to 2,880.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, trace fracture porosity with hexagonal quartz and coarse calcite lining fractures, scattered slickenside
2,880.00 to 2,885.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous, moderate to well indurated, conchoidal fracture in part, bituminous, slightly calcareous in part, scattered slickenside, scattered microfractures filled with calcite, trace quartz
2,885.00 to 2,890.00 (5.00)	SHALE very dark gray to black as above, siliceous and hard, slightly calcareous, bituminous, trace slickenside, trace dark brown gray Shale, moderately soft, calcareous with trace calcareous white specks, trace Marlstone, dark brown gray to black, calcareous, tight
2,890.00 to 2,895.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous, hard, conchoidal fracture, bituminous, trace slickenside, trace microfractures with hexagonal quartz crystals, trace Shale, dark brown gray, calcareous with trace calcareous white specks in part, trace slickenside
2,895.00 to 2,900.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous grading to black Chert in part, bituminous, slightly calcareous in part, trace pyrite, decreasing microfractures, minor slickenside
2,900.00 to 2,905.00 (5.00)	SHALE very dark gray to black as above, mainly siliceous and hard, slightly calcareous in part, bituminous, trace slickenside, trace microfractures
2,905.00 to 2,910.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous, conchoidal fracture in part, bituminous, minor microfractures cemented with quartz and calcite, scattered slickenside, trace black Chert, trace Marlstone, dark brown gray to black, calcareous, tight, no shows

Sample Descriptions

Storage Units:

Metric

2,910.00 to 2,915.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, slightly calcareous in part, trace slickenside, trace microfractures, trace Marlstone streaks
2,915.00 to 2,920.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous grading to black Chert, bituminous, slightly calcareous in part, well indurated, trace microfractures with calcite crystals, trace Marlstone streaks, dark gray to black, microcrystalline, calcareous, tight
2,920.00 to 2,925.00 (5.00)	SHALE very dark gray to black as above, siliceous, bituminous, trace slickenside, decreasing microfractures, minor Marlstone, dark brown gray, microcrystalline, calcareous, tight
2,925.00 to 2,930.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous to very siliceous grading to black Chert in part, bituminous, slightly calcareous in part, trace slickenside, trace calcite healed microfractures, trace Marlstone streaks
2,930.00 to 2,935.00 (5.00)	SHALE very dark gray to black, siliceous to very siliceous, bituminous, calcareous in part, trace microfractures, trace Marlstone streaks
2,935.00 to 2,940.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, siliceous, calcareous to very calcareous in part, bituminous, trace pyrite, trace Marlstone streaks
2,940.00 to 2,945.00 (5.00)	SHALE very dark gray to dark brown gray to black, siliceous in part, calcareous to very calcareous in part, bituminous, trace calcite healed microfractures, scattered Marlstone, dark gray brown, microcrystalline, calcareous, tight
2,945.00 to 2,950.00 (5.00)	SHALE very dark gray to dark brown gray to black as above, increasing calcareous content, becoming moderately indurated, trace pyrite, trace Marlstone streaks
2,950.00 to 2,955.00 (5.00)	SHALE very dark gray to dark brown gray to black, calcareous to very calcareous, siliceous, bituminous, trace calcite veins, trace Marlstone, dark gray brown, microcrystalline, calcareous, tight
2,955.00 to 2,960.00 (5.00)	SHALE very dark brown gray to black as above, calcareous, siliceous, bituminous, trace black Chert, trace dark brown Marlstone streaks as above
2,960.00 to 2,965.00 (5.00)	SHALE very dark gray to black, micromicaceous, siliceous, bituminous, slightly calcareous in part, trace slickenside

Sample Descriptions

Storage Units:

Metric

2,965.00 to 2,970.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, micromicaceous, siliceous to very siliceous, well indurated, bituminous, slightly calcareous to dolomitic in part, slightly pyritic with trace pyritized spicules
2,970.00 to 2,975.00 (5.00)	SHALE very dark gray to black as above, dark brown gray in part, siliceous, calcareous to very calcareous in part, bituminous, moderately indurated
2,975.00 to 2,980.00 (5.00)	SHALE very dark gray to dark brown gray to black, micromicaceous, siliceous, calcareous in part, bituminous, moderately indurated, minor Marlstone, dark gray brown, microcrystalline, calcareous, tight
2,980.00 to 2,985.00 (5.00)	SHALE very dark gray to black, dark brown gray in part, siliceous to very siliceous, conchoidal fracture in part, calcareous in part, bituminous, trace slickenside
2,985.00 to 2,990.00 (5.00)	SHALE very dark gray to black as above, dark brown gray in part, very siliceous, conchoidal fracture in part, calcareous in part, bituminous, trace slickenside, trace pyrite
2,990.00 to 2,995.00 (5.00)	SHALE very dark gray to dark brown gray to black as above, siliceous, bituminous, calcareous to very calcareous with scattered white specks, trace pyrite
2,995.00 to 3,000.00 (5.00)	SHALE dark gray to dark brown gray to black, micromicaceous, calcareous to very calcareous with white specks in part, siliceous, bituminous, trace slickenside, trace pyrite
3,000.00 to 3,005.00 (5.00)	SHALE dark gray to dark brown gray to black as above, siliceous, calcareous to very calcareous, bituminous, increasing Marlstone, dark gray brown, microcrystalline, calcareous, tight
3,005.00 to 3,010.00 (5.00)	SHALE very dark gray to brown gray to black as above, siliceous, calcareous, bituminous, trace slickenside, increasing Marlstone, dark gray brown, microcrystalline, calcareous, fossiliferous, tight
3,010.00 to 3,015.00 (5.00)	SHALE dark gray to dark brown gray to black, calcareous to very calcareous with scattered calcareous white specks, siliceous, bituminous, scattered Marlstone as above, dark gray brown, microcrystalline, calcareous, tight
3,015.00 to 3,020.00 (5.00)	SHALE dark gray to dark brown gray, calcareous to very calcareous as above, fossiliferous, bituminous, siliceous, scattered Marlstone, dark gray brown, microcrystalline, calcareous, fossiliferous, tight

Sample Descriptions

Storage Units:

Metric

3,020.00 to 3,025.00 (5.00)	SHALE dark gray brown to dark gray to black, calcareous to very calcareous with scattered calcareous white specks, fossiliferous, siliceous in part with conchoidal fracture, bituminous, minor Marlstone as above
3,025.00 to 3,030.00 (5.00)	SHALE dark gray to dark brown gray to black, micromicaceous, calcareous to very calcareous with scattered calcareous white specks in part, siliceous, very fossiliferous in part, trace slickenside, trace microfractures with calcite infill, trace black Chert
3,030.00 to 3,035.00 (5.00)	SHALE dark gray to brown gray to black as above, micromicaceous, calcareous, siliceous, fossiliferous, bituminous, trace thin calcite healed microfractures
3,035.00 to 3,040.00 (5.00)	SHALE dark gray to brown gray to black as above, micromicaceous, calcareous, siliceous, bituminous, slightly fossiliferous in part, trace slickenside, trace calcite healed microfractures, trace Limestone streaks, medium to dark gray, cryptocrystalline to microcrystalline, mudstone, slightly argillaceous, fossiliferous, tight, no shows
3,040.00 to 3,045.00 (5.00)	SHALE dark gray to black as above, calcareous to very calcareous with scattered calcite white specks, siliceous, bituminous, increasing Marlstone, dark gray to dark gray brown, microcrystalline, calcareous, fossiliferous, tight
3,045.00 to 3,050.00 (5.00)	Marlstone dark brown to brown gray, microcrystalline, calcareous, fossiliferous, trace Crinoids, tight, interbedded Shale as above, dark gray to black, dark brown gray in part, calcareous, siliceous, hard, trace Limestone streaks, medium gray brown, microcrystalline, slightly argillaceous, fossiliferous, trace Crinoids, tight, no shows
3,050.00 to 3,055.00 (5.00)	Marlstone medium to dark gray brown, microcrystalline, calcareous, fossiliferous, tight, no shows, scattered Shale as above, very dark gray to black, calcareous, siliceous, minor Limestone, medium brown gray, cryptocrystalline to microcrystalline, mudstone, fossiliferous, slightly argillaceous, marly, tight, no shows, trace black Chert
3,055.00 to 3,060.00 (5.00)	Marlstone dark brown to dark gray brown, cryptocrystalline to microcrystalline, calcareous, very fossiliferous, tight, scattered Limestone, dark brown, cryptocrystalline, argillaceous to very argillaceous, very fossiliferous, scattered Crinoids, tight, no shows, trace black Chert
3,060.00 to 3,065.00 (5.00)	LIMESTONE dark brown to dark gray brown, cryptocrystalline, mudstone, argillaceous to very argillaceous grading to Marlstone, very fossiliferous, tight, no shows, minor black Chert, minor Limestone, light to medium gray, fine to coarse crystalline, clean, fragmental, very fossiliferous, tight, no fluorescence, rare trace pyrobitumen

Sample Descriptions

Storage Units:

Metric

3,065.00 to 3,070.00 (5.00)	LIMESTONE medium to dark brown, light gray to gray brown in part, microcrystalline to coarse crystalline, clean, fragmental, fossiliferous, mainly tight with trace poor intercrystalline porosity, trace pyrobitumen, scattered stylolites, trace Dolomite, light gray to light brown gray, microcrystalline to medium crystalline, to coarse crystalline in part, calcareous, fossiliferous, poor intercrystalline porosity, no fluorescence, trace pyrobitumen, trace black Chert
3,070.00 to 3,075.00 (5.00)	DOLOMITE light gray to light brown gray, microcrystalline to medium crystalline, trace coarse crystalline, calcareous in part, fossiliferous, trace poor intercrystalline and pin point porosity, mainly plugged with pyrobitumen, trace dark brown Chert
3,075.00 to 3,080.00 (5.00)	DOLOMITE light to medium gray, very fine to medium crystalline, calcareous in part, mainly tight with trace poor intercrystalline porosity, trace pyrobitumen, trace Limestone, dark brown, microcrystalline, dolomitic, fossiliferous, tight, no shows, poor sample, mainly cement
3,080.00 to 3,085.00 (5.00)	DOLOMITE off white to light gray to medium gray to medium brown gray in part, very fine to medium crystalline, to coarse crystalline in part, calcareous in part, poor intercrystalline and fracture porosity, abundant pyrobitumen plugging, large pyrobitumen chips to 3mm plugging large voids? abundant coarse to very coarse off white Dolomite crystals, trace quartz crystal shards to 3mm, poor sample, mainly cement
3,085.00 to 3,090.00 (5.00)	DOLOMITE off white to light to medium gray as above, medium brown gray in part, very fine to coarse crystalline, trace poor intercrystalline and fracture porosity, scattered pyrobitumen plugging, scattered Limestone, dark brown to dark gray brown, microcrystalline, slightly fossiliferous, tight, no shows, poor sample mainly cement
3,090.00 to 3,095.00 (5.00)	DOLOMITE light to medium gray with abundant off white very coarse Dolomite crystals, fine to coarse crystalline, minor medium to dark gray very fine crystalline Dolomite, poor intercrystalline and fracture porosity with streaks fair porosity, abundant pyrobitumen plugging, sample 65% off white coarse Dolomite crystals, trace quartz crystal shards
3,095.00 to 3,100.00 (5.00)	DOLOMITE as above, 35% medium gray to medium brown gray very fine to fine crystalline Dolomite host rock, 65% off white fine to coarse Dolomite crystals, streaks poor to fair intercrystalline and fracture porosity, pyrobitumen plugging, some pyrobitumen chips with bubbled surfaces, increasing clear quartz crystal shards, trace hexagonal quartz
3,100.00 to 3,105.00 (5.00)	DOLOMITE light to medium gray to brown gray in part with 50% off white coarse to very coarse Dolomite crystals, very fine to coarse crystalline, poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, minor drusy Dolomite rosettes, minor clear quartz crystal shards, trace dark brown Limestone stringers

Sample Descriptions

Storage Units: Metric

3,105.00 to 3,110.00 (5.00)	DOLOMITE as above, up to 70% off white coarse to very coarse Dolomite crystals, poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, no fluorescence, trace Dolomite rhombs and rosettes, trace clear quartz crystals
3,110.00 to 3,115.00 (5.00)	DOLOMITE light to medium gray host rock, fine to coarse crystalline, indicated poor intercrystalline and fracture porosity, intercrystalline porosity mainly plugged with pyrobitumen, abundant coarse to very coarse off white Dolomite crystals, trace rhombs and rosettes, scattered clear quartz crystal shards, scattered Limestone, dark gray brown, cryptocrystalline to microcrystalline, fossiliferous, slightly dolomitic, bituminous, slightly siliceous and cherty in part, tight, no shows
3,115.00 to 3,120.00 (5.00)	DOLOMITE off white to light to medium gray as above, very fine to coarse crystalline, streaks poor to fair intercrystalline and fracture porosity, scattered pyrobitumen plugging, increasing off white coarse to very coarse Dolomite crystals, increasing clear quartz crystal shards and trace hexagonal quartz
3,120.00 to 3,125.00 (5.00)	DOLOMITE as above, 60% off white coarse to very coarse Dolomite crystals, 40% medium gray to brown gray very fine to fine crystalline host rock, poor intercrystalline and fracture porosity, streaks fair porosity, scattered pyrobitumen, scattered clear quartz crystals
3,125.00 to 3,130.00 (5.00)	DOLOMITE off white to light to medium gray, medium brown gray in part, very fine to coarse crystalline, poor to fair intercrystalline and fracture porosity, intercrystalline porosity mainly plugged with pyrobitumen, abundant drusy Dolomite rhombs, increasing clear quartz crystal shards, minor hexagonal quartz crystals
3,130.00 to 3,135.00 (5.00)	DOLOMITE as above, light to medium gray to brown gray with abundant off white coarse to very coarse Dolomite crystals, very fine to coarse crystalline, indicated poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, scattered Dolomite rhombs, scattered clear quartz crystal shards and hexagonal crystals
3,135.00 to 3,140.00 (5.00)	DOLOMITE as above, medium gray to brown gray, very fine to fine crystalline with abundant off white coarse crystalline Dolomite, indicated poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, scattered drusy Dolomite rhombs, minor quartz crystal shards
3,140.00 to 3,145.00 (5.00)	DOLOMITE as above, off white to light to medium gray, very fine to coarse crystalline, indicated poor to fair porosity, abundant pyrobitumen, some pyrobitumen has bubbles surface, some surfaces show rhombohedral mold, scattered quartz crystal shards and hexagonal crystals

Sample Descriptions

Storage Units:

Metric

3,145.00 to 3,150.00 (5.00)	DOLOMITE off white to light to medium gray, very fine to coarse crystalline, streaks poor to fair intercrystalline and fracture porosity, no fluorescence, scattered pyrobitumen, scattered drusy Dolomite rhombs, trace rosettes, minor quartz crystal shards
3,150.00 to 3,155.00 (5.00)	DOLOMITE as above, 60% off white coarse Dolomite crystals, 40% medium gray to brown gray host rock, poor intercrystalline and fracture porosity, streaks fair porosity, pyrobitumen plugging, minor Dolomite rhombs and quartz crystals
3,155.00 to 3,160.00 (5.00)	DOLOMITE as above, 50% off white coarse recrystallized Dolomite, 50% medium gray to brown gray very fine to fine crystalline host, poor intercrystalline and fracture porosity, intercrystalline mainly plugged with pyrobitumen, minor Dolomite rhombs, trace quartz crystals
3,160.00 to 3,165.00 (5.00)	DOLOMITE as above, off white to light to medium gray to brown gray, very fine to coarse crystalline, poor intercrystalline and fracture porosity, scattered pyrobitumen plugging, minor Dolomite rhombs and quartz crystals
3,165.00 to 3,170.00 (5.00)	DOLOMITE off white to light to medium gray, medium brown gray in part, very fine to coarse crystalline, streaks poor intercrystalline and fracture porosity, no fluorescence, scattered pyrobitumen, scattered drusy Dolomite rhombs, trace rosettes, minor quartz crystal shards
3,170.00 to 3,175.00 (5.00)	DOLOMITE as above, 60% medium to dark gray brown host rock with 40% off white coarse Dolomite crystals, streaks poor intercrystalline and fracture porosity, pyrobitumen plugging, scattered Dolomite rhombs, trace rosette crystal clusters, minor quartz crystal shards
3,175.00 to 3,180.00 (5.00)	DOLOMITE as above, decreasing porosity, trace pyrobitumen, scattered Dolomite rhombs, trace quartz crystals
3,180.00 to 3,185.00 (5.00)	DOLOMITE medium to dark gray brown, very fine to fine crystalline with abundant off white fine to coarse crystalline replacement, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, scattered drusy Dolomite rhombs, trace quartz crystals
3,185.00 to 3,190.00 (5.00)	DOLOMITE mainly medium to dark brown to gray brown, off white to very light gray in part, very fine to coarse crystalline, tight with streaks poor intercrystalline and fracture porosity, minor pyrobitumen, scattered drusy Dolomite rhombs, trace quartz crystals, rare trace Selenite crystals

Sample Descriptions

Storage Units:

Metric

3,190.00 to 3,195.00 (5.00)	DOLOMITE as above, 60% medium to dark brown host, 40% off white recrystallized coarse crystalline, increasing porosity with streaks poor to fair intercrystalline and fracture porosity, pyrobitumen plugging in part, scattered drusy Dolomite rhombs, trace rosette crystal clusters, trace quartz crystals
3,195.00 to 3,200.00 (5.00)	DOLOMITE as above, off white to medium to dark brown to gray brown, very fine to coarse crystalline, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystal shards
3,200.00 to 3,205.00 (5.00)	DOLOMITE as above, 50% medium brown to gray brown host rock with 50% off white dolomite crystal replacement, mainly tight with streak poor intercrystalline and fracture porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystals
3,205.00 to 3,210.00 (5.00)	DOLOMITE off white to very light gray to medium to dark brown to gray brown, very fine to coarse crystalline, mainly tight with trace poor intercrystalline and fracture porosity, no fluorescence, trace pyrobitumen, trace Dolomite rhombs, trace quartz crystal shards
3,210.00 to 3,215.00 (5.00)	DOLOMITE as above, off white to medium to dark brown to gray brown, very fine to coarse crystalline, increasing porosity streaks, trace pyrobitumen, trace drusy Dolomite rhombs, trace quartz
3,215.00 to 3,220.00 (5.00)	DOLOMITE off white to very light gray to medium to dark gray brown in part, fine to coarse crystalline, streaks poor intercrystalline and fracture porosity, pyrobitumen plugging intercrystalline porosity, scattered drusy Dolomite rhombs, trace rosettes, trace hexagonal quartz
3,220.00 to 3,225.00 (5.00)	DOLOMITE as above, off white to light gray coarse crystalline Dolomite and medium to dark gray brown very fine to fine crystalline host rock, increasing porosity with streaks poor to fair intercrystalline and fracture porosity, pyrobitumen plugging in part, scattered drusy Dolomite rhombs, trace quartz crystals
3,225.00 to 3,230.00 (5.00)	DOLOMITE as above, off white to medium brown to gray brown, very fine to coarse crystalline, increasing porous streaks to poor to fair intercrystalline and fracture porosity, minor pyrobitumen plugging, scattered drusy Dolomite crystals, increasing clear Dolomite rhombs, trace quartz crystals
3,230.00 to 3,235.00 (5.00)	DOLOMITE as above, 70% off white to light gray coarse Dolomite crystals, 30% very fine to fine crystalline medium gray brown host, tight in part with streaks poor to fair intercrystalline and fracture porosity, minor pyrobitumen plugging, scattered drusy Dolomite crystals, trace clear Dolomite rhombs, trace quartz crystals, hexagonal in part, very fine cuttings

Sample Descriptions

Storage Units:

Metric

3,235.00 to 3,240.00 (5.00)	DOLOMITE as above, mainly tight with trace poor intercrystalline and fracture porosity, trace pyrobitumen, scattered clear to off white Dolomite rhombs, trace quartz crystals
3,240.00 to 3,245.00 (5.00)	DOLOMITE off white to medium brown to medium gray brown, very fine to coarse crystalline, scattered fossil shadows, indicated poor intercrystalline and fracture porosity, decreasing pyrobitumen to trace, no fluorescence, scattered drusy Dolomite rhombs, clear to off white, trace quartz crystals, very fine cuttings
3,245.00 to 3,250.00 (5.00)	DOLOMITE medium brown to gray brown with 60% off white to very light gray recrystallized Dolomite, very fine to fine crystalline matrix with fine to coarse recrystallization, fossiliferous, indicated streaks poor intercrystalline and fracture porosity, rare trace pyrobitumen, scattered drusy Dolomite rhombs, clear to light gray, trace quartz crystals, cuttings becoming finer, down to very fine to to fine grained sand sized cuttings
3,250.00 to 3,255.00 (5.00)	DOLOMITE as above, 70% clear to off white recrystallized Dolomite, 30% medium brown to medium gray brown host, fossiliferous, trace poor intercrystalline and fracture porosity, no fluorescence, trace pyrobitumen, scattered drusy Dolomite crystals, trace hexagonal quartz crystals
3,255.00 to 3,260.00 (5.00)	DOLOMITE as above, poor intercrystalline and fracture porosity, scattered drusy Dolomite rhombs, increasing quartz crystals
3,260.00 to 3,265.00 (5.00)	DOLOMITE as above, off white to medium brown to medium gray brown, very fine to coarse crystalline, fossiliferous, mainly tight with streaks poor intercrystalline and fracture porosity, no fluorescence, scattered drusy Dolomite rhombs, clear to off white
3,265.00 to 3,270.00 (5.00)	DOLOMITE as above, medium brown to medium gray brown host rock with 60% off white to light gray coarse crystalline Dolomite, fossiliferous, streaks poor to fair intercrystalline and fracture porosity, trace pyrobitumen, no fluorescence, scattered clear to light gray Dolomite rhombs, trace quartz crystal shards, very fine cuttings
3,270.00 to 3,275.00 (5.00)	DOLOMITE off white to light gray to medium brown to gray brown, 60% off white to very light gray recrystallized Dolomite, 40% very fine to fine crystalline matrix, fossiliferous, indicated streaks poor intercrystalline and fracture porosity, rare trace pyrobitumen, scattered drusy Dolomite rhombs, clear to light gray, trace quartz crystals
3,275.00 to 3,280.00 (5.00)	DOLOMITE medium brown to gray brown matrix, very fine to fine crystalline, abundant recrystallized off white to light gray Dolomite, fossiliferous, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, minor drusy Dolomite rhombs, trace quartz crystal shards

Sample Descriptions

Storage Units:

Metric

3,280.00 to 3,285.00
(5.00)

DOLOMITE

off white to light gray to medium brown, very fine to coarse crystalline, fossiliferous, mainly tight with streaks poor intercrystalline and fracture porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystals

3,285.00 to 3,293.00
(8.00)

DOLOMITE

as above, medium brown to gray brown host rock, very fine to medium crystalline with abundant off white to light gray coarse Dolomite crystal replacement, fossiliferous, trace poor intercrystalline and fracture porosity, trace pyrobitumen, scattered clear to off white Dolomite rhombs, trace quartz crystal shards

3,293.00 to 3,300.00
(7.00)

DOLOMITE

off white to light gray coarse crystals to medium brown to medium gray brown matrix, very fine to coarse crystalline, fossiliferous, streaks poor to fair intercrystalline and fracture porosity, scattered drusy Dolomite rhombs, trace rosettes, trace hexagonal quartz crystals, scattered quartz crystal shards

3,300.00 to 3,305.00
(5.00)

DOLOMITE

as above, off white to medium brown to gray brown, very fine to coarse crystalline, fossiliferous, poor to fair intercrystalline and fracture porosity, scattered open fractures with increasing acicular hexagonal quartz crystals and drusy Dolomite rhombs, trace rosettes

3,305.00 to 3,310.00
(5.00)

DOLOMITE

as above, 70% off white to very light gray coarse crystalline Dolomite, 30% medium brown to gray brown very fine to fine crystalline Dolomite matrix, indicated streaks fair intercrystalline and fracture porosity, minor pyrobitumen with bubbled surfaces in part, pyrobitumen plugging intercrystalline porosity in part, scattered drusy Dolomite rhombs, trace acicular hexagonal quartz crystals

3,310.00 to 3,315.00
(5.00)

DOLOMITE

off white to light gray to medium brown to gray brown as above, very fine to coarse crystalline, indicated poor to fair intercrystalline and fracture porosity, trace pyrobitumen, no fluorescence, scattered drusy Dolomite crystals, trace quartz crystals, trace Shale, medium to dark brown gray, slightly dolomitic, very fine grain size cuttings

3,315.00 to 3,320.00
(5.00)

DOLOMITE

mainly off white to light gray recrystallized with medium brown to gray brown matrix, very fine to coarse crystalline, trace fossil remnants, indicated streaks poor intercrystalline and fracture porosity, trace pyrobitumen, scattered drusy Dolomite crystals, minor quartz crystals, trace Shale as above, medium to dark brown gray, slightly dolomitic, very fine cuttings

3,320.00 to 3,325.00
(5.00)

DOLOMITE

as above, off white to light gray to medium to dark brown to gray brown, very fine to coarse crystalline, poor to fair intercrystalline and fracture porosity, minor pyrobitumen, scattered clear to off white Dolomite rhombs, trace quartz crystals, trace hexagonal, very fine cuttings

Sample Descriptions

Storage Units:

Metric

3,325.00 to 3,330.00 (5.00)	DOLOMITE as above, mainly off white to very light gray coarse crystalline Dolomite, minor very fine to fine crystalline medium brown to gray brown matrix, fossiliferous, indicated streaks poor to fair intercrystalline and fracture porosity, trace pyrobitumen, no fluorescence, minor quartz crystals, trace acicular hexagonal quartz, very fine cuttings
3,330.00 to 3,335.00 (5.00)	DOLOMITE as above, off white to very light gray, medium brown to gray brown matrix, very fine to coarse crystalline, fossiliferous, indicated fair intercrystalline and fracture porosity, trace pyrobitumen, abundant drusy Dolomite rhombs, trace rosettes, scattered clear quartz crystal shards, very fine cuttings
3,335.00 to 3,343.00 (8.00)	DOLOMITE as above, off white to light gray to medium brown to medium gray brown, very fine to medium crystalline, indicated fair intercrystalline and fracture porosity, no fluorescence, scattered clear to off white Dolomite crystals, minor quartz crystal shards
3,343.00 to 3,350.00 (7.00)	DOLOMITE medium to dark brown to gray brown host rock with 70% off white to light gray recrystallization, mainly tight with trace poor intercrystalline and fracture porosity, scattered clear to light gray Dolomite crystals, trace quartz crystals, trace Shale streak, very dark gray, moderately soft, slightly bituminous, very fine cuttings
3,350.00 to 3,355.00 (5.00)	DOLOMITE as above, very light gray to medium brown to gray brown, very fine to medium crystalline, streak poor to fair fracture porosity, trace pyrobitumen, scattered drusy Dolomite crystals, trace quartz crystal shards, trace Shale streaks as above, dark gray to dark brown gray to very dark gray, slightly dolomitic, bituminous
3,355.00 to 3,360.00 (5.00)	DOLOMITE as above, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, abundant clear to light gray drusy Dolomite crystals, increasing quartz crystal shards, very fine cuttings
3,360.00 to 3,365.00 (5.00)	DOLOMITE medium brown matrix, off white to light gray secondary recrystallization, very fine to coarse crystalline, indicated streaks poor intercrystalline and fracture porosity, no shows, scattered drusy Dolomite crystals, trace rhombs, minor quartz crystals, trace acicular hexagonal crystals, scattered crystal shards
3,365.00 to 3,370.00 (5.00)	DOLOMITE as above, 75% clear to off white to light gray coarse crystalline Dolomite, 25% very fine to fine crystalline medium brown matrix, indicated streaks poor intercrystalline and fracture porosity, no shows
3,370.00 to 3,375.00 (5.00)	DOLOMITE as above, poor sample, mainly cement from casing job

Sample Descriptions

Storage Units:

Metric

3,375.00 to 3,380.00
(5.00)

DOLOMITE

off white to light gray to medium brown to gray brown, very fine to coarse crystalline, indicated poor intercrystalline and fracture porosity, trace pyrobitumen, no fluorescence, scattered drusy clear to light gray Dolomite crystals, minor quartz crystal shards, trace acicular quartz, very fine cuttings

3,380.00 to 3,385.00
(5.00)

DOLOMITE

as above, off white to light gray, medium brown in part, very fine to coarse crystalline, tight with trace poor intercrystalline and fracture porosity, no shows, scattered medium to coarse drusy Dolomite crystals, trace quartz crystal shards, rare trace hexagonal quartz twinning

3,385.00 to 3,390.00
(5.00)

DOLOMITE

as above, off white to light gray to medium brown, gray brown in part, very fine to coarse crystalline, mainly tight with trace poor intercrystalline and fracture porosity, no fluorescence, trace pyrobitumen, scattered drusy Dolomite crystals, minor quartz crystal shards, trace hexagonal quartz, very fine cuttings

3,390.00 to 3,395.00
(5.00)

DOLOMITE

medium brown to medium gray brown matrix with 75% clear to off white to light gray coarse crystalline replacement, very fine to coarse crystalline, mainly tight with trace poor fracture porosity, trace Dolomite rhombs, trace quartz crystal shards

3,395.00 to 3,400.00
(5.00)

DOLOMITE

as above, off white to light gray to medium brown to gray brown, very fine to coarse crystalline, mainly tight with streak poor fracture porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystal shards

3,400.00 to 3,405.00
(5.00)

DOLOMITE

as above, medium to dark brown to gray brown, very fine to fine crystalline matrix with coarse crystalline off white Dolomite replacement, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, trace Dolomite rhombs, trace quartz crystal shards

3,405.00 to 3,410.00
(5.00)

DOLOMITE

off white to light gray to medium brown to gray brown, very fine to coarse crystalline, trace poor fracture and intercrystalline porosity, trace pyrobitumen, scattered drusy Dolomite rhombs, minor quartz crystal shards, acicular hexagonal crystals in part, twinned in part

3,410.00 to 3,415.00
(5.00)

DOLOMITE

as above, off white to light gray to medium brown, very fine to medium crystalline, trace poor fracture and intercrystalline porosity, rare trace pyrobitumen, scattered drusy Dolomite crystals, trace quartz crystal shards, trace hexagonal crystals, rare trace twinning, trace dark brown Chert, cuttings becoming very fine, rock crystal size may continue to be very fine to coarse crystalline, but sample cuttings are ground down to medium crystalline or finer

Sample Descriptions

Storage Units: Metric

3,415.00 to 3,420.00 (5.00)	DOLOMITE off white to light gray with medium to dark brown to gray brown matrix, very fine to medium crystalline, trace poor fracture and intercrystalline porosity, trace drusy Dolomite crystals, trace quartz crystals, hexagonal in part, trace dark brown Chert, very fine cuttings
3,420.00 to 3,425.00 (5.00)	DOLOMITE off white to light gray to medium to dark brown to gray brown as above, very fine to medium crystalline, trace poor fracture and intercrystalline porosity, rare trace pyrobitumen, trace Dolomite rhombs, trace quartz crystals, hexagonal and acicular in part, trace medium to dark brown Chert, very fine cuttings
3,425.00 to 3,430.00 (5.00)	DOLOMITE as above, trace poor fracture and intercrystalline porosity, no shows, trace drusy Dolomite rhombs, minor quartz crystals, hexagonal in part
3,430.00 to 3,435.00 (5.00)	DOLOMITE 70% off white to light gray with 30% medium to dark brown to gray brown matrix, very fine to medium crystalline, fossiliferous, trace poor intercrystalline and fracture porosity, trace pyrobitumen, minor drusy clear to light gray Dolomite rhombs, trace quartz crystals, hexagonal in part, increasing brown Chert
3,435.00 to 3,440.00 (5.00)	DOLOMITE as above, off white to medium to dark brown to gray brown, very fine to medium crystalline, slightly fossiliferous, trace poor fracture and intercrystalline porosity, no shows, minor Dolomite rhombs, trace quartz crystals, trace brown Chert, very fine cuttings
3,440.00 to 3,445.00 (5.00)	DOLOMITE off white to light gray with medium brown to gray brown matrix, dark gray brown in part, very fine to medium crystalline, trace fossil remnants, trace poor fracture and intercrystalline porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystals, trace euhedral hexagonal quartz, trace medium to dark brown Chert, very fine cuttings
3,445.00 to 3,450.00 (5.00)	DOLOMITE as above, 70% clear to off white to light gray crystals with 30% very fine to medium crystalline host rock, trace fossil remnants, trace poor fracture and intercrystalline porosity, trace pyrobitumen, minor drusy Dolomite crystals, minor quartz crystals, trace brown Chert
3,450.00 to 3,455.00 (5.00)	DOLOMITE as above, very fine to medium crystalline, slightly fossiliferous, indicated poor fracture and intercrystalline porosity, no shows, trace Dolomite rhombs, trace quartz crystal shards, trace brown Chert, very fine cuttings
3,455.00 to 3,460.00 (5.00)	DOLOMITE as above, off white to light gray to medium brown to gray brown, 75% off white recrystallization, 25% host matrix, slightly fossiliferous, indicated poor fracture and intercrystalline porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystal shards, increasing Chert, mainly medium to dark brown, medium gray in part, very fine cuttings

Sample Descriptions

Storage Units:

Metric

3,460.00 to 3,465.00
(5.00)

DOLOMITE

as above, off white to light gray, medium brown to gray brown matrix, indicated poor fracture and intercrystalline porosity, trace pyrobitumen, trace Dolomite rhombs, trace quartz crystals, very fine cuttings

3,465.00 to 3,470.00
(5.00)

DOLOMITE

as above, off white to light gray, medium brown to dark gray brown, very fine to medium crystalline, streaks poor fracture and intercrystalline porosity, trace pyrobitumen, minor drusy Dolomite rhombs, trace quartz crystal shards, very fine cuttings

3,470.00 to 3,475.00
(5.00)

DOLOMITE

as above, increasing pyrobitumen

3,475.00 to 3,480.00
(5.00)

DOLOMITE

off white to light gray with medium to brown to gray brown matrix, 60% medium to coarse crystalline replacement, 40% very fine to medium crystalline matrix, trace fossil remnants, indicated poor fracture and intercrystalline porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystal shards, very fine cuttings

3,480.00 to 3,485.00
(5.00)

DOLOMITE

as above, off white to light gray with medium gray brown matrix, very fine to coarse crystalline, indicated poor fracture and intercrystalline porosity, minor pyrobitumen, trace bubbled surface in part, increasing drusy Dolomite rhombs, increasing quartz crystal shards, trace hexagonal quartz, trace brown Chert, very fine cuttings

3,485.00 to 3,490.00
(5.00)

DOLOMITE

as above, off white to light gray, medium gray brown matrix, very fine to coarse crystalline, trace fossil remnants, indicated poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, increasing drusy Dolomite rhombs, minor quartz crystal shards, trace dark brown Chert, very fine cuttings

3,490.00 to 3,495.00
(5.00)

DOLOMITE

as above, increasing loose coarse white Dolomite crystals, indicated poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, minor drusy Dolomite rhombs, trace quartz crystals, very fine cuttings

3,495.00 to 3,500.00
(5.00)

DOLOMITE

as above, off white to light gray to medium to dark brown to gray brown, very fine to coarse crystalline, indicated poor to fair intercrystalline and fracture porosity, scattered pyrobitumen, some pyrobitumen has bubbled surface, hardness ranging from moderately hard with conchoidal fracture to very soft with graphite feel, trace drusy Dolomite crystals, trace quartz crystal shards

3,500.00 to 3,505.00
(5.00)

DOLOMITE

off white to light gray to medium to dark gray brown, very fine to coarse crystalline, indicated poor to fair fracture and intercrystalline porosity, abundant pyrobitumen as above, trace bubbled surface, scattered drusy Dolomite rhombs, trace rosettes, minor quartz crystal shards, trace hexagonal crystals

Sample Descriptions

Storage Units:

Metric

3,505.00 to 3,510.00 (5.00)	DOLOMITE as above, off white to light gray, medium brown to gray brown matrix, very fine to coarse crystalline, slightly fossiliferous, indicated streaks poor porosity, abundant pyrobitumen as above, scattered drusy Dolomite rhombs, minor quartz crystal shards, trace hexagonal quartz
3,510.00 to 3,515.00 (5.00)	DOLOMITE off white to light gray to medium to dark gray brown, very fine to coarse crystalline, slightly fossiliferous, indicated poor intercrystalline and fracture porosity, scattered pyrobitumen, scattered drusy Dolomite rhombs, trace quartz crystal shards
3,515.00 to 3,520.00 (5.00)	DOLOMITE off white to light gray to medium gray brown as above, very fine to coarse crystalline, mainly tight with trace poor intercrystalline and fracture porosity, minor pyrobitumen, scattered drusy Dolomite rhombs, trace quartz crystal shards, trace hexagonal quartz
3,520.00 to 3,525.00 (5.00)	DOLOMITE off white to light gray to medium gray, brown gray in part, fine to coarse crystalline, slightly fossiliferous, indicated poor to fair intercrystalline and fracture porosity, minor pyrobitumen, no fluorescence, minor drusy Dolomite rhombs, clear to light gray, trace clear quartz crystal shards
3,525.00 to 3,530.00 (5.00)	DOLOMITE off white to light to medium gray, medium gray brown in part, very fine to coarse crystalline, trace fossil remnants, indicated poor intercrystalline and fracture porosity, minor pyrobitumen plugging intercrystalline porosity, scattered drusy Dolomite, trace quartz crystals, hexagonal in part
3,530.00 to 3,535.00 (5.00)	DOLOMITE as above, off white to light to medium gray, decreasing intercrystalline porosity, increasing fracture porosity, overall poor porosity, minor pyrobitumen, minor Dolomite rhombs, minor quartz crystal shards, trace hexagonal quartz
3,535.00 to 3,540.00 (5.00)	DOLOMITE as above, off white to light to medium gray, medium to dark gray brown in part, fine to coarse crystalline, slightly fossiliferous, indicated poor intercrystalline and fracture porosity, minor pyrobitumen, trace drusy Dolomite rhombs, trace quartz crystals, hexagonal in part, trace twinning
3,540.00 to 3,545.00 (5.00)	DOLOMITE off white to light gray to medium to dark gray brown, very fine to coarse crystalline, slightly fossiliferous, trace poor intercrystalline and fracture porosity, minor pyrobitumen plugging intercrystalline porosity, minor Dolomite rhombs, trace quartz crystal shards, trace hexagonal crystals, twinning in part
3,545.00 to 3,550.00 (5.00)	DOLOMITE as above, 70% off white coarse crystalline Dolomite with 30% medium to dark brown to gray brown host, very fine to coarse crystalline, trace poor intercrystalline and fracture porosity, trace pyrobitumen plugging intercrystalline porosity, trace drusy Dolomite rhombs, trace rosettes, trace quartz crystal shards, rare trace hexagonal quartz

Sample Descriptions

Storage Units:

Metric

3,550.00 to 3,555.00 (5.00)	DOLOMITE off white to light gray to medium to dark brown to gray brown as above, very fine to coarse crystalline, increasing fracture and intercrystalline porosity, increasing pyrobitumen, bubbled surface in part, increasing clear quartz crystal shards
3,555.00 to 3,560.00 (5.00)	DOLOMITE off white to light gray replacement, medium to dark brown to gray brown host rock, very fine to coarse crystalline, mainly tight with trace poor intercrystalline and fracture porosity, trace pyrobitumen, minor Dolomite rhombs, trace quartz crystal shards, trace brown Chert, very fine cuttings
3,560.00 to 3,565.00 (5.00)	DOLOMITE as above, mainly tight with trace poor intercrystalline and fracture porosity, pyrobitumen plugging in part, minor Dolomite rhombs, trace rosettes, trace clear quartz crystal shards, trace brown Chert
3,565.00 to 3,570.00 (5.00)	DOLOMITE as above, off white to light gray coarse crystalline Dolomite with very fine to medium crystalline medium gray brown host rock, streaks poor intercrystalline and fracture porosity, trace pyrobitumen, minor drusy Dolomite crystals, trace quartz crystal shards, trace hexagonal quartz
3,570.00 to 3,575.00 (5.00)	DOLOMITE off white to light to medium gray, medium to dark gray brown host rock, very fine to coarse crystalline, slightly fossiliferous, trace poor fracture and intercrystalline porosity, trace pyrobitumen, trace Dolomite rhombs, minor quartz crystals, trace Chert, medium gray to medium to dark brown
3,575.00 to 3,580.00 (5.00)	DOLOMITE off white to light gray, medium brown to gray brown matrix, very fine to coarse crystalline, streak poor fracture and intercrystalline porosity, increasing pyrobitumen, plugging intercrystalline porosity in part, bubbled surface in part, brittle, trace quartz crystal shards, rare trace hexagonal quartz
3,580.00 to 3,585.00 (5.00)	DOLOMITE as above, indicated poor to fair fracture and intercrystalline porosity, abundant pyrobitumen, brittle, bubbled surface in part, conchoidal fracture in part, increasing quartz
3,585.00 to 3,590.00 (5.00)	DOLOMITE as above, off white to light gray to medium to dark brown to gray brown, very fine to coarse crystalline, trace poor intercrystalline and fracture porosity, trace pyrobitumen, no fluorescence, mainly loose medium to coarse white Dolomite crystals, trace Dolomite rhombs, trace quartz crystal shards, very fine cuttings
3,590.00 to 3,595.00 (5.00)	DOLOMITE as above, off white to light gray to medium to dark brown to gray brown, very fine to coarse crystalline, trace poor intercrystalline and fracture porosity, trace pyrobitumen, sample mainly loose coarse white Dolomite crystals, trace quartz crystal shards, poor sample, tripped for drillbit

Sample Descriptions

Storage Units:

Metric

3,595.00 to 3,599.00
(4.00)

DOLOMITE

as above, off white to light gray to light to medium brown to gray brown, dark gray brown in part, very fine to coarse crystalline, 50% white coarse crystalline Dolomite, 50% gray brown very fine to medium crystalline host rock, mainly tight with trace poor intercrystalline and fracture porosity, trace pyrobitumen, minor quartz crystal shards, minor Shale streaks, very dark gray to black, calcareous, siliceous and hard

Sample Descriptions

Storage Units: Metric

FLETT: 55.50 MD, 55.49 TVD, 364.61 SSL

55.00 to 60.00 (5.00)

LIMESTONE

dark gray to dark brown gray, cryptocrystalline, mudstone, argillaceous to very argillaceous, siliceous and hard, cherty, slightly fossiliferous, trace Crinoids, trace Gastropods, tight, no shows, scattered Chert, dark gray, dark brown gray in part, hard, opaque, bedded

BESA RIVER: 141.00 MD, 140.99 TVD, 276.61 SSL

Exshaw 1st Black Shale: 1,397.00 MD, 1,241.85 TVD, -821.69 SSL

LOWER BESA RIVER: 1,852.00 MD, 1,606.41 TVD, -1,189.41 SSL

MUSKWA: 2,650.00 MD, 2,240.69 TVD, -1,823.31 SSL

NAHANNI: 3,056.50 MD, 2,524.23 TVD, -2,108.06 SSL

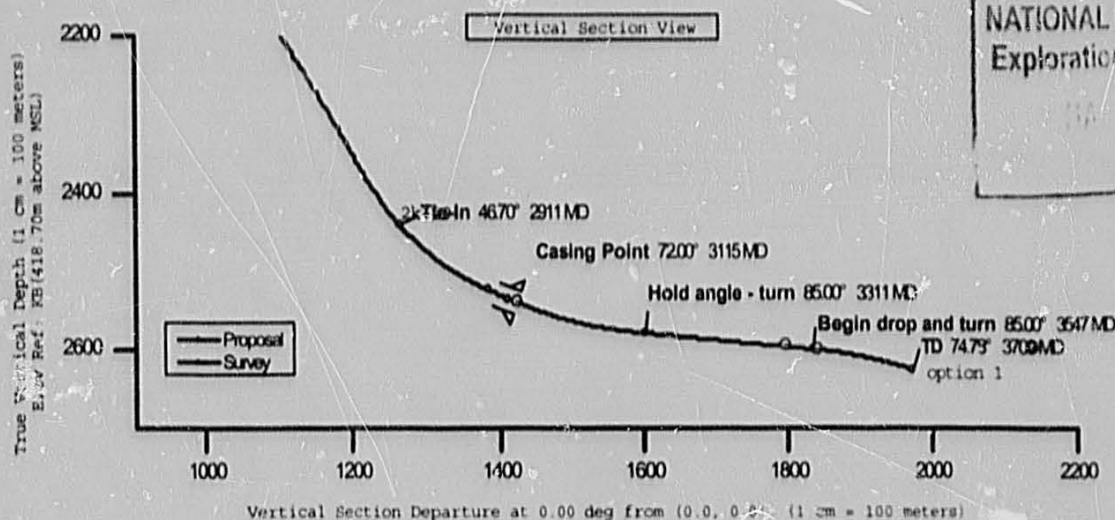
3,055.00 to 3,060.00
(5.00)

Marlstone

dark brown to dark gray brown, cryptocrystalline to microcrystalline, calcareous, very fossiliferous, tight, scattered Limestone, dark brown, cryptocrystalline, argillaceous to very argillaceous, very fossiliferous, scattered Crinoids, tight, no shows, trace black Chert

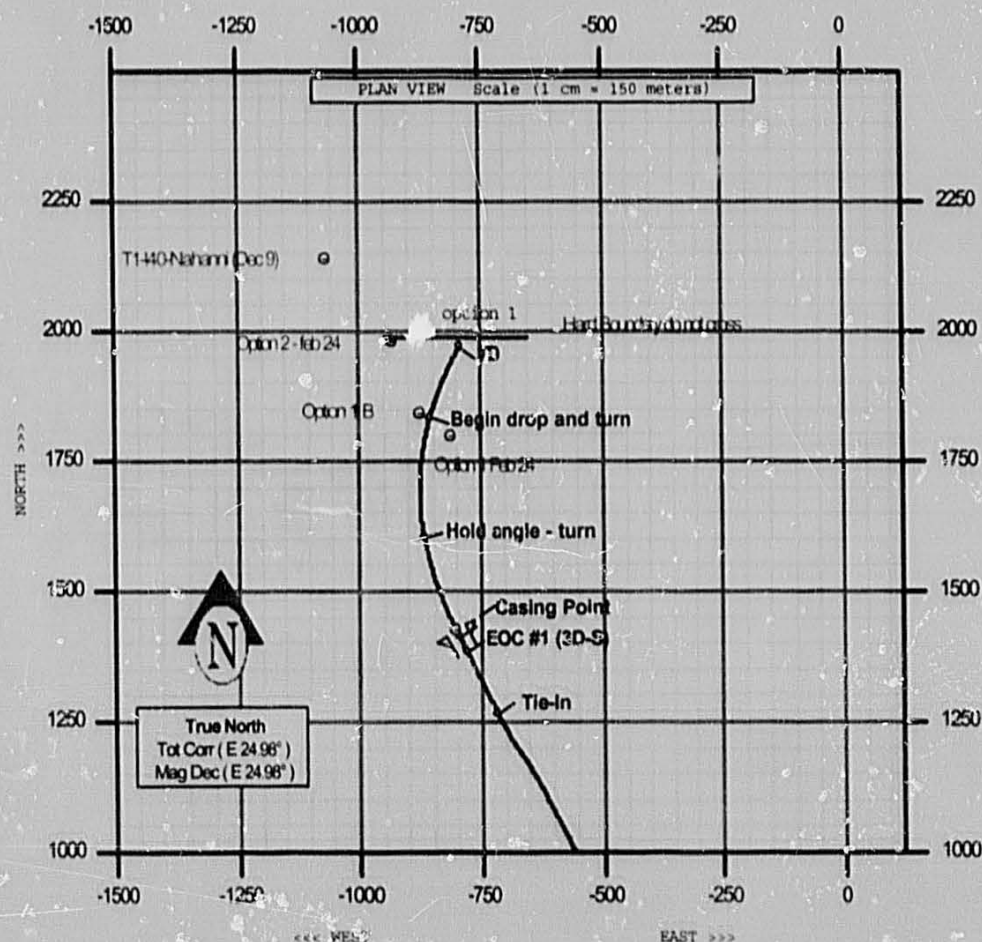
DIRECTIONAL SURVEY PLOT

WELL	FIELD	STRUCTURE
2K-29	FT. LIARD (CDN - NAD27)	Chevron 2K-29 year 2002
Magnetic Parameters Model: BGGM 2002 Dip: 73.557° Mag Dec: 24.981° Date: December 03, 2002 FS: 587772 nT	Surface Location: Lat: N60 28 40.831 Lon: W123 35 53.38 North: 6704555.15 m East: 467851.06 m	Miscellaneous: Shot Job#: 40008488 Plan#: option 1 Flow Ref: KB418.7 m above MSL Date Drawn: 01/31/03 11:00 AM 26 Feb 2003



NATIONAL ENERGY BOARD
Exploration and Production

10-03-2003



GAS ANALYSIS (2)

Container Identification		Laboratory Number	
PB1A		03WF42673A	
Operator Name			
CHEVRON CANADA RESOURCES			
Unique Well Identifier	Well Name		Elevation
2-K-29	CHEVRON et al LIARD 2-K-29		KB m GRD m
Field or Area	Pool or Zone	Sampler's Company	
LIARD	NAHANNI	NORTHLAND	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs		Sampling Point	Separator Reservoir Source Sampled Received
		FLOW LINE	Pressure (kPa) Temperature
Date Sampled	Date Received	Date Reported	Entered By
Apr 07, 2003	Apr 09, 2003	Apr 17, 2003	PL
		Certified By	
		PL	
Other Information			
2-K-29, FIELD H2S = 5000 ppm.			

Cations

ION	mg/L	Mass Fraction	mmol/L
Na	407.3	0.072	17.7
K	43.0	0.008	1.1
Ca	1300.0	0.231	32.4
Mg	370.0	0.066	15.2
Fe	0.8	TRACE	TRACE

Total Cations 114.2

Anions

ION	mg/L	Mass Fraction	mmol/L
Cl	2949.0	0.524	83.2
HCO3	434.9	0.077	7.1
SO4	122.4	0.022	1.3
CO3	Nil	Nil	Nil
OH	Nil	Nil	Nil

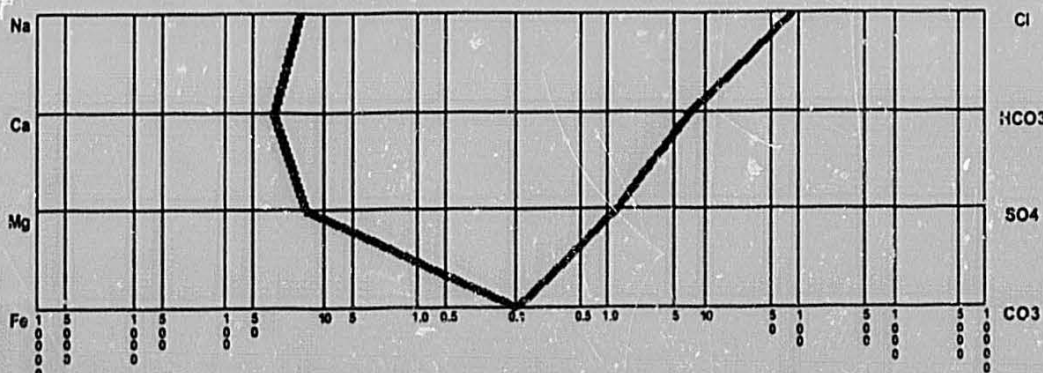
Total Anions 92.9

Other Measurements

Measurement	Value
Total Dissolved Solids (Calculated) mg/L	5627
Observed pH	7.10
H2S (25°C) mg/L	68.16
Relative Density (25°C)	1.002
Resistivity/OHM.m (25°C)	1.052
Salinity %	0.53

The ionic balance for this water exceeds 10%. The imbalance is caused by anions not included in the standard analysis.

Logarithmic Pattern mmol/L





Container Identification		Laboratory Number	
PB2B		03WF42673B	
Operator Name			
CHEVRON CANADA RESOURCES			
Unique Well Identifier	Well Name		Elevation
2-K-29	CHEVRON et al LIARD 2-K-29		KB m GRD m
Field or Area	Pool or Zone	Sampler's Company	
LIARD	NAHANNI	NORTHLAND	
Test Type	Test No.	Test Recovery	Name of Sampler
Test Interval or Perfs		Sampling Point	Separator Reservoir Source Sampled Receiver
		SEPARATOR	Pressure (kPa) Temperature
Date Sampled	Date Received	Date Reported	Entered By
Apr 07, 2003	Apr 09, 2003	Apr 17, 2003	PL
		Certified By	
		PL	
Other Information			
2-K-29, FIELD H ₂ S = 5000 ppm.			

Cations

ION	mg/L	Mass Fraction	mmol/L
Na	462.2	0.087	20.1
K	48.2	0.009	1.2
Ca	117.0	0.220	29.2
Mg	285.0	0.054	11.7
Fe	0.2	TRACE	TRACE

Total Cations 103.2

Anions

ION	mg/L	Mass Fraction	mmol/L
Cl	2449.0	0.461	69.1
HCO ₃	729.6	0.137	12.0
SO ₄	167.5	0.032	1.7
CO ₃	Nil	Nil	Nil
OH	Nil	Nil	Nil

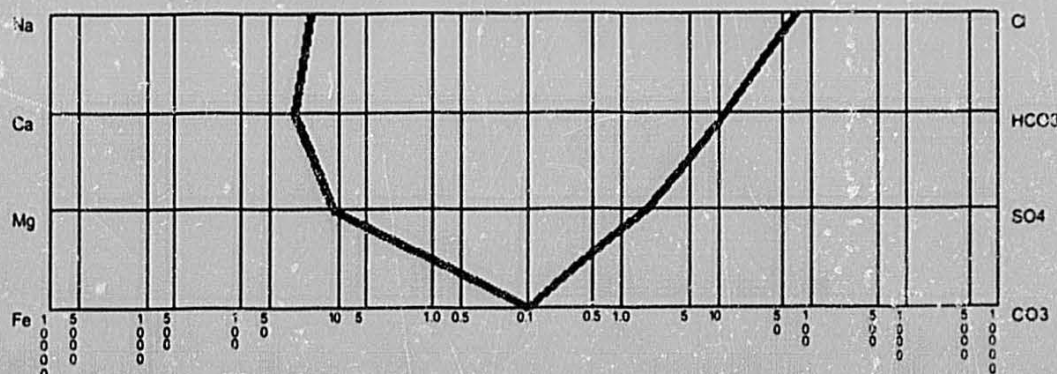
Total Anions 84.5

Other Measurements

Measurement	Value
Total Dissolved Solids (Calculated) mg/L	5311
Observed pH	7.40
H ₂ S (25°C) mg/L	119.28
Relative Density (25°C)	1.001
Resistivity/OHM m (25°C)	1.137
Salinity %	0.44

The ionic balance for this water exceeds 10%. The imbalance is caused by anions not included in the standard analysis.

Logarithmic Pattern mmol/L



GAS ANALYSIS (2)

Container Identification		Laboratory Number																
AGAT 30510		03GF42673B																
Operator Name																		
CHEVRON CANADA RESOURCES																		
Unique Well Identifier	Well Name		Elevation															
2-K-29	CHEVRON et al LIARD 2K-29		KB m GRD m															
Field or Area	Pool or Zone	Sampler's Company																
LIARD	NAHANNI	NORTHLAND																
Test Type	Test No.	Test Recovery	Name of Sampler															
Test Interval or Perfs		Sampling Point	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Separator</td> <td>Reservoir</td> <td>Source</td> <td>Sampled</td> <td>Received</td> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td>7800</td> <td>7800</td> <td>7000</td> </tr> <tr> <td>Temperature</td> <td></td> <td>78</td> <td>78</td> <td>21</td> </tr> </table>	Separator	Reservoir	Source	Sampled	Received	Pressure (kPa)		7800	7800	7000	Temperature		78	78	21
Separator	Reservoir	Source	Sampled	Received														
Pressure (kPa)		7800	7800	7000														
Temperature		78	78	21														
		METER RUN																
Date Sampled	Date Received	Date Reported	Entered By															
Apr 07, 2003	Apr 09, 2003	Apr 22, 2003	GE															
			Certified By															
			ES															
Other Information																		
FIELD H2S = 5000 ppm/LAB = 0.49%																		

COMP	MOLE FRACTION		PETROLEUM LIQUID
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	mL / m ³
H ₂	0.0002	0.0003	
He	0.0011	0.0014	
N ₂	0.0324	0.0410	
CO ₂	0.2049	0.0000	
H ₂ S	0.0050	0.0000	
C ₁	0.7564	0.9573	
C ₂	TRACE	TRACE	
C ₃	0.0000	0.0000	0.0
iC ₄	0.0000	0.0000	0.0
nC ₄	0.0000	0.0000	0.0
iC ₅	0.0000	0.0000	0.0
nC 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	0.0

Exceeds normal limits:
CO₂

GROSS HEATING VALUE MJ/m³
15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
28.72	36.12

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.768	0.570

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
5151	212.4	4547	187.6

RELATIVE MOLECULAR MASS

Total Gas	C ₇₊
22.2	0.0

VAPOUR PRESSURE
(Pentanes +)

0.00 kPa

H₂S g/m³

7.19

Other Comments: SAMPLED @ 05:00 hrs



Container Identification AGAT 21316		Laboratory Number 03GF42673A																
Operator Name CHEVRON CANADA RESOURCES																		
Unique Well Identifier 2-K-29	Well Name CHEVRON et al LIARD 2-K29		Elevation KB m: GRD m:															
Field or Area LIARD	Pool or Zone NAHANNI	Sampler's Company NORTHLAND																
Test Type	Test No.	Test Recovery	Name of Sampler															
Test Interval or Perfs		Sampling Point METER RUN	<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td>Separator</td> <td>Reservoir</td> <td>Source</td> <td>Sampled</td> <td>Received</td> </tr> <tr> <td>Pressure (kPa)</td> <td></td> <td>8700</td> <td>8700</td> <td>7000</td> </tr> <tr> <td>Temperature</td> <td></td> <td>84</td> <td>84</td> <td>21</td> </tr> </table>	Separator	Reservoir	Source	Sampled	Received	Pressure (kPa)		8700	8700	7000	Temperature		84	84	21
Separator	Reservoir	Source	Sampled	Received														
Pressure (kPa)		8700	8700	7000														
Temperature		84	84	21														
Date Sampled Apr 07, 2003	Date Received Apr 09, 2003	Date Reported Apr 22, 2003	Entered By GE Certified By ES															
Other Information FIELD H2S = 3000 ppm/LAB = 1716 ppm																		

COMP	MOLE FRACTION		PETROLEUM LIQUID mL / m ³
	AIR FREE AS RECEIVED	AIR FREE ACID GAS FREE	
H2	0.0002	0.0003	
He	0.0011	0.0014	
N2	0.0314	0.0402	
CO2	0.2168	0.0000	
H2S	0.0030	0.0000	
C1	0.7475	0.9581	
C2	TRACE	TRACE	
C3	0.0000	0.0000	0.0
IC4	0.0000	0.0000	0.0
NC4	0.0000	0.0000	0.0
IC5	0.0000	0.0000	0.0
NC5	0.0000	0.0000	0.0
C6	0.0000	0.0000	0.0
C7+	0.0000	0.0000	0.0
Total	1.0000	1.0000	0.0

Exceeds normal limits:
CO2

GROSS HEATING VALUE MJ/m³ 15° C AND 101.325 kPa

Air Free As Received	Moisture & Acid Gas Free
28.33	36.14

RELATIVE DENSITY (CALCULATED)

Moisture Free	Moisture & Acid Gas Free
0.778	0.570

PSEUDO CRITICAL PROPERTIES (CALCULATED)

As Sampled		Acid Gas Free	
pPc (abs) kPa	pTc K	pPc (abs) kPa	pTc K
5176	213.5	4548	187.7

RELATIVE MOLECULAR MASS

Total Gas	C7+
22.5	0.0

VAPOUR PRESSURE (Pentanes +)

0.00 kPa

H2S g/m³

4.32



**PROPOSED
WELL PROFILE
— GEODETIC
REPORT**

Proposed Well Profile - Geodetic Report

Report Date: February 26, 2003	Survey / DLS Computation Method: Minimum Curvature / Lubinski
Client: CHEVRON CANADA RESOURCES	Vertical Section Azimuth: 0.000°
Field: FT. LIARD (CDN - NAD27)	Vertical Section Origin: N 0.000 m, E 0.000 m
Structure / Slot: Chevron 2K-29 year 2002 / Job# 40008488	TVD Reference Datum: KB
Well: 2K-29	TVD Reference Elevation: 418.7 m relative to MSL
Borehole: Borehole 1	Sea Bed / Ground Level Elevation: 409.900 m relative to MSL
UWAPI#:	Magnetic Declination: 24.981°
Survey Name / Date: option 1 / February 26, 2003	Total Field Strength: 58777.193 nT
Tort / AHD / DDI / ERD ratio: 251.061° / 2213.33 m / 6.410 / 0.843	Magnetic Dip: 78.557°
Grid Coordinate System: NAD27 UTM Zone 10N	Declination Date: December 09, 2002
Location Lat/Long: N 60 28 40.831, W 123 35 5.338	Magnetic Declination Model: BGGM 2002
Location Grid N/E Y/X: N 6704585.160 m, E 467851.060 m	North Reference: True North
Grid Convergence Angle: -0.50889169°	Total Corr Mag North -> True North: +24.981°
Grid Scale Factor: 0.99961266	Local Coordinates Referenced To: Well Head

Station ID	MD (m)	Incl (°)	Azim (°)	TVD (m)	VSec (m)	N-S (m)	E-W (m)	DLS (°/30m)	Grid Coordinates		Geographic Coordinates	
									Northing (m)	Easting (m)	Latitude	Longitude
Tie-In	2910.50	46.70	331.20	2441.99	1267.65	1267.65	-717.81	0.00	6705858.64	467144.81	N 60 29 21.786	W 123 35 52.342
	2940.00	51.12	331.15	2461.37	1287.13	1287.13	-728.53	4.50	6705878.21	467134.27	N 60 29 22.415	W 123 35 53.044
	2970.00	55.62	331.11	2479.27	1308.20	1308.20	-740.15	4.50	6705899.37	467122.84	N 60 29 23.096	W 123 35 53.806
	3000.00	60.12	331.07	2495.22	1330.44	1330.44	-752.43	4.50	6705921.71	467110.76	N 60 29 23.814	W 123 35 54.610
	3030.00	64.62	331.03	2509.12	1353.69	1353.69	-765.29	4.50	6705945.07	467098.12	N 60 29 24.565	W 123 35 55.452
	3060.00	69.12	330.99	2520.90	1377.82	1377.82	-778.66	4.50	6705969.31	467084.97	N 60 29 25.345	W 123 35 56.328
EOC #1 (3D-S)	3066.85	70.15	330.99	2523.29	1383.43	1383.43	-781.78	4.50	6705974.94	467081.90	N 60 29 25.526	W 123 35 56.533
	3090.00	70.15	330.99	2531.15	1402.47	1402.47	-792.34	0.00	6705994.07	467071.51	N 60 29 26.141	W 123 35 57.225
KOP #2	3100.51	70.15	330.99	2534.71	1411.12	1411.12	-797.13	0.00	6706002.76	467066.80	N 60 29 26.421	W 123 35 57.538
EOC #2	3114.32	72.00	330.00	2539.19	1422.49	1422.49	-803.56	4.50	6706014.18	467060.47	N 60 29 26.788	W 123 35 57.960
Top Nahanni (Nov27)	3115.32	72.00	330.00	2539.50	1423.31	1423.31	-804.04	0.00	6706015.00	467060.00	N 60 29 26.815	W 123 35 57.991
Casing Point	3115.35	72.00	330.00	2539.51	1423.34	1423.34	-804.06	0.00	6706015.03	467059.98	N 60 29 26.815	W 123 35 57.992
Build and turn	3116.32	72.00	330.00	2539.61	1424.13	1424.13	-804.52	0.00	6706015.83	467059.53	N 60 29 26.841	W 123 35 58.022
	3120.00	72.23	330.39	2540.94	1427.17	1427.17	-806.26	3.55	6706018.88	467057.82	N 60 29 26.939	W 123 35 58.136
	3150.00	74.14	333.52	2549.62	1452.52	1452.52	-819.75	3.55	6706044.34	467044.56	N 60 29 27.758	W 123 35 59.020
	3180.00	76.09	336.58	2557.33	1478.80	1478.80	-831.98	3.55	6706070.72	467032.56	N 60 29 28.607	W 123 35 59.822
	3210.00	78.08	339.60	2564.03	1505.93	1505.93	-842.89	3.55	6706097.93	467021.90	N 60 29 29.484	W 123 36 0.536
	3240.00	80.10	342.57	2569.71	1533.79	1533.79	-852.43	3.55	6706125.86	467012.61	N 60 29 30.384	W 123 36 1.162
	3270.00	82.15	345.50	2574.34	1562.28	1562.28	-860.58	3.55	6706154.41	467004.72	N 60 29 31.304	W 123 36 1.696
	3300.00	84.22	348.41	2577.90	1591.30	1591.30	-867.30	3.55	6706183.48	466998.26	N 60 29 32.242	W 123 36 2.136
Hold angle - turn	3311.32	85.00	349.50	2578.60	1602.16	1602.16	-870.19	3.55	6706194.36	466995.47	N 60 29 32.593	W 123 36 2.326
	3330.00	84.99	351.68	2580.23	1620.52	1620.52	-873.24	3.49	6706212.74	466992.58	N 60 29 33.185	W 123 36 2.526
	3360.00	84.98	355.16	2582.96	1650.21	1650.21	-876.66	3.49	6706242.45	466989.43	N 60 29 34.145	W 123 36 2.750
	3390.00	84.99	358.68	2585.48	1680.04	1680.04	-878.26	3.49	6706272.28	466988.09	N 60 29 35.109	W 123 36 2.855
	3406.67	85.00	0.62	2586.91	1696.65	1696.65	-878.36	3.49	6706288.88	466986.14	N 60 29 35.645	W 123 36 2.862
	3420.00	84.98	2.18	2588.08	1709.33	1709.33	-878.03	3.49	6706302.16	466988.59	N 60 29 36.074	W 123 36 2.841
	3450.00	84.96	5.68	2590.71	1739.73	1739.73	-875.98	3.49	6706331.93	466990.90	N 60 29 37.037	W 123 36 2.707
	3480.00	84.95	9.18	2593.35	1769.36	1769.36	-872.12	3.49	6706361.51	466995.02	N 60 29 37.995	W 123 36 2.455
	3510.00	84.96	12.68	2595.99	1798.70	1798.70	-866.45	3.49	6706390.79	467000.95	N 60 29 38.943	W 123 36 2.084
	3540.00	84.99	16.18	2598.62	1827.64	1827.64	-859.01	3.49	6706419.65	467008.64	N 60 29 39.878	W 123 36 1.597
Begin drop and turn	3546.67	85.00	16.96	2599.11	1834.01	1834.01	-857.11	3.49	6706426.00	467010.60	N 60 29 40.084	W 123 36 1.473
	3570.00	83.40	19.23	2601.47	1856.07	1856.07	-849.90	3.56	6706447.98	467018.00	N 60 29 40.796	W 123 36 1.001
	3600.00	81.37	22.19	2605.45	1883.88	1883.88	-839.39	3.56	6706475.69	467028.75	N 60 29 41.695	W 123 36 0.313
	3630.00	79.35	25.17	2610.47	1910.97	1910.97	-827.52	3.56	6706502.66	467040.86	N 60 29 42.570	W 123 35 59.536
	3660.00	77.37	28.19	2616.52	1937.22	1937.22	-814.33	3.56	6706528.78	467054.28	N 60 29 43.419	W 123 35 58.672
	3690.00	75.42	31.26	2623.58	1962.54	1962.54	-799.88	3.56	6706553.96	467068.95	N 60 29 44.237	W 123 35 57.726
TD	3700.00	74.78	32.29	2626.00	1970.64	1970.64	-794.49	3.56	6706562.01	467074.41	N 60 29 44.498	W 123 35 57.374

Survey Error Model: Topographic 2-D 95.00% Confidence 2.4478 sigma

Surveying Programme:

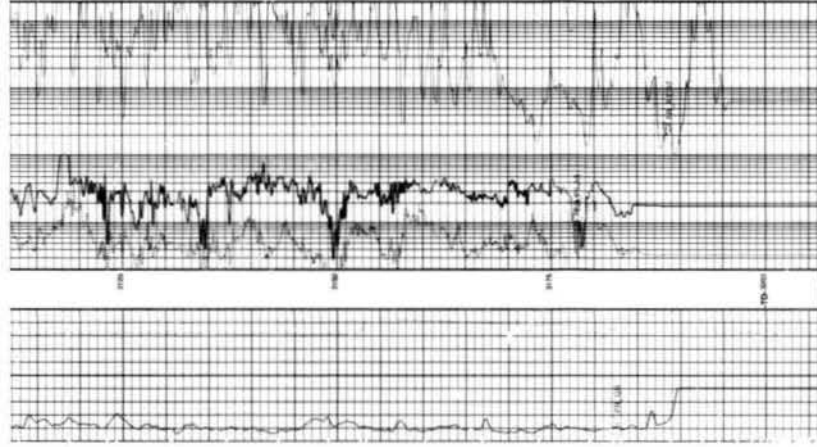
MD From (m)

2910.50

MD To (m) EQW Freq Survey Tool Type

3700.00 1/10.00 m MWD2

**RESISTIVITY/
CONDUCTIVITY**



Parameter	Value
1980-1985	100
1985-1990	100
1990-1995	100
1995-2000	100

Parameter	Value
1980-1985	100
1985-1990	100
1990-1995	100
1995-2000	100

Parameter	Value
1980-1985	100
1985-1990	100
1990-1995	100
1995-2000	100

Parameter	Value
1980-1985	100
1985-1990	100
1990-1995	100
1995-2000	100

High resolution imaging and Logging Tool (HRT) Master Configuration

Definition: *Business*

Detailed Descriptors			
Photo	SES Average Deviation %	Photo	SES Average Deviation %
Male	-0.0000	Male	-0.0000
Female	0.0000	Female	0.0000
Photo	SES Male Deviation %	Photo	SES Male Deviation %
Male	0.0000	Male	0.0000
Female	0.0000	Female	0.0000
Photo	SES Female Deviation %	Photo	SES Female Deviation %
Male	0.0000	Male	0.0000
Female	0.0000	Female	0.0000

Manuscript: 2012-01-20033, 10/2/2012

High Resolution Learning Array - 8 / Equipment Identification

Primary Equipment:
HRLT Swords

Auxiliary Equipment:
HRLT Tower Housing
HRLT Lower Cartridge
HRLT Upper Housing
HRLT Lower Cartridge

1993-94

High Resolution Learning Army: A Weather Collaboration

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Eds	Photos	+H ₂ O.7 Å	Å	Volts	Normal	Microfilm
1	Saline			1020.1	2749.2	2771.1
2	Saline			1040.9	1020.7	2774.2
3	Saline			1040.1	1020.7	2774.2
4	Saline			1040.6	1020.7	2774.2
5	Saline			1020.5	1020.7	2774.2
6	Saline			1040.9	1020.7	2774.2
7	Saline			1020.7	1020.7	2774.2

Signature: _____

High Resolution Laser Doppler Anem. & Velocity Calibration

HEALTH UNIT

[illegible]

DATE: 08/08/2008 10:00 AM

1990 American Literature Project. 8 Western Gateway

1997

Id	Phase	vOLT AG AG Voltage (mV)	Voltage	Normal	Abnormal	Microvolt
1	Baseline		1740	1780	2040	15-14
2	Saline		18-15	1780	2040	15-14
3	Saline		18-15	1780	2040	15-14
4	Saline		18-40	1780	2040	15-14
5	Saline		1780	1780	2040	15-14
6	Saline		1780	1780	2040	15-14
7	Saline		18-15	1780	2040	15-14
8	Saline		18-15	1780	2040	15-14
9	Saline		1780	1780	2040	15-14

Printed: 16 May 2003 13:59

High-Ranking Leadership Activity: 8 Leadership Contributions

1997

ID	Phase	pH 7.4 Voltage Plot (V)	Mod	Normal	Maximum	Minimum
0			10000	70000	80000	90000
1	Before		70000	70000	80000	90000
2	Before		70000	70000	80000	90000
3	Before		70000	70000	80000	90000
4	Before		70000	70000	80000	90000
5	Before		70000	70000	80000	90000
6	Before		70000	70000	80000	90000
7	Before		70000	70000	80000	90000

Product: 10-10-10 Fertilizer

which encompasses Lateralized Affect, is Mediating Cognition.

1997, 1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023, 2024, 2025, 2026, 2027, 2028, 2029, 2030, 2031, 2032, 2033, 2034, 2035, 2036, 2037, 2038, 2039, 2040, 2041, 2042, 2043, 2044, 2045, 2046, 2047, 2048, 2049, 2050, 2051, 2052, 2053, 2054, 2055, 2056, 2057, 2058, 2059, 2060, 2061, 2062, 2063, 2064, 2065, 2066, 2067, 2068, 2069, 2070, 2071, 2072, 2073, 2074, 2075, 2076, 2077, 2078, 2079, 2080, 2081, 2082, 2083, 2084, 2085, 2086, 2087, 2088, 2089, 2090, 2091, 2092, 2093, 2094, 2095, 2096, 2097, 2098, 2099, 2100, 2101, 2102, 2103, 2104, 2105, 2106, 2107, 2108, 2109, 2110, 2111, 2112, 2113, 2114, 2115, 2116, 2117, 2118, 2119, 2120, 2121, 2122, 2123, 2124, 2125, 2126, 2127, 2128, 2129, 2130, 2131, 2132, 2133, 2134, 2135, 2136, 2137, 2138, 2139, 2140, 2141, 2142, 2143, 2144, 2145, 2146, 2147, 2148, 2149, 2150, 2151, 2152, 2153, 2154, 2155, 2156, 2157, 2158, 2159, 2160, 2161, 2162, 2163, 2164, 2165, 2166, 2167, 2168, 2169, 2170, 2171, 2172, 2173, 2174, 2175, 2176, 2177, 2178, 2179, 2180, 2181, 2182, 2183, 2184, 2185, 2186, 2187, 2188, 2189, 2190, 2191, 2192, 2193, 2194, 2195, 2196, 2197, 2198, 2199, 2200, 2201, 2202, 2203, 2204, 2205, 2206, 2207, 2208, 2209, 2210, 2211, 2212, 2213, 2214, 2215, 2216, 2217, 2218, 2219, 2220, 2221, 2222, 2223, 2224, 2225, 2226, 2227, 2228, 2229, 2230, 2231, 2232, 2233, 2234, 2235, 2236, 2237, 2238, 2239, 2240, 2241, 2242, 2243, 2244, 2245, 2246, 2247, 2248, 2249, 2250, 2251, 2252, 2253, 2254, 2255, 2256, 2257, 2258, 2259, 2260, 2261, 2262, 2263, 2264, 2265, 2266, 2267, 2268, 2269, 2270, 2271, 2272, 2273, 2274, 2275, 2276, 2277, 2278, 2279, 2280, 2281, 2282, 2283, 2284, 2285, 2286, 2287, 2288, 2289, 2290, 2291, 2292, 2293, 2294, 2295, 2296, 2297, 2298, 2299, 2300, 2301, 2302, 2303, 2304, 2305, 2306, 2307, 2308, 2309, 2310, 2311, 2312, 2313, 2314, 2315, 2316, 2317, 2318, 2319, 2320, 2321, 2322, 2323, 2324, 2325, 2326, 2327, 2328, 2329, 2330, 2331, 2332, 2333, 2334, 2335, 2336, 2337, 2338, 2339, 2340, 2341, 2342, 2343, 2344, 2345, 2346, 2347, 2348, 2349, 2350, 2351, 2352, 2353, 2354, 2355, 2356, 2357, 2358, 2359, 2360, 2361, 2362, 2363, 2364, 2365, 2366, 2367, 2368, 2369, 2370, 2371, 2372, 2373, 2374, 2375, 2376, 2377, 2378, 2379, 2380, 2381, 2382, 2383, 2384, 2385, 2386, 2387, 2388, 2389, 2390, 2391, 2392, 2393, 2394, 2395, 2396, 2397, 2398, 2399, 2400, 2401, 2402, 2403, 2404, 2405, 2406, 2407, 2408, 2409, 2410, 2411, 2412, 2413, 2414, 2415, 2416, 2417, 2418, 2419, 2420, 2421, 2422, 2423, 2424, 2425, 2426, 2427, 2428, 2429, 2430, 2431, 2432, 2433, 2434, 2435, 2436, 2437, 2438, 2439, 2440, 2441, 2442, 2443, 2444, 2445, 2446, 2447, 2448, 2449, 2450, 2451, 2452, 2453, 2454, 2455, 2456, 2457, 2458, 2459, 2460, 2461, 2462, 2463, 2464, 2465, 2466, 2467, 2468, 2469, 2470, 2471, 2472, 2473, 2474, 2475, 2476, 2477, 2478, 2479, 2480, 2481, 2482, 2483, 2484, 2485, 2486, 2487, 2488, 2489, 2490, 2491, 2492, 2493, 2494, 2495, 2496, 2497, 2498, 2499, 2500, 2501, 2502, 2503, 2504, 2505, 2506, 2507, 2508, 2509, 2510, 2511, 2512, 2513, 2514, 2515, 2516, 2517, 2518, 2519, 2520, 2521, 2522, 2523, 2524, 2525, 2526, 2527, 2528, 2529, 2530, 2531, 2532, 2533, 2534, 2535, 2536, 2537, 2538, 2539, 2540, 2541, 2542, 2543, 2544, 2545, 2546, 2547, 2548, 2549, 2550, 2551, 2552, 2553, 2554, 2555, 2556, 2557, 2558, 2559, 2560, 2561, 2562, 2563, 2564, 2565, 2566, 2567, 2568, 2569, 2570, 2571, 2572, 2573, 2574, 2575, 2576, 2577, 2578, 2579, 2580, 2581, 2582, 2583, 2584, 2585, 2586, 2587, 2588, 2589, 2590, 2591, 2592, 2593, 2594, 2595, 2596, 2597, 2598, 2599, 2600, 2601, 2602, 2603, 2604, 2605, 2606, 2607, 2608, 2609, 2610, 2611, 2612, 2613, 2614, 2615, 2616, 2617, 2618, 2619, 2620, 2621, 2622, 2623, 2624, 2625, 2626, 2627, 2628, 2629, 2630, 2631, 2632, 2633, 2634, 2635, 2636, 2637, 2638, 2639, 2640, 2641, 2642, 2643, 2644, 2645, 2646, 2647, 2648, 2649, 2650, 2651, 2652, 2653, 2654, 2655, 2656, 2657, 2658, 2659, 2660, 2661, 2662, 2663, 2664, 2665, 2666, 2667, 2668, 2669, 2670, 2671, 2672, 2673, 2674, 2675, 2676, 2677, 2678, 26

Site	Phases	rsBLT Ad-Adage Peak - LN	Value1	Normal	Maximum1	Minimum1
1	1	Before	80000	70000	80000	80000
1	2	Before	71500	70000	80000	50000
2	1	Before	79400	70000	80000	50000
2	2	Before	72900	70000	80000	50000
4	1	Before	51740	70000	80000	50000
4	2	Before	70870	70000	80000	50000
8	1	Before	72700	70000	80000	50000
8	2	Before	70300	70000	80000	50000

Address: 16, Main Street, 100-00

1998 National Longitudinal Study of the Adolescent Health

3-4

Ch	Phase	195.7 MHz Voltage Plus LV	Value	Normal	Maximum	Minimum
0	Before		86102	70000	80000	96000
1	Before		70040	70000	80000	96000
2	Before		70040	70000	80000	96000
3	Before		70040	70000	80000	96000
4	Before		70040	70000	80000	96000
5	Before		70040	70000	80000	96000
6	Before		70040	70000	80000	96000
7	Before		70040	70000	80000	96000

15-MHz 2000-12-08

Ch	Phase	195.7 MHz Voltage Plus LV	Value	Normal	Maximum	Minimum
0	Before		86102	70000	80000	96000
1	Before		70040	70000	80000	96000
2	Before		70040	70000	80000	96000
3	Before		70040	70000	80000	96000
4	Before		70040	70000	80000	96000
5	Before		70040	70000	80000	96000
6	Before		70040	70000	80000	96000
7	Before		70040	70000	80000	96000

15-MHz 2000-12-08

Ch	Phase	195.7 MHz Voltage Plus LV	Value	Normal	Maximum	Minimum
0	Before		86102	70000	80000	96000
1	Before		70040	70000	80000	96000
2	Before		70040	70000	80000	96000
3	Before		70040	70000	80000	96000
4	Before		70040	70000	80000	96000
5	Before		70040	70000	80000	96000
6	Before		70040	70000	80000	96000
7	Before		70040	70000	80000	96000

15-MHz 2000-12-08

Ch	Phase	195.7 MHz Voltage Plus LV	Value	Normal	Maximum	Minimum
0	Before		86102	70000	80000	96000
1	Before		70040	70000	80000	96000
2	Before		70040	70000	80000	96000
3	Before		70040	70000	80000	96000
4	Before		70040	70000	80000	96000
5	Before		70040	70000	80000	96000
6	Before		70040	70000	80000	96000
7	Before		70040	70000	80000	96000

15-MHz 2000-12-08

Ch	Phase	195.7 MHz Voltage Plus LV	Value	Normal	Maximum	Minimum
0	Before		86102	70000	80000	96000
1	Before		70040	70000	80000	96000
2	Before		70040	70000	80000	96000
3	Before		70040	70000	80000	96000
4	Before		70040	70000	80000	96000
5	Before		70040	70000	80000	96000
6	Before		70040	70000	80000	96000
7	Before		70040	70000	80000	96000

15-MHz 2000-12-08

CHEVRON CANADA RESOURCES LTD
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300 Cycles Remaining	10.00	5.00	2.50	1.25	0.625	0.3125	0.15625	0.078125	0.0390625	0.01953125	0.009765625	0.0048828125	0.00244140625	0.001220703125	0.0006103515625	0.00030517578125	0.000152587890625	0.0000762939453125	0.00003814697265625	0.000019073486328125	0.0000095367431640625	0.00000476837158203125	0.000002384185791015625	0.0000011920928955078125	0.00000059604644775390625	0.000000298023223876953125	0.0000001490116119384765625	0.00000007450580596923828125	0.000000037252902984619140625	0.0000000186264514923095703125	0.00000000931322574615478515625	0.000000004656612873077392578125	0.0000000023283064365386962890625	0.00000000116415321826934814453125	0.000000000582076609134674072265625	0.0000000002910383045673370361328125	0.00000000014551915228366851806640625	0.000000000072759576141834259033203125	0.0000000000363797880709171295166015625	0.00000000001818989403545856475830078125	0.000000000009094947017729282379150390625	0.0000000000045474735088646191895751953125	0.00000000000227373675443230959478759765625	0.000000000001136868377216154797393798828125	0.0000000000005684341886080773986968994140625	0.00000000000028421709430403869934844970703125	0.000000000000142108547152019349674224853515625	0.000000000000071054273576009674837112427265625	0.0000000000000355271367880048374185562136328125	0.00000000000001776356839400241870927810681640625	0.000000000000008881784197001209354639053408203125	0.0000000000000044408920985006046773195267041015625	0.0000000000000022204460492503023386597633520578125	0.00000000000000111022302462515116932988167602890625	0.000000000000000555111512312575584649940838014453125	0.0000000000000002775557561562877923249704190072265625	0.00000000000000013877787807814389616248520950361328125	0.000000000000000069388939039071948081242604751806640625	0.0000000000000000346944695195359740406213023759033203125	0.00000000000000001734723475976798702031065192595166015625	0.00000000000000000867361737988399350101532596297578125	0.0000000000000000043368086899419967505076629814890625	0.00000000000000000216840434497099837525383149074453125	0.000000000000000001084202172485499187626915750372265625	0.0000000000000000005421010862427495938134578751861328125	0.00000000000000000027105054312137479690672893759306640625	0.000000000000000000135525271560687398453364468796533203125	0.0000000000000000000677626357803436992266822343982666015625	0.00000000000000000003388131789017184961334111719913330078125	0.0000000000000000000169406589450859248066705585995665478125	0.00000000000000000000847032947254296240333527929997827390625	0.000000000000000000004235164736271481201667639649989136953125	0.0000000000000000000021175823681357406008338198249945684765625	0.00000000000000000000105879118406787030041690991249728423828125	0.000000000000000000000529395592033935150208454956248642119140625	0.000000000000000000000264697796016967575104227478124321059765625	0.00000000000000000000013234889800848378755211373906216210298828125	0.000000000000000000000066174449004241893776056869531060549440625	0.00000000000000000000003308722450212094688802843476550252472203125	0.000000000000000000000016543612251060473444014217382751262361015625	0.000000000000000000000008271806125530236722007108691375631180578125	0.0000000000000000000000041359030627651183610035543456878155902890625	0.000000000000000000000002067951531382559180501777172843779754640625	0.0000000000000000000000010339757656912795902508885864218898773203125	0.00000000000000000000000051698788284563979512544429321094493866015625	0.00000000000000000000000025849394142281989756272214660547246930078125	0.000000000000000000000000129246970711409948781361073302736234650390625	0.0000000000000000000000000646234853557049743906805366513681173251953125	0.000000000000000000000000032311742677852487195340268325684058662890625	0.0000000000000000000000000161558713389262435976701341628420293314453125	0.00000000000000000000000000807793566946312179883506708142101466772265625	0.00000000000000000000000000403896783473156109941753354071005733386328125	0.000000000000000000000000002019483917365780549708766770355266691640625	0.0000000000000000000000000010097419586828902748543833851776133348203125	0.000000000000000000000000000504870979341445137227219169288806671015625	0.0000000000000000000000000002524354896707225686136095846444033355578125	0.00000000000000000000000000012621774483536128430680479232220167777890625	0.00000000000000000000000000006310887241768064215340239616111008888953125	0.000000000000000000000000000031554436208840321076701198080555444479765625	0.0000000000000000000000000000157772181044201605383505990402777222398828125	0.00000000000000000000000000000788860905221008026917529952001388611940625	0.000000000000000000000000000003944304526105040134587649760006943059765625	0.0000000000000000000000000000019721522630525200672938248800034715298828125	0.000000000000000000000000000000986076131526260033619612440001735764940625	0.000000000000000000000000000000493038065763130016809806220000867882472265625	0.000000000000000000000000000000246519032881565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Station	Point	Distance	Remarks
Station 18 Mile 2003.12.28			

180° Directional Survey Manually-Entered Inclinometry Summary					
180° Directional Survey Manually-Entered Inclinometry Summary					
ID	Point	180° Vertical Voltage (V)	180° Vertical Voltage (V)	180° Vertical Voltage (V)	180° Vertical Voltage (V)
0	Before	0.00	0.00	0.00	0.00
1	Before	0.00	0.00	0.00	0.00
2	Before	0.00	0.00	0.00	0.00
3	Before	0.00	0.00	0.00	0.00
4	Before	0.00	0.00	0.00	0.00
5	Before	0.00	0.00	0.00	0.00
6	Before	0.00	0.00	0.00	0.00
7	Before	0.00	0.00	0.00	0.00

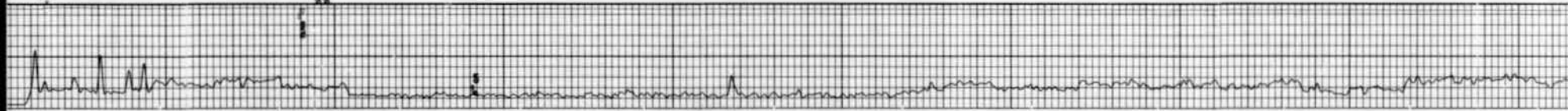
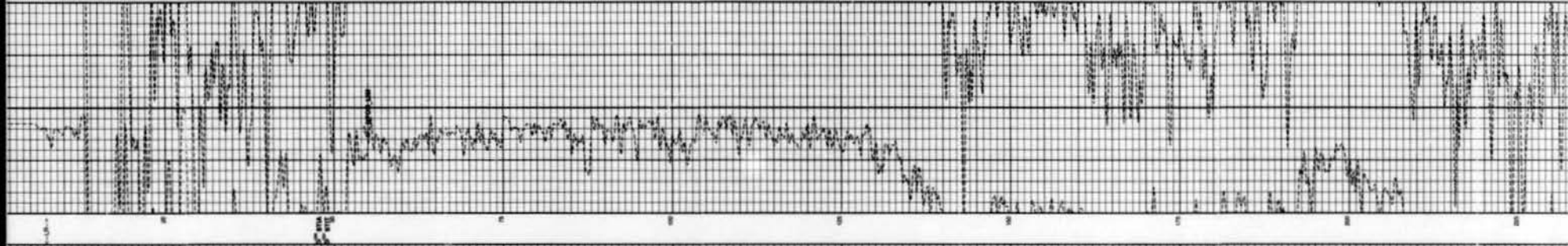
Directional Survey Manually-Entered Inclinometry Summary

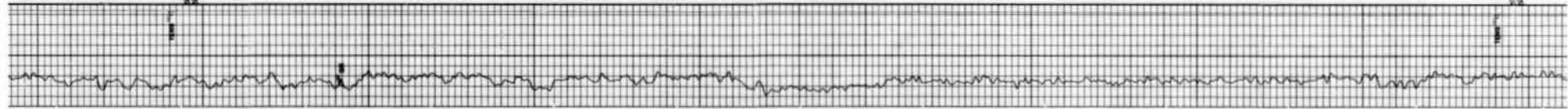
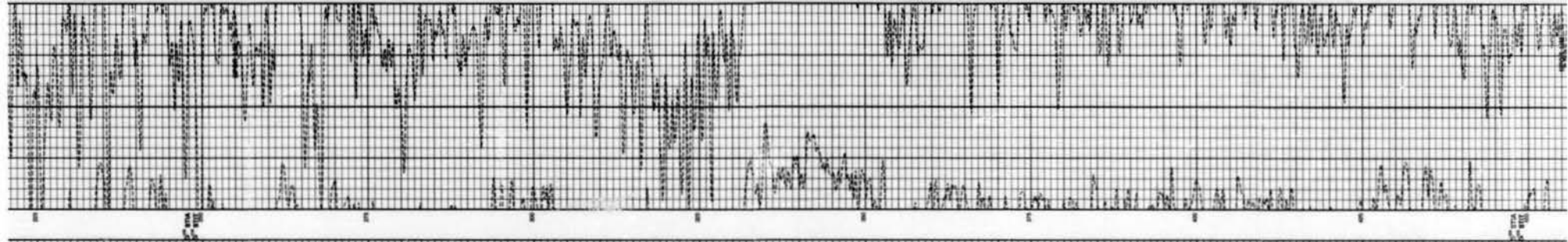
Tie In Point : Measured Depth True Vertical Depth North Departure East Departure
3006.10 M 2499.36 M 1333.72 M -753.26 M

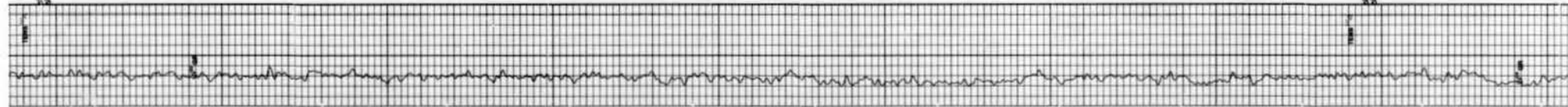
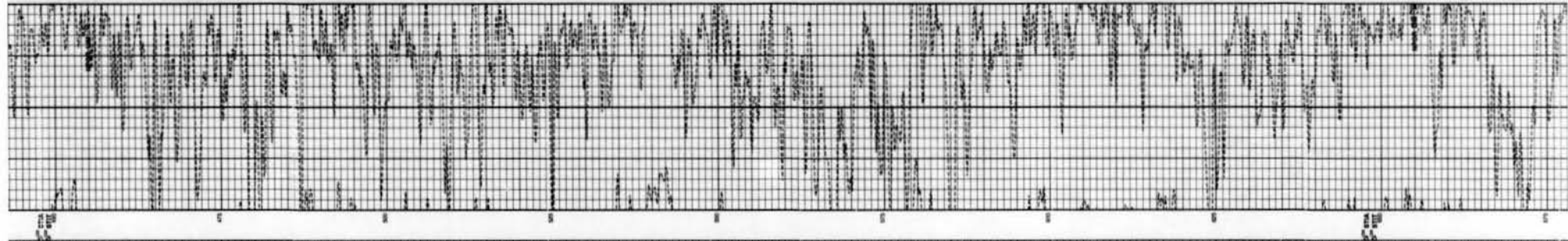
Depth	Deviation	Azimuth	True Vertical Depth	North Departure	East Departure
0.00 M	0.00 DEG	0.00 DEG	0.27 M	-0.34 M	1.03 M
96.90 M	1.05 DEG	296.00 DEG	96.76 M	0.30 M	0.05 M
170.00 M	0.38 DEG	312.20 DEG	170.25 M	0.30 M	-0.31 M
265.05 M	1.35 DEG	354.30 DEG	265.79 M	2.10 M	-0.60 M
294.02 M	2.85 DEG	355.00 DEG	294.84 M	3.16 M	-0.95 M
313.30 M	5.03 DEG	348.20 DEG	313.30 M	4.42 M	-1.14 M
322.60 M	6.15 DEG	345.90 DEG	322.73 M	5.32 M	-1.34 M
341.90 M	8.06 DEG	344.10 DEG	341.98 M	7.63 M	-1.84 M
360.30 M	9.24 DEG	337.60 DEG	360.57 M	10.31 M	-2.86 M
371.60 M	9.53 DEG	336.00 DEG	370.63 M	11.54 M	-3.52 M
390.40 M	10.63 DEG	334.60 DEG	399.73 M	14.96 M	-4.94 M
410.10 M	11.63 DEG	332.70 DEG	409.05 M	18.40 M	-6.64 M
419.70 M	12.35 DEG	330.90 DEG	418.44 M	20.16 M	-7.58 M
438.70 M	13.73 DEG	331.00 DEG	436.95 M	23.02 M	-8.64 M
467.20 M	16.58 DEG	332.70 DEG	464.80 M	28.19 M	-11.90 M
468.90 M	18.33 DEG	330.30 DEG	484.06 M	30.73 M	-13.26 M
504.30 M	21.15 DEG	331.60 DEG	481.19 M	36.85 M	-16.12 M
513.80 M	22.48 DEG	333.00 DEG	499.28 M	41.81 M	-18.25 M
532.80 M	24.98 DEG	331.30 DEG	525.49 M	44.96 M	-20.84 M
552.10 M	25.52 DEG	327.90 DEG	542.94 M	56.82 M	-34.38 M
562.00 M	26.53 DEG	328.20 DEG	561.84 M	62.50 M	-30.80 M
580.90 M	28.52 DEG	328.90 DEG	586.90 M	69.93 M	-35.47 M
590.80 M	29.65 DEG	330.15 DEG	595.12 M	77.83 M	-40.16 M
610.00 M	30.50 DEG	330.90 DEG	593.94 M	82.27 M	-42.69 M
629.60 M	33.10 DEG	331.30 DEG	610.60 M	91.39 M	-47.71 M
648.60 M	34.63 DEG	330.30 DEG	626.36 M	100.54 M	-52.68 M
668.80 M	36.38 DEG	330.30 DEG	634.73 M	105.62 M	-55.78 M
687.70 M	37.50 DEG	327.10 DEG	666.02 M	125.67 M	-67.26 M
715.90 M	38.18 DEG	328.80 DEG	680.08 M	135.12 M	-72.73 M
745.09 M	38.65 DEG	321.40 DEG	703.95 M	151.08 M	-81.72 M
811.60 M	30.56 DEG	332.60 DEG	726.88 M	165.33 M	-86.15 M
820.00 M	29.96 DEG	333.00 DEG	736.16 M	163.21 M	-88.24 M
850.66 M	27.81 DEG	333.60 DEG	783.30 M	185.96 M	-100.17 M
879.47 M	28.02 DEG	333.10 DEG	816.99 M	200.17 M	-108.81 M
889.03 M	28.30 DEG	332.80 DEG	827.57 M	211.78 M	-112.54 M
908.21 M	29.35 DEG	331.90 DEG	861.47 M	218.53 M	-114.55 M
936.66 M	29.90 DEG	332.40 DEG	881.47 M	223.37 M	-115.58 M
955.75 M	30.90 DEG	332.40 DEG	881.47 M	223.37 M	-115.58 M
974.96 M	31.30 DEG	331.40 DEG	881.47 M	223.37 M	-115.58 M
984.15 M	31.22 DEG	329.90 DEG	881.47 M	223.37 M	-115.58 M
1003.17 M	31.45 DEG	330.50 DEG	881.47 M	223.37 M	-115.58 M
1022.70 M	32.15 DEG	328.80 DEG	881.47 M	223.37 M	-115.58 M
1031.81 M	32.17 DEG	328.30 DEG	881.47 M	223.37 M	-115.58 M
1060.61 M	33.40 DEG	328.10 DEG	881.47 M	223.37 M	-115.58 M
1069.76 M	33.98 DEG	327.40 DEG	881.47 M	223.37 M	-115.58 M
1079.32 M	34.58 DEG	327.10 DEG	881.47 M	223.37 M	-115.58 M
1088.34 M	35.08 DEG	326.10 DEG	881.47 M	223.37 M	-115.58 M
1117.02 M	37.05 DEG	326.20 DEG	881.47 M	223.37 M	-115.58 M
1135.95 M	38.55 DEG	326.50 DEG	881.47 M	223.37 M	-115.58 M
1154.92 M	38.03 DEG	327.60 DEG	881.47 M	223.37 M	-115.58 M
1193.18 M	37.33 DEG	328.00 DEG	881.47 M	223.37 M	-115.58 M
1250.18 M	37.45 DEG	328.40 DEG	881.47 M	223.37 M	-115.58 M
1268.02 M	37.83 DEG	328.50 DEG	881.47 M	223.37 M	-115.58 M

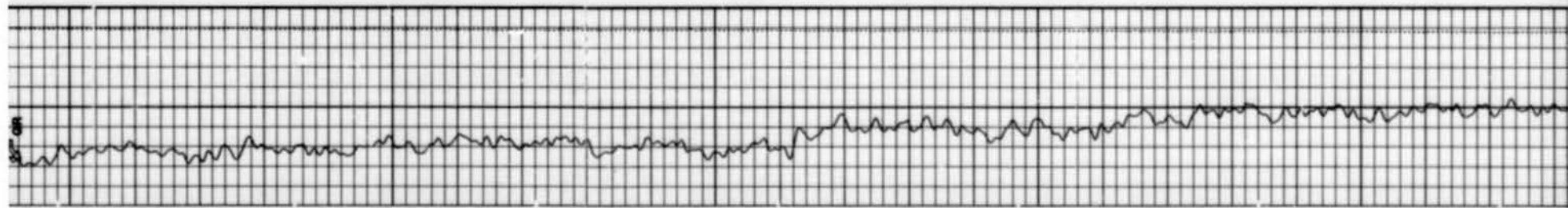
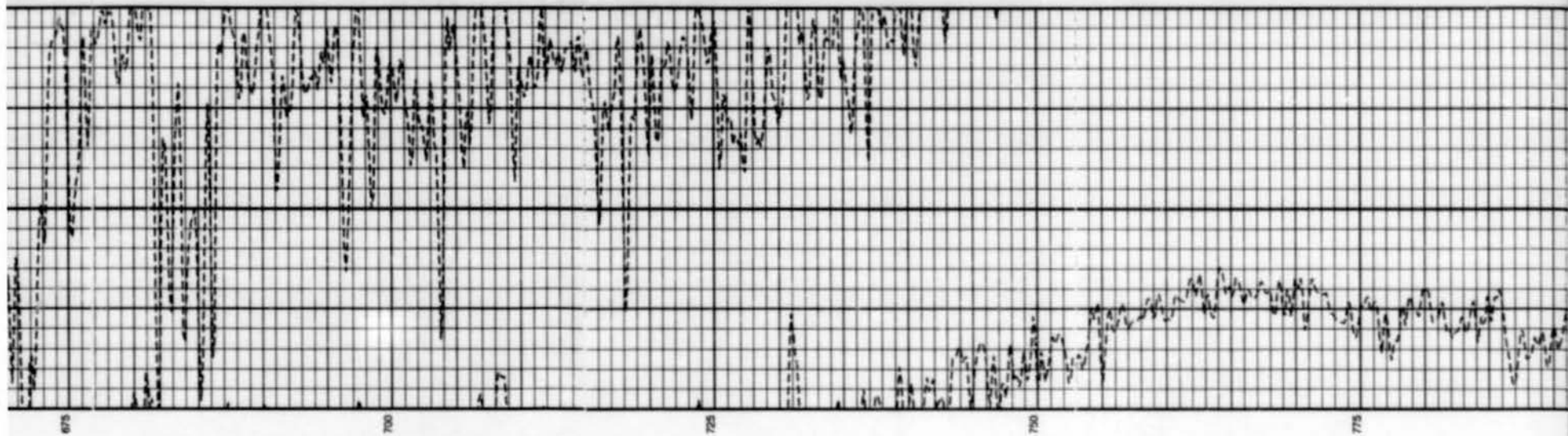
***LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT***

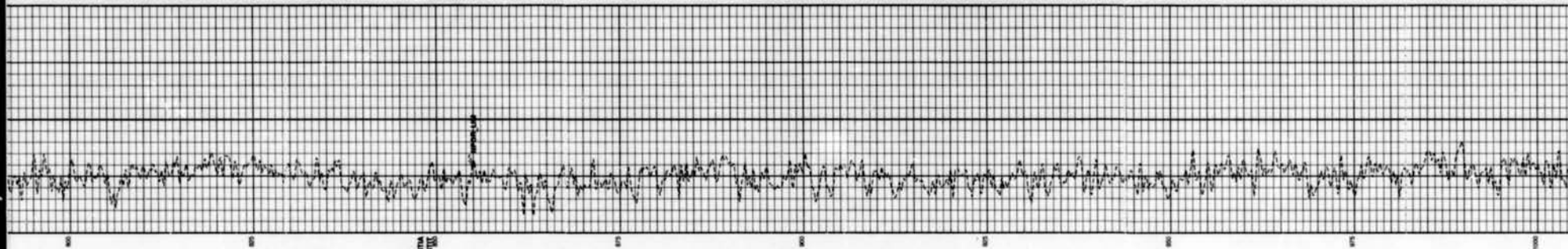
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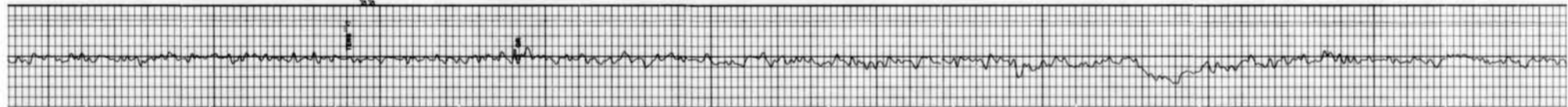
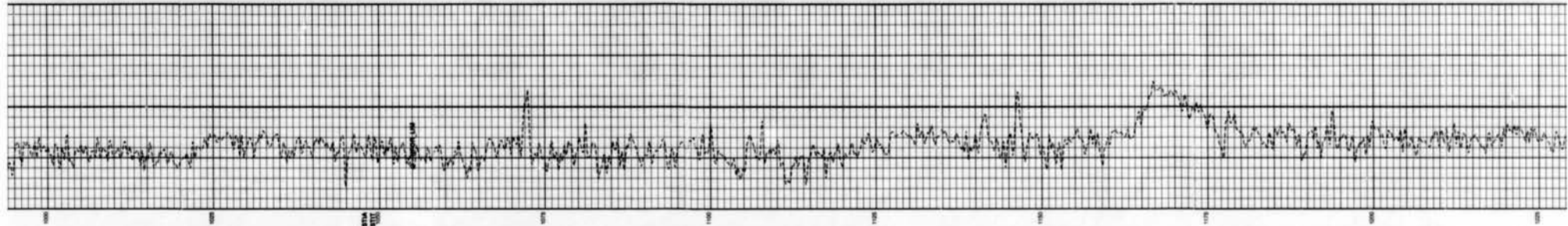


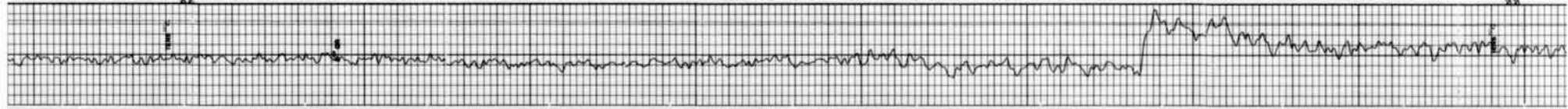
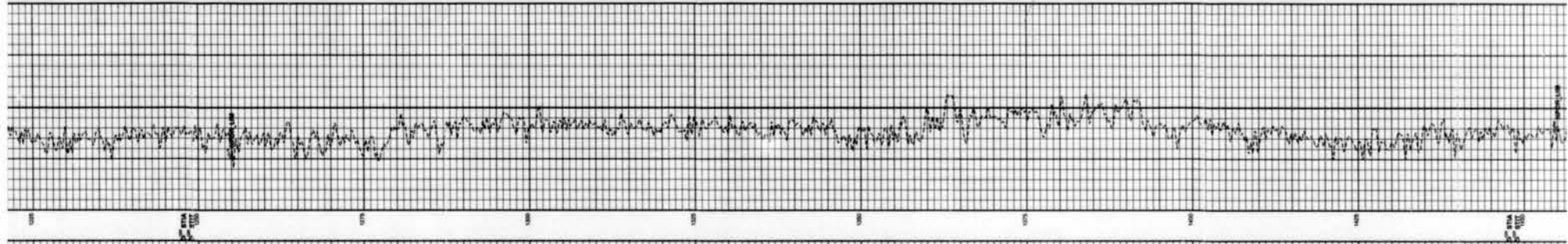


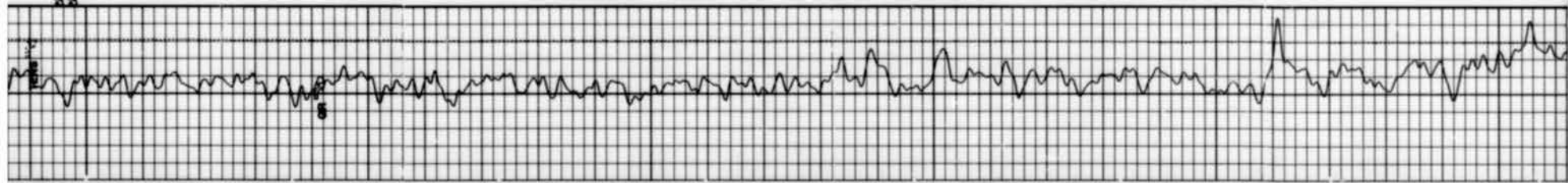
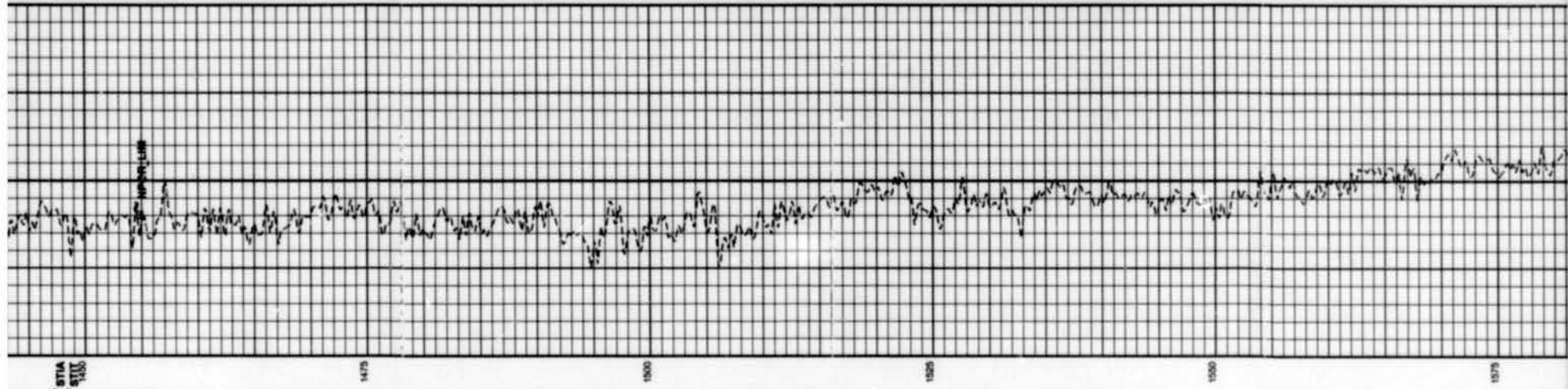


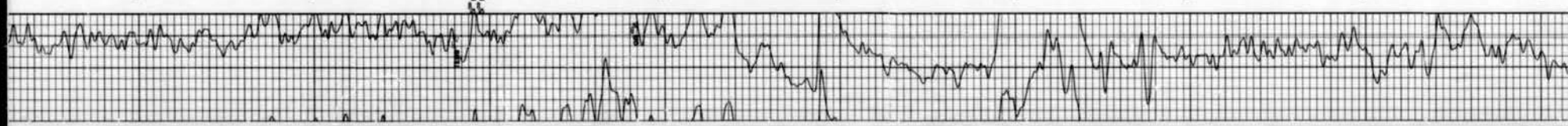
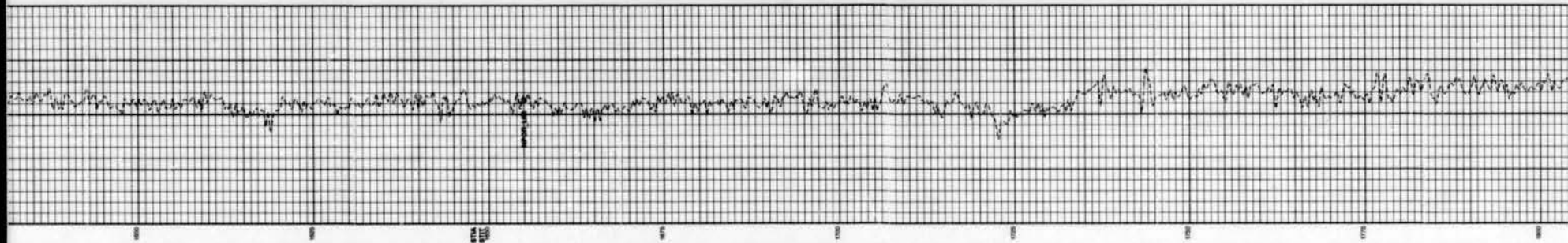


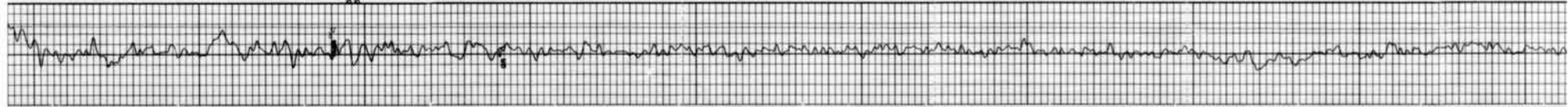
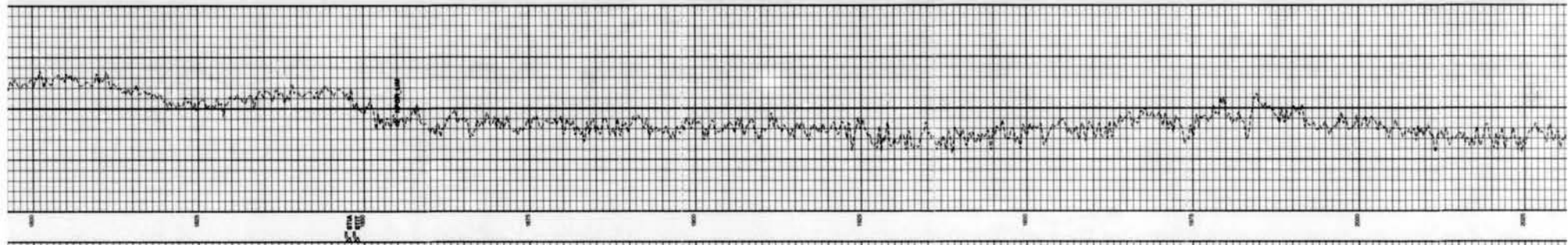


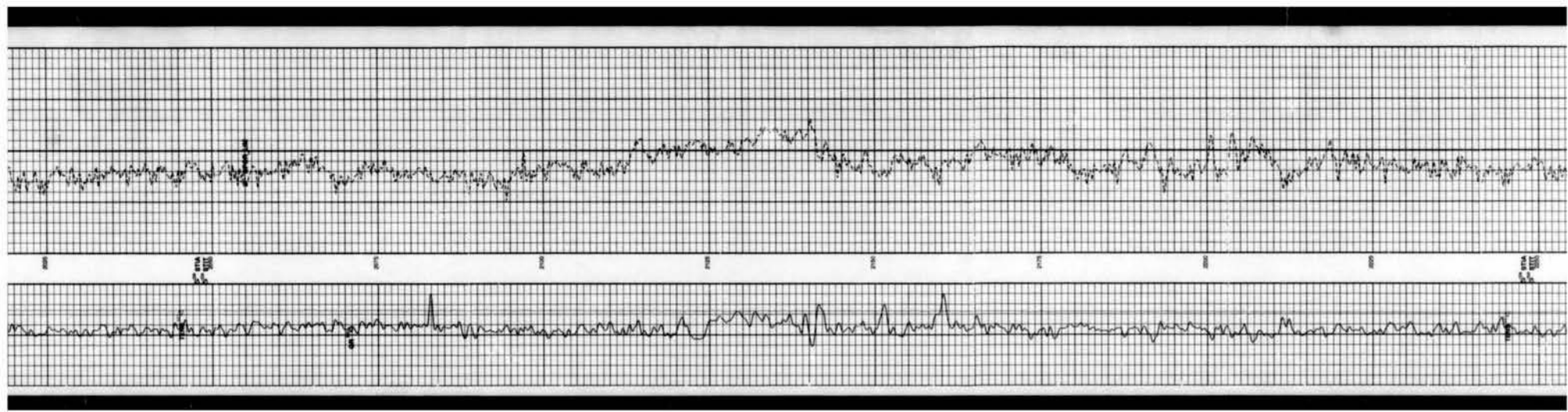


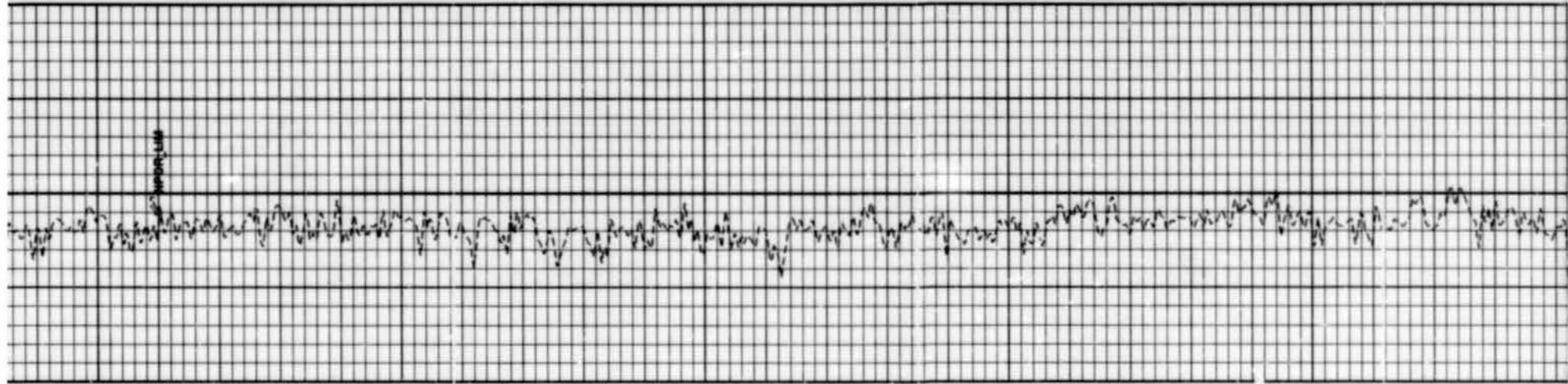












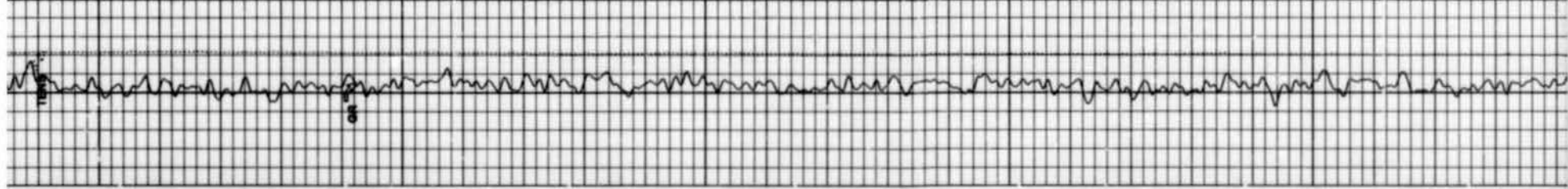
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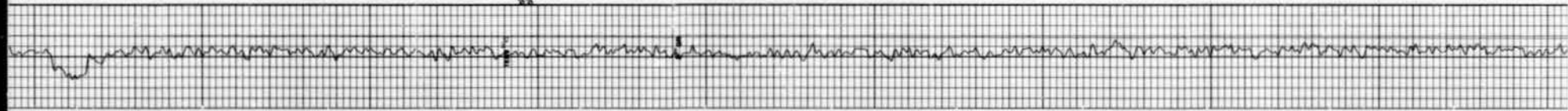
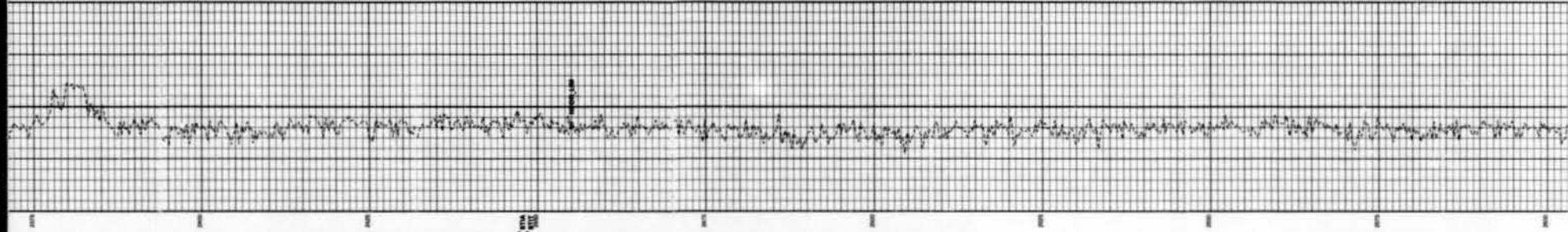
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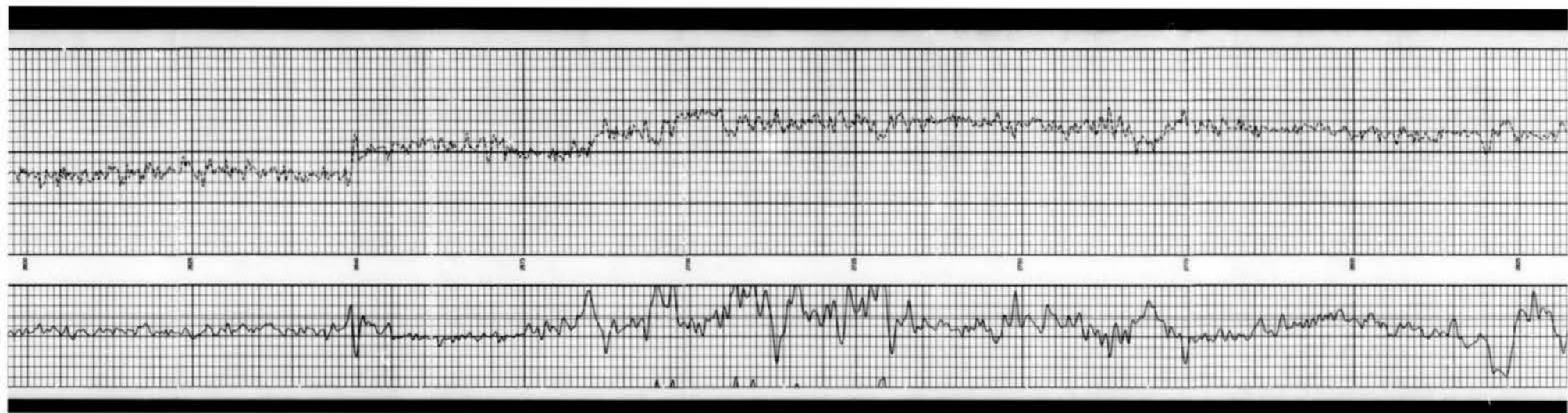
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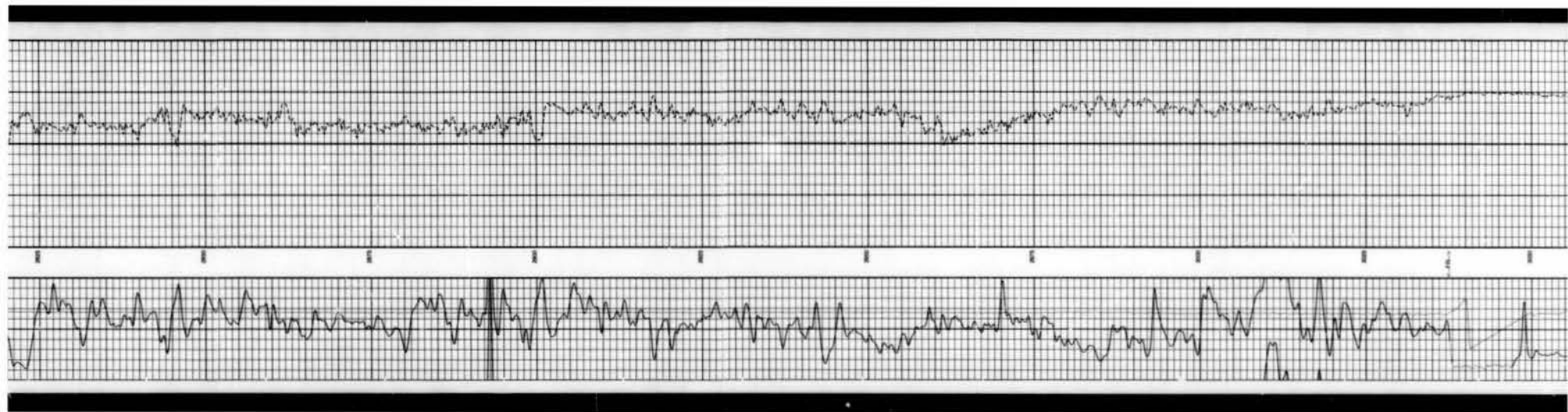
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Input DLS 7/00	Input 8	11C3 300	11C3 300
11C4 300			
11C3 300			

	11CB-095	11CB-086	11CB-087
MS, Tc-FTE DTC-4			
Input DLS File			



Input DLIS Files		10-Mar-2003 21:21	2004.4 M	2003.3 M
DEFAULT	FM, TLD, MCFN, CNL, GSNPUF	FM 21	PROCOCKER	
Output DLIS Files				
DEFAULT	FM, TLD, MCFN, CNL, GSNPUF	FM 24	PROCOCKER	10-Mar-2003 17:27
REMOVED	FM, TLD, MCFN, CNL, GSNPUF	FM 25	PROCOCKER	10-Mar-2003 17:27

[illegible]

Verenigd Koninkrijk

[illegible][illegible][illegible][illegible][illegible][illegible]

SAP: MECHANICAL COMPRESSION TEST FOR STEEL REINFORCING									
		SAP: REINFORCING				SAP: REINFORCING (10)			
		SAP: REINFORCING (10)		SAP: REINFORCING (10)		SAP: REINFORCING (10)		SAP: REINFORCING (10)	
Phase	Load	Displacement	Load	Displacement	Load	Displacement	Load	Displacement	Load
Initial	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
1st	10.00	0.00	10.00	0.00	10.00	0.00	10.00	0.00	10.00
2nd	20.00	0.00	20.00	0.00	20.00	0.00	20.00	0.00	20.00
3rd	30.00	0.00	30.00	0.00	30.00	0.00	30.00	0.00	30.00
4th	40.00	0.00	40.00	0.00	40.00	0.00	40.00	0.00	40.00
5th	50.00	0.00	50.00	0.00	50.00	0.00	50.00	0.00	50.00
6th	60.00	0.00	60.00	0.00	60.00	0.00	60.00	0.00	60.00
7th	70.00	0.00	70.00	0.00	70.00	0.00	70.00	0.00	70.00
8th	80.00	0.00	80.00	0.00	80.00	0.00	80.00	0.00	80.00
9th	90.00	0.00	90.00	0.00	90.00	0.00	90.00	0.00	90.00
10th	100.00	0.00	100.00	0.00	100.00	0.00	100.00	0.00	100.00

[illegible][illegible]

Figure 10.10: Average and standard deviation for 1000 iterations									
Group		95% Average Deviation %		95% Average Deviation %		95% Average Deviation %		95% Average Deviation %	
Group	Mean	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.	Mean	St. Dev.
Group 1	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 2	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 3	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 4	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 5	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 6	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 7	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 8	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 9	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000
Group 10	1.000	1.000	0.000	1.000	0.000	1.000	0.000	1.000	0.000

Primary business	100.0
Other business	0.0
Activity business	100.0
Other activity	0.0
Activity business	100.0
Other activity	0.0
Activity business	100.0
Other activity	0.0

Fig. Name	100% (100%)	100% (100%)	100% (100%)	100% (100%)	100% (100%)
1. Bacteria	100%	100%	100%	100%	100%
2. Fungi	100%	100%	100%	100%	100%
3. Protozoa	100%	100%	100%	100%	100%
4. Plants	100%	100%	100%	100%	100%
5. Animals	100%	100%	100%	100%	100%

MS. Group	MSU 10-15 (Age 10-15)	MSU 16-20 (Age 16-20)	MSU 21-25 (Age 21-25)	MSU 26-30 (Age 26-30)	MSU 31-35 (Age 31-35)	MSU 36-40 (Age 36-40)	MSU 41-45 (Age 41-45)	MSU 46-50 (Age 46-50)	MSU 51-55 (Age 51-55)	MSU 56-60 (Age 56-60)	MSU 61-65 (Age 61-65)	MSU 66-70 (Age 66-70)	MSU 71-75 (Age 71-75)	MSU 76-80 (Age 76-80)	MSU 81-85 (Age 81-85)	MSU 86-90 (Age 86-90)	MSU 91-95 (Age 91-95)	MSU 96-100 (Age 96-100)	MSU 101-105 (Age 101-105)	MSU 106-110 (Age 106-110)	MSU 111-115 (Age 111-115)	MSU 116-120 (Age 116-120)	MSU 121-125 (Age 121-125)	MSU 126-130 (Age 126-130)	MSU 131-135 (Age 131-135)	MSU 136-140 (Age 136-140)	MSU 141-145 (Age 141-145)	MSU 146-150 (Age 146-150)	MSU 151-155 (Age 151-155)	MSU 156-160 (Age 156-160)	MSU 161-165 (Age 161-165)	MSU 166-170 (Age 166-170)	MSU 171-175 (Age 171-175)	MSU 176-180 (Age 176-180)	MSU 181-185 (Age 181-185)	MSU 186-190 (Age 186-190)	MSU 191-195 (Age 191-195)	MSU 196-200 (Age 196-200)	MSU 201-205 (Age 201-205)	MSU 206-210 (Age 206-210)	MSU 211-215 (Age 211-215)	MSU 216-220 (Age 216-220)	MSU 221-225 (Age 221-225)	MSU 226-230 (Age 226-230)	MSU 231-235 (Age 231-235)	MSU 236-240 (Age 236-240)	MSU 241-245 (Age 241-245)	MSU 246-250 (Age 246-250)	MSU 251-255 (Age 251-255)	MSU 256-260 (Age 256-260)	MSU 261-265 (Age 261-265)	MSU 266-270 (Age 266-270)	MSU 271-275 (Age 271-275)	MSU 276-280 (Age 276-280)	MSU 281-285 (Age 281-285)	MSU 286-290 (Age 286-290)	MSU 291-295 (Age 291-295)	MSU 296-300 (Age 296-300)	MSU 301-305 (Age 301-305)	MSU 306-310 (Age 306-310)	MSU 311-315 (Age 311-315)	MSU 316-320 (Age 316-320)	MSU 321-325 (Age 321-325)	MSU 326-330 (Age 326-330)	MSU 331-335 (Age 331-335)	MSU 336-340 (Age 336-340)	MSU 341-345 (Age 341-345)	MSU 346-350 (Age 346-350)	MSU 351-355 (Age 351-355)	MSU 356-360 (Age 356-360)	MSU 361-365 (Age 361-365)	MSU 366-370 (Age 366-370)	MSU 371-375 (Age 371-375)	MSU 376-380 (Age 376-380)	MSU 381-385 (Age 381-385)	MSU 386-390 (Age 386-390)	MSU 391-395 (Age 391-395)	MSU 396-400 (Age 396-400)	MSU 401-405 (Age 401-405)	MSU 406-410 (Age 406-410)	MSU 411-415 (Age 411-415)	MSU 416-420 (Age 416-420)	MSU 421-425 (Age 421-425)	MSU 426-430 (Age 426-430)	MSU 431-435 (Age 431-435)	MSU 436-440 (Age 436-440)	MSU 441-445 (Age 441-445)	MSU 446-450 (Age 446-450)	MSU 451-455 (Age 451-455)	MSU 456-460 (Age 456-460)	MSU 461-465 (Age 461-465)	MSU 466-470 (Age 466-470)	MSU 471-475 (Age 471-475)	MSU 476-480 (Age 476-480)	MSU 481-485 (Age 481-485)	MSU 486-490 (Age 486-490)	MSU 491-495 (Age 491-495)	MSU 496-500 (Age 496-500)	MSU 501-505 (Age 501-505)	MSU 506-510 (Age 506-510)	MSU 511-515 (Age 511-515)	MSU 516-520 (Age 516-520)	MSU 521-525 (Age 521-525)	MSU 526-530 (Age 526-530)	MSU 531-535 (Age 531-535)	MSU 536-540 (Age 536-540)	MSU 541-545 (Age 541-545)	MSU 546-550 (Age 546-550)	MSU 551-555 (Age 551-555)	MSU 556-560 (Age 556-560)	MSU 561-565 (Age 561-565)	MSU 566-570 (Age 566-570)	MSU 571-575 (Age 571-575)	MSU 576-580 (Age 576-580)	MSU 581-585 (Age 581-585)	MSU 586-590 (Age 586-590)	MSU 591-595 (Age 591-595)	MSU 596-600 (Age 596-600)	MSU 601-605 (Age 601-605)	MSU 606-610 (Age 606-610)	MSU 611-615 (Age 611-615)	MSU 616-620 (Age 616-620)	MSU 621-625 (Age 621-625)	MSU 626-630 (Age 626-630)	MSU 631-635 (Age 631-635)	MSU 636-640 (Age 636-640)	MSU 641-645 (Age 641-645)	MSU 646-650 (Age 646-650)	MSU 651-655 (Age 651-655)	MSU 656-660 (Age 656-660)	MSU 661-665 (Age 661-665)	MSU 666-670 (Age 666-670)	MSU 671-675 (Age 671-675)	MSU 676-680 (Age 676-680)	MSU 681-685 (Age 681-685)	MSU 686-690 (Age 686-690)	MSU 691-695 (Age 691-695)	MSU 696-700 (Age 696-700)	MSU 701-705 (Age 701-705)	MSU 706-710 (Age 706-710)	MSU 711-715 (Age 711-715)	MSU 716-720 (Age 716-720)	MSU 721-725 (Age 721-725)	MSU 726-730 (Age 726-730)	MSU 731-735 (Age 731-735)	MSU 736-740 (Age 736-740)	MSU 741-745 (Age 741-745)	MSU 746-750 (Age 746-750)	MSU 751-755 (Age 751-755)	MSU 756-760 (Age 756-760)	MSU 761-765 (Age 761-765)	MSU 766-770 (Age 766-770)	MSU 771-775 (Age 771-775)	MSU 776-780 (Age 776-780)	MSU 781-785 (Age 781-785)	MSU 786-790 (Age 786-790)	MSU 791-795 (Age 791-795)	MSU 796-800 (Age 796-800)	MSU 801-805 (Age 801-805)	MSU 806-81
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High Schoolers' Attitudes About Sex, Pregnancy, and Birth Control				
ONLY 10%				
Age Group	Only 10% of High Schoolers	Age Group	Response	Response
10-14	10%	15-19	10%	10%
15-19	10%	20-24	10%	10%
20-24	10%	25-29	10%	10%
25-29	10%	30-34	10%	10%
30-34	10%	35-39	10%	10%
35-39	10%	40-44	10%	10%
40-44	10%	45-49	10%	10%
45-49	10%	50-54	10%	10%
50-54	10%	55-59	10%	10%
55-59	10%	60-64	10%	10%
60-64	10%	65-69	10%	10%
65-69	10%	70-74	10%	10%
70-74	10%	75-79	10%	10%
75-79	10%	80-84	10%	10%
80-84	10%	85-89	10%	10%
85-89	10%	90-94	10%	10%
90-94	10%	95-99	10%	10%
95-99	10%	100-104	10%	10%
100-104	10%	105-109	10%	10%
105-109	10%	110-114	10%	10%
110-114	10%	115-119	10%	10%
115-119	10%	120-124	10%	10%
120-124	10%	125-129	10%	10%
125-129	10%	130-134	10%	10%
130-134	10%	135-139	10%	10%
135-139	10%	140-144	10%	10%
140-144	10%	145-149	10%	10%
145-149	10%	150-154	10%	10%
150-154	10%	155-159	10%	10%
155-159	10%	160-164	10%	10%
160-164	10%	165-169	10%	10%
165-169	10%	170-174	10%	10%
170-174	10%	175-179	10%	10%
175-179	10%	180-184	10%	10%
180-184	10%	185-189	10%	10%
185-189	10%	190-194	10%	10%
190-194	10%	195-199	10%	10%
195-199	10%	200-204	10%	10%
200-204	10%	205-209	10%	10%
205-209	10%	210-214	10%	10%
210-214	10%	215-219	10%	10%
215-219	10%	220-224	10%	10%
220-224	10%	225-229	10%	10%
225-229	10%	230-234	10%	10%
230-234	10%	235-239	10%	10%
235-239	10%	240-244	10%	10%
240-244	10%	245-249	10%	10%
245-249	10%	250-254	10%	10%
250-254	10%	255-259	10%	10%
255-259	10%	260-264	10%	10%
260-264	10%	265-269	10%	10%
265-269	10%	270-274	10%	10%
270-274	10%	275-279	10%	10%
275-279	10%	280-284	10%	10%
280-284	10%	285-289	10%	10%
285-289	10%	290-294	10%	10%
290-294	10%	295-299	10%	10%
295-299	10%	300-304	10%	10%
300-304	10%	305-309	10%	10%
305-309	10%	310-314	10%	10%
310-314	10%	315-319	10%	10%
315-319	10%	320-324	10%	10%
320-324	10%	325-329	10%	10%
325-329	10%	330-334	10%	10%
330-334	10%	335-339	10%	10%
335-339	10%	340-344	10%	10%
340-344	10%	345-349	10%	10%
345-349	10%	350-354	10%	10%
350-354	10%	355-359	10%	10%
355-359	10%	360-364	10%	10%
360-364	10%	365-369	10%	10%

CHS Group	CHS-1 (n=1,000)	CHS-2 (n=1,000)	CHS-1 (n=1,000)	CHS-2 (n=1,000)	CHS-1 (n=1,000)	CHS-2 (n=1,000)
1. White	1000	1000	1000	1000	1000	1000
2. Black	1000	1000	1000	1000	1000	1000
3. Hispanic	1000	1000	1000	1000	1000	1000
4. Asian	1000	1000	1000	1000	1000	1000
5. Other	1000	1000	1000	1000	1000	1000
6. Total	1000	1000	1000	1000	1000	1000
7. White	1000	1000	1000	1000	1000	1000
8. Black	1000	1000	1000	1000	1000	1000
9. Hispanic	1000	1000	1000	1000	1000	1000
10. Asian	1000	1000	1000	1000	1000	1000
11. Other	1000	1000	1000	1000	1000	1000
12. Total	1000	1000	1000	1000	1000	1000

IP	Region	1997-1998 Average Price (¢)	1998-1999 Average Price (¢)	1999-2000 Average Price (¢)	2000-2001 Average Price (¢)
1	Atlantic		10.00	10.00	10.00
2	Atlantic		10.00	10.00	10.00
3	Atlantic		10.00	10.00	10.00
4	Atlantic		10.00	10.00	10.00
5	Atlantic		10.00	10.00	10.00
6	Atlantic		10.00	10.00	10.00
7	Atlantic		10.00	10.00	10.00

[illegible]

High School Learning Style, 8-10th Grade				
Q. Please indicate how much you agree or disagree with each statement.	Strongly Agree	Agree	Disagree	Strongly Disagree
1. I learn best by seeing things.				
2. I learn best by doing things.				
3. I learn best by reading.				
4. I learn best by listening to lectures.				
5. I learn best by watching others.				
6. I learn best by thinking things out.				
7. I learn best by feeling things.				
8. I learn best by using my imagination.				
9. I learn best by using my senses.				
10. I learn best by using my hands.				
11. I learn best by using my eyes.				
12. I learn best by using my ears.				
13. I learn best by using my mouth.				
14. I learn best by using my nose.				
15. I learn best by using my skin.				

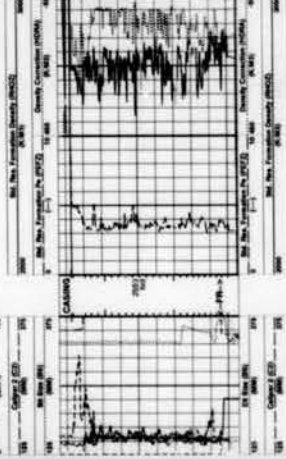
Input DUS Files		
DUS-FAULT	FM1_TLD_MECH_CNL_STRIPUP	FM1-20-FAULT-01-01
	FM1-20	PRODUCER
		10-May-2003 17:27
		3095.5 MB
		2007.9 MB
Output DUS Files		
DUS-FAULT	FM1_TLD_MECH_CNL_STRIPUP	FM1-20-FAULT-01-01
	FM1-20	PRODUCER
	FM1-21	PRODUCER
	FM1_TLD_MECH_CNL_STRIPUP	10-May-2003 17:23
		3076.0 MB
		2076.5 MB
		2076.5 MB

Integrated Hole Cement Volume Summary

Node Volume = 3.41 MB Current Volume = 2.61 MB (assuming 0.04 MB using O.S.) Computed from 2008.2 MB to 3079.1 MB using data channel(s) C1 C2	OP System Version: 11C0-300 MCN	11C0-300 11C0-300 11C0-300
FBST-A MC114-P18 MS-B	11C0-300 11C0-300 11C0-300	CLT-A HSL-T-B DTC-A

APPENDIX A

- | | | | | | | |
|---|---------------------------|-------|----|-------|-----|----|
| a | Integrated Run Volume | Minis | Pg | Every | 0.1 | M3 |
| b | Integrated Run Volume | Maxis | Pg | Every | 1 | M3 |
| c | Integrated Current Volume | Minis | Pg | Every | 0.1 | M3 |
| d | Integrated Current Volume | Maxis | Pg | Every | 1 | M3 |

[illegible][illegible]

DISCUSSION

- a. i.
- | | | | |
|------------------|-------------------|-------------------|-----------------------|
| Integrated Value | Miles | Pip Entry | A: 1 M3 |
| Integrated Value | Miles | Pip Entry | I: M3 |
| Integrated Value | Miles | Pip Entry | I: M3 |
| * Integrated | Cumulative Values | Miles | Pip Entry A: 1 M3 |
| - | Integrated | Cumulative Values | Miles Pip Entry I: M3 |

Time March Entry: 08:59		
DLIS Name	Description	Parameters
HLS-FTB	High resolution Integrated Logging Test-079	
SWC	SWC	ON
SWD	SWD	OFF
SWT	SWT	NOBASE
SWT	SWT	NOBASE
SWT	SWT	NOBASE

Parameters

[illegible]

OP System Version: 11CO-309

MCSM	
TEST1.A HL714/119 SMB-B	11C2-308 11C2-309 11C2-308 11C2-308
	272A-A MFL1-B 272C-A
Indicated in True Vertical Depth in this Playbook	
Input DLS Files	
DEFAULT	FN0_TLD_MCF1_OH1_O34UP FN124 PRODUCER 18-Mar-2003 17:07 2008.2 M 2007.A M
Output DLS Files	
DEFAULT PRODUCED	FN0_TLD_MCF1_OH1_O34UP FN130 PRODUCER 18-Mar-2003 17:23 FN131 PRODUCER 18-Mar-2003 17:22

Input DLIS Files

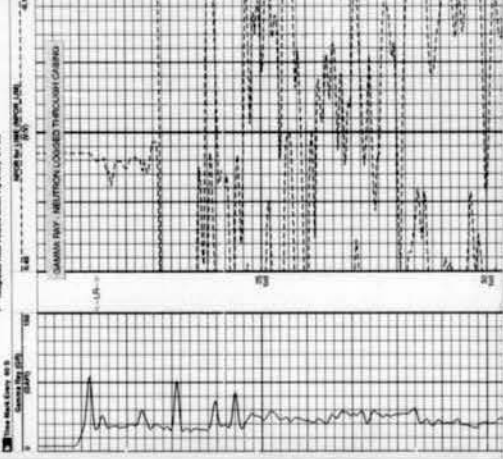
DEFAULT?	TLD_MCFN_ONL_E105_0100UP	FW 1.3	PRODUCER	17-May-2003 19:48	2027.9 M	4.3 M
Output DLIS Files						
DEFAULT?	FW_TLD_MCFN_ONL_0000UP	FW 3.0	PRODUCER	19-May-2003 17:43	2024.1 M	0.1 M
REDUCED	FW_TLD_MCFN_ONL_0000UP	FW 3.3	PRODUCER	19-May-2003 17:43	2034.9 M	0.1 M

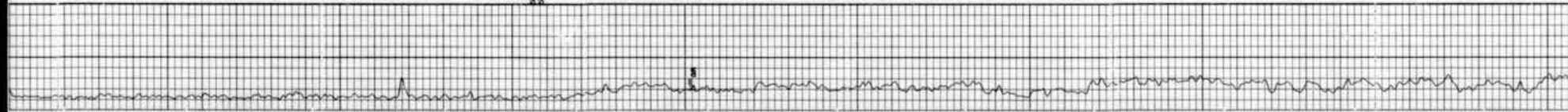
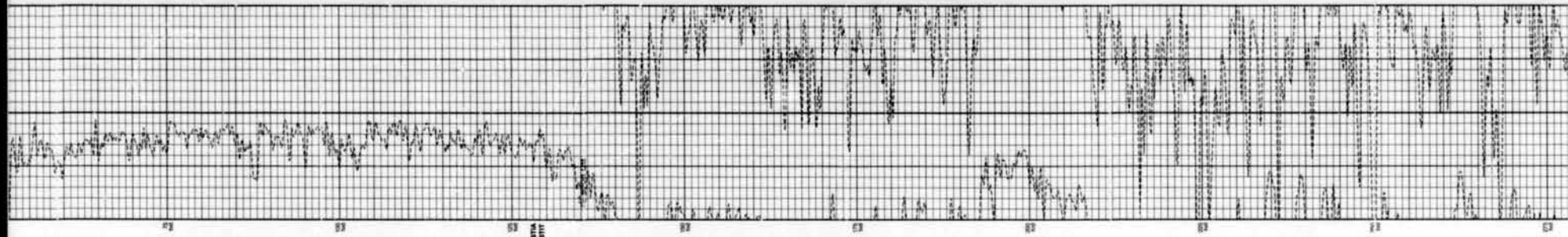
Integrated Hole Cement Volume Summary

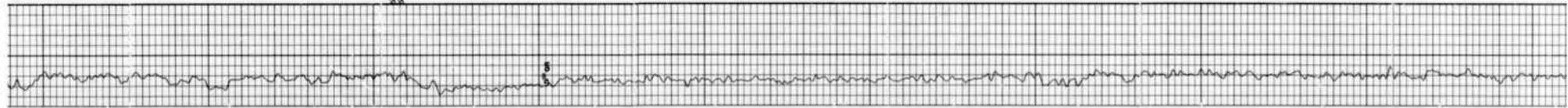
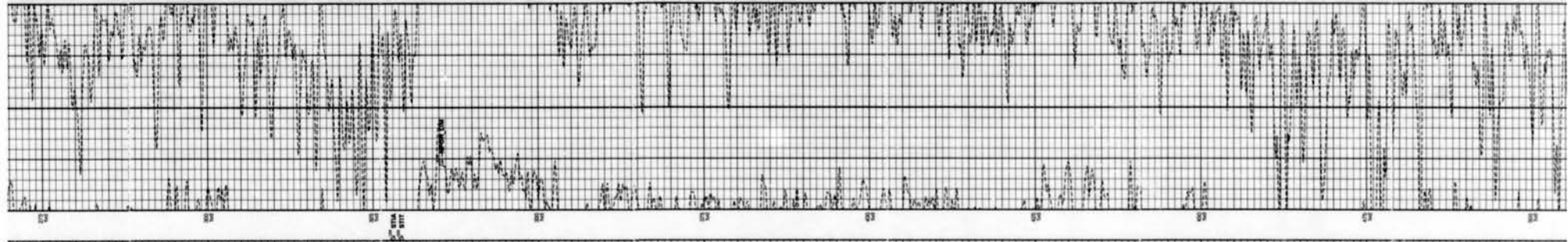
High Volume = 2.61 M3 Current Volume = 2.61 M3 (assuming 0.00 M3 saving 0.2) *Savings of 0.2 M3 = 0.2 x 1.0 = 0.2 M3 saving 0.2 M3 saving 0.2 M3	OP System Version: 11C-305 MCM
11C-305 11C-305 11C-305	11C-305 11C-305 11C-305
11C-305 11C-305 11C-305	11C-305 11C-305 11C-305

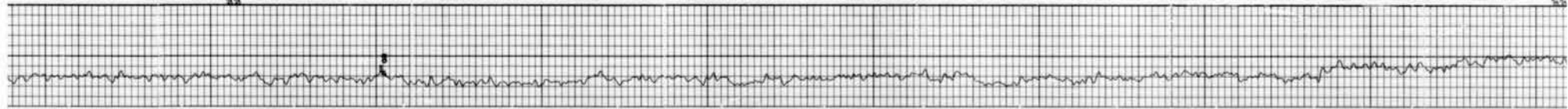
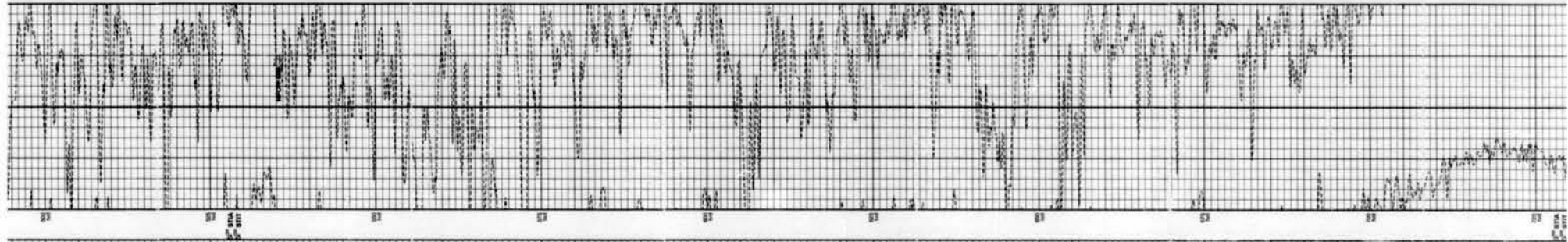
RESEARCH DESIGN

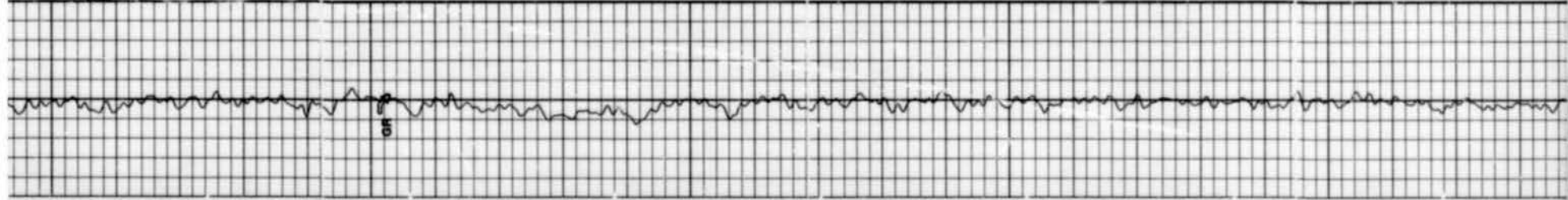
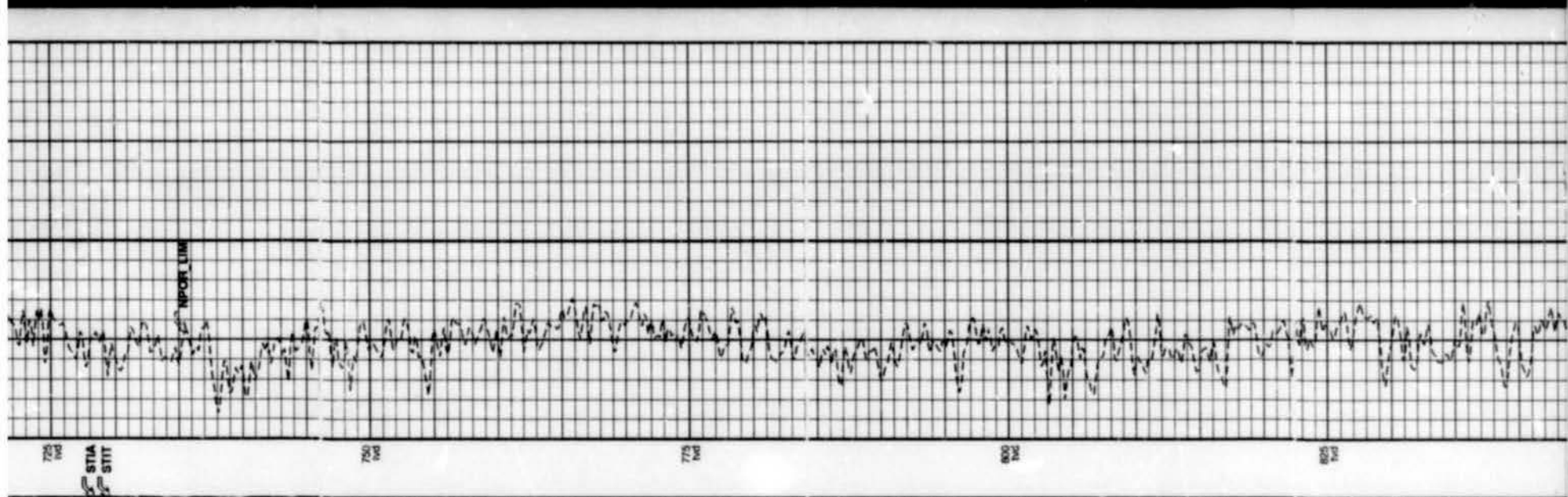
1. Integrated Circuit Volume Maps: 100

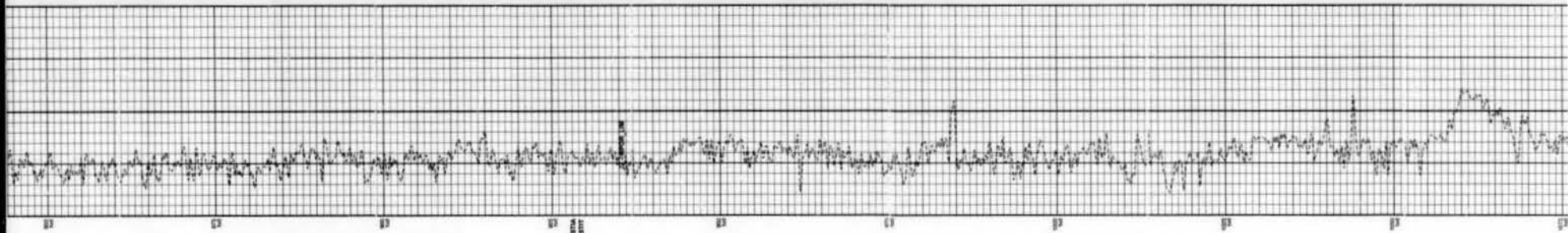




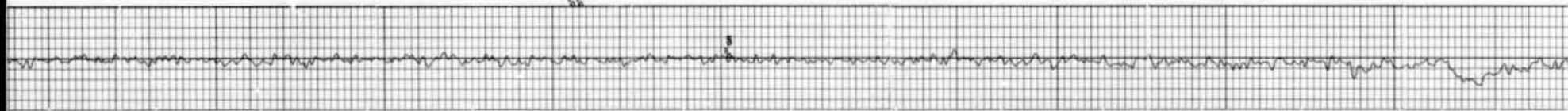




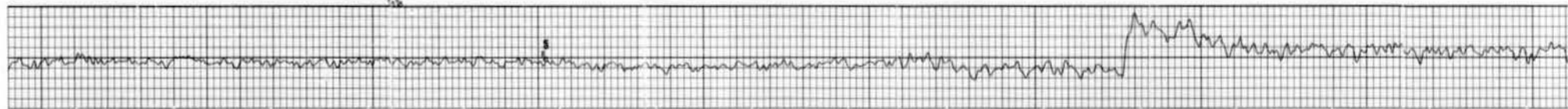
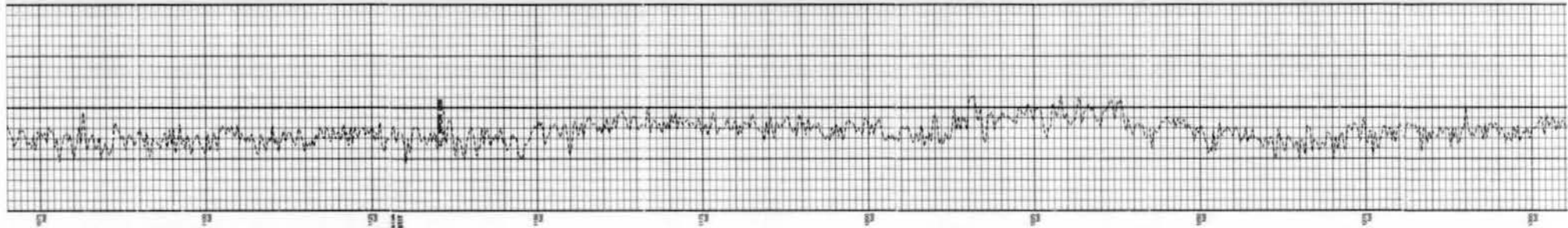


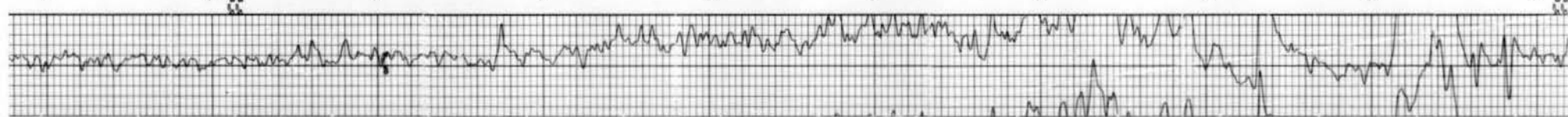
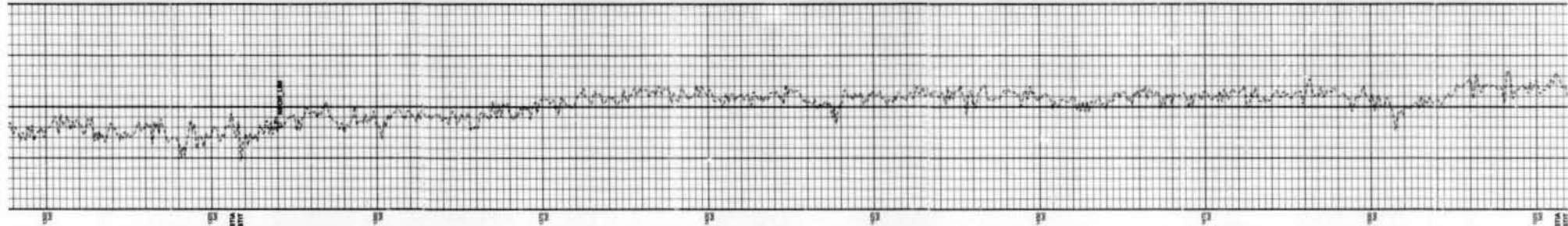


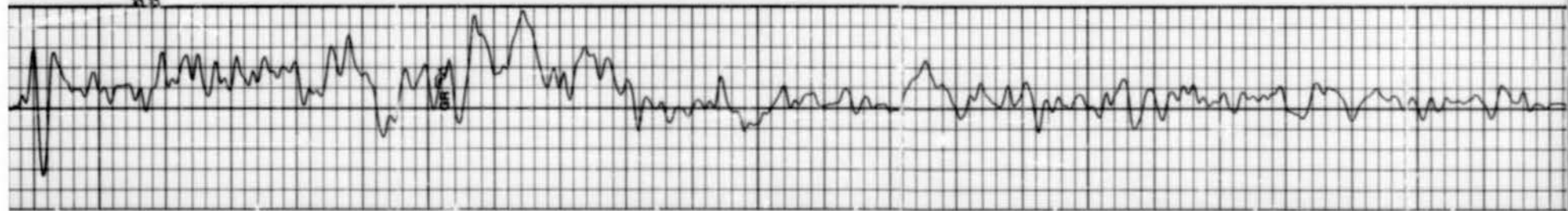
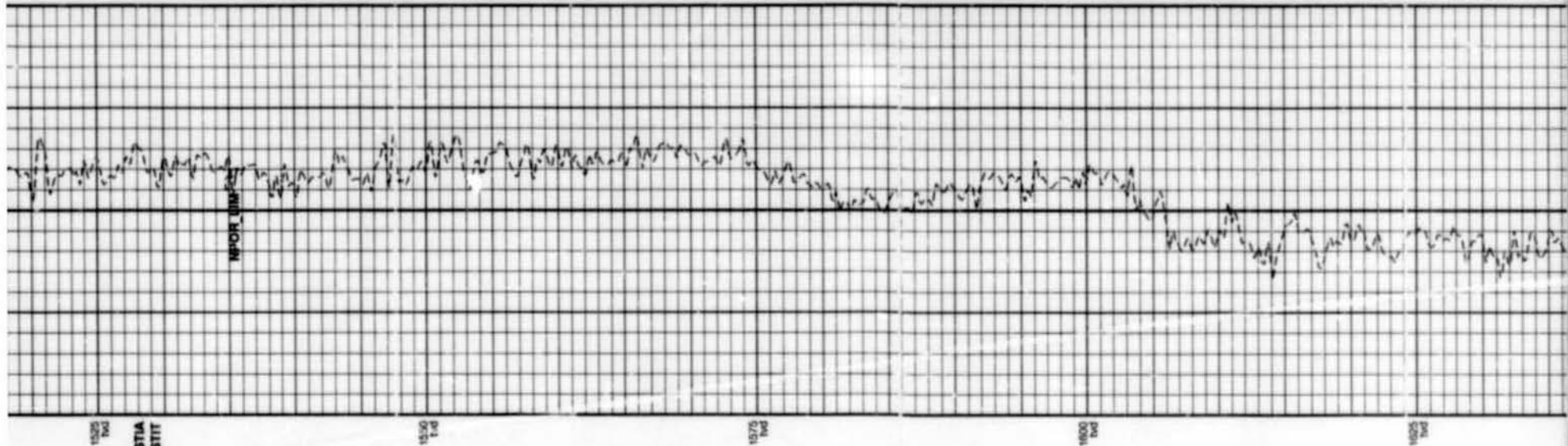
ST4
STT

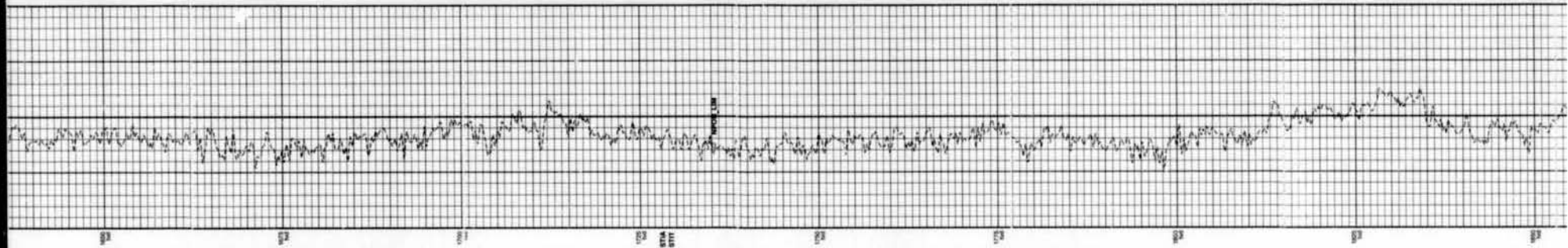


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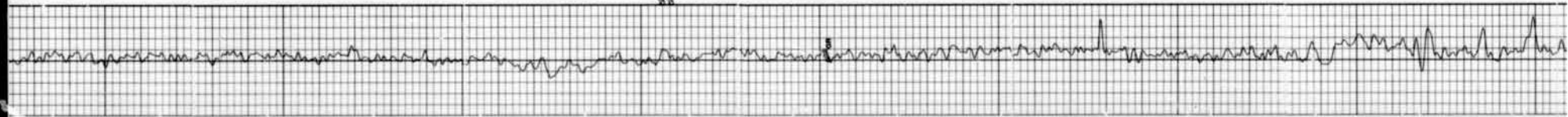


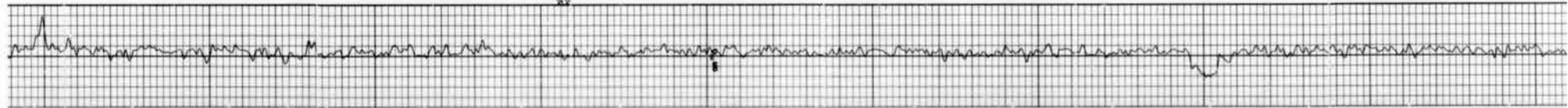
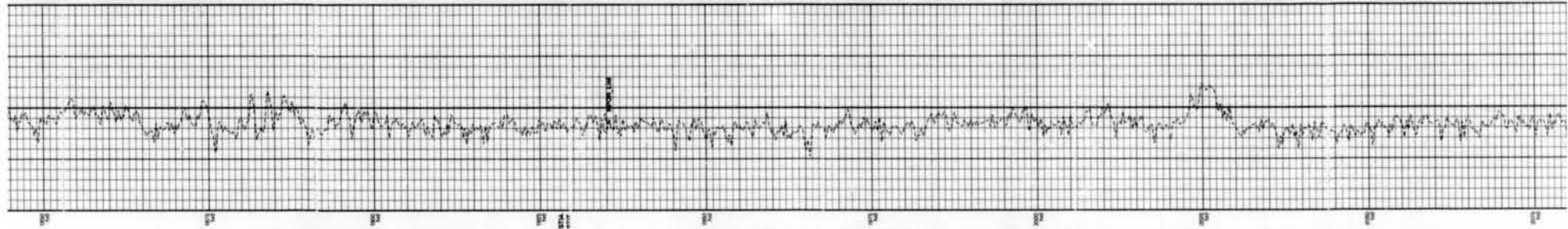


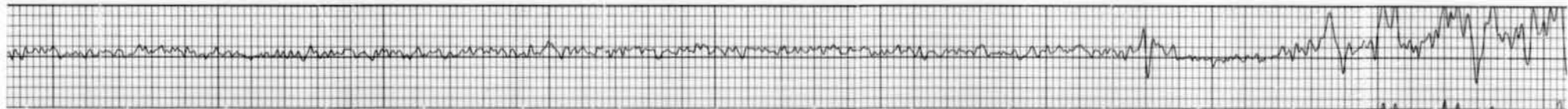
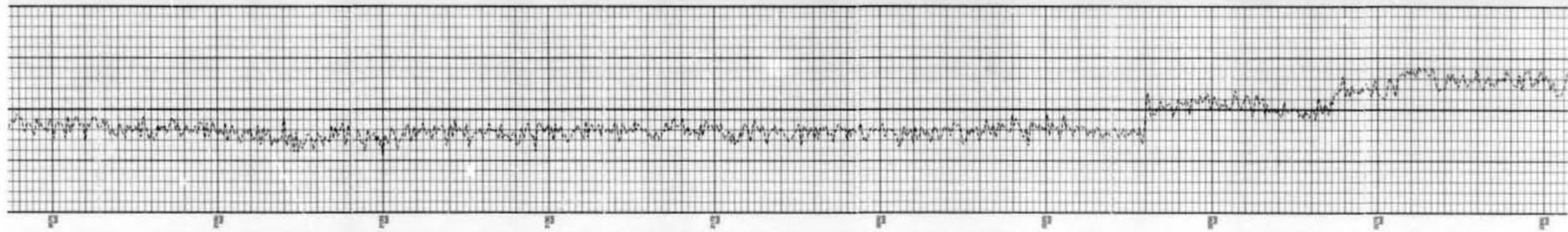


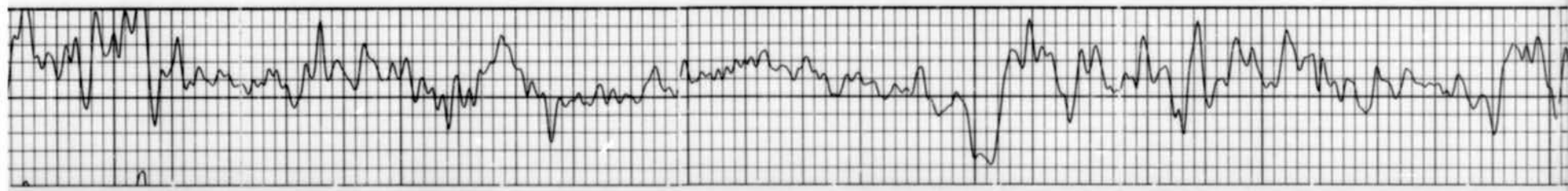
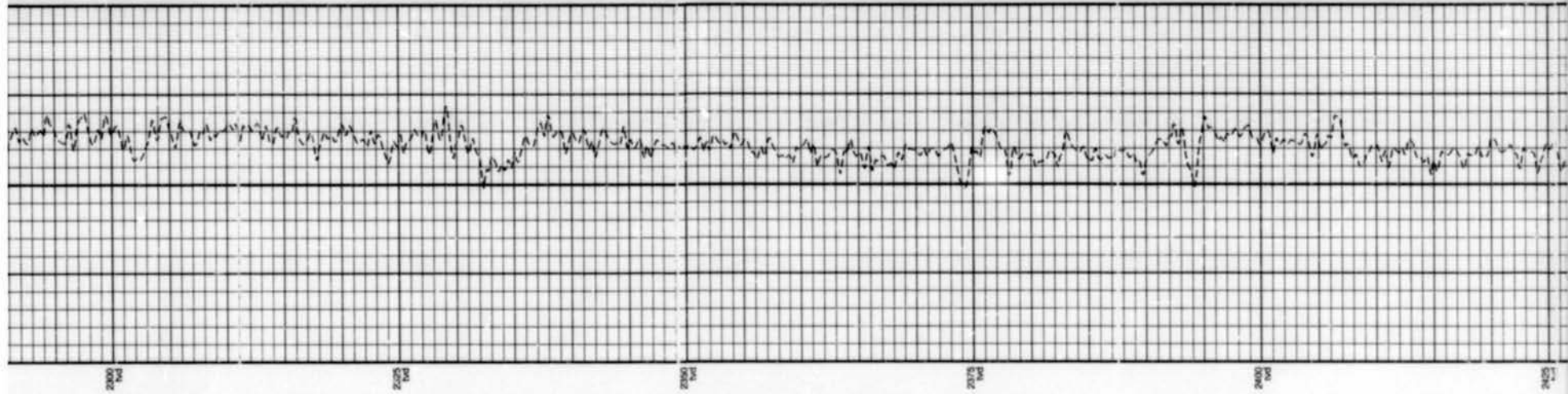
ST4
ST11

WAVE LM









STEP 1: Initial Setup
STEP 2: Data Collection
STEP 3: Data Processing
STEP 4: Data Analysis
STEP 5: Data Reporting

OP System Version: 11CO-305
MCS
11CO-305
11CO-305
11CO-305

Input DLS Files
Output DLS Files
11CO-305
11CO-305
11CO-305

Input DLS Files
Output DLS Files
11CO-305
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11CO-305

Integrated Hole/Cement Volume Summary
11CO-305
11CO-305
11CO-305

OP System Version: 11CO-305
MCS
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Time Mark Every 0.5
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Time Mark Every 0.5
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Directional Survey Manually-Entered Inclineretry Summary

The In Point : Measured Depth True Vertical Depth North Departure East Departure

-753.29 M

1232.72 M

2486.38 M

3205.18 M

Depth	Deviation	Azimuth	True Vertical Depth	North Departure	East Departure
0.00 M	0.00 DEG	0.00 DEG	0.27 M	-0.34 M	1.03 M
94.50 M	1.05 DEG	296.50 DEG	94.76 M	0.30 M	0.48 M
179.00 M	0.38 DEG	312.20 DEG	179.25 M	0.80 M	-0.31 M
265.50 M	1.35 DEG	334.50 DEG	265.75 M	3.15 M	-0.89 M
294.67 M	2.83 DEG	355.50 DEG	294.64 M	3.16 M	-0.95 M
313.20 M	5.03 DEG	348.20 DEG	312.38 M	4.42 M	-1.14 M
322.80 M	5.15 DEG	348.90 DEG	322.73 M	5.32 M	-1.24 M
341.80 M	8.04 DEG	344.10 DEG	341.88 M	7.63 M	-1.84 M
360.80 M	9.34 DEG	337.60 DEG	360.07 M	10.31 M	-2.86 M
379.80 M	9.53 DEG	336.00 DEG	379.63 M	11.84 M	-3.52 M
398.80 M	10.93 DEG	334.00 DEG	398.77 M	14.60 M	-4.69 M
418.10 M	11.63 DEG	332.70 DEG	400.05 M	16.40 M	-6.04 M
438.70 M	12.38 DEG	330.30 DEG	415.44 M	20.18 M	-7.58 M
458.70 M	13.73 DEG	331.80 DEG	426.85 M	22.82 M	-8.84 M
482.20 M	16.58 DEG	332.70 DEG	454.80 M	26.19 M	-11.90 M
488.90 M	18.03 DEG	330.30 DEG	487.48 M	30.73 M	-13.29 M
508.90 M	19.79 DEG	331.40 DEG	481.19 M	35.85 M	-16.12 M
524.30 M	21.15 DEG	333.00 DEG	498.29 M	41.81 M	-18.25 M
543.80 M	22.60 DEG	333.55 DEG	508.10 M	44.98 M	-20.84 M
562.80 M	24.98 DEG	331.30 DEG	525.49 M	51.72 M	-24.38 M
582.10 M	25.62 DEG	327.30 DEG	542.94 M	58.82 M	-28.58 M
592.00 M	26.53 DEG	328.20 DEG	551.84 M	62.80 M	-30.89 M
590.90 M	26.83 DEG	328.50 DEG	558.60 M	65.93 M	-35.47 M
608.80 M	29.63 DEG	330.10 DEG	585.12 M	77.83 M	-40.18 M
628.80 M	30.50 DEG	330.50 DEG	603.84 M	82.27 M	-42.89 M
629.60 M	30.50 DEG	331.30 DEG	610.60 M	83.79 M	-47.71 M
648.60 M	34.83 DEG	330.30 DEG	638.38 M	100.64 M	-104.91 M
668.80 M	35.38 DEG	330.30 DEG	654.73 M	105.82 M	-112.84 M
688.70 M	37.30 DEG	330.50 DEG	668.47 M	125.87 M	-146.68 M
715.30 M	38.18 DEG	329.80 DEG	680.08 M	135.12 M	-160.08 M
740.30 M	36.85 DEG	331.40 DEG	702.95 M	151.08 M	-172.73 M
772.80 M	33.17 DEG	333.80 DEG	726.85 M	165.32 M	-184.28 M
811.40 M	30.54 DEG	332.50 DEG	766.01 M	178.21 M	-194.54 M
825.00 M	28.94 DEG	332.50 DEG	793.20 M	211.79 M	-212.84 M
850.60 M	27.81 DEG	333.10 DEG	815.90 M	215.82 M	-214.50 M
868.03 M	26.02 DEG	332.80 DEG	827.37 M	233.37 M	-237.58 M
908.21 M	38.38 DEG	332.80 DEG	844.81 M	251.46 M	-222.83 M
927.10 M	39.38 DEG	331.80 DEG	861.20 M	258.59 M	-229.07 M
936.80 M	39.80 DEG	331.70 DEG	868.47 M	264.11 M	-239.59 M
955.70 M	30.80 DEG	332.40 DEG	882.04 M	292.48 M	-134.17 M
971.50 M	31.21 DEG	331.40 DEG	892.04 M	298.99 M	-134.80 M
984.10 M	31.22 DEG	328.80 DEG	910.20 M	319.95 M	-174.41 M
1003.17 M	31.45 DEG	330.50 DEG	926.46 M	328.91 M	-180.45 M
1022.79 M	32.15 DEG	329.60 DEG	943.09 M	339.63 M	-188.66 M
1031.81 M	32.17 DEG	329.30 DEG	950.63 M	350.80 M	-198.58 M
1050.81 M	33.40 DEG	329.10 DEG	968.82 M	367.42 M	-194.28 M
1060.70 M	33.84 DEG	327.40 DEG	985.44 M	394.46 M	-159.85 M
1079.32 M	34.58 DEG	327.10 DEG	995.44 M	395.89 M	-162.80 M
1088.34 M	37.83 DEG	329.60 DEG	1126.18 M	419.28 M	-224.23 M
1108.51 M	37.86 DEG	328.30 DEG	1158.10 M	459.38 M	-240.82 M
1117.22 M	37.61 DEG	328.20 DEG	1200.30 M	488.70 M	-258.85 M
1138.80 M	38.58 DEG	328.80 DEG	1235.79 M	508.11 M	-275.56 M
1154.82 M	38.63 DEG	327.80 DEG	1260.58 M	524.52 M	-287.45 M
1183.18 M	37.33 DEG	335.50 DEG	1305.93 M	537.78 M	-315.19 M
1192.35 M	37.45 DEG	329.50 DEG	1321.87 M	552.15 M	-322.79 M
1205.19 M	37.48 DEG	329.40 DEG	1337.77 M	562.18 M	-332.07 M
1268.02 M	37.83 DEG	329.60 DEG	1402.48 M	611.34 M	-342.86 M
1308.51 M	37.86 DEG	328.30 DEG	1432.59 M	622.05 M	-348.29 M
1344.80 M	37.73 DEG	328.40 DEG	1460.35 M	641.81 M	-354.43 M
1362.39 M	36.68 DEG	327.80 DEG	1511.24 M	661.35 M	-371.34 M
1401.31 M	37.50 DEG	329.20 DEG	1558.43 M	671.23 M	-377.56 M
1424.50 M	36.49 DEG	335.20 DEG	1586.47 M	690.79 M	-397.14 M
1477.50 M	36.83 DEG	330.30 DEG	1616.51 M	716.74 M	-407.44 M
1486.41 M	36.88 DEG	329.60 DEG	1632.18 M	728.83 M	-407.14 M
1524.36 M	37.85 DEG	330.80 DEG	1682.99 M	740.88 M	-417.45 M
1602.29 M	36.85 DEG	334.20 DEG	1683.13 M	761.50 M	-427.28 M
1679.39 M	37.85 DEG	334.30 DEG	1708.14 M	772.03 M	-432.38 M
1697.31 M	38.15 DEG	335.70 DEG	1736.02 M	783.19 M	-442.22 M
2053.33 M	38.63 DEG	332.80 DEG	1767.74 M	814.54 M	-452.53 M
2074.38 M	38.83 DEG	331.80 DEG	1782.58 M	825.14 M	-458.09 M
2113.36 M	38.73 DEG	328.50 DEG	1812.17 M	845.77 M	-468.83 M
2162.04 M	38.38 DEG	330.80 DEG	1843.22 M	867.67 M	-482.46 M
2188.88 M	38.65 DEG	329.20 DEG	1857.25 M	879.60 M	-487.88 M
2298.54 M	37.58 DEG	329.20 DEG	1888.18 M	891.23 M	-500.27 M
2347.04 M	37.65 DEG	331.80 DEG	1918.31 M	917.31 M	-517.82 M
2393.99 M	37.49 DEG	328.80 DEG	1933.58 M	927.34 M	-517.56 M
2394.09 M	37.49 DEG	328.50 DEG	1948.42 M	937.02 M	-523.53 M
2394.09 M	37.49 DEG	328.50 DEG	1963.33 M	946.77 M	-529.38 M
2394.09 M	37.49 DEG	328.50 DEG	1984.33 M	946.28 M	-536.87 M
2394.09 M	37.49 DEG	328.50 DEG	2008.57 M	976.22 M	-546.19 M
2394.09 M	37.49 DEG	328.50 DEG	2040.82 M	996.57 M	-557.56 M
2427.93 M	36.80 DEG	331.00 DEG	2040.82 M	1016.48 M	-564.04 M
2427.93 M	36.80 DEG	331.00 DEG	2071.26 M	1028.40 M	-573.13 M
2458.00 M	36.30 DEG	332.40 DEG	2086.74 M	1038.40 M	-583.74 M
2458.00 M	36.30 DEG	332.40 DEG	2117.33 M	1048.54 M	-583.85 M
2458.00 M	36.30 DEG	332.40 DEG	2147.31 M	1068.80 M	-584.31 M
2458.00 M	36.30 DEG	332.40 DEG	2162.81 M	1076.51 M	-600.22 M
2458.00 M	36.30 DEG	332.40 DEG	2191.72 M	1095.67 M	-610.76 M
2458.00 M	36.30 DEG	332.40 DEG	2222.81 M	1116.57 M	-622.01 M
2458.00 M	36.30 DEG	332.40 DEG	2237.79 M	1126.00 M	-629.90 M
2458.00 M	36.30 DEG	332.40 DEG	2267.22 M	1147.09 M	-636.97 M
2458.00 M	36.30 DEG	332.40 DEG	2299.20 M	1168.54 M	-652.42 M
2458.00 M	36.30 DEG	332.40 DEG	2313.81 M	1188.54 M	-660.15 M
2458.00 M	36.30 DEG	332.40 DEG	2343.88 M	1197.02 M	-674.16 M
2458.00 M	36.30 DEG	332.40 DEG	2351.50 M	1201.70 M	-677.53 M
2458.00 M	36.30 DEG	332.40 DEG	2368.35 M	1211.27 M	-684.97 M
2458.00 M	36.30 DEG	332.40 DEG	2381.25 M	1226.70 M	-686.38 M
2458.00 M	36.30 DEG	332.40 DEG	2398.65 M	1238.74 M	-683.74 M
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2458.00 M	36.30 DEG	332.40 DEG	2415.17 M	1245.06 M	-705.00 M
2458.00 M	36.30 DEG	332.40 DEG	2421.76 M	1250.33 M	-706.14 M
2458.00 M	36.30 DEG	332.40 DEG	2427.93 M	1261.81 M	-711.63 M
2458.00 M	36.30 DEG	332.40 DEG	2435.46 M	1267.64 M	-717.88 M
2458.00 M	36.30 DEG	332.40 DEG	2447.81 M	1273.36 M	-729.89 M
2458.00 M	36.30 DEG	332.40 DEG	2458.53 M	1280.98 M	-734.26 M
2458.00 M	36.30 DEG	332.40 DEG	2468.40 M	1292.83 M	-750.79 M
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2458.00 M	36.30 DEG	332.40 DEG	2478.43 M	1308.20 M	-757.89 M
2458.00 M	36.30 DEG	332.40 DEG	2483.73 M	1315.20 M	-761.87 M
2458.00 M	36.30 DEG	332.40 DEG	2484.26 M	1320.80 M	-760.21 M
2458.00 M	36.30 DEG	332.40 DEG	2488.39 M	1333.12 M	-763.26 M
2458.00 M	36.30 DEG	332.40 DEG	2504.37 M	1340.55 M	-767.43 M

3024.00 M	60.20 DEG	329.30 DEG	2508.15 M	1347.81 M	-761.57 M
3033.50 M	61.60 DEG	330.00 DEG	2513.77 M	1354.77 M	-765.77 M
3043.00 M	62.80 DEG	330.80 DEG	2518.20 M	1362.08 M	-769.92 M
3052.80 M	63.80 DEG	330.30 DEG	2522.51 M	1369.55 M	-774.13 M
3058.70 M	65.00 DEG	331.60 DEG	2525.58 M	1375.14 M	-777.24 M
3075.29 M	65.68 DEG	330.80 DEG	2532.08 M	1387.56 M	-784.07 M
3082.00 M	66.82 DEG	329.87 DEG	2534.78 M	1392.90 M	-787.10 M
3091.06 M	67.13 DEG	330.42 DEG	2538.33 M	1400.13 M	-791.25 M
3100.50 M	67.07 DEG	330.74 DEG	2542.00 M	1407.71 M	-795.52 M
3110.24 M	67.55 DEG	331.02 DEG	2545.74 M	1415.57 M	-799.90 M
3120.12 M	67.55 DEG	332.07 DEG	2549.49 M	1423.60 M	-804.25 M
3129.67 M	67.12 DEG	333.47 DEG	2553.17 M	1431.44 M	-808.28 M
3139.55 M	67.82 DEG	333.19 DEG	2556.95 M	1439.59 M	-812.38 M
3149.09 M	68.65 DEG	335.06 DEG	2560.49 M	1447.58 M	-816.25 M
3158.87 M	69.83 DEG	333.25 DEG	2563.96 M	1455.79 M	-820.23 M
3168.73 M	71.43 DEG	333.97 DEG	2567.23 M	1464.13 M	-824.37 M
3178.35 M	71.87 DEG	336.82 DEG	2570.26 M	1472.43 M	-828.17 M
3187.85 M	73.53 DEG	337.70 DEG	2573.11 M	1480.88 M	-831.71 M
3187.62 M	74.45 DEG	337.77 DEG	2575.78 M	1489.48 M	-835.23 M
3206.99 M	74.93 DEG	336.92 DEG	2578.25 M	1497.88 M	-838.57 M
3216.44 M	75.78 DEG	336.54 DEG	2580.64 M	1506.43 M	-841.81 M
3226.18 M	76.48 DEG	340.78 DEG	2582.98 M	1515.32 M	-845.02 M
3236.44 M	77.74 DEG	342.00 DEG	2585.27 M	1524.80 M	-848.22 M
3246.20 M	78.58 DEG	342.22 DEG	2587.27 M	1533.89 M	-851.15 M
3255.99 M	79.25 DEG	343.52 DEG	2589.15 M	1543.07 M	-853.98 M
3265.61 M	79.88 DEG	345.09 DEG	2590.89 M	1552.18 M	-856.54 M
3275.45 M	80.65 DEG	345.04 DEG	2592.58 M	1561.55 M	-859.04 M
3285.29 M	81.93 DEG	345.47 DEG	2594.05 M	1570.96 M	-861.51 M
3295.00 M	82.38 DEG	346.14 DEG	2595.37 M	1580.28 M	-863.87 M
3304.80 M	82.40 DEG	346.64 DEG	2596.68 M	1589.60 M	-866.18 M
3314.60 M	82.35 DEG	346.10 DEG	2597.97 M	1599.16 M	-868.45 M
3324.00 M	83.58 DEG	348.35 DEG	2599.12 M	1608.26 M	-870.51 M
3333.96 M	84.18 DEG	350.37 DEG	2600.18 M	1617.99 M	-872.34 M
3343.72 M	84.20 DEG	352.87 DEG	2601.17 M	1627.59 M	-873.77 M
3353.50 M	84.30 DEG	354.85 DEG	2602.15 M	1637.27 M	-874.83 M
3363.00 M	83.35 DEG	355.17 DEG	2603.17 M	1646.68 M	-875.65 M
3372.42 M	84.65 DEG	354.45 DEG	2604.16 M	1656.01 M	-876.50 M
3381.93 M	84.58 DEG	358.15 DEG	2605.93 M	1665.71 M	-877.38 M
3391.20 M	84.93 DEG	355.17 DEG	2607.93 M	1675.37 M	-878.11 M
3401.30 M	84.45 DEG	358.42 DEG	2609.83 M	1684.68 M	-878.55 M
3410.96 M	84.53 DEG	358.47 DEG	2607.76 M	1694.30 M	-878.81 M
3421.27 M	84.43 DEG	359.47 DEG	2608.75 M	1704.56 M	-879.00 M
3431.06 M	85.05 DEG	359.97 DEG	2609.95 M	1714.31 M	-879.05 M
3440.74 M	84.43 DEG	358.99 DEG	2610.53 M	1723.66 M	-879.17 M
3450.49 M	85.75 DEG	357.84 DEG	2611.37 M	1733.66 M	-879.47 M
3460.23 M	84.25 DEG	357.67 DEG	2612.22 M	1743.35 M	-879.85 M
3469.94 M	84.10 DEG	358.47 DEG	2613.20 M	1753.00 M	-880.17 M
3479.76 M	85.00 DEG	357.07 DEG	2614.14 M	1762.77 M	-880.55 M
3489.53 M	86.10 DEG	358.89 DEG	2614.89 M	1772.51 M	-880.90 M
3499.30 M	85.97 DEG	359.16 DEG	2615.57 M	1782.25 M	-881.06 M
3509.04 M	83.22 DEG	0.17 DEG	2616.48 M	1791.85 M	-881.11 M
3518.73 M	84.50 DEG	0.47 DEG	2617.52 M	1801.58 M	-881.06 M
3528.60 M	86.60 DEG	0.17 DEG	2618.37 M	1812.42 M	-881.00 M
3538.23 M	88.35 DEG	0.74 DEG	2618.75 M	1821.04 M	-880.93 M
3548.01 M	86.10 DEG	1.44 DEG	2618.97 M	1830.81 M	-880.75 M
3557.75 M	86.28 DEG	1.32 DEG	2619.19 M	1840.55 M	-880.51 M
3567.40 M	86.70 DEG	359.10 DEG	2619.36 M	1850.20 M	-880.48 M
3575.57 M	90.40 DEG	354.77 DEG	2619.35 M	1858.35 M	-880.91 M
3584.38 M	91.15 DEG	352.57 DEG	2619.23 M	1867.11 M	-881.88 M
3598.00 M	92.00 DEG	349.00 DEG	2618.83 M	1881.53 M	-884.22 M

Company

CHEVRON CANADA RESOURCES LTD.

Well

CHEVRON et al LIARD 2K-29

Field

LIARD

Province

NORTHWEST TERRITORIES

PLATFORM EXPRESS

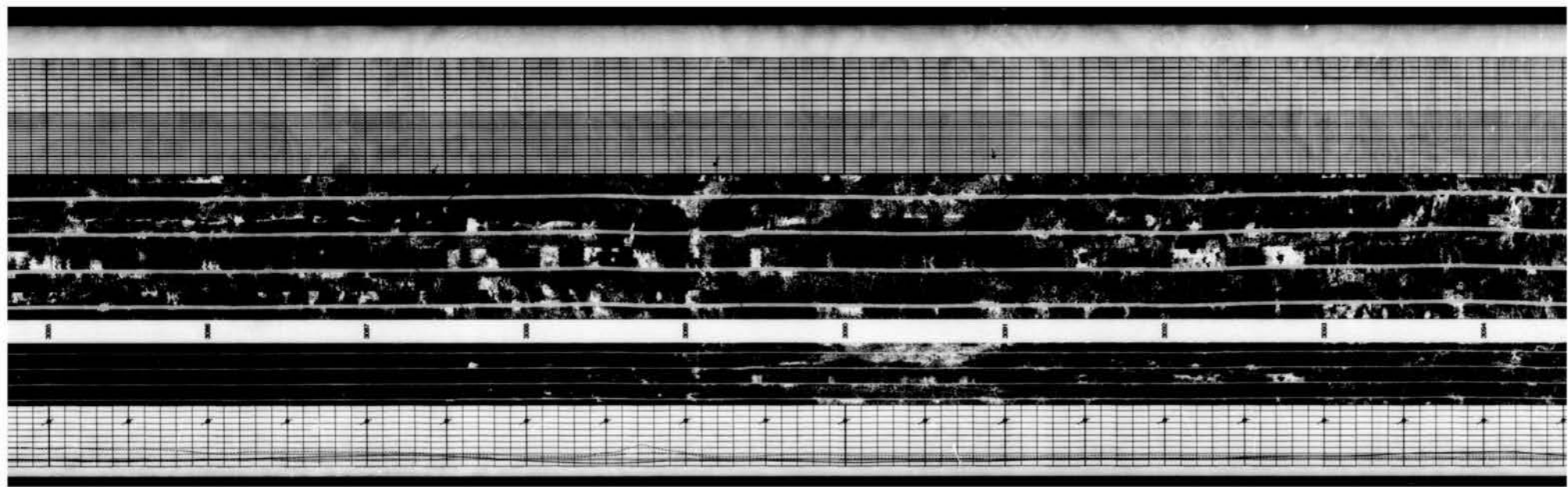
COMPENSATED NEUTRON

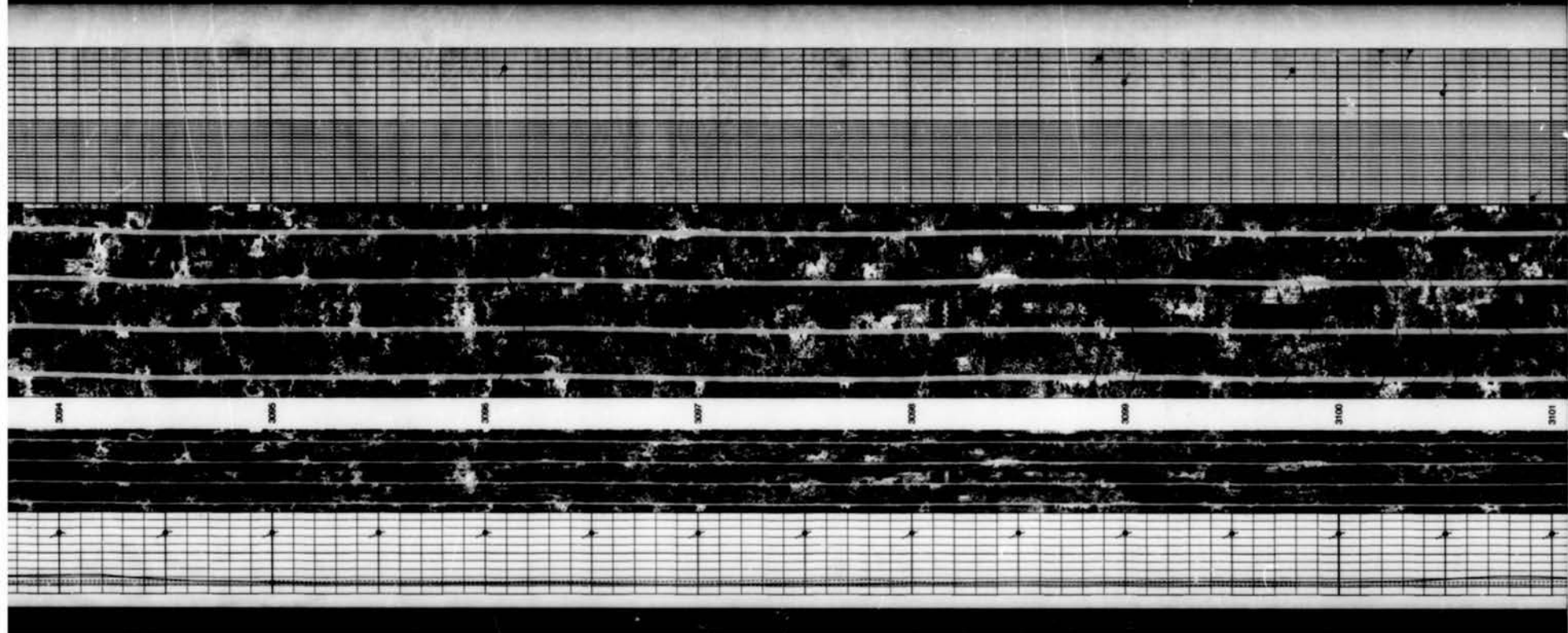
LITHODENSITY LOG

Schlumberger

TVD

COMPUTED





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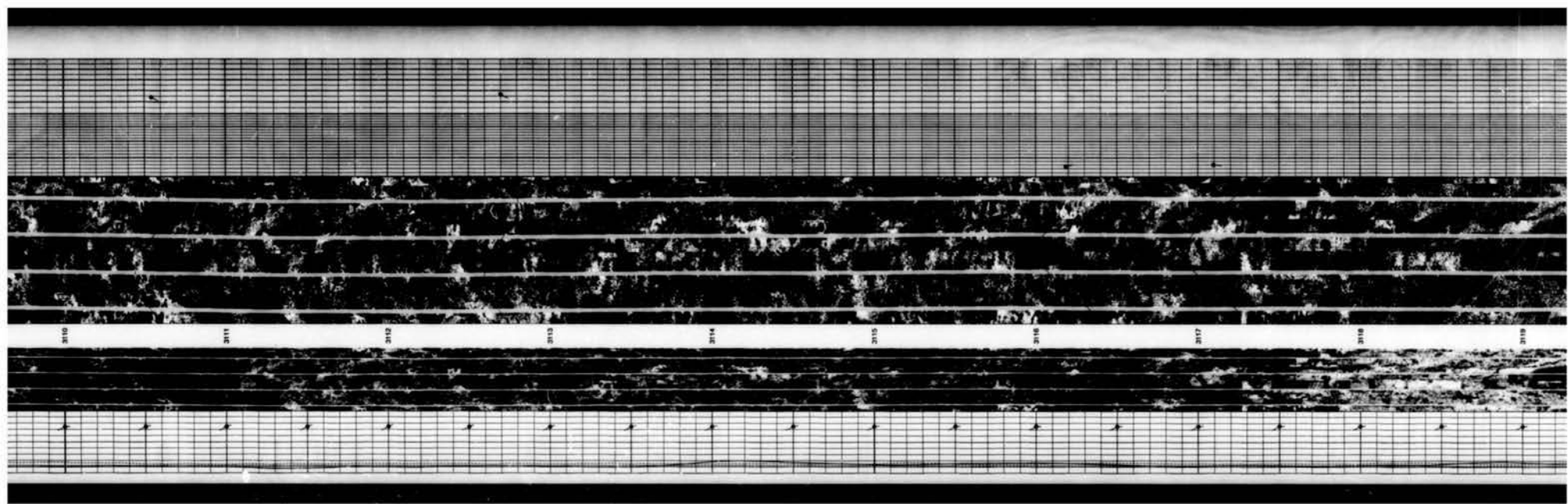
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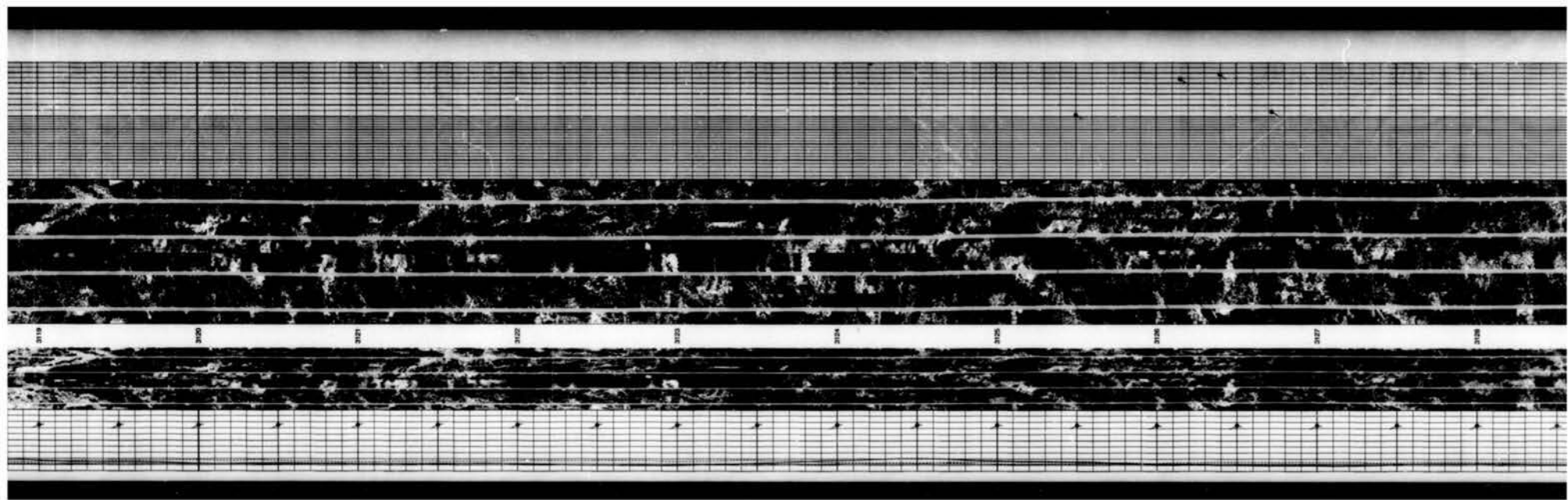
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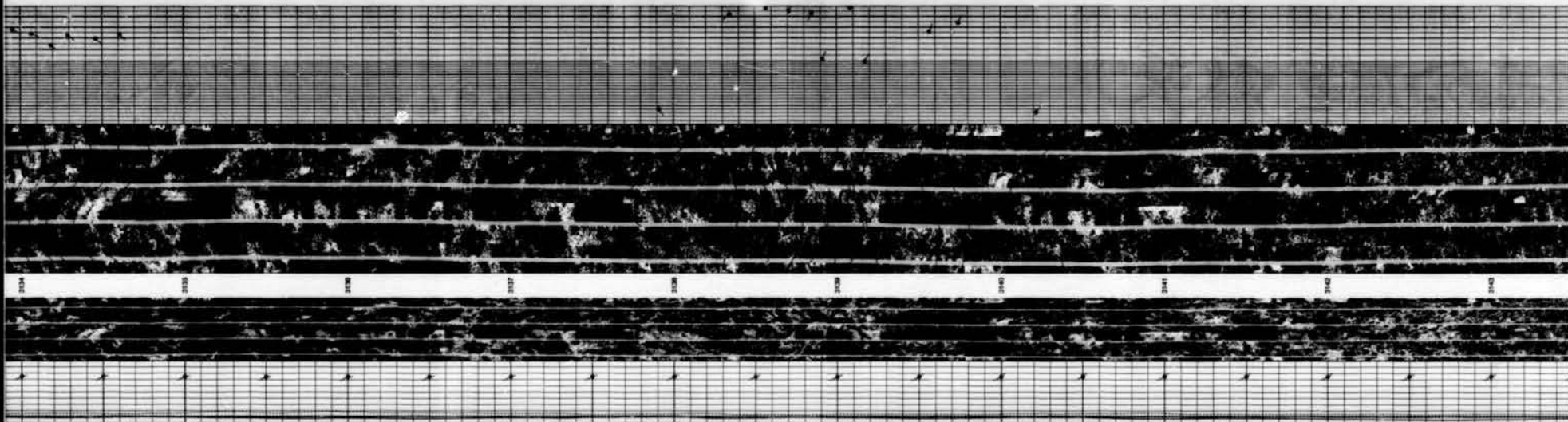
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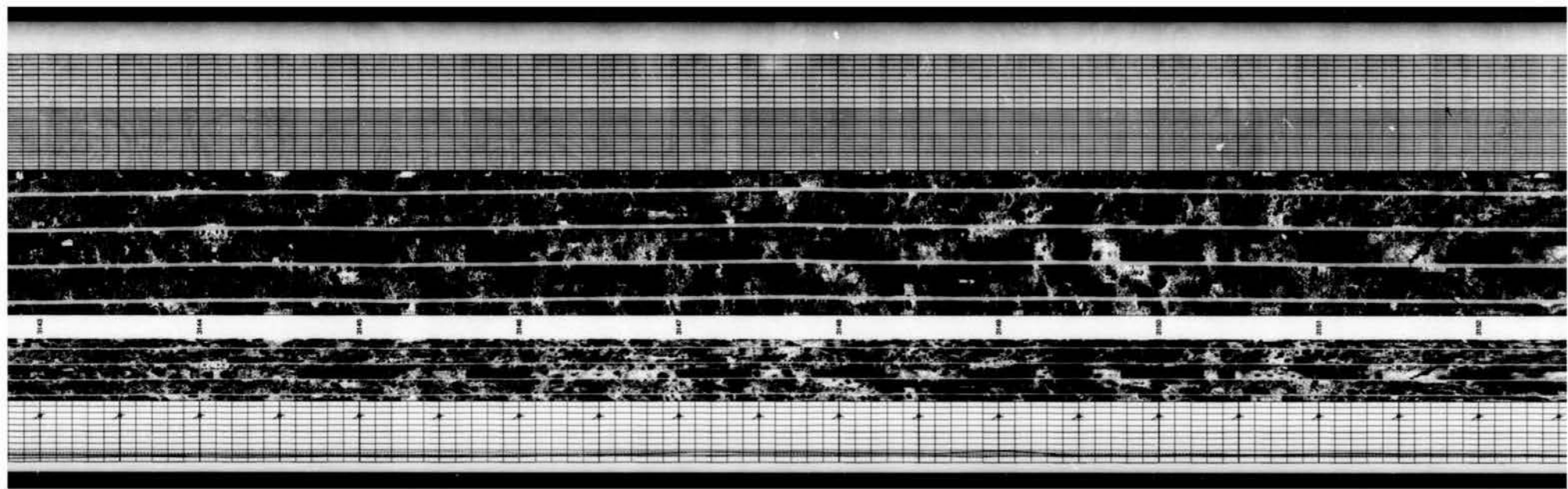
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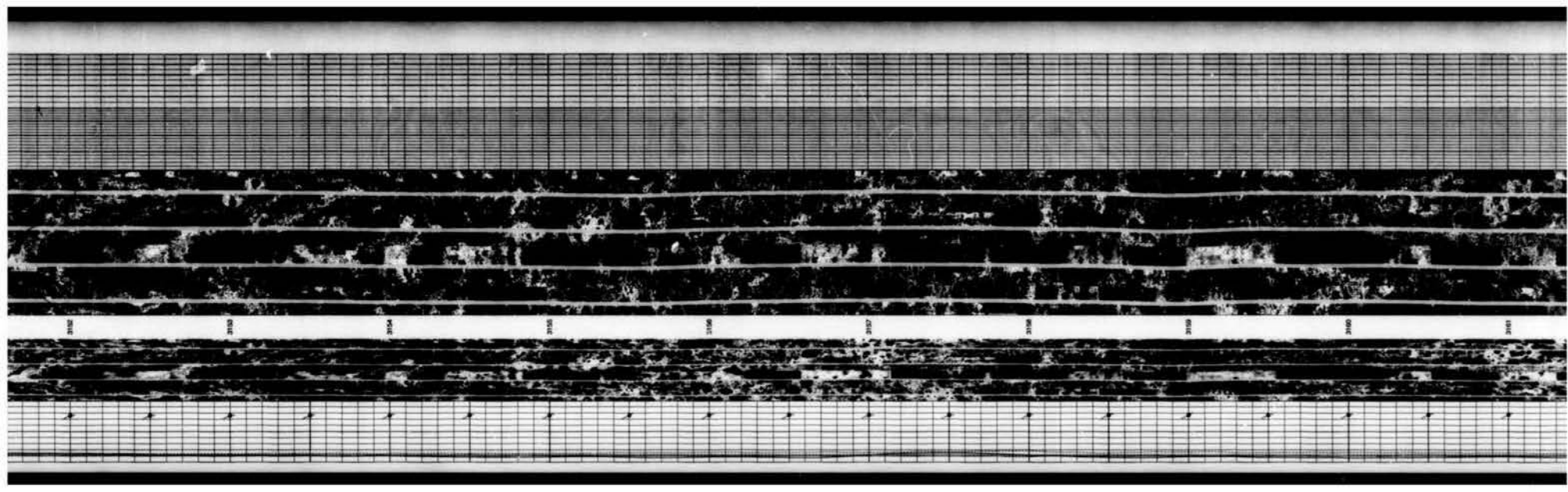
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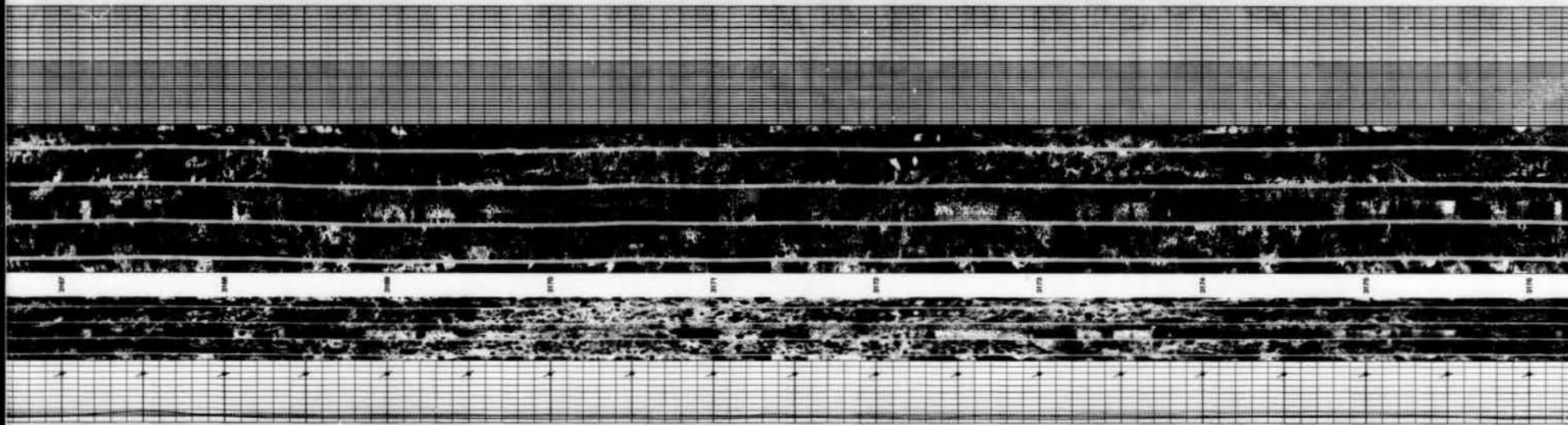
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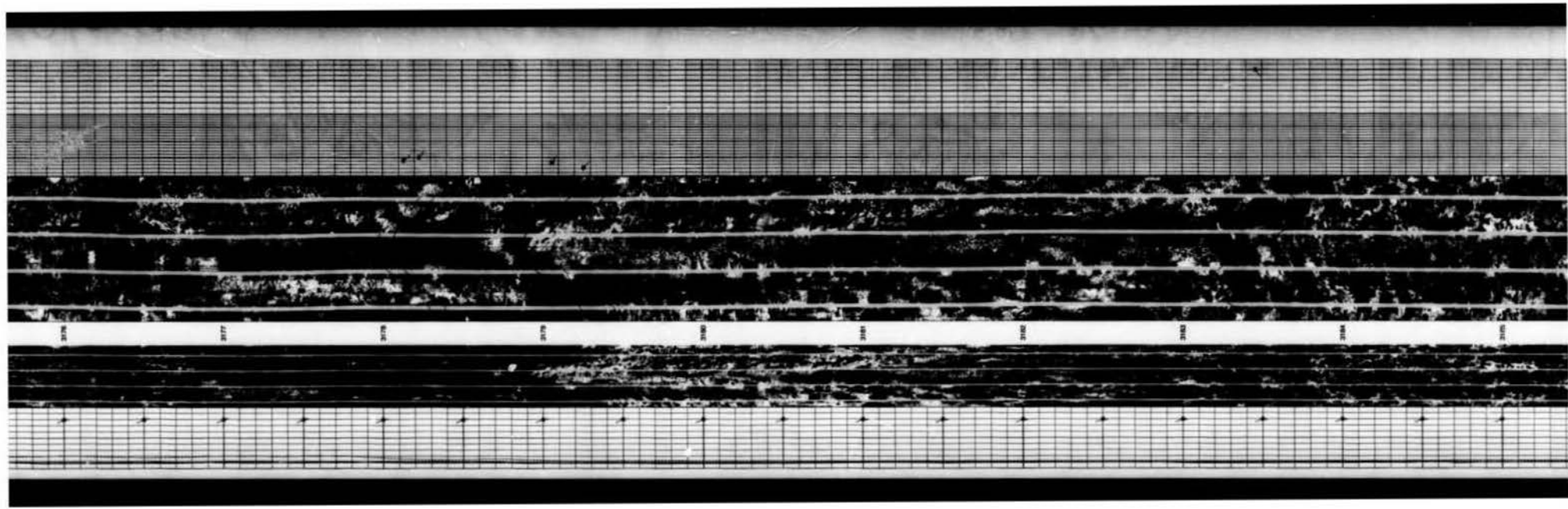
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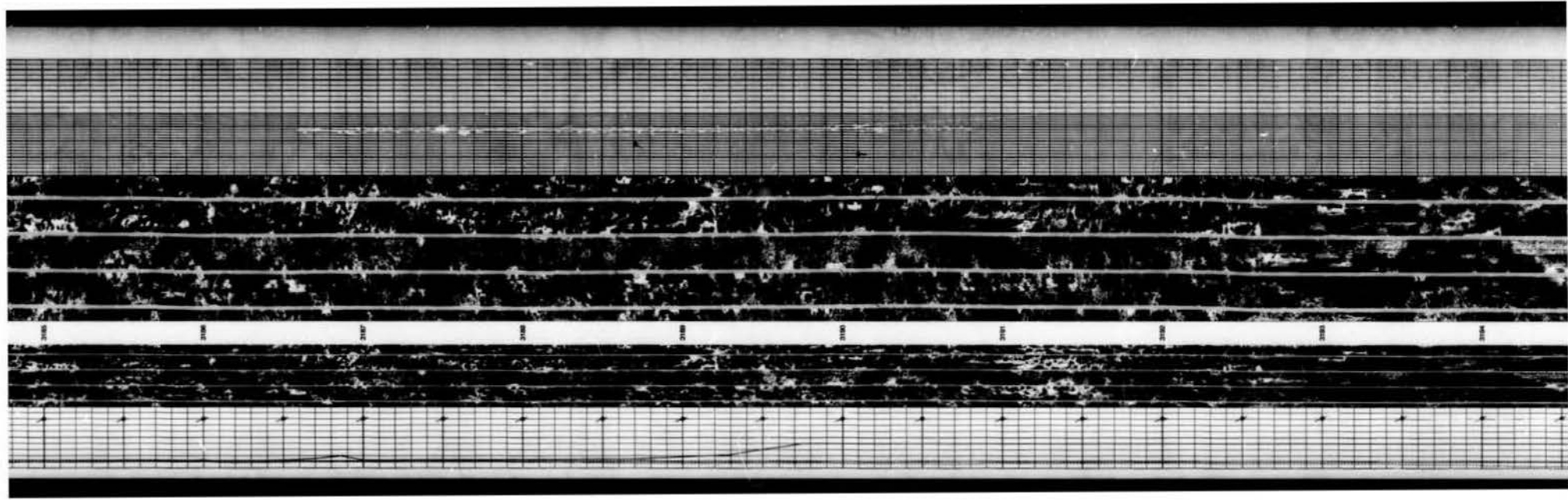
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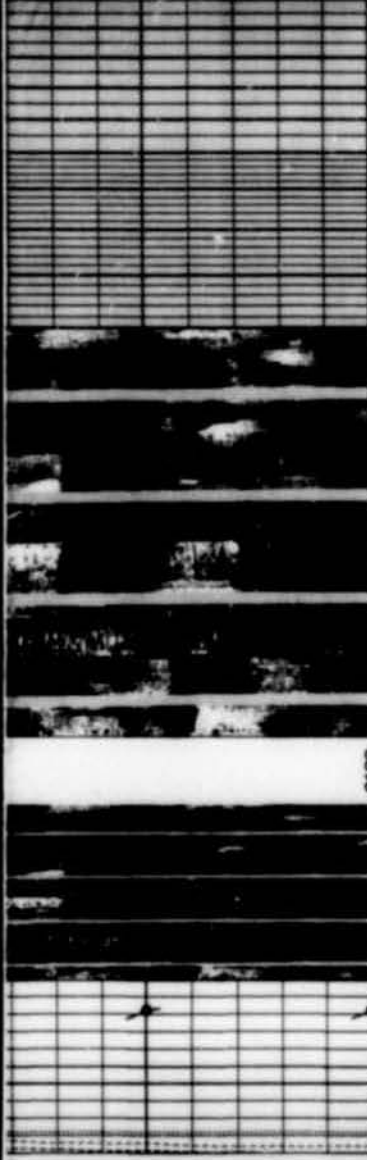


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3197



MD
1:10
m

CHL_002PUP.FMI_STA
Horizontal Scale: 1:12.8d
Orientation Top of Hole

GR
0 150
BS BASIC.FMI
125 (mm) 375

Partial Open Fracture(F)
(Binucoid)
Orientation Top of Hole

Tactiles
Borehole drift
0 Deg 90

C2
125 (mm) 375
C1
125 (mm) 375

Partial Open Fracture(F)
True Dip
(Deg)
0 90

Conductive Fracture (F)
(Binucoid)
Orientation Top of Hole
0 90
Bed Boundary(F)
True Dip
(Deg)
0 90
Conductive Fracture (F)
True Dip
(Deg)
0 90

FM_TLD_MQFL_CHL_002PUP.FMI_IDYNA [C0623559]
Horizontal Scale: 1:5.529
Orientation Top of Hole
0 120 240 360
Resistive FMI Image Conductive

**LEGIBILITY
OF LOG
COULD VARY
DUE TO
COLOR
CONTENT**

MISCELLANEOUS

NORTHWEST TERRITORIES									
Province: Field: Location: Well: Company: (Print Name and Well Number)									
UNIT: K, SECTION 29									
LOCATION									
TEMPERATURE LOG									
N.E.B. COPY									
UNIT: K, SECTION 29									
Latitude: N 60deg, 28 min, 40.8 sec									
Longitude: W 123 deg, 35 min, 5.3 sec									
Permanent Datum: GROUND LEVEL									
Log Measured From: KELLY BUSHING									
Drilling Measured From: KELLY BUSHING									
API Serial No. 1000									
Elev.: K.B. 416.6 m									
G.L. 409.9 m									
D.F. 416.3 m									
Elev.: 409.9 m									
6.7 m above Perm. Datum									
Logging Date: 19-Mar-2003									
Run Number: ONE									
Depth Driller: 3590 m									
Schlumberger Depth: 3200 m									
Bottom Log Interval: 3170 m									
Top Log Interval: 0 m									
Casing Driller Size @ Depth: 177.600 mm @ 3074 m									
Casing Schlumberger Size: 3074 m									
Bit Size: 156.000 mm									
Type Fluid In Hole: POLYMER									
Density: 1075 kg/m3									
Viscosity: 46 s									
Fluid Loss: 7.5 cm3									
FH: 0.5									
Source Of Sample: FLOWLINE									
RM @ Measured Temperature: 1.000 ohm.m @ 17 degC									
RMF @ Measured Temperature: 0.969 ohm.m @ 16 degC									
RMC @ Measured Temperature: 1.200 ohm.m @ 18 degC									
Source RMF: RMC									
RM @ MRT: 0.230 @ 144									
RMF @ MRT: 0.222 @ 144									
Maximum Recorded Temperature: 144 degC									
Circulation Stopped: 18-Mar-2003 2:30									
Logger On Bottom: 20-Mar-2003 2:00									
Unit Number: 2193									
Location: GRANDE PRAIRIE									
Recorded By: GREG STEWART									
Witnessed By: BROCK LILLICO									
Logging Date: 19-Mar-2003									
Run Number: ONE									
Depth Driller: 3590 m									
Schlumberger Depth: 3200 m									
Bottom Log Interval: 3170 m									
Top Log Interval: 0 m									
Casing Driller Size @ Depth: 177.600 mm @ 3074 m									
Casing Schlumberger Size: 3074 m									
Bit Size: 156.000 mm									
Type Fluid In Hole: POLYMER									
Density: 1075 kg/m3									
Viscosity: 46 s									
Fluid Loss: 7.5 cm3									
FH: 0.5									
Source Of Sample: FLOWLINE									
RM @ Measured Temperature: 1.000 ohm.m @ 17 degC									
RMF @ Measured Temperature: 0.969 ohm.m @ 16 degC									
RMC @ Measured Temperature: 1.200 ohm.m @ 18 degC									
Source RMF: RMC									
RM @ MRT: 0.230 @ 144									
RMF @ MRT: 0.222 @ 144									
Maximum Recorded Temperature: 144 degC									
Circulation Stopped: 18-Mar-2003 2:30									
Logger On Bottom: 20-Mar-2003 2:00									
Unit Number: 2193									
Location: GRANDE PRAIRIE									
Recorded By: GREG STEWART									
Witnessed By: BROCK LILLICO									
Run 1									
Run 2									
Run 3									
Run 4									
Run 5									
Run 6									
Run 7									
Run 8									
Run 9									
Run 10									
Run 11									
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Run 93									
Run 9									

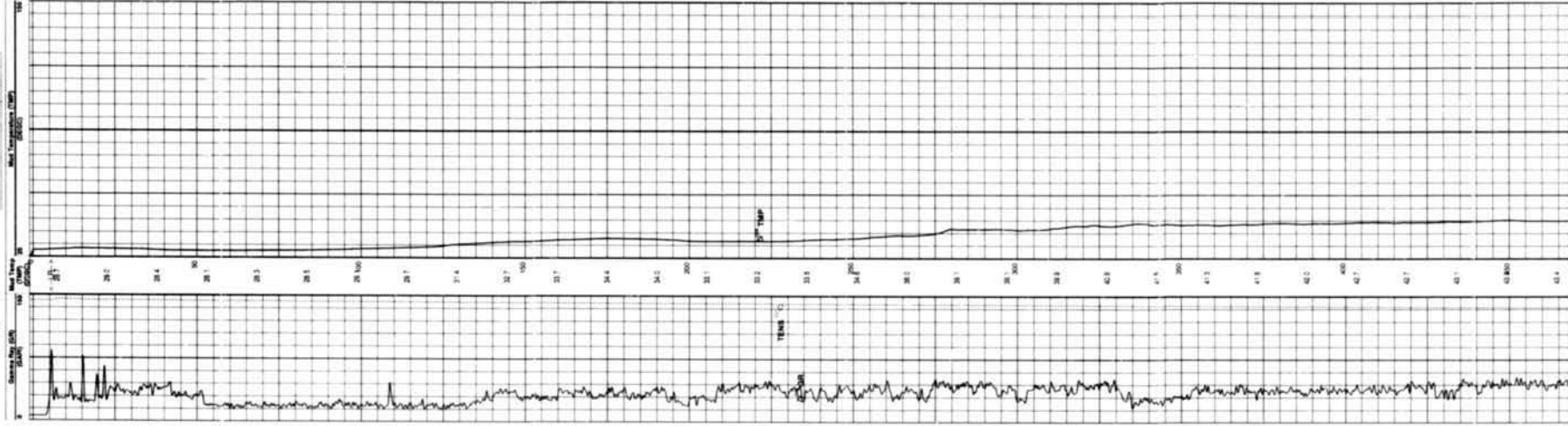
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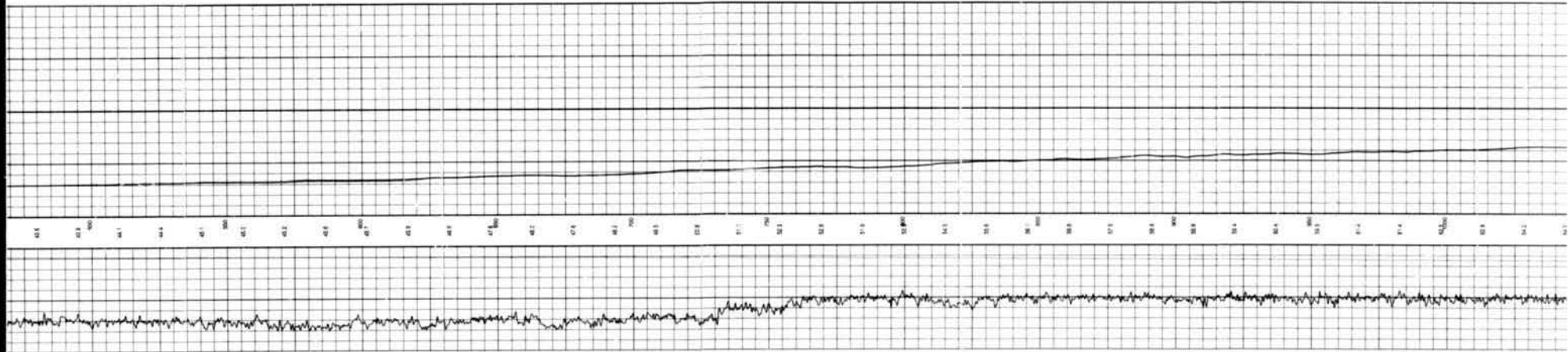
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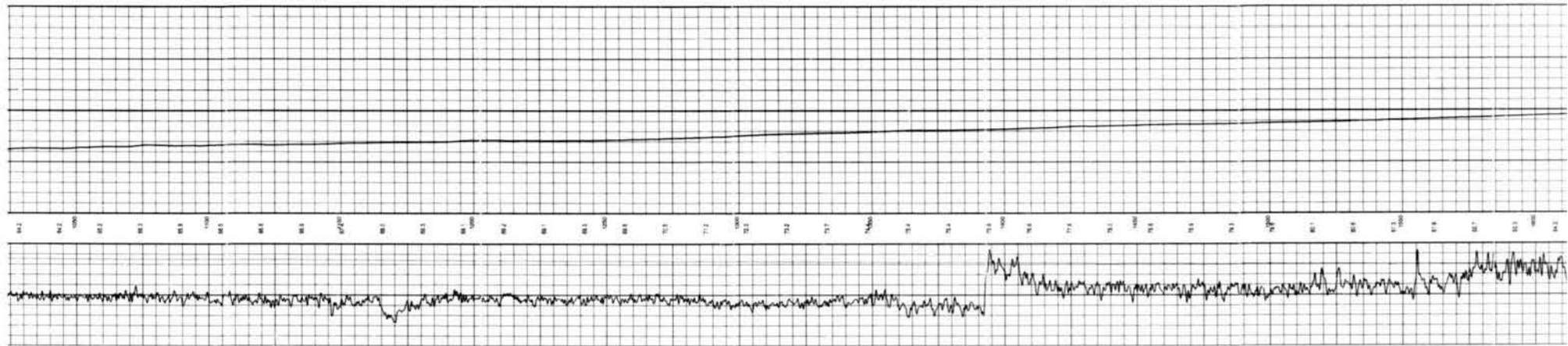
OP System Version: 11CO-305

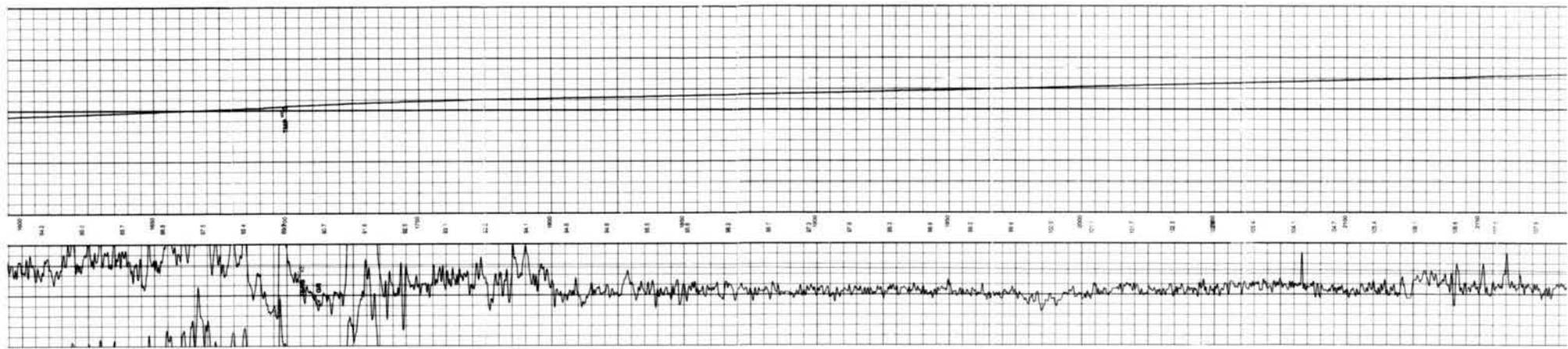
HEALTHY 11CO-305 11CO-305
DTC-H 11CO-305 11CO-305Tension (TENS)
20000 (N)

MUD TEMPERATURE LOG - IN CASINO

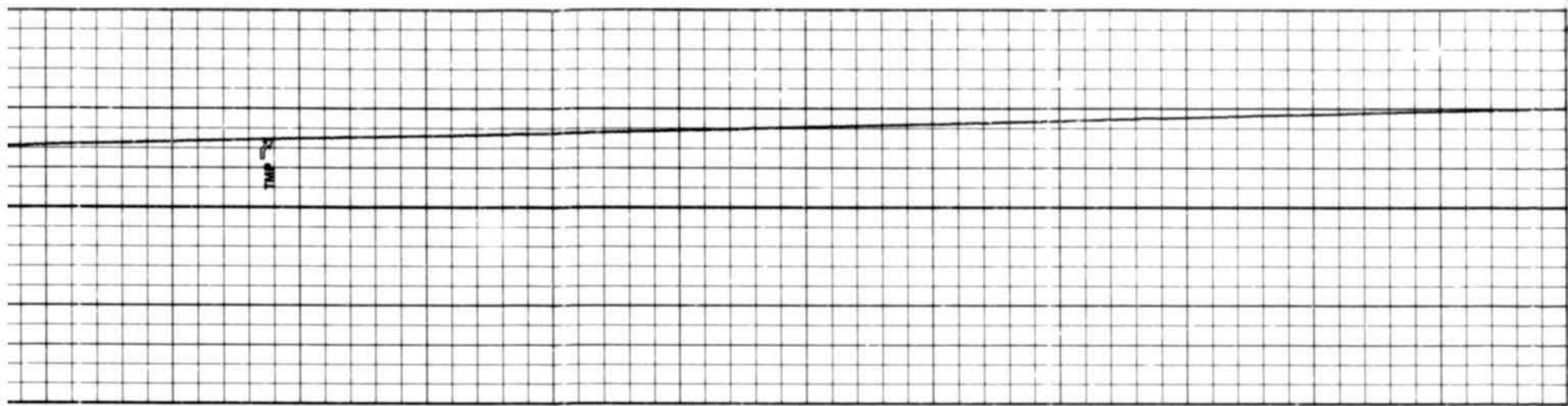
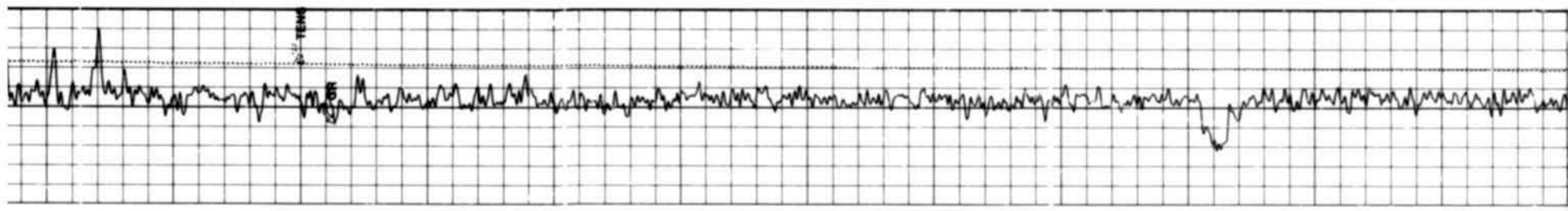


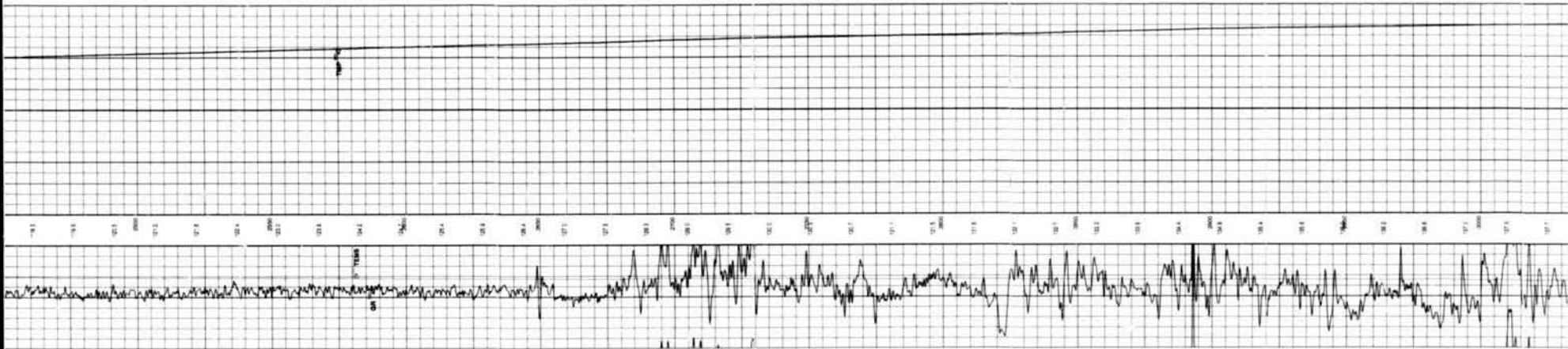






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Tension (TENS)
25000 (N)

RIGHT LOG ATTACHMENT

Gamma Ray (GR)
(GAPI)

MUD TEMP
(TEMP)
(DEGC)

Mud Temperature (TMP)
(DEGC)

MUD TEMPERATURE LOG

128.0

128.2

128.4

128.6

128.8

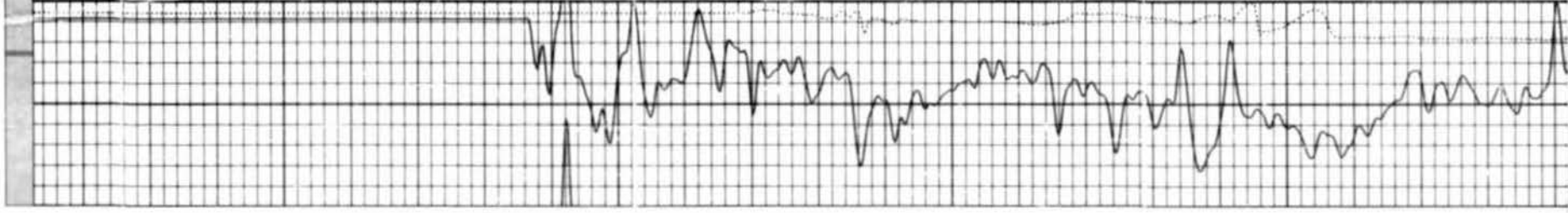
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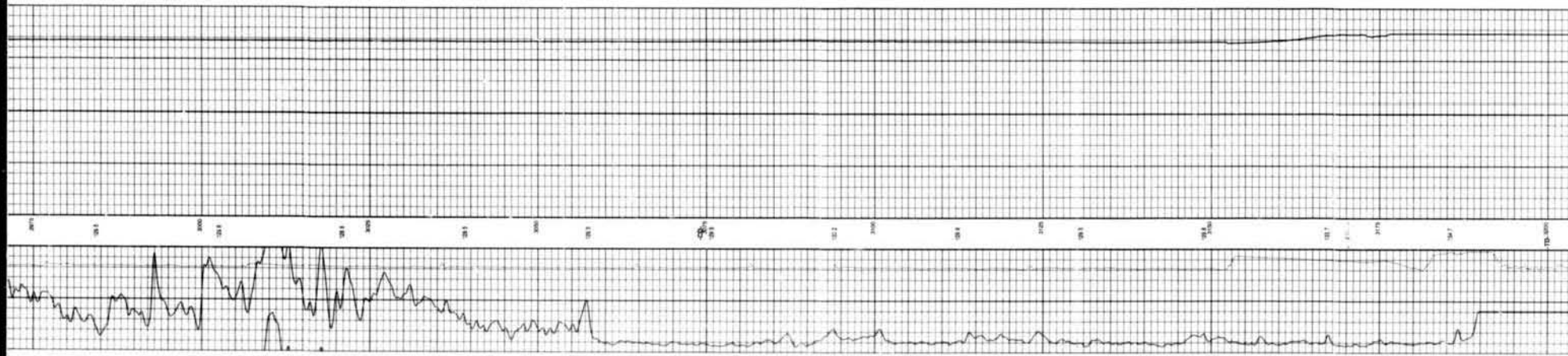
129.2

129.4

129.6

129.8





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Auxiliary Equipment:
WEST B Pre-amplifier Cartridge Housing
WEST Acquisition Cartridge Housing B50m

MEPH - A
MEAH - B

Primary Equipment:
GPR Cartridge - C

GPRC - C

Auxiliary Equipment:
GPR Housing

GPRH - B

General Purpose inclinometer / Equipment Identification

Scintillation Gamma-Ray - N

Scintillation Gamma-Ray - N / Equipment Identification

Scintillation Gamma Cartridge
Scintillation Gamma Detector

SQC - TB
SQC - TAA

Auxiliary Equipment:
Scintillation Gamma Housing
Gamma Source Radioactive

SGH - K
SGR - UY

Scintillation Gamma-Ray - N, White Calibration
Detector Calibration

Phase	Gamma Ray Background GAPI	Value	Phase	Gamma Ray Log - Big GAPI	Value	Phase	Gamma Ray (Calibrated) GAPI	Value
Before		11.30	Before		112.2	Before		140.0
Minimum	0	120.0	Minimum	112.0	122.4	Minimum	128.0	140.0
Maximum	30.00	120.0	Maximum	112.2	122.4	Maximum	140.0	140.0

Before: 19-Mar-2000 10:28

Company

CHEVRON CANADA RESOURCES LTD.

Well

CHEVRON et al LIARD 2K-29

Field

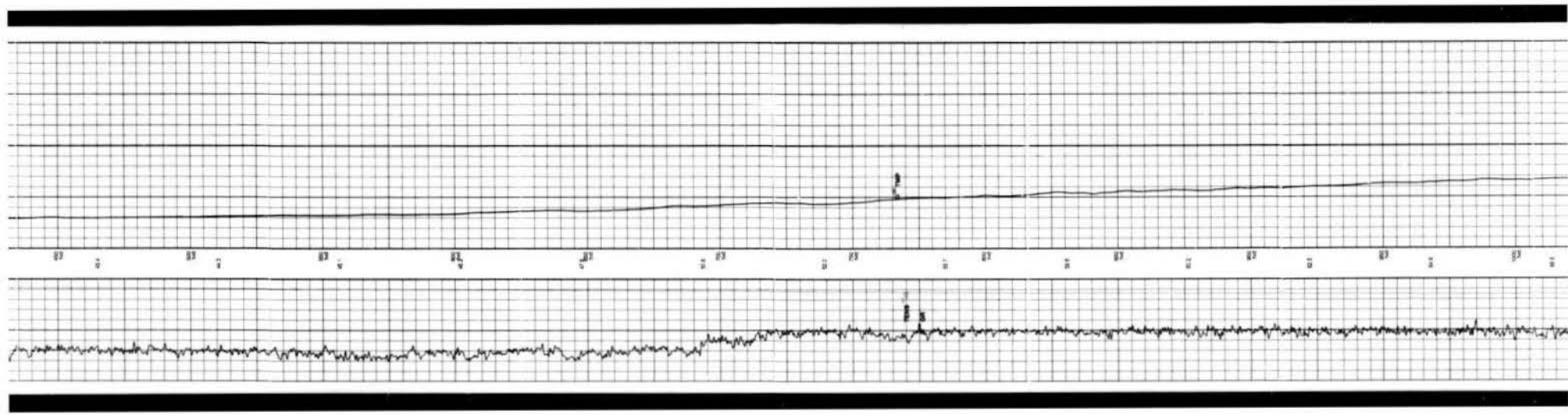
LIARD

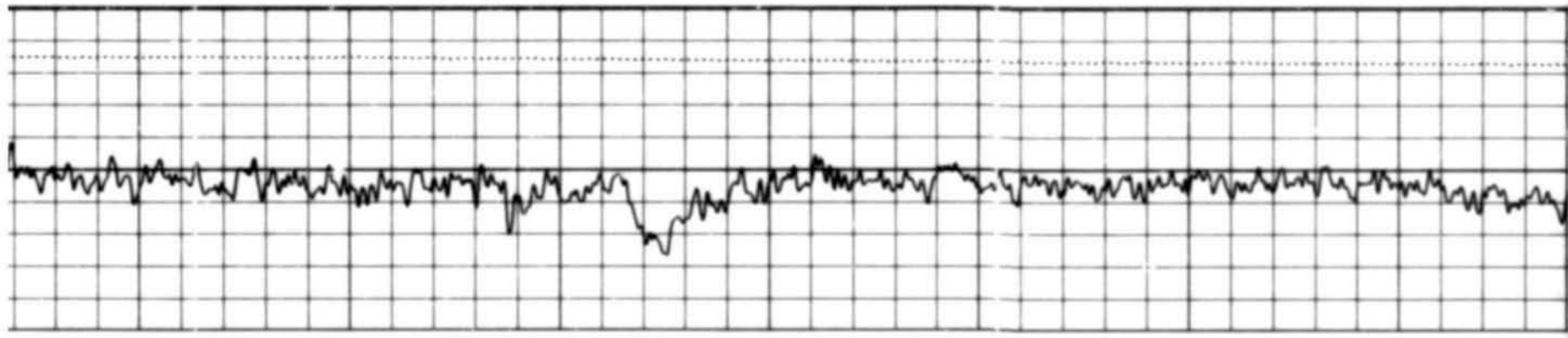
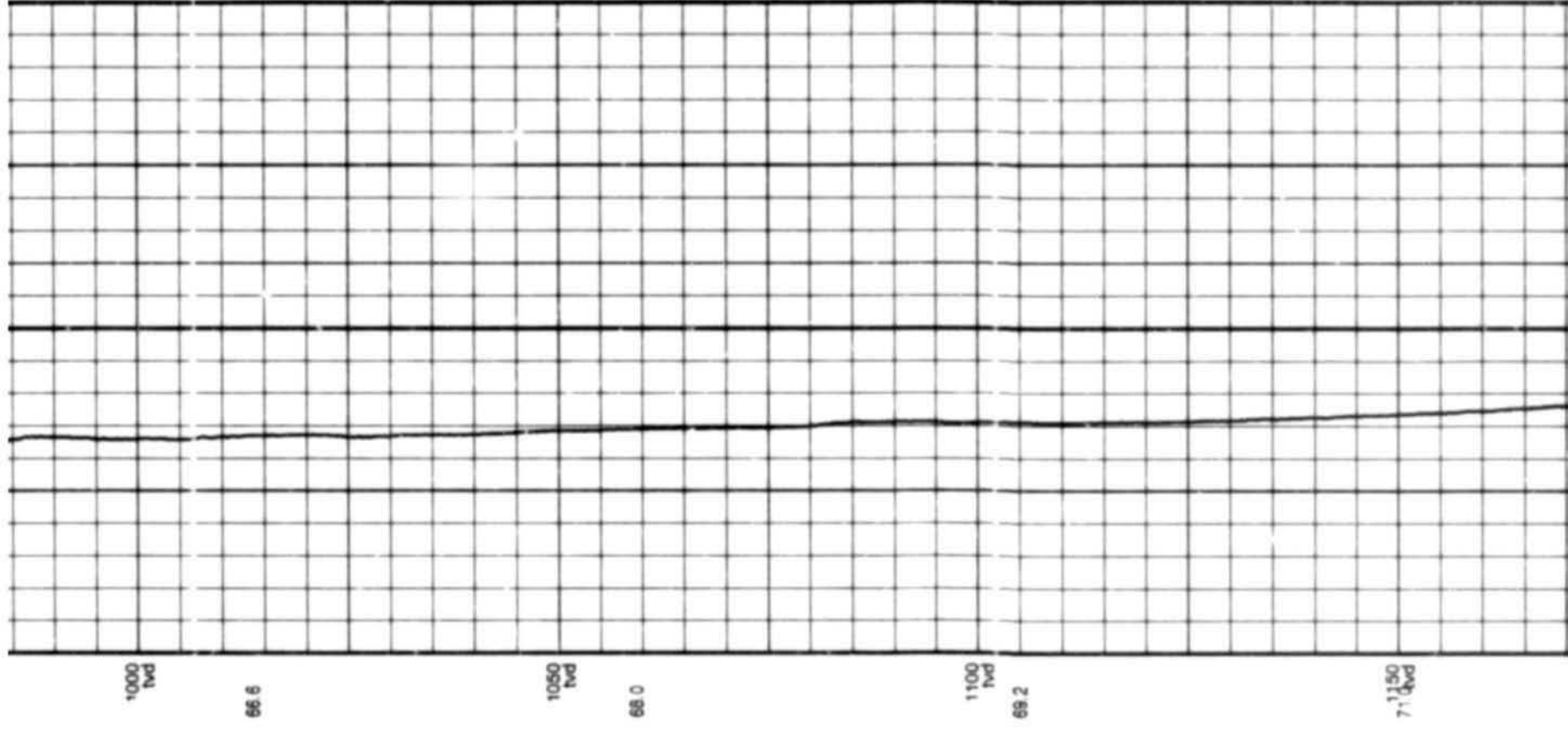
Formation

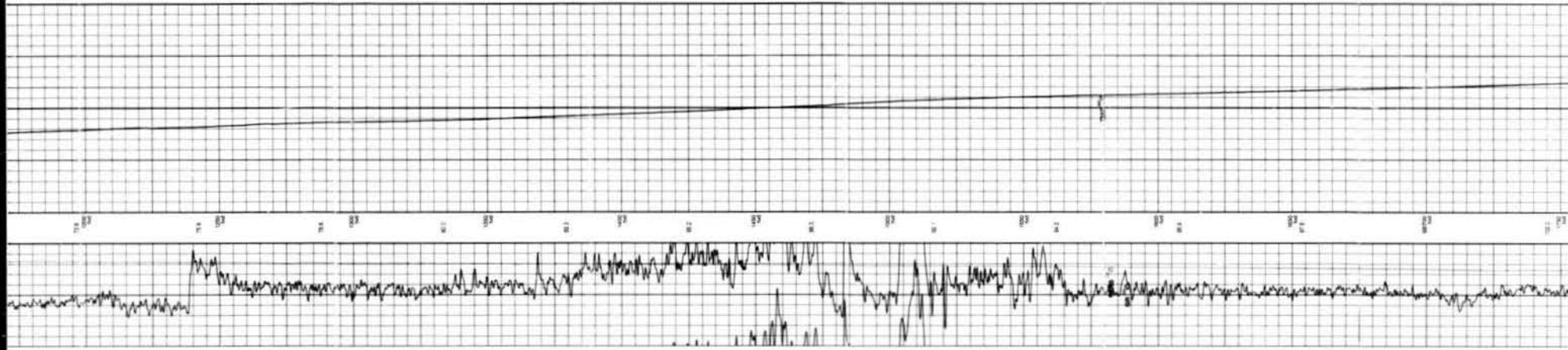
NORTHWEST TERRITORIES

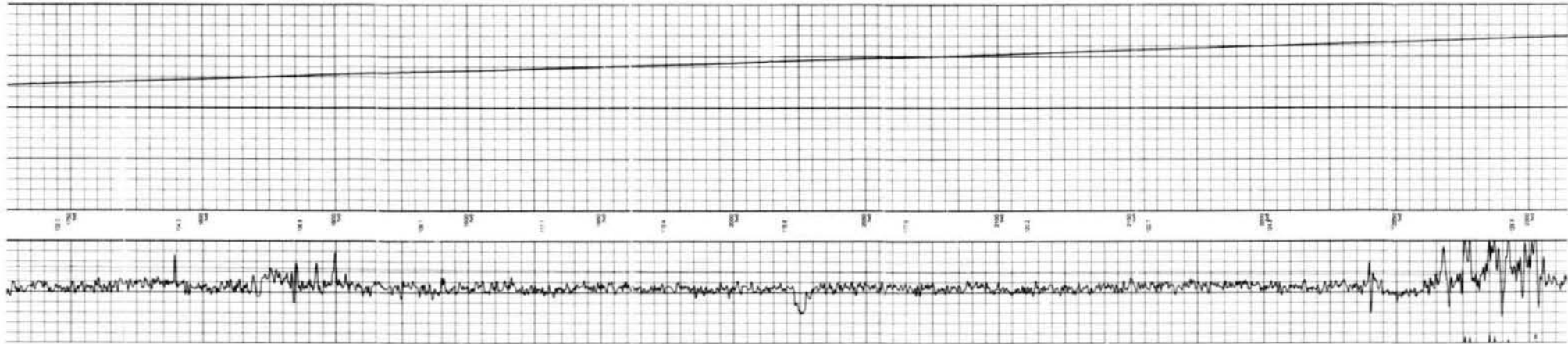
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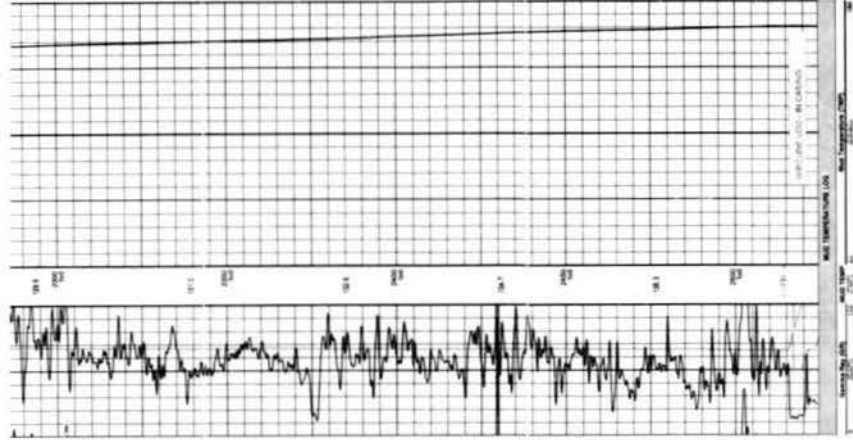
TEMPERATURE LOG





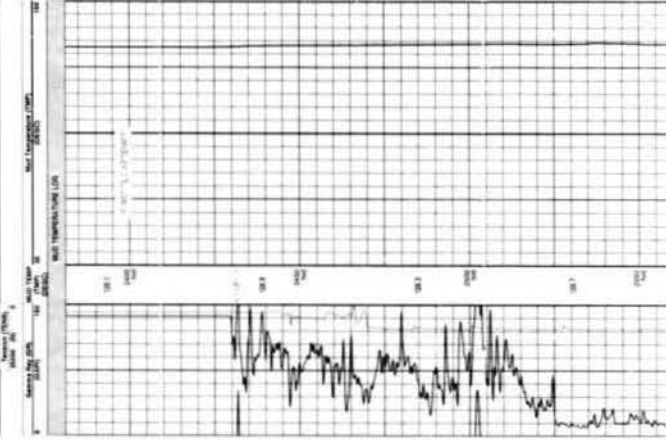






DLIS Name	Description	Parameters	Value
SWP2	SWR (Stratigraphic Swath) Comparison		
TIME1	100 of Starting Point		0
TIME2	100% True Depth of Tie-in Point		1000.0
TIME3	100% True Depth of Tie-in Point		1000.0
SWR1	Swath and Microstratigraphic		
SWR2	SWR1/1000		1000.0
SWR3	SWR1/1000		1000.0
SWR4	SWR1/1000		1000.0
SWR5	SWR1/1000		1000.0
SWR6	SWR1/1000		1000.0
SWR7	SWR1/1000		1000.0
SWR8	SWR1/1000		1000.0
SWR9	SWR1/1000		1000.0
SWR10	SWR1/1000		1000.0
SWR11	SWR1/1000		1000.0
SWR12	SWR1/1000		1000.0
SWR13	SWR1/1000		1000.0
SWR14	SWR1/1000		1000.0
SWR15	SWR1/1000		1000.0
SWR16	SWR1/1000		1000.0
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SWR87	SWR1/1000		1000.0
SWR88	SWR1/1000		1000.0
SWR89	SWR1/1000		1000.0
SWR90	SWR1/1000		1000.0
SWR91	SWR1/1000		1000.0

Company: PROLOGIC / ADDRESS: 88000000000000000000		DATE: 01/01/2000 00:00:00											
Input DLIS Files <table><thead><tr><th>FILE NO</th><th>PROLOGIC IN</th><th>DATE</th><th>TIME</th><th>STATUS</th></tr></thead><tbody><tr><td>00000001</td><td>PROLOGIC IN</td><td>01/01/2000</td><td>00:00:00</td><td>OK</td></tr></tbody></table>				FILE NO	PROLOGIC IN	DATE	TIME	STATUS	00000001	PROLOGIC IN	01/01/2000	00:00:00	OK
FILE NO	PROLOGIC IN	DATE	TIME	STATUS									
00000001	PROLOGIC IN	01/01/2000	00:00:00	OK									
Output DLIS Files <table><thead><tr><th>FILE NO</th><th>PROLOGIC OUT</th><th>DATE</th><th>TIME</th><th>STATUS</th></tr></thead><tbody><tr><td>00000001</td><td>PROLOGIC OUT</td><td>01/01/2000</td><td>00:00:00</td><td>OK</td></tr></tbody></table>				FILE NO	PROLOGIC OUT	DATE	TIME	STATUS	00000001	PROLOGIC OUT	01/01/2000	00:00:00	OK
FILE NO	PROLOGIC OUT	DATE	TIME	STATUS									
00000001	PROLOGIC OUT	01/01/2000	00:00:00	OK									
Related to True Vertical Depth in this Platform													
True Vertical Depth Log OP System Version: 11CO-300 11CO-30													



Directional Survey Manually-Entered Inclinometry Summary

Title In Point : Measured Depth True Vertical Depth North Departure East Departure

.777-25 M

1379.15 M

2526.90 M

3050.70 M

Depth	Deviation	Azimuth	True Vertical Depth	North Departure	East Departure
0.00 M	0.00 DEG	0.00 DEG	0.27 M	-0.33 M	1.02 M
0.50 M	1.08 DEG	296.90 DEG	96.76 M	0.30 M	0.45 M
1.00 M	0.38 DEG	312.20 DEG	170.28 M	0.80 M	-0.32 M
1.50 M	1.35 DEG	354.30 DEG	265.80 M	2.11 M	-0.86 M
2.00 M	2.85 DEG	355.90 DEG	294.84 M	3.17 M	-0.95 M
2.50 M	5.00 DEG	348.20 DEG	312.38 M	4.43 M	-1.15 M
3.00 M	6.15 DEG	346.90 DEG	322.73 M	5.32 M	-1.34 M
3.50 M	8.08 DEG	344.10 DEG	341.89 M	7.64 M	-1.84 M
4.00 M	9.24 DEG	337.60 DEG	360.57 M	10.32 M	-2.87 M
4.50 M	9.53 DEG	336.30 DEG	370.63 M	11.85 M	-3.52 M
5.00 M	9.99 DEG	334.80 DEG	380.73 M	14.37 M	-4.95 M
5.50 M	11.83 DEG	332.70 DEG	409.05 M	18.41 M	-6.95 M
6.00 M	13.35 DEG	330.90 DEG	418.44 M	20.17 M	-7.59 M
6.50 M	13.73 DEG	331.60 DEG	436.95 M	23.92 M	-8.65 M
7.00 M	16.56 DEG	332.70 DEG	454.81 M	28.20 M	-11.31 M
7.50 M	18.03 DEG	330.30 DEG	464.07 M	30.74 M	-13.29 M
8.00 M	18.70 DEG	331.60 DEG	481.19 M	35.85 M	-16.13 M
8.50 M	21.15 DEG	333.00 DEG	496.28 M	41.81 M	-19.26 M
9.00 M	22.48 DEG	333.50 DEG	506.19 M	44.97 M	-20.85 M
9.50 M	24.66 DEG	331.30 DEG	525.49 M	51.74 M	-24.36 M
10.00 M	25.52 DEG	327.50 DEG	542.95 M	58.82 M	-28.58 M
10.50 M	26.52 DEG	328.20 DEG	551.84 M	62.50 M	-30.89 M
11.00 M	28.52 DEG	320.50 DEG	566.90 M	69.84 M	-35.46 M
11.50 M	29.65 DEG	330.10 DEG	585.12 M	77.84 M	-40.17 M
12.00 M	30.50 DEG	330.50 DEG	593.95 M	82.28 M	-42.70 M
12.50 M	33.10 DEG	331.30 DEG	610.69 M	91.30 M	-47.72 M
13.00 M	34.63 DEG	330.30 DEG	626.38 M	100.54 M	-52.89 M
13.50 M	35.38 DEG	330.30 DEG	634.73 M	105.82 M	-55.78 M
14.00 M	37.50 DEG	330.10 DEG	666.03 M	125.87 M	-67.27 M
14.50 M	38.19 DEG	329.80 DEG	680.08 M	135.13 M	-72.74 M
15.00 M	38.85 DEG	331.40 DEG	703.95 M	151.09 M	-81.73 M
15.50 M	39.17 DEG	333.60 DEG	726.50 M	165.34 M	-86.16 M
16.00 M	39.56 DEG	332.50 DEG	759.16 M	183.22 M	-88.34 M
16.50 M	39.94 DEG	333.00 DEG	766.41 M	186.98 M	-100.18 M
17.00 M	33.00 DEG	333.00 DEG	793.30 M	200.18 M	-108.82 M
17.50 M	27.61 DEG	333.10 DEG	813.99 M	211.79 M	-112.85 M
18.00 M	26.02 DEG	332.80 DEG	827.57 M	215.54 M	-114.56 M
18.50 M	26.30 DEG	332.80 DEG	844.81 M	223.37 M	-118.59 M
19.00 M	28.38 DEG	331.60 DEG	861.21 M	237.47 M	-122.69 M
19.50 M	29.80 DEG	331.70 DEG	869.47 M	235.59 M	-125.08 M
20.00 M	30.80 DEG	332.40 DEG	885.94 M	244.11 M	-126.80 M
20.50 M	31.30 DEG	331.40 DEG	902.05 M	252.58 M	-134.18 M
21.00 M	31.22 DEG	329.80 DEG	910.30 M	257.00 M	-136.31 M
21.50 M	31.48 DEG	330.50 DEG	926.49 M	265.60 M	-141.55 M
22.00 M	32.15 DEG	329.60 DEG	943.09 M	274.51 M	-146.88 M
22.50 M	32.17 DEG	328.30 DEG	950.63 M	278.60 M	-148.10 M
23.00 M	33.40 DEG	329.10 DEG	968.61 M	287.44 M	-154.36 M
23.50 M	33.88 DEG	327.40 DEG	982.54 M	296.47 M	-159.95 M
24.00 M	34.58 DEG	327.10 DEG	991.44 M	301.00 M	-162.87 M
24.50 M	36.08 DEG	329.10 DEG	1005.96 M	310.33 M	-168.68 M
25.00 M	37.45 DEG	328.20 DEG	1020.90 M	319.06 M	-174.42 M
25.50 M	38.53 DEG	328.60 DEG	1036.90 M	329.99 M	-180.46 M
26.00 M	38.03 DEG	327.60 DEG	1050.89 M	339.94 M	-186.87 M
26.50 M	37.43 DEG	328.80 DEG	1060.97 M	359.81 M	-196.99 M
27.00 M	37.45 DEG	329.50 DEG	1084.20 M	369.80 M	-204.96 M
27.50 M	37.68 DEG	329.40 DEG	1126.18 M	389.87 M	-216.88 M
28.00 M	37.83 DEG	329.60 DEG	1156.10 M	409.83 M	-228.44 M
28.50 M	37.68 DEG	328.30 DEG	1170.69 M	419.36 M	-234.30 M
29.00 M	37.73 DEG	328.40 DEG	1200.82 M	439.36 M	-246.83 M
29.50 M	38.08 DEG	327.60 DEG	1230.58 M	458.95 M	-258.87 M
30.00 M	37.50 DEG	329.20 DEG	1248.69 M	468.93 M	-265.91 M
30.50 M	38.66 DEG	330.20 DEG	1276.00 M	488.70 M	-276.56 M
31.00 M	38.53 DEG	330.30 DEG	1306.11 M	508.11 M	-287.66 M
31.50 M	38.88 DEG	330.10 DEG	1321.87 M	518.18 M	-293.42 M
32.00 M	37.65 DEG	331.50 DEG	1351.22 M	537.77 M	-304.37 M
32.50 M	37.28 DEG	331.70 DEG	1380.97 M	557.79 M	-315.19 M
33.00 M	38.65 DEG	332.50 DEG	1402.46 M	577.16 M	-322.80 M
33.50 M	35.85 DEG	332.20 DEG	1433.00 M	592.19 M	-333.08 M
34.00 M	34.90 DEG	333.50 DEG	1463.18 M	611.35 M	-342.89 M
34.50 M	35.42 DEG	331.20 DEG	1480.35 M	641.52 M	-348.30 M
35.00 M	36.73 DEG	329.60 DEG	1511.24 M	661.58 M	-359.42 M
35.50 M	38.03 DEG	328.10 DEG	1541.43 M	681.36 M	-371.35 M
36.00 M	37.78 DEG	327.50 DEG	1566.42 M	691.24 M	-377.57 M
36.50 M	37.18 DEG	328.10 DEG	1586.47 M	701.60 M	-386.74 M
37.00 M	37.00 DEG	330.50 DEG	1616.91 M	710.75 M	-401.45 M
37.50 M	37.05 DEG	330.60 DEG	1632.18 M	720.84 M	-407.15 M
38.00 M	37.05 DEG	330.60 DEG	1648.25 M	730.95 M	-413.45 M

1960.34 M	37.87 DEG	334.20 DEG	1963.13 M	781.81 M	-427.28 M
1979.35 M	37.85 DEG	334.30 DEG	1736.15 M	772.04 M	-432.37 M
2017.31 M	38.15 DEG	335.70 DEG	1736.15 M	772.04 M	-432.37 M
2055.33 M	38.03 DEG	332.80 DEG	1787.74 M	814.55 M	-452.54 M
2074.39 M	38.53 DEG	331.86 DEG	1782.58 M	825.15 M	-458.10 M
2074.39 M	38.73 DEG	332.90 DEG	1812.17 M	845.78 M	-469.84 M
2074.39 M	38.29 DEG	330.80 DEG	1842.22 M	887.87 M	-482.46 M
2162.84 M	38.05 DEG	329.80 DEG	1857.25 M	878.81 M	-487.99 M
2168.88 M	37.88 DEG	329.20 DEG	1886.19 M	897.23 M	-500.29 M
2206.04 M	37.88 DEG	329.20 DEG	1919.21 M	917.32 M	-511.83 M
2267.04 M	37.85 DEG	331.00 DEG	1931.38 M	927.25 M	-517.58 M
2285.89 M	37.65 DEG	328.80 DEG	1948.52 M	937.03 M	-523.84 M
2385.05 M	38.89 DEG	338.50 DEG	1963.94 M	948.78 M	-529.46 M
2384.05 M	38.75 DEG	339.50 DEG	1984.33 M	966.39 M	-540.69 M
2442.03 M	38.40 DEG	330.70 DEG	2009.87 M	976.23 M	-548.20 M
2461.84 M	38.58 DEG	330.70 DEG	2040.87 M	988.58 M	-557.87 M
2496.87 M	38.50 DEG	331.00 DEG	2050.89 M	1016.48 M	-568.05 M
2537.84 M	38.89 DEG	332.40 DEG	2071.37 M	1026.40 M	-573.14 M
2585.05 M	38.75 DEG	332.40 DEG	2086.74 M	1046.84 M	-583.83 M
2685.05 M	38.87 DEG	332.80 DEG	2117.23 M	1088.81 M	-604.52 M
2832.83 M	37.25 DEG	330.70 DEG	2147.82 M	1076.52 M	-600.23 M
2931.79 M	37.03 DEG	329.70 DEG	2162.81 M	1076.52 M	-600.23 M
2986.30 M	36.80 DEG	332.70 DEG	2181.73 M	1085.68 M	-610.76 M
2986.30 M	37.83 DEG	332.70 DEG	2223.81 M	1118.58 M	-622.03 M
2987.31 M	37.83 DEG	332.70 DEG	2237.78 M	1128.81 M	-627.80 M
2988.38 M	38.85 DEG	330.70 DEG	2297.22 M	1147.07 M	-638.38 M
2988.38 M	38.70 DEG	328.80 DEG	2298.20 M	1168.55 M	-652.43 M
2724.86 M	38.10 DEG	327.60 DEG	2318.97 M	1178.97 M	-660.18 M
2742.80 M	38.10 DEG	322.80 DEG	2331.81 M	1178.97 M	-660.18 M
2762.72 M	38.12 DEG	322.80 DEG	2332.72 M	1178.97 M	-660.18 M
2781.80 M	37.20 DEG	324.90 DEG	2343.88 M	1187.05 M	-674.19 M
2781.80 M	37.20 DEG	324.90 DEG	2351.80 M	1201.77 M	-677.54 M
2815.10 M	37.80 DEG	324.80 DEG	2366.35 M	1211.07 M	-684.06 M
2826.00 M	38.30 DEG	327.10 DEG	2381.25 M	1220.10 M	-690.59 M
2826.00 M	38.30 DEG	327.10 DEG	2388.88 M	1225.75 M	-693.75 M
2828.50 M	41.00 DEG	326.50 DEG	2403.03 M	1241.83 M	-703.02 M
2837.50 M	41.00 DEG	326.50 DEG	2415.17 M	1261.06 M	-705.01 M
2848.80 M	41.30 DEG	326.50 DEG	2415.17 M	1261.06 M	-705.01 M
2872.00 M	41.40 DEG	326.50 DEG	2431.78 M	1280.54 M	-708.17 M
2882.36 M	42.00 DEG	328.70 DEG	2433.47 M	1281.82 M	-714.84 M
2907.20 M	46.00 DEG	330.80 DEG	2441.94 M	1287.85 M	-717.80 M
2915.50 M	46.70 DEG	331.20 DEG	2447.81 M	1273.37 M	-726.90 M
2915.50 M	47.80 DEG	333.20 DEG	2447.81 M	1273.37 M	-726.90 M
2929.30 M	48.30 DEG	333.80 DEG	2454.53 M	1280.27 M	-724.29 M
2929.30 M	48.30 DEG	333.80 DEG	2454.53 M	1280.27 M	-724.29 M
2947.80 M	51.00 DEG	332.80 DEG	2465.40 M	1292.83 M	-730.77 M
2947.80 M	51.00 DEG	332.80 DEG	2465.40 M	1292.83 M	-730.77 M
2967.70 M	52.50 DEG	331.80 DEG	2472.43 M	1299.48 M	-734.37 M
2967.70 M	52.50 DEG	331.80 DEG	2472.43 M	1299.48 M	-734.37 M
2987.00 M	53.70 DEG	331.40 DEG	2472.43 M	1306.20 M	-737.80 M
2974.80 M	55.00 DEG	331.80 DEG	2483.73 M	1313.21 M	-741.68 M
2984.60 M	56.80 DEG	331.80 DEG	2483.73 M	1313.21 M	-741.68 M
3005.10 M	57.80 DEG	330.20 DEG	2483.73 M	1326.83 M	-749.21 M
3014.60 M	58.80 DEG	329.30 DEG	2483.73 M	1326.83 M	-749.21 M
3024.00 M	60.20 DEG	329.30 DEG	2483.73 M	1326.83 M	-749.21 M
3033.50 M	61.40 DEG	326.50 DEG	2483.73 M	1326.83 M	-749.21 M
3043.00 M	62.80 DEG	326.50 DEG	2483.73 M	1326.83 M	-749.21 M
3052.80 M	63.80 DEG	326.50 DEG	2483.73 M	1326.83 M	-749.21 M
3058.70 M	65.00 DEG	321.80 DEG	2483.73 M	1326.83 M	-749.21 M
3071.20 M	65.80 DEG	320.80 DEG	2483.73 M	1326.83 M	-749.21 M
3082.60 M	66.82 DEG	320.80 DEG	2483.73 M	1326.83 M	-749.21 M
3091.00 M	67.13 DEG	320.42 DEG	2483.73 M	1326.83 M	-749.21 M
3105.30 M	67.07 DEG	320.74 DEG	2483.73 M	1326.83 M	-749.21 M
3110.24 M	67.82 DEG	321.02 DEG	2483.73 M	1326.83 M	-749.21 M
3120.12 M	67.85 DEG	322.07 DEG	2483.73 M	1326.83 M	-749.21 M
3129.87 M	67.12 DEG	323.47 DEG	2483.73 M	1326.83 M	-749.21 M
3138.35 M	67.82 DEG	323.19 DEG	2483.73 M	1326.83 M	-749.21 M
3148.09 M	68.65 DEG	324.06 DEG	2483.73 M	1326.83 M	-749.21 M
3158.87 M	68.83 DEG	323.20 DEG	2483.73 M	1326.83 M	-749.21 M
3168.73 M	71.43 DEG	323.87 DEG	2483.73 M	1326.83 M	-749.21 M
3178.35 M	73.83 DEG	324.82 DEG	2483.73 M	1326.83 M	-749.21 M
3187.80 M	74.65 DEG	327.70 DEG	2483.73 M	1326.83 M	-749.21 M
3197.62 M	75.60 DEG	327.77 DEG	2483.73 M	1326.83 M	-749.21 M
3206.88 M	74.80 DEG	328.80 DEG	2483.73 M	1326.83 M	-749.21 M
3214.44 M	78.78 DEG	328.54 DEG	2483.73 M	1326.83 M	-749.21 M
3228.18 M	78.45 DEG	328.74 DEG	2483.73 M	1326.83 M	-749.21 M
3236.44 M	77.74 DEG	342.00 DEG	2483.73 M	1326.83 M	-749.21 M
3246.20 M	78.58 DEG	342.22 DEG	2483.73 M	1326.83 M	-749.21 M
3255.99 M	79.25 DEG	343.53 DEG	2483.73 M	1326.83 M	-749.21 M
3265.81 M	79.88 DEG	345.09 DEG	2483.73 M	1326.83 M	-749.21 M
3275.40 M	80.65 DEG	346.04 DEG	2483.73 M	1326.83 M	-749.21 M
3285.29 M	81.83 DEG	345.47 DEG	2483.73 M	1326.83 M	-749.21 M
3295.00 M	82.38 DEG	346.14 DEG	2483.73 M	1326.83 M	-749.21 M
3304.88 M	82.40 DEG	346.64 DEG	2483.73 M	1326.83 M	-749.21 M
3314.60 M	82.38 DEG	346.14 DEG	2483.73 M	1326.83 M	-749.21 M
3324.00 M	83.58 DEG	346.38 DEG	2483.73 M	1326.83 M	-749.21 M
3333.86 M	84.18 DEG	350.37 DEG	2483.73 M	1326.83 M	-749.21 M
3343.72 M	84.20 DEG	352.87 DEG	2483.73 M	1326.83 M	-749.21 M
3353.30 M	84.80 DEG	354.88 DEG	2483.73 M	1326.83 M	-749.21 M
3363.00 M	83.35 DEG	355.17 DEG	2483.73 M	1326.83 M	-749.21 M
3372.42 M	84.85 DEG	354.48 DEG	2483.73 M	1326.83 M	-749.21 M
3382.20 M	84.83 DEG	355.17 DEG	2483.73 M	1326.83 M	-749.21 M
3391.83 M	84.58 DEG	354.11 DEG	2483.73 M	1326.83 M	-749.21 M
3401.20 M	84.45 DEG	354.42 DEG	2483.73 M	1326.83 M	-749.21 M
3410.96 M	84.83 DEG	354.47 DEG	2483.73 M	1326.83 M	-749.21 M
3421.27 M	84.43 DEG	358.47 DEG	2483.73 M	1326.83 M	-749.21 M
3431.00 M	85.00 DEG	358.47 DEG	2483.73 M	1326.83 M	-749.21 M
3440.74 M	84.43 DEG	358.58 DEG	2483.73 M	1326.83 M	-749.21 M
3450.49 M	85.75 DEG	357.84 DEG	2483.73 M	1326.83 M	-749.21 M
3460.23 M	84.25 DEG	357.87 DEG	2483.73 M	1326.83 M	-749.21 M
3469.84 M	84.19 DEG	358.47 DEG	2483.73 M	1326.83 M	-749.21 M
3479.78 M	85.00 DEG	357.87 DEG	2483.73 M	1326.83 M	-749.21 M
3489.53 M	86.10 DEG	358.89 DEG	2483.73 M	1326.83 M	-749.21 M
3499.30 M	85.87 DEG	358.19 DEG	2483.73 M	1326.83 M	-749.21 M
3509.84 M	83.23 DEG	6.17 DEG	2483.73 M	1326.83 M	-749.21 M
3519.73 M	84.80 DEG	6.47 DEG	2483.73 M	1326.83 M	-749.21 M
3529.60 M	84.80 DEG	6.17 DEG	2483.73 M	1326.83 M	-749.21 M
3539.23 M	84.38 DEG	8.74 DEG	2483.73 M	1326.83 M	-749.21 M
3548.91 M	89.10 DEG	1.44 DEG	2483.73 M	1326.83 M	-749.21 M
3557.79 M	88.28 DEG	1.32 DEG	2483.73 M	1326.83 M	-749.21 M
3567.40 M	88.70 DEG	354.10 DEG	2483.73 M	1326.83 M	-749.21 M
3575.57 M	90.40 DEG	354.77 DEG	2483.73 M	1326.83 M	-749.21 M
3584.38 M	91.15 DEG	352.97 DEG	2483.73 M	1326.83 M	-749.21 M
3599.00 M	82.00 DEG	348.00 DEG	2483.73 M	1326.83 M	-749.21 M

Company : CHEVRON CANADA RESOURCES LTD.

Well : CHEVRON et al LIARD 2K-29

Province : NORTHWEST TERRITORIES

TEMPERATURE LOG

Schlumberger

TVD

[illegible][illegible][illegible][illegible]

2014-2015 年 10 月 10 日									
日期	星期	节次	课程名称	授课教师	地点	备注	考核方式	考核时间	考核地点
10月10日	星期五	第1节	大学英语	张三	教学楼A101		闭卷	10月15日	教学楼A101
10月10日	星期五	第2节	大学英语	李四	教学楼A102		闭卷	10月15日	教学楼A102
10月10日	星期五	第3节	大学英语	王五	教学楼A103		闭卷	10月15日	教学楼A103
10月10日	星期五	第4节	大学英语	赵六	教学楼A104		闭卷	10月15日	教学楼A104
10月10日	星期五	第5节	大学英语	孙七	教学楼A105		闭卷	10月15日	教学楼A105
10月10日	星期五	第6节	大学英语	周八	教学楼A106		闭卷	10月15日	教学楼A106
10月10日	星期五	第7节	大学英语	吴九	教学楼A107		闭卷	10月15日	教学楼A107
10月10日	星期五	第8节	大学英语	郑十	教学楼A108		闭卷	10月15日	教学楼A108
10月10日	星期五	第9节	大学英语	冯十一	教学楼A109		闭卷	10月15日	教学楼A109
10月10日	星期五	第10节	大学英语	陈十二	教学楼A110		闭卷	10月15日	教学楼A110
10月10日	星期五	第11节	大学英语	林十三	教学楼A111		闭卷	10月15日	教学楼A111
10月10日	星期五	第12节	大学英语	周十四	教学楼A112		闭卷	10月15日	教学楼A112
10月10日	星期五	第13节	大学英语	吴十五	教学楼A113		闭卷	10月15日	教学楼A113
10月10日	星期五	第14节	大学英语	郑十六	教学楼A114		闭卷	10月15日	教学楼A114
10月10日	星期五	第15节	大学英语	冯十七	教学楼A115		闭卷	10月15日	教学楼A115
10月10日	星期五	第16节	大学英语	陈十八	教学楼A116		闭卷	10月15日	教学楼A116
10月10日	星期五	第17节	大学英语	林十九	教学楼A117		闭卷	10月15日	教学楼A117
10月10日	星期五	第18节	大学英语	周二十	教学楼A118		闭卷	10月15日	教学楼A118
10月10日	星期五	第19节	大学英语	吴二十一	教学楼A119		闭卷	10月15日	教学楼A119
10月10日	星期五	第20节	大学英语	郑二十二	教学楼A120		闭卷	10月15日	教学楼A120
10月10日	星期五	第21节	大学英语	冯二十三	教学楼A121		闭卷	10月15日	教学楼A121
10月10日	星期五	第22节	大学英语	陈二十四	教学楼A122		闭卷	10月15日	教学楼A122
10月10日	星期五	第23节	大学英语	林二十五	教学楼A123		闭卷	10月15日	教学楼A123
10月10日	星期五	第24节	大学英语	周二十六	教学楼A124		闭卷	10月15日	教学楼A124
10月10日	星期五	第25节	大学英语	吴二十七	教学楼A125		闭卷	10月15日	教学楼A125
10月10日	星期五	第26节	大学英语	郑二十八	教学楼A126		闭卷	10月15日	教学楼A126
10月10日	星期五	第27节	大学英语	冯二十九	教学楼A127		闭卷	10月15日	教学楼A127
10月10日	星期五	第28节	大学英语	陈三十	教学楼A128		闭卷	10月15日	教学楼A128
10月10日	星期五	第29节	大学英语	林三十一	教学楼A129		闭卷	10月15日	教学楼A129
10月10日	星期五	第30节	大学英语	周三十二	教学楼A130		闭卷	10月15日	教学楼A130

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Chevron Canada Resources

Schlumberger

SlimPulse Gamma Ray
True Vertical Depth Composite Log
1:240 Scale (Recorded 1' only)

TOUR SHEETS

LICENCE NO. SD199 WELL NAME & NO. CHEVRON et al LIARD 2K-29

OPERATOR CHEVRON CANADA RESOURCES

SURFACE LOCATION 2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE MIKE BRYSON

CONTRACTOR AKITA DRILLING LTD.

UNIQUE ID 2K-29

SIGNATURE OF CONTRACTOR'S RIG MANAGER DAVE LAUCK

- DAILY CHECKS
- 1) Daily Walk Around Ins. (see 2K-29)
 - 2) Detailed Inspection "2K-29" (Using Check List)
 - 3) HOS Signs Posted & Signed
 - 4) Well Location & Back Diagram Posted
 - 5) Flow Line Banded
 - 6) BOP Data Performed
 - 7) Visually Inspect BOPs, Flow Lines & Degreaser Lines
 - 8) Rig Site Health & Safety Meeting (see 2K-29)
 - 9) CACDC Rig Safe Inspection Checklist (see 2K-29)
 - 10) Visual Inspection before Running in / lowering
 - 11) Crown Block Checked
 - 12) Motor Cables Checked

YEAR	MONTH	DAY	TIME	CONDUCTOR	GRADE	NO. OF JOBS	TOO LATE	NO. TO CUB HEAD	RET AT (H)
2003	3	23	06:00	CONDUCTOR					20.00
			06:00	244.5	224.4	59.53	SIDERCA	K-55	51
			06:00	177.8	159.4	38.89	Hydri	L-80	7.3
			06:00						3068.13
			06:00						6.17
			06:00						3074.30

PASON DATAHUB
AKITA 50

CON 3422-2-011204



NO.	REEL UP & REASON	DRILL ACTUAL	REASON	CORING	COND. MUD & CLOG	TOL. 8	RIG SURFACE	REPAIR	CUT OFF	DRY SURVEY	WIRELINE LOSS	RUN CIG & CEMENT	WIRE ON CEMENT	WIRELINE UP	TEST	DRILL TEST	PLUG BACK	SHUT IN	Flowline	DR. WORK	SAFETY	TRANSFER	WIRE CASING	TOTALS	NO. TYPE	TYPE	PLC	NO. OF JOBS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH

NO.	REEL UP & REASON	DRILL ACTUAL	REASON	CORING	COND. MUD & CLOG	TOL. 8	RIG SURFACE	REPAIR	CUT OFF	DRY SURVEY	WIRELINE LOSS	RUN CIG & CEMENT	WIRE ON CEMENT	WIRELINE UP	TEST	DRILL TEST	PLUG BACK	SHUT IN	Flowline	DR. WORK	SAFETY	TRANSFER	WIRE CASING	TOTALS	NO. TYPE	TYPE	PLC	NO. OF JOBS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH

NO.	REEL UP & REASON	DRILL ACTUAL	REASON	CORING	COND. MUD & CLOG	TOL. 8	RIG SURFACE	REPAIR	CUT OFF	DRY SURVEY	WIRELINE LOSS	RUN CIG & CEMENT	WIRE ON CEMENT	WIRELINE UP	TEST	DRILL TEST	PLUG BACK	SHUT IN	Flowline	DR. WORK	SAFETY	TRANSFER	WIRE CASING	TOTALS	NO. TYPE	TYPE	PLC	NO. OF JOBS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH

NO.	REEL UP & REASON	DRILL ACTUAL	REASON	CORING	COND. MUD & CLOG	TOL. 8	RIG SURFACE	REPAIR	CUT OFF	DRY SURVEY	WIRELINE LOSS	RUN CIG & CEMENT	WIRE ON CEMENT	WIRELINE UP	TEST	DRILL TEST	PLUG BACK	SHUT IN	Flowline	DR. WORK	SAFETY	TRANSFER	WIRE CASING	TOTALS	NO. TYPE	TYPE	PLC	NO. OF JOBS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH

WELL NAME & NO.	CONTRACTOR	YEAR	MONTH	DAY
CHEVRON et al LIARD 2K-29	AKITA DRILLING LTD.	2003	3	23

CREW	SOC. INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		CP
ASSIST DRILLER		KEVIN VANDENBRAND	8.00		PV
DERRICK HAND		JUSTIN AMYOTTE	8.00		JA
MOTOR HAND		JESSY LESSARD	8.00		A
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		GREG ST. ARNAUD	8.00		GS
LEASE HAND		RUFUS SANGUEZ	8.00		RS

RATE SCHEDULE	X	REGULAR	REPAIR	INVERT

DAY TOUR	800	1600	INVERT
CREW			
DRILLER			
ASSIST DRILLER			
DERRICK HAND			
MOTOR HAND			
FLOOR HAND			
LEASE HAND			

RATE SCHEDULE	X	REGULAR	REPAIR	INVERT

DAY TOUR	800	1600	INVERT
CREW			
DRILLER			
ASSIST DRILLER			
DERRICK HAND			
MOTOR HAND			
FLOOR HAND			
LEASE HAND			

RATE SCHEDULE	X	REGULAR	REPAIR	INVERT



CDN 3422-2-011204

[illegible]

WEL NAME & NO.		YEAR		MONTH	DAY
CHEVRON et al LIARD 2K-29		2003		3	22
OPERATOR		CONTRACTOR			
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.			
REG MANAGER		REG NO.		REG SAFETY DAYS	
DAVE LAUCK		58		2313	
PROVINCIAL		CAMP	YES	NO	
N.W.I.			☒	☐	

[illegible]

MORNING TOUR			0	800	BURDEN
CREW	SOC M.S. NO.	NAME	HRS	YES	NO
DRIILLER		GARY PATRICK	8.00		GP
ASSIST DRIILLER		KEVIN VANDENBRAND	8.00		KV
DERRICK HAND		JUSTIN AMYOTTE	8.00		J.A
MOTOR HAND		JESSY LESSARD	8.00		J.L
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		GREG ST ARNAUD	8.00		GS
LEASC HAND		RUFUS SANGUEZ	8.00		RS
</					

[illegible]

DAY TOUR		800	1600	BLANK
CREW	BOC INS. NO.	NAME	HRS.	YES
DRILLER		SCOTT LOWEN	12.00	SA
ASSIST DRILLER TRAINEE		PATRICK BONNETROUGE	7.00	DR
DERRICK HAND		DON BLAYONE	12.00	DR
MOTOR HAND		CAMILLE KOOTENAY	12.00	CH
MOTOR MAN TRAINEE		DARREN HAZENBERG	12.00	CH
FLOOR HAND		JASON MCKENZIE	12.00	JM
FLOOR HAND TRAINEE		CLIFFORD BONNETROUGE	6.00	CE
FLOOR HAND		GEOFF NYGREN	12.00	GN
LEASE HAND		SEAN WOLOSCH	12.00	SW
SAFETY CO-ORDINATOR (A.D.)		DANIEL ALONSO	12.00	DA
RATE SCHEDULE		X	REGULAR	REPAIR
				INVERT
CREW SAFETY DAYS				
2213				

[illegible]

EVENING TOUR		1600	2400	NAME
CREW	LOC BNS. NO.	NAME	HRS	YES
DRILLER		GARY PATRICK	4.00	
ASSIST DRILLER		KEVIN VANDENBRAND	4.00	
DERRICK HAND		JUSTIN AMYOTTE	4.00	
MOTOR HAND		JESSY LESSARD	4.00	
FLOOR HAND		STEVE McLAUGHLIN	4.00	
FLOOR HAND		CR&G ST ARNAUD	4.00	
LEASE HAND		RUFUS SANGUEZ	4.00	
RATE SCHEDULE		X	REGULAR	REPAIR
CREW SAFETY DAYS		2213		

LICENCE NO. SDL99 WELL NAME & NO. CHEVRON et al LIARD 2K-29 OPERATOR CONTRACTOR AKTA DRILLING LTD. SURFACE LOCATION 2K-29 SIGNATURE OF OPERATOR'S REPRESENTATIVE MIKE BRYSON SIGNATURE OF CONTRACTOR'S RIG MANAGER DAVE LAUCK

GROUP & TEAMDOWN	DRILL ACTUAL	HEADING	CORING	COND MUD & CIRC	TRIPS	RIG SERVICE	REPAIR HRS	CUT OFF WIRELINE	DEV SURVEY	WIRELINE LOGS	RUN CLOG & COMMENT	WANT ON CEMENT	WIPPLE UP & D.P.	TEST & D.P.	DRILL ITEM TEST	WELL BACK	SQUEEZE CEMENT	FOUNDER	DR. WORK	SAFETY MEETING	HANDLE STORED PACKER/NO UNDERPACKER/ON WELL DOWN	TOTALS	NO. OF S.C. = 2.303	NO. OF S.C. = 1.063,111	TOP DRIVE Hrs. TODAY = 7	TOP DRIVE Hrs. THIS WELL = 739.5	
NOV					5.25	0.25		1.00													1.50	8.00	175	175			
DAY					5.00															0.25	2.75	5.00	175	175			
EVE					1.50															0.50	2.00	0.50	1.25	0.75	8.00		
TOTAL					1.50	11.75	0.25	1.00												0.75	1.50	4.75	0.50	1.25	0.75	24.00	

MORNING TOUR

BIT	O.D.	BIT NO.	SIZE	TIME	DENSITY (KG/M3)	FUNNEL VISCOSITY	FLUID LOSS (CM3)	PH	DEPT. OUT	DEPT. IN	TOTAL M DRILLED	TOTAL HRS RUN	CUTTING STRUCTURE	HOLE CONDITION	HOLE DIA	TORQUE AT BOTTOM	FILL ON BOTTOM (M)	DRILLER SIGNATURE	HRS RUN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOK LOAD	SAFETY TOPIC	MACP	
1 MOTOR	7.21	8-22	156.0																	16.00	10.0	190	105	SLIP & CUT LINE	18675
1 FLOAT SUB	0.57																								
1 H.W.D.P.	27.86																								
1 80mm D.P. (1st)	518.13																								
1 BIT SUB	0.43																								
1 C.S.O. SCRAPER	1.08																								
1 DOUBLE PIN SUB	0.32																								

DAY TOUR

BIT	O.D.	BIT NO.	SIZE	TIME	DENSITY (KG/M3)	FUNNEL VISCOSITY	FLUID LOSS (CM3)	PH	DEPT. OUT	DEPT. IN	TOTAL M DRILLED	TOTAL HRS RUN	CUTTING STRUCTURE	HOLE CONDITION	HOLE DIA	TORQUE AT BOTTOM	FILL ON BOTTOM (M)	DRILLER SIGNATURE	HRS RUN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOK LOAD	SAFETY TOPIC	MACP	
1 MOTOR	7.21	8-22	156.0																	16.00	11.0	200	80	TRIPPING (CASING)	18675
1 FLOAT SUB	0.57																								
1 H.W.D.P.	27.86																								
1 80mm D.P. (1st)	518.13																								
1 BIT SUB	0.43																								
1 C.S.O. SCRAPER	1.08																								
1 DOUBLE PIN SUB	0.32																								

EVENING TOUR

BIT	O.D.	BIT NO.	SIZE	TIME	DENSITY (KG/M3)	FUNNEL VISCOSITY	FLUID LOSS (CM3)	PH	DEPT. OUT	DEPT. IN	TOTAL M DRILLED	TOTAL HRS RUN	CUTTING STRUCTURE	HOLE CONDITION	HOLE DIA	TORQUE AT BOTTOM	FILL ON BOTTOM (M)	DRILLER SIGNATURE	HRS RUN	BOILER	STACK TEMP	MAXIMUM EXPERIENCED HOOK LOAD	SAFETY TOPIC	MACP	
1 MOTOR	7.21	8-22	156.0																	16.00	10.0	190	125	SETTING PACKER	20489
1 FLOAT SUB	0.57																								
1 H.W.D.P.	27.86																								
1 80mm D.P. (1st)	518.13																								
1 BIT SUB	0.43																								
1 C.S.O. SCRAPER	1.08																								
1 DOUBLE PIN SUB	0.32																								

PASON DATAHUB
A188 58



CON 3422-2-011204

DRILLER'S PAYROLL DATA

WELL NAME & NO.	YEAR	MONTH	DAY
CHEVRON et al LIARD 2K-29	2003	3	21
CONTRACTOR	AKTA DRILLING LTD.		
OPERATOR	CHEVRON CANADA RESOURCES		
RIG MANAGER	DAVE LAUCK		
PROVIDOR			
N.W.T.			

CREW	SOC. INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		GP
ASSIST DRILLER		KEVIN VANDENBRAND	8.00		KV
DERRICK HAND		JUSTIN AMYOTTE	8.00		JA
MOTOR HAND		JESSY LESSARD	8.00		JA
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		GREG ST. ARNAUD	8.00		GS
LEASE HAND		RUFUS SANGUEZ	8.00		RS

CREW	SOC. INS. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SAL
ASSIST DRILLER TRAINEE		PATRICK BONNETROUGE	12.00		FB
DERRICK HAND		DON BLAYONE	12.00		DB
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
MOTOR MAN TRAINEE		DARREN HAZFENBERG	12.00		DH
FLOOR HAND		JASON MCKENZIE	12.00		JM
FLOOR HAND TRAINEE		CLIFFORD BONNETROUGE	12.00		CB
FLOOR HAND		GEOFF NYGREN	12.00		GN
LEASE HAND		SEAN WOLOSCH	12.00		SW
SAFETY CO-ORDINATOR (A.D)		DANIEL ALONSO	12.00		DA

CREW	SOC. INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	4.00		GP
ASSIST DRILLER		KEVIN VANDENBRAND	4.00		KV
DERRICK HAND		JUSTIN AMYOTTE	4.00		JA
MOTOR HAND		JESSY LESSARD	4.00		JA
FLOOR HAND		STEVE McLAUGHLIN	4.00		SM
FLOOR HAND		GREG ST. ARNAUD	4.00		GS
LEASE HAND		RUFUS SANGUEZ	4.00		RS



CDN 3422-2-011204

WELL NAME & NO. CHEVRON gsl LIARD 2K-29		YEAR 2003	MONTH 3	DAY 19
OPERATOR CHEVRON CANADA RESOURCES		CONTRACTOR AKITA DRILLING LTD.		
RIG MANAGER DAVE LAUCK		RIG NO. 58		
PROVINCE N.W.T.		RIG SAFETY DAYS 2210		
CAMP		YES ☒ NO ☐		

MORNING TOUR		0	800	HOURS	
CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		GP
ASSIST DRILLER		KEVIN VANDENBRAND	8.00		KV
DERRICK HAND		JUSTIN AMYOTTE	8.00		JA
MOTOR HAND		JESSY LESSARD	8.00		JL
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		GREG ST ARNAUD	8.00		GS
LEASE HAND		RUFUS SANGUEZ	8.00		RS
RATE SCHEDULE	X	REGULAR		REPAIR	
Crew SAFETY DAYS					
2210					

DAY TOUR		800	1600	HOURS	
CREW	SOC F.A. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SAL
DERRICK HAND		PATRICK BONNETROUGE	12.00		PSI
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		DARREN HAZENBERG	12.00		DM
FLOOR HAND		JASON MCKENZIE	12.00		JM
SAFETY CO-ORDINATOR (A.D.)		DANIEL ALONSJ	12.00		DA
LEASE HAND		CLIFFORD BONNETROUGE	12.00		CB
RATE SCHEDULE	X	REGULAR		REPAIR	
		CREW SAFETY DAYS			
		2210			

EVENING TOUR		1600	-	2400		INJURIES
CREW	SOC INS. NO.	NAME	HRS	YES	NO	
DRILLER		GARY PATRICK	4.00			GP
ASSIST DRILLER		KEVIN VANDENBRAND	4.00			KV
DERRICK HAND		JUSTIN AMYOTTE	4.00			JA
MOTOR HAND		JESSY LESSARD	4.00			JL
FLOOR HAND		STEVE McLAUGHLIN	4.00			SM
FLOOR HAND		GREG ST ARNAUD	4.00			GS
LEASE HAND		RUFUS SANGUEZ	4.00			RS
RATE SCHEDULE	X	REGULAR		REPAIR		INVERT
CREW SAFETY DAYS						
221A						



CON 3422-2-011204

WELL NAME & NO		YEAR	MONTH	DAY
CHEVRON et al LIARD 2K-29		2003	3	16
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
REG MANAGER		REG NO		
GARY PATRICK		56		
PROVINCIAL		REG SAFETY DAYS		
N.W.T.		2297		
CAMP	☒ YES	☐ NO		

[illegible]

DAY TOUR		800	1500	MILEAGE
CREW	SOC SEC. NO.	NAME	HRS	YES NO
DRILLER		KEVIN VANDENBRAND	12.00	KV
SAFETY CO-ORDINATOR		JUSTIN KELLY	12.00	JK
DERRICK HAND		JUSTIN AMYOTTE	12.00	JA
MOTOR HAND		JESSY LESSARD	12.00	JL
FLOOR HAND		STEVE McLAUGHLIN	12.00	SM
FLOOR HAND		GREG ST ARNAUD	12.00	GS
LEASE HAND		LEAF DODGE	12.00	LD
RATE SCHEDULE	X	REGULAR		REPAIR
				PAYERT
CREW SAFETY DAYS				
2207				

[illegible]

LICENCE NO. WELL NAME & NO.

SOL99 CHEVRON et al LIARD 2K-29

OPERATION

CHEVRON CANADA RESOURCES

SURFACE LOCATION

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

PAUL GOUIN

CONTRACTOR

AKITA DRILLING LTD.

LAQUELLE

2K-29

SIGNATURE OF CONTRACTOR'S RIG MANAGER

GARY PATRICK

DAILY CHECKS

1. Daily Well Around Inspection
2. Drilled Inspection (Using Check List)
3. 100% Rig Safety Inspection (Using Check List)
4. Well Location & Well Diagram Posted
5. Flare Line Aligned
6. BOP (COP) Performance
7. Heavy Support BOPs Flare Line & Engage Line
8. Rig Site Health & Safety (HSE) (Environment)
9. LUGS (Rig Site Inspection) (Environment)
10. Mast Inspection (Safety Rating) (Environment)
11. Crown Saver Check
12. Motorable Check

YEAR 2003 MONTH 3 DAY 15

RIG NO. 58

WELL NO. 174

TEMPERATURE

CURRENT CONDITION

WIND DIRECTION

WIND SPEED

WIND CONDITION

SLIPPERY

O.D. (mm)

MIN. (mm)

W.T. (mm)

MADE

GRADE

NO. OF JOINTS

TOTAL LENGTH

KB TO CUB HEAD

SET AT (m)

CONDUCTOR

SIDERCA

K-55

51

727.35

6.73

734.00

3068.13

6.17

3074.30

177.8

158.4

38.89

Hydro

177.8

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PASON DATAHUB

AAU 58

CON 3122-2-011204



WELL NAME & NO. CHEVRON et al LIARD 2K-29 YEAR 2003 MONTH 3 DAY 15

OPERATION CHEVRON CANADA RESOURCES CONTRACTOR AKITA DRILLING LTD.

RIG MANAGER GARY PATRICK RIG NO. 58

PROVINCE N.W.T. CAMP X YES NO RIG SAFETY DAYS 2206

MORNING TOUR 0 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 8.00 AL

DERRICK HAND JERRY FOLEY 8.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 8.00 VN

FLOOR HAND MOISE PUNCH 8.00 MP

FLOOR HAND EDWARD FRASER 8.00 EF

LEASE HAND CHRIS SALYERS 8.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 0

DAY TOUR 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER KEVIN VANDENBRAND 12.00 KV

SAFETY CO-ORDINATOR JUSTIN KELLY 12.00 JK

DERRICK HAND JUSTIN AMYOTTE 12.00 JA

MOTOR HAND JESSY LESSARD 12.00 JL

FLOOR HAND STEVE McLAUGHLIN 12.00 SM

FLOOR HAND GREG ST ARNAUD 12.00 GS

LEASE HAND LEAF DODGE 12.00 LD

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 2206

EVENING TOUR 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 4.00 AL

DERRICK HAND JERRY FOLEY 4.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 4.00 VN

FLOOR HAND MOISE PUNCH 4.00 MP

FLOOR HAND EDWARD FRASER 4.00 EF

LEASE HAND CHRIS SALYERS 4.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 1

WELL NAME & NO. CHEVRON et al LIARD 2K-29 YEAR 2003 MONTH 3 DAY 15

OPERATION CHEVRON CANADA RESOURCES CONTRACTOR AKITA DRILLING LTD.

RIG MANAGER GARY PATRICK RIG NO. 58

PROVINCE N.W.T. CAMP X YES NO RIG SAFETY DAYS 2206

MORNING TOUR 0 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 8.00 AL

DERRICK HAND JERRY FOLEY 8.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 8.00 VN

FLOOR HAND MOISE PUNCH 8.00 MP

FLOOR HAND EDWARD FRASER 8.00 EF

LEASE HAND CHRIS SALYERS 8.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 0

DAY TOUR 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER KEVIN VANDENBRAND 12.00 KV

SAFETY CO-ORDINATOR JUSTIN KELLY 12.00 JK

DERRICK HAND JUSTIN AMYOTTE 12.00 JA

MOTOR HAND JESSY LESSARD 12.00 JL

FLOOR HAND STEVE McLAUGHLIN 12.00 SM

FLOOR HAND GREG ST ARNAUD 12.00 GS

LEASE HAND LEAF DODGE 12.00 LD

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 2206

EVENING TOUR 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 4.00 AL

DERRICK HAND JERRY FOLEY 4.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 4.00 VN

FLOOR HAND MOISE PUNCH 4.00 MP

FLOOR HAND EDWARD FRASER 4.00 EF

LEASE HAND CHRIS SALYERS 4.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 1

WELL NAME & NO. CHEVRON et al LIARD 2K-29 YEAR 2003 MONTH 3 DAY 15

OPERATION CHEVRON CANADA RESOURCES CONTRACTOR AKITA DRILLING LTD.

RIG MANAGER GARY PATRICK RIG NO. 58

PROVINCE N.W.T. CAMP X YES NO RIG SAFETY DAYS 2206

MORNING TOUR 0 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 8.00 AL

DERRICK HAND JERRY FOLEY 8.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 8.00 VN

FLOOR HAND MOISE PUNCH 8.00 MP

FLOOR HAND EDWARD FRASER 8.00 EF

LEASE HAND CHRIS SALYERS 8.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 0

DAY TOUR 800 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER KEVIN VANDENBRAND 12.00 KV

SAFETY CO-ORDINATOR JUSTIN KELLY 12.00 JK

DERRICK HAND JUSTIN AMYOTTE 12.00 JA

MOTOR HAND JESSY LESSARD 12.00 JL

FLOOR HAND STEVE McLAUGHLIN 12.00 SM

FLOOR HAND GREG ST ARNAUD 12.00 GS

LEASE HAND LEAF DODGE 12.00 LD

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 2206

EVENING TOUR 1600 2400

CREW SOC INS. NO. NAME HRS YES NO

DRILLER ALLAN LICKOCH 4.00 AL

DERRICK HAND JERRY FOLEY 4.00 JF

MOTOR HAND VIRGIL NANAQUAWETUNG 4.00 VN

FLOOR HAND MOISE PUNCH 4.00 MP

FLOOR HAND EDWARD FRASER 4.00 EF

LEASE HAND CHRIS SALYERS 4.00 CS

RATE SCHEDULE X REGULAR REPAIR INVERT

CREW SAFETY DAYS 1

LICENCE NO: SDL99 WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE OPERATOR: CHEVRON CANADA RESOURCES CONTRACTOR: AKITA DRILLING LTD. SURFACE LOCATION: 2K-29 SIGNATURE OF OPERATOR'S REPRESENTATIVE: PAUL GOUIN SIGNATURE OF CONTRACTOR'S RIG MANAGER: GARY PATRICK

DAILY CHECKS: 1. Daily Work Around Inspection 2. Detailed Inspection Weekly (Using Check List) 3. High Signs Present & Reported 4. High Signs & Back (Signage) Present 5. Flow Lines Monitored 6. Back Drifts Monitored 7. Weekly Inspected Body, Flow Lines & Degreaser Lines 8. Rig Site Health & Safety Meeting (weekly/monthly) 9. CASC Rig Site Inspection Checklist (weekly/monthly) 10. Mast Inspection before Raising or Lowering 11. Crown Saver Checked 12. Motor Vibe Checked

TEMPERATURE: 508.0 244.5 224.4 58.53 CONDUCTOR: SIDERICA GRADE: K-55 NO. OF JOINTS: 1727.35 KB TO CNG HEAD: 6.73 SET AT (m): 20.00

CURRENT CONDITIONS: DC/DP: 177.8 159.4 38.69 MASS: 19.83 X-95 70 89 3.5 IF 296 F-1000 EMSCO 254 WIND DIRECTION: 89 23.07 X-95 67 89 3.5 IF 125 F-1000 EMSCO 254 ROAD DIRECTION: 421

PASON DATAHUB AREA 58 CON 3422-2-011204

CAOCD

GROUP & YEAR	DRILL ACTUAL	REMARKS	CORING	COND. MUD & CIRC	TRIPS	NO. SERVICE	REMARKS	CUT OFF DRILL LINE	CTV SURVEY	WIRELINE LOGS	RUN CDS	WAT ON CEMENT	WIPPLE UP	TEST S.O.P	DRILL TEST	PLUG BACK	WATER CEMENT	FISHING	DR. WORK	SAFETY	STOP DRILL
WORK	2.75			1.50	3.25			0.50													
DAY	6.75								1.00											0.25	
WTD	6.50					0.25			0.50										0.50	0.25	
TOTAL	16.00			1.50	3.25	0.25		0.50	1.50										0.50	0.25	0.25

MORNING TOUR

MUD TYPE: X WATER BASED OIL BASED FROM: 3406.00 TO: 3415.00 D-R-C: 10 WOB: 4

DETAILS OF OPERATIONS IN SEQUENCE & REMARKS: R.L.H. to 3100m (fill pipe @ 1000m, 2000m, 2500 m, & 3100m) Cut & Slip 20m R.L.H. 1/3 100m to 3200m Wash Down 1/3200m to 3406m (light spots 3200m (3223m-3233m) (3337m-3342m) Drill 156mm Hole from 3406m to 3415m

MUD MATERIALS ADDED: PRODUCT: LIME AMOUNT: 4 UNIT: BAGS

SOLIDS CONTROL: DESILTER: 11800 127.0 127.0 80

REDUCED PUMP SPEED: 11800 127.0 127.0 80

DEVIATION SURVEYS: DEPTH (M) DEVIATION DIRECTION

DRILLER SIGNATURE: ALLAN LICKOCH

BOILER: 18.00 10.0 195

MAXIMUM EXPERIENCED HOOK LOAD: 105

SAFETY TOPIC: Trapping

MACP: 18750

MORNING TOUR

CREW: ALLAN LICKOCH, JERRY FOLEY, VIRGIL NANAQUAWETUNG, MOISE PUNCH, EDWARD FRASER, CHRIS SALVERS

RATE SCHEDULE: X REGULAR REPAIR INVERT

CREW SAFETY DAYS: 2202

DAY TOUR

MUD TYPE: X WATER BASED OIL BASED FROM: 3415.00 TO: 3446.00 D-R-C: 10 WOB: 4

DETAILS OF OPERATIONS IN SEQUENCE & REMARKS: DRILL 156mm HOLE FROM 3415 TO 3424 BOP DRILL WELL SECURED IN 1min DRILL FROM 3424 TO 3446 DEV. SURVEY ACCUMULATED SURVEY TIME

MUD MATERIALS ADDED: PRODUCT: KELZAN XCD AMOUNT: 7 UNIT: BAGS

SOLIDS CONTROL: DESILTER: 11800 127.0 127.0 80

REDUCED PUMP SPEED: 5700 127.0 127.0 50

DEVIATION SURVEYS: DEPTH (M) DEVIATION DIRECTION

DRILLER SIGNATURE: KEVIN VANDENBRAND

BOILER: 18.00 10.0 190

MAXIMUM EXPERIENCED HOOK LOAD: 105

SAFETY TOPIC: H2S DRILL

MACP: 18999

DAY TOUR

CREW: KEVIN VANDENBRAND, JUSTIN KELLY, JUSTIN AMYOTTE, JESSY LESSARD, STEVE McLAUGHLIN, GREG ST ARNAUD, LEAF DODGE

RATE SCHEDULE: X REGULAR REPAIR INVERT

CREW SAFETY DAYS: 7

EVENING TOUR

MUD TYPE: X WATER BASED OIL BASED FROM: 3446.00 TO: 3470.00 D-R-C: 10 WOB: 4

DETAILS OF OPERATIONS IN SEQUENCE & REMARKS: DRILL FROM 3443 TO 3453 RIG SERVICE FUNCTION ANNUAL 2000C/LCS, CHECKED RSPP DRILL FROM 3453 TO 3470m Pre-Tour Safety Meeting DIR. WORK Orient Tool Face Drill 156mm Hole from 3457m to 3470m Accumulated Survey Times

MUD MATERIALS ADDED: PRODUCT: LIME AMOUNT: 4 UNIT: BAGS

SOLIDS CONTROL: DESILTER: 10700 127.0 127.0 80

REDUCED PUMP SPEED: 4800 127.0 127.0 45

DEVIATION SURVEYS: DEPTH (M) DEVIATION DIRECTION

DRILLER SIGNATURE: ALLAN LICKOCH

BOILER: 18.00 10.0 200

MAXIMUM EXPERIENCED HOOK LOAD: 108

SAFETY TOPIC: P.P.E

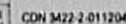
MACP: 18999

EVENING TOUR

CREW: ALLAN LICKOCH, JERRY FOLEY, VIRGIL NANAQUAWETUNG, MOISE PUNCH, EDWARD FRASER, CHRIS SALVERS

RATE SCHEDULE: X REGULAR REPAIR INVERT

CREW SAFETY DAYS: 2202



WELL NAME & NO		YEAR		MONTH		DAY	
CHEVRON FT LAND 2K-20 SURFACE		2003		3		8	
OPERATOR		CONTRACTOR					
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.					
RIG MANAGER						RIG NO.	
DAVE LAUCK						58	
PROB NO.						RIG SAFETY DAYS	
N.W.T.						2199	
LEAD		☒ YES		☐ NO			

[illegible]

DAY TOUR		800	1600	SUMMARY	
CREW	BOC INS. NO.	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	12.00		AL
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		JERRY FOLEY	12.00		JF
MOTOR HAND		VIRGIL NANAQUAWETUNG	00		VN
FLOOR HAND		MOISE PUNCH	12.00		MP
FLOOR HAND		EDWARD FRASER	12.00		EF
LEASE HAND		CHRIS SALVERS	12.00		CS
RATE SCHEDULE		X	REGULAR		REPAIR
					INVERT
CREW SAFETY DAYS					
4					

[illegible]



CDN 3422-2-011204

[illegible]

WELL NAME & NO.		YEAR	MONTH	DAY
CHEVRON FT LIARD 3K-29 SURFACE		2003	3	7
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
PRO MANAGER		RIG NO.		
DAVE LAUCK		58		
PRODUCTION		PRO SAFETY DATA		
N.W.T.		2190		

NO.	L-107H				MORNING TOUR				L-107H				DETAILS OF OPERATIONS IN SEQUENCE & REMARKS																				
	BT	O.D.	0.20	BT NO	11	MUD TYPE		WATER BASED		OIL BASED		FROM	TO	D-R	WPM	WOB	FROM	TO	R. SPEED	CODE													
1	MOTOR	185	7.30	SIZE	155.5	TA	200	46.0	600	3241.00	3270.00	D	11	4	0	245	2.75	7	DRLG 156mm HOLE @ 3241m to 3250m														
2	FLOAT SUB	125	0.51	INDC CODE		DENSITY (KG/M3)	1020	1020	1020							245	300	0.25	7	RIG SERVICE, FUNCTIONED HYDR. C/O 21sec.													
3	U800 TAP	125	0.70			FUNNEL VISCOSITY	49	46	47							300	730	4.50	2	DRLG 156mm HOLE @ 3250m to 3270m													
4	NMDC	88	0.50	MANUFACTURER	HUGHES	FLUID LOSS (cm3)	13.0	14.0	11.5							730	800	0.50	10	DEV. SURV. V (accumulated time)													
5	NMDC	106	0.48	TYPE	STR382DG3K	pH	10.5	10.5	10.5							800																	
6	H.W.D.P.	124	27.46	SERIAL NO.	1904745	PVT	81.80	82.80	83.50																								
				12.7	12.7	MUD MATERIALS ADDED		SOLIDS CONTROL				CIRCULATION PRESSURE (KPa)		PUMP NO. 1		PUMP NO. 2																	
						PRODUCT		AMOUNT		UNIT						LITER SIZE		SPM															
				DEPTH OUT		CALUSTIC		2		SA						100G0		127.0															
				DEPTH IN	3075.00	DRISPAK		7		SA		DESILTER				REDUCED PUMP SPEED																	
				TOTAL MDRILLED	195.00	SODIUM SULPHITE		3		SA		HOURS RUN				5200		50															
				TOTAL MHS RUN	35.75	KELZAN XCD		3		SA		INTAKE DENSITY (KG/M3)				OVER FLOW DENSITY		UNDER FLOW DENSITY															
				CUTTING STRUCTURE		WATER		8		m3		CENTRIFUGE				DEPTH (M)		DEVIATION		DIRECTION													
				T1	T2	MDC	LOC	BRG	GDC	ODC	REASON PULLED	TOTAL MHS RUN																					
111	D.P.	STANDS	3224.15																		NOTES: FUNCTIONED CROWN SAVER, CHECKED DEADMAN & FASTLINE CLAMPS BOKER BLOW DOWN 5 X3 15SEC EACH (20.4s). FUEL @ 90-95 15sec CHECKED BOP & MANDFOLD VALVES & ACCUMULATOR VALVES. PRESSURE 2.2 FLUID LEVEL 32m INSPECTED FIRE EXTINGUISHERS & EYE WASH STATION & AND FIRST AID KIT (CAM)												
	D.P.	SINKERS																															

[illegible][illegible]

DAY TOUR		800	1600	HOURS	
CREW	DOC INS NO	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	12.00		AL
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		JERRY FOLEY	12.00		JF
MOTOR HAND		VIRGIL NANAQUAWET	12.00		VN
FLOOR HAND		MOISE PLINCH	12.00		MP
FLOOR HAND		EDWARD FRASER	12.00		EF
LEASE HAND		CHRIS SALVERS	12.00		CS
RATE SCHEDULE ☒ REGULAR ☐ REPAIR ☐ INVERT					
CREW SAFETY DAYS					
3					

LUNGSCH		EVENING TOUR										DETAILS OF OPERATIONS IN SEQUENCE & REMARKS											
FIT		O.D.	WT NO	MUD TYPE		X	WATER BASED	OIL BASED	FROM	TO	D-R	RPM	WOB	FROM	TO	DEPTH	CODE						
MOTOR	125	7.30	11	TAKE	1800	2100	2400		3297.00	3308.00	D	10	4	1800	1845	2.75	2						
FLOAT SUB	125	0.53	SIZE	DENSITY (KG/M3)	1030	1025	1030							1845	2045	2.00	5						
UP/D TMR	125	0.70	SAC CODE	FUNNEL VISCOSITY	45	46	47							2045	2100	0.25	22						
AMDC	88	9.30	MANUFACTURER	FLUID LOSS (cm)	11.0	8.0	8.5							2100	2230	1.50	5						
AMDC	100	3.48	TYPE	PH	10.5	10.5	10.5							2230	2300	0.50	22						
H.W.D.P.	124	27.61	SERIAL NO	P.V.L	83.80	81.90	82.70							2300	2400	1.00	5						
				MUD MATERIALS ADDED				SOLIDS CONTROL				CIRCULATION PRESSURE				PUMP NO. 1				PUMP NO. 2			
				PRODUCT				AMOUNT				UNIT				LITER				SPM			
				DEPTH OUT								10200				127.0				127.0			
				DEPTH IN				3075.00															
				TOTAL H DRILLED				233.00															
				TOTAL HRS RUN				45.25															
				CUTTING STRUCTURE																			
				B				F				M				D				C			
				H				K				L				S				G			
				A				D				C				K				P			
				TOTAL				RUN				HRS											
				HOLE CONDITION																			
				HOLE DIA				30 UP / 15 DN															
				TORQUE AT BOTTOM				9600															
				PUL ON BOTTOM IN				0.00															
				HOURS RUN																			
				INTAKE DENSITY (KG/M3)																			
				OVER FLOW DENSITY																			
				UNDER FLOW DENSITY																			
				DRILLER SIGNATURE																			
				SCOTT LOWEN																			
				BOLSER				BOLSER				STACK TEMP				MAXIMUM EXPLOSION HOOK LOAD				SAFETY TOPIC			
				18.00				11.0				210				110				ELMACCO BRAKE			
				18801																			

[illegible]

YEAR	2003	WEEK	3	DAY	6	O.D.	INS.D.	WGT.	NAME	GRADE	NO. OF JOINTS	TOTAL LENGTH	INS TO CLOS HEAD	SET AT FT	
INS NO	53					508.0			CONDUCTOR					20.00	
						244.5	224.4	58.53	COEDUCA	K-55	51	727.35	6.73	734.00	
185						177.8	159.4	38.69	Hydro	L-80	223	3068.13	6.17	3074.30	
TEMPERATURE						INS. TOP	MAJUS	GRADE	MINIMUM	T. JNT	TYPE	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROK LENGTH
CURRENT CONDITIONS						69	19.83	K-95	70	89	3.5 IF	295	F-1000	EMSCO	254
WATER DIRECTION						69	23.07	X-95	67	69	3.5 IF	125	F-1000	EMSCO	254
WATER CONDITION												125			254



CDN 3422-2-011204

TOTALS		NO. TIME	TIME	M/2 S.S.C. = 4479	MP/ON	DAY	EVE
8.00	7	TOP	7.0	Total Mergines = 1,007,220			
8.00	175	TOP	175	TOP DRIVE Hrs. TODAY = 21.50			
8.00	175	MIDDLE	175	TOP DRIVE Hrs. THIS WELL = 580.50			
24.00	326	BOTTOM	326				

WELL NAME & NO.	YEAR	MONTH	DAY
CHEVRON FT LARD 2K-29 SURFACE	2003	3	8
OPERATOR	CONTRACTOR		
CHEVRON CANADA RESOURCES	AKOTA DRILLING LTD.		
WEL MANAGER	WEL NO.		
DAVE LAUCK	08		
PRODUCER	WEL SAFETY DAYS		
AL NAME	CAMP	☒ X	☐ WEL 2
			☐ WEL 1

WOB	FROM	TO	RAMP TIME	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS
4	0	715	7.25	2	DRLG 156mm HOLE V 3128m to 3170m
	715	730	0.25	7	RIG SERVICE, FUNCTIONED TOP PIPE RAMS QVC 7SEC
	730	800	0.50	10	DEV. SURVEY (accumulated time)
	800				
P NO. 2					
SPI					
3161					
SECTION					
7					
9					
NOTES : FUNCTIONED CROWN SAYER, CHECKED DEADMAN & FASTLINE CLAMP					
CHECKED BOP & MANFOLD VALVES & ACCUMULATOR VALVES. PRESSURES & FLUID LEVEL 32cm					
BOLDED BLOW DOWNS 2 @ 15sec					
TEST RUN	BOLTER psi	STACK TEMP	MAXIMUM EXPERIENCED HOOK LOAD	SAFETY TOPIC	MADP
16 DC	11.0	210	110		1803

[illegible]

	WOB	FROM	TO	RAPID TIME	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS
4		600	1215	4.25	7	Drl 156mm Hole from 3170m to 3190m
		1215	1230	0.25	7	Rig Service Function Annular 19 sec. o/s Checked RSPP
		1230	1500	2.50	7	Drl 156mm Hole from 3190mm to 3208m
		1500	1600	1.00	10	Accumulated Survey Times
		1600				
PAGE NO.						
SUPV						
3181						
SECTION						
NOTES	Checked Crown Saver, Fastline Clamp, Deadline Anchor, Breaks & Linkage Blow down boilers three times					
BOLTER						
SOILER #1	16.00	10.0	220	103	Mixing Mud	NACP

[illegible][illegible][illegible]

LICENCE NO. 5DL99
WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE

OPERATOR: CHEVRON CANADA RESOURCES
CONTRACTOR: AKITA DRILLING LTD.
SURFACE LOCATION: 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE: PAUL GOVIN
SIGNATURE OF CONTRACTOR'S RIG MANAGER: DAVE LAUCK

- DAILY CHECKS
1. Only Well Award Inspection
 2. Control Inspection (Wash / Pump / Line)
 3. HSE Sign Posting / Inspection
 4. Well Location & Block Diagram Posted
 5. Flow Line Washed
 6. BOP Daily Post Check
 7. Visually Inspect BOPs, Flow Lines & Engage Lines
 8. Rig Site Health & Safety Meeting (overhead)
 9. CAODC Rig Field Inspection Checklist (overhead)
 10. Mast Inspection before Raising or Lowering
 11. Crown Block Check
 12. Mast Wire Check

YEAR	MONTH	DAY	Q.D.	M.H.D.	Light	MAVE	ORAC	MS of JOINTS	TOTAL LENGTH	MS TO CSB HEAD	SET AT (m)
2003	5	5	508.0	224.5	59.53	SIDERCA	K-55	51	777.35	6.73	734.00
			177.8	159.4	38.69	Hydri	L-80	223	3068.13	6.17	3074.30
TEMPERATURE	DEPTH	SIZE	MASS	GRADE	MINIMUM	T. INT	TYPE	NO. of JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH
CURRENT	89	19.83	X-95	70	89	3.5 F	290	F-1000	EMSCO		254
WIRE DIRECTION	89	21.07	X-95	87	89	3.5 F	125	F-1000	EMSCO		254
WIRE TENSION								421			

PASON DATAHUB
Area 58
CDN 3422-2-011204



GROUP & STANDARDS	DRILL ACTION	REMARKS	CONNO	CONNO M.D. & CONC	STOPS	RIG SERVICE	REPAIR	CUT OFF (DPS) LINE	DEV. SURVEY	WIRELINE LOGS	RUN CSD	WAIT ON CEMENT	SHUT IN	TEST	DRILL-TEST	FLUG BACK	BARRETT CEMENT	POSTING	DR. WORK	SAFETY MEETING	LOG-UP	DR. DM	FT	TOTALS	NO. OF JOINTS	TYPE	NO. OF JOINTS	PUMP TYPE	PUMP MANUFACTURER	STROKE LENGTH
WASH				0.25	2.75															0.25	4.75			8.00	50	TOP	50	TOP	Total Megapascals = 1,006.217	
FLUG	0.50			3.25	0.25															0.25	7.50	1.25		8.00	50	MIDDLE	50	MIDDLE	TOP DRIVE Hrs. TODAY = 13.50	
FLUG	8.50			0.50		0.25			0.75												4.75	2.50	1.25	8.00	50	BOTTOM	50	BOTTOM	TOP DRIVE Hrs. THIS WELL = 559.0	
TOTAL	7.00			4.00	3.00	0.75			0.75											0.50	4.75	2.50	1.25	24.00	50					

NO.	BIT	O.D.	LENGTH	BIT NO.	TIME	MUD TYPE	WATER BASED	OIL BASED	FROM	TO	D-R-C	RPM	WOB	FROM	TO	BLANKED	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS
1	MOTOR	125	7.30	SIZE	155.5													H2S DRILL, VELL SECURE IN 50sec
1	FLOAT SUB	125	0.53	W.C. CODE		DENSITY (KG/M)												PAU PIPE & RH TO 3003m
1	UBHO TAP	125	0.70	MANUFACTURER	HUGHES	FUNNEL VISCOSITY												TAG CMT STRINGER @ 3003m, WASH TG 3012m
1	MAJOC	88	9.50	TYPE	STR382DQ3K	FLUID LOSS (cm)												TRIP OUT & RACK 2683m IN DERRICK
1	MAJOC	100	9.48	SERIAL NO.	1904745	pH												PAU 68 JLS. W/ LAY DOWN TRUCK
1	H.W.D.P.	124	27.66	DEPTH OUT	12.7	12.7												RIG OUT LAY DOWN CREW
				DEPTH IN	3075.00													TRIP OUT & RACK 22 Sds. 15.5 LB/FT IN DERRICK
				TOTAL M DRILLED														RH W/ 22 Sds. 13.3 LB/FT
				TOTAL HRS RUN														
				CUTTING STRUCTURE														
				T. 1s	MOD	LOC	BRG	GAGE	ODC	REASON	PULLED	TOTAL	RUN	MPH				
				HOLE CONDITION														
				WIRE DRAG														
				TORQUE AT BOTTOM														
				FILL ON BOTTOM IN														
				DRILLER SIGNATURE														
				SCOTT LOWEN														
				HRS RUN														
				16.00														
				STACK TWP														
				210														
				MAXIMUM EXPERIENCED HOOK LOAD														
				100														
				SOPH2S DRILL														
				SAFETY TOPC														
				MACP														

NO.	BIT	O.D.	LENGTH	BIT NO.	TIME	MUD TYPE	WATER BASED	OIL BASED	FROM	TO	D-R-C	RPM	WOB	FROM	TO	BLANKED	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS
1	MOTOR	125	7.30	SIZE	155.5													SAFETY MTG.
1	FLOAT SUB	125	0.53	W.C. CODE		DENSITY (KG/M)												R.H. to 2988m
1	UBHO TAP	125	0.70	MANUFACTURER	HUGHES	FUNNEL VISCOSITY												Wash Down from 2988m to 3044m
1	MAJOC	88	9.50	TYPE	STR382DQ3K	FLUID LOSS (cm)												Drill out Float Collar & Drill Cement to 3075m Drill out Shoe
1	MAJOC	100	9.48	SERIAL NO.	1904745	pH												Drill 156mm Hole from 3075m to 3080m
1	H.W.D.P.	124	27.66	DEPTH OUT	12.7	12.7												Circ Bottoms Up Sample
				DEPTH IN	3075.00													Perform Formation Integrity Test
				TOTAL M DRILLED														Displace Hole from Water to Mud
				TOTAL HRS RUN														
				CUTTING STRUCTURE														
				T. 1s	MOD	LOC	BRG	GAGE	ODC	REASON	PULLED	TOTAL	RUN	MPH				
				HOLE CONDITION														
				WIRE DRAG														
				TORQUE AT BOTTOM														
				FILL ON BOTTOM IN														
				DRILLER SIGNATURE														
				ALLAN LICKOCH														
				HRS RUN														
				16.00														
				STACK TWP														
				200														
				MAXIMUM EXPERIENCED HOOK LOAD														
				100														
				SOPH2S DRILL														
				SAFETY TOPC														
				MACP														

NO.	BIT	O.D.	LENGTH	BIT NO.	TIME	MUD TYPE	WATER BASED	OIL BASED	FROM	TO	D-R-C	RPM	WOB	FROM	TO	BLANKED	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS
1	MOTOR	125	7.30	SIZE	155.5													Displace Hole to Mud
1	FLOAT SUB	125	0.53	W.C. CODE		DENSITY (KG/M)												Drill 156mm Hole from 3080m to 3104m
1	UBHO TAP	125	0.70	MANUFACTURER	HUGHES	FUNNEL VISCOSITY												RIG SERVICE, FUNCTIONED BITTUM PIPE RAMS C/O Tasc
1	MAJOC	88	9.50	TYPE	STR382DQ3K	FLUID LOSS (cm)												DRUG 156mm HOLE @ 3104 m to 3128m
1	MAJOC	100	9.48	SERIAL NO.	1904745	pH												DEV. SURVEY (accumulated time)
1	H.W.D.P.	124	27.66	DEPTH OUT	12.7	12.7												
				DEPTH IN	3075.00													
				TOTAL M DRILLED														
				TOTAL HRS RUN														
				CUTTING STRUCTURE														
				T. 1s	MOD	LOC	BRG	GAGE	ODC	REASON	PULLED	TOTAL	RUN	MPH				
				HOLE CONDITION														
				WIRE DRAG														
				TORQUE AT BOTTOM														
				FILL ON BOTTOM IN														
				DRILLER SIGNATURE														
				SCOTT LOWEN														
				HRS RUN														
				16.00														
				STACK TWP														
				210														
				MAXIMUM EXPERIENCED HOOK LOAD														
				110														
				DRUG														
				SAFETY TOPC														
				19032														

WELL NAME & NO.		YEAR		MONTH		DAY	
CHEVRON FT LIARD 2K-29 SURFACE		2003		3		5	
CREATOR		CONTRACTOR		REG NO			
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD		58			
REG MANAGER		CAMP		X		YES	
DAVE LAUCK		NO		YES		2196	
PROVINCE		N.W.T.		REG SAFETY DAYS			
MORNING TOUR		0		800		INJURIES	
CREW		DOC B.S. NO.		NAME		HRS	
DRILLER				SCOTT LOWEN		8.00	
DEFRIK HAND				PATRICK BONNETROUCES		8.00	
MOTOR HAND				CAMILLE KOOTENAY		8.00	
FLOOR HAND				DARREN HAZENBERG		8.00	
FLOOR HAND				JASON MCKENZIE		8.00	
LEASE HAND				CLIFFORD BONNETROUCES		8.00	
RATE SCHEDULE		X		REGULAR		REPAIR	
						INVERT	
				CREW SAFETY DAYS			
				2196			
DAY TOUR		800		1600		INJURIES	
CREW		DOC B.S. NO.		NAME		HRS	
DRILLER				ALLAN LICKOCH		12.00	
ASSIST DRILLER				DANIEL FLONSO		12.00	
DERRICK HAND				JERRY FOLEY		12.00	
MOTOR HAND				VIRGIL NANAKUWETUNG		12.00	
FLOOR HAND				MOISE PUNCH		12.00	
FLOOR HAND				EDWARD FRASER		12.00	
LEASE HAND				CHRIS SALVERS		12.00	
RATE SCHEDULE		X		REGULAR		REPAIR	
						INVERT	
				CREW SAFETY DAYS			
				2196			
EVENING TOUR		1600		2400		INJURIES	
CREW		DOC B.S. NO.		NAME		HRS	
DRILLER				SCOTT LOWEN		4.00	
DERRICK HAND				PATRICK BONNETROUCES		4.00	
MOTOR HAND				CAMILLE KOOTENAY		4.00	
FLOOR HAND				DARREN HAZENBERG		4.00	
FLOOR HAND				JASON MCKENZIE		4.00	
LEASE HAND				CLIFFORD BONNETROUCES		4.00	
RATE SCHEDULE		X		REGULAR		REPAIR	
						INVERT	
				CREW SAFETY DAYS			
				2196			

PASON DATAHUB
AKKA 98
CDN 3422-2-011204



WELL NAME & NO		YEAR	MONTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	3	4
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
RIG MANAGER		RIG NO		
DAVE LAUCK		58		
PRODUCER		RIG SAFETY DIRS		
N.W.T.		2156		
COMP	☒ YES	☐ NO		

MORNING TOUR		0	800	BLANKS
CREW	SOC INS. NO.	NAME	HRS.	YES
DRILLER		SCOTT LOWEN	8.00	
DERRICK HAND		PATRICK BONNETROUGE	8.00	
MOTOR HAND		CAMILLE KOOTENAY	8.00	
FLOOR HAND		DARREN HAZENBERG	8.00	
FLOOR HAND		JASON MCKENZIE	8.00	
LEASE HAND		CLIFFORD BONNETROUGE	8.00	
RATE SCHEDULE		REGULAR	REPAIR	X
CREW SAFETY DAYS				

DAY TOUR		800	1600	NIGHT TOUR	
Crew	SOC INS NO.	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	12.00		AL
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		JERRY FOLEY	12.00		JF
MOTOR HAND		VIRGIL NANAQUAWETUNG	.00		VN
FLOOR HAND		MOISE PUNCH	12.00		MP
FLOOR HAND		EDWARD FRASER	12.00		EF
LEASE HAND		CHRIS SALVERS	12.00		CS
RATE SCHEDULE		REGULAR	REPAIR	X	INVERT.
CREW SAFETY DAYS					

[illegible]

CHEVRON FT LIARD 2X-29 SURFACE

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AKITA DRILLING LTD

1942-43

2K-29

SIGNATURE OF CONTRACTOR'S REG. MGR.

PAUL GUIN

DAVE LAUCK

A420 56

CDN 3422-2-01120

WELL NAME & NO.	YEAR	SHEET	SAT
CHEVRON FT LARD 2K-29 SURFACE	2003	3	3
OPERATOR	CONTRACTOR		
CHEVRON CANADA RESOURCES	AKITA DRILLING LTD.		
DRILLER(S)	WELL NO.		
DAVE LAUCK	08		
WELL NO.	WELL SAFETY DATE		
N.W.Y.	2/16		
CAMP	☐ YES ☐ NO		

RATE SCHEDULE	REGULAR	REPAIR	X	INVERT
CREW SAFETY DAYS				
2194				

DAY TOUR		800	1800	KLAUS	
CREW	VOC IN NO	NAME	HRS	YT3	IN
DRILLER		SCOTT LOWEN	12.00		SA
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		PATRICK BONNETROUGE	12.00		PB
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		DARREN HAZENBERG	12.00		DH
FLOOR HAND		JASON MCKENZIE	12.00		JM
LEASE HAND		CLIFFORD BONNETROUGE	12.00		CB

RATE SCHEDULE	REGULAR	REPAIR	X	WWT
CREW SAFETY DAYS				
2194				

EVENING TOUR		1800	2400	INAPPROPRIATE	
CREW	SOC. NO. 500	NAME	HRS.	YES	NO
DRILLER		ALLAN LICKOCH	8.00		AL
GERRICK HAND		JERRY FOLEY	8.00		JF
MOTOR HAND		VIRGIL NAWQUAWETUNG	8.00		YN
FLOOR HAND		MOISE PUNCH	8.00		MP
FLOOR HAND		EDWARD FRASER	8.00		EF
LEASE HAND		CHRIS SALVERS	8.00		CS

100

DATE SCHEDULE	PERIOD	REMARK	X	THREAT
CROW SAFETY GAYS				
2154				

LICENCE NO. WELL NAME & NO.

SDL99 CHEVRON FT LIARD 2K-29 SURFACE

OPERATOR CHEVRON CANADA RESOURCES

CONTRACTOR AKITA DRILLING LTD.

SURFACE LOCATION 2K-29

UNIQUE ID 2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S RIG MANAGER

PAUL GOJIN

DAVE LAUCK

- DAILY ENGINEER**
1. Daily Work Report Inspection
 2. Detailed Inspection - Weekly (Using Check List)
 3. HSE Sign Posting & Restricted
 4. Well Location & Well Designation
 5. Flow Line Diagram
 6. BOP Data Performance
 7. Visually Inspect BOP's Flow Line & Drilling Line
 8. Rig Site Health & Safety Meeting (if recommended)
 9. Conduct Rig Safety Inspection (if recommended)
 10. Advise Inspection before Posting or Issuing
 11. Check Bore Checked
 12. Motor Run Checked

DATE	TIME	TEMPERATURE	WIND DIRECTION	WIND VELOCITY	SEA STATE	SEA WIND	SEA WAVE	SEA SWELL	SEA SET	SEA DRIFT	SEA CURRENT	SEA SURFACE	SEA BOTTOM	SEA FLOOR	SEA BED	SEA SOIL	SEA ROCK	SEA SAND	SEA GRAVEL	SEA COBBLE	SEA Boulders	SEA Debris	SEA Other	SEA Notes
2003	3	2																						
111																								
127	29.02	E2	101	127	4.5	101	F-1000	EMSCO																
127	38.10	E3	90	127	4.5	101	F-1000	EMSCO																
127	38.10	S595	90	127	4.5	101	F-1000	EMSCO																

PASON DATAHUB
ASIA 38

CDN 3472-2-011204



NO.		DATE		TIME		TEMPERATURE		WIND DIRECTION		WIND VELOCITY		SEA STATE		SEA WIND		SEA WAVE		SEA SWELL		SEA SET		SEA DRIFT		SEA CURRENT		SEA SURFACE		SEA BOTTOM		SEA FLOOR		SEA BED		SEA SOIL		SEA ROCK		SEA SAND		SEA GRAVEL		SEA COBBLE		SEA Boulders		SEA Debris		SEA Notes																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
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CON 3422-2-011704

WELL NAME & NO		YEAR	MONTH	DAY
CHEVRON FT LARD 2K-29 SURFACE		2003	3	1
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRYING L.P.		
FIELD MANAGER		WELL NO		
DAVE LAUCK		68		
PROVINCIAL		PROF SAFETY DAYS		
N.W.T.		2152		
COMP	☒ YES	☐ NO		

MORNING TOUR		0	800	BLANKS	
CREW	BOC INS NO	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		CP
ASSIST DRILLER		KEVIN VANDENBRAND	8.00		KV
DERRICK HAND		JUSTIN AMYOTTE	8.00		JA
MOTOR HAND		JESSY LESSARD	8.00		A
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		DERWIN KOTCHEA	8.00		DK
RATE SCHEDULE		REGULAR	SPAR	X	SAVLT
CREW SAFETY DAYS					
2192					

DAY TOUR		800	1600	HOURS	
CREW	BOOKING NO.	NAME	HRS	TS	NO.
DRILLER		SCOTT LOWEN	12.00		SA
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		PATRICK BONNETROUGE	12.00		PB
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		DARREN HAZENBERG	12.00		DH
FLOOR HAND		JASON MCKENZIE	12.00		JM
LEASE HAND		CLIFFORD BONNETROUGE	12.00		CB
RATE SCHEDULE		REGULAR	REPAIR	X	ADVERT
CREW SAFETY DAYS		2192			

[illegible]

WELL NAME & NO
SD199 CHEVRON FT LIARD 2K-29 SURFACE

OPERATOR
CONTRACTOR
CHEVRON CANADA RESOURCES
AKOTA DRILLING LTD.
SURFACE LOCATION
2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE
PAUL GOUIN
SIGNATURE OF CONTRACTOR'S RIG MANAGER
DAVE LAUCK

DAILY CHECKS
1. Daily Well Record Inspection
2. Drilling Equipment - Weekly (Using Check 1)
3. 100% Rig Safety Inspection
4. 100% Rig Safety Inspection (Using Check 1)
5. 100% Rig Safety Inspection (Using Check 1)
6. 100% Rig Safety Inspection (Using Check 1)
7. 100% Rig Safety Inspection (Using Check 1)
8. 100% Rig Safety Inspection (Using Check 1)
9. 100% Rig Safety Inspection (Using Check 1)
10. 100% Rig Safety Inspection (Using Check 1)
11. 100% Rig Safety Inspection (Using Check 1)
12. 100% Rig Safety Inspection (Using Check 1)
13. 100% Rig Safety Inspection (Using Check 1)
14. 100% Rig Safety Inspection (Using Check 1)
15. 100% Rig Safety Inspection (Using Check 1)
16. 100% Rig Safety Inspection (Using Check 1)
17. 100% Rig Safety Inspection (Using Check 1)
18. 100% Rig Safety Inspection (Using Check 1)
19. 100% Rig Safety Inspection (Using Check 1)
20. 100% Rig Safety Inspection (Using Check 1)

YEAR 2003 MONTH 2 DAY 28
D.B. MIN. (IN) 108.0
D.B. MAX. (IN) 224.3
D.B. AVERAGE (IN) 59.53
CONDUCTOR
K-55
NO. OF JOINTS 51
TOTAL LENGTH 727.35
C.B. TO C.B. HEAD 6.73
RET AT (H) 20.00
734.00
TEMPERATURE
C/L 127
SUE 127
MASS 127
GRAVE 127
MURKIN 127
TYPE 127
THREAD 127
NO. OF JOINTS 127
PUMP TYPE 127
PUMP MANUFACTURER 127
STROKE LENGTH 127
WIND DIRECTION 127
WIND VELOCITY 127
WIND FORCE 127
WIND DIRECTION 127
WIND VELOCITY 127
WIND FORCE 127

PASON DATAHUB
ANALYSIS
CDN 3422-2-011204
WELL NAME & NO
CHEVRON FT LIARD 2K-29 SURFACE
OPERATOR
CHEVRON CANADA RESOURCES
CONTRACTOR
AKOTA DRILLING LTD.
RIG MANAGER
DAVE LAUCK
RIG SAFETY DAYS
2191
MORNING TOUR
CREW
SOC. NO.
NAME
HRS
YES
NO
DRILLER
GARY PATRICK
8.00
GP
ASSIST DRILLER
KEVIN VANDENBRAND
8.00
KV
DERRICK HAND
JUSTIN AMYOTTE
8.00
JA
MOTOR HAND
JESSY LESSARD
7.00
A
FLOOR HAND
STEVE McLAUGHLIN
8.00
SM
FLOOR HAND
DERWIN KOTCHEA
8.00
DK

NO.	ITEM	QTY	UNIT	PRICE	TOTAL	REMARKS
1	DOO SUB	1	1.17	222.3		
2	MOTOR	1	1.17	222.3		
3	FLOAT SUB	1	1.17	222.3		
4	UBHO TAP	1	1.17	222.3		
5	MMDC	1	1.17	222.3		
6	E2 DP	1	1.17	222.3		
7	HWD P	1	1.17	222.3		
8	JAR	1	1.17	222.3		
9	HWD P	1	1.17	222.3		
10	ACCELERATOR	1	1.17	222.3		
11	HWD P	1	1.17	222.3		
12	B.H.A. + 355 7m	1	1.17	222.3		
13	D.P.	1	1.17	222.3		
14	KELLY DOWN	1	1.17	222.3		
15	TOTAL	1	1.17	222.3		
16	WT. OF D.C.	1	1.17	222.3		
17	WT. OF STRING	1	1.17	222.3		

NO.	ITEM	QTY	UNIT	PRICE	TOTAL	REMARKS
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17	WT. OF STRING	1	1.17	222.3		

WELL NAME & NO
CHEVRON FT LIARD 2K-29 SURFACE
OPERATOR
CHEVRON CANADA RESOURCES
CONTRACTOR
AKOTA DRILLING LTD.
RIG MANAGER
DAVE LAUCK
RIG SAFETY DAYS
2191
MORNING TOUR
CREW
SOC. NO.
NAME
HRS
YES
NO
DRILLER
GARY PATRICK
8.00
GP
ASSIST DRILLER
KEVIN VANDENBRAND
8.00
KV
DERRICK HAND
JUSTIN AMYOTTE
8.00
JA
MOTOR HAND
JESSY LESSARD
7.00
A
FLOOR HAND
STEVE McLAUGHLIN
8.00
SM
FLOOR HAND
DERWIN KOTCHEA
8.00
DK

NO.	ITEM	QTY	UNIT	PRICE	TOTAL	REMARKS
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14	KELLY DOWN	1	1.17	222.3		
15	TOTAL	1	1.17	222.3		
16	WT. OF D.C.	1	1.17	222.3		
17	WT. OF STRING	1	1.17	222.3		

CON 3422-2-01120-

WELL NAME & NO		YEAR	DEPTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	2	27
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
REG MANAGER		REG NO		
DAVE LAUCK		58		
FACILITY		NO SAFETY DAYS		
M.W.I.		2400		
Log	X	YEA	NO	

[illegible][illegible][illegible]

[illegible]

WELL NAME & NO		YEAR	WELL NO	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	2	26
OPERATOR		CENTRAL TOR		
CHEVRON CANADA RESOURCES		ANITA DRILLING LTD.		
NOC BENEFICIARY		NOC NO		
DAVE LAUCK		58		
PRODUCTION		NOC SAFETY DAYS		
N.W.T.		2180		
CAMP	☒ YES	☐ NO		

[illegible][illegible][illegible]

DAY TOUR		800	1600	DURRES	
CREW	BOC RIS NO	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SAL
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		PATRICK BONNETROUGE	12.00		PA
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		DARREN HAZENBERG	12.00		DH
FLOOR HAND		JASON MCKENZIE	12.00		AM
LEASE HAND		CLIFFORD BONNETROUGE	12.00		CB

LOG/ID				EVENING TOUR												NETTLE OPERATIONS IN SEQUENCE & REMARKS											
1	WIT	0.0	0.24	BT NO	#10	MUD TYPE	☐ WATER BASED		☒ OIL BASED		FROM	TO	D.R.C	SPR	WOB	FROM	TO	SLIP/ID	CODE								
2	DOG SUB		0.17	RIS	222.3	TIME	1800	2100	2400	3052.00	3075.00	D	30	16		1800	2215	0.75	2	DRILL 222PM HOLE 1/3052m TO 3075.37							
3	WISTOR	170	7.84	ADD CODE	5 3 7	DENSITY (KG/M3)	1100	1090	1100							2215	2320	1.25	5	CIRCULATE BOTTOM 5 UP SAMPLE							
4	FLOAT SUB	170	6.97			FUNNEL VISCOSITY	56	56	60							2330	2400	0.50	10	DEV. SURVEY (ACCUMULATED SURVEY TIME)							
5	UBHO TWP	126	0.88	MANUFACTURER	SMITH	FLUID LIT/L (cm3)										2400											
6	NMOC	126	18.74	TYPE	F3H	PH																					
7	E2 DP	127	200.73	SERIAL NO	MA33338	PVT	66.2	68.10	69.10																		
8	H.W.D.P.		46.20			MUD MATERIALS ADDED				SOLIDS CONTROL				CIRCULATION PRESSURE (PSI)		PUMP NO. 1		PUMP NO. 2									
9	JAR	170	0.68	ETS	14.3 14.3	PRODUCT		AMOUNT		UNIT		1.52 0		50		152.0		0									
10	H.W.D.P.		45.73		14.3					DESALTER				8200													
11	ACCELERATOR	140	3.16	DEPTH (M)	3075.00									3500		50		3056									
12	H.W.D.P.		35.23	DEPTH IN	2882.00																						
13	B.H.A. x 395.74m			TOTAL M DRILLED	193.00																						
14				TOTAL HRS RUN	\$1.25																						
15				CUTTING STRUCTURE						CENTRIFUGE				DEPTH (FT)		DEVIATION		DIRECTION									
16	D.P.	STAGES	2660.53	R	To	MD	LOC	MD	34 M	100	PEAKIN PAID	TOTAL RUN								NETTLE CHECKED CROWN SAVER FASTLINE CLAMP DEADLINE ANCHOR SHANKS & LINKAGE							
17	D.P.	STAGES	2660.53	HOLE CONDITION						HOURS RUN				2.00	1100	1080	1710				BOLER BLOWN DOWN 2 TIMES						
18	WELL DOWN		11.37	HOLE DRAG	25000 UP 15000 DOWN ROT																	FUNCTIONED REMOTE CHOKE 20 SECONDS TO CLOSE					
19	TOTAL		3075.06	TORQUE AT BOTTOM	17000																	FUEL USED TODAY @ 24.00 & 125 LITRES					
20	WT OF D.C.		17	FILL ON BOTTOM IN										DRILLER SIGNATURE				HRS RUN		BOLER #		STACK TIME					
21	WT OF STRING		108											GARY PATRICK				16.00		11.0		210					
22																						MAXIMUM EXPERIENCED WORK LOG					
23																						SAFETY TOPIC					
24																						5094					
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SDI99 CHEVRON FT LIARD 2K-29 SURFACE AKITA DRILLING LTD. 2K-29 DAYE LAUCK

PASON DATAHUB AARA 58 CAODC

Table with 15 columns: NO., LENGTH, BIT, D.O., BIT NO., #10, MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D.R.G., RPM, WOB, FROM, TO, B-1000, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

Table with 15 columns: NO., LENGTH, BIT, D.O., BIT NO., #10, MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D.R.G., RPM, WOB, FROM, TO, B-1000, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

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Table with 10 columns: NO., LENGTH, BIT, D.O., BIT NO., #10, MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D.R.G., RPM, WOB, FROM, TO, B-1000, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

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LOG SHEET NO.

WELL NAME & C/O

BDL99

CHEVRON FT LIARD 2K-29 SURFACE

OPERATOR

CHEVRON CANADA RESOURCES

SURFACE LOCATION

AKITA DRILLING LTD.

2K-29

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S RIG MANAGER

MIKE BRYSON

DAVE LAUCK

DAY CHIEFS

1. Daily Well & Mud Inspection

2. Lubricate Driveline (Weekly) Using Check List

3. Check Rig & Rig Components

4. Check Lube & Seal Driveline

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YEAR 2003 MONTH 2 DAY 24

NO. 158

CONDUCTOR

244.5 224.4 59.53

TEMPERATURE

127 29.02

WIND DIRECTION

127 38.10

ROAD DIRECTION

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WELL NAME & NO.		YEAR	MONTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	2	23
OPERATOR		CONTINGENT FOR		
CHEVRON CANADA RE SOURCES		AKITA DRILLING LTD.		
PRT MANAGER		REG NO		
DAVE KENNEDY		6		
JOB AREA		THE SAFETY DAYS		
N.W.T.		2100		

MORNING TOUR	0	800	BALANCE
CREW	SOC IN.	NAME	HRS
DRILLER		JAN LICKOCH	\$ 00
DERRICK HAND		JERRY FOLEY	\$ 00
MOTOR HAND		VIRGIL NANAQUAWETUNG	\$ 00
FLOOR HAND		MOISE PURICH	\$ 00
RATE SCHEDULE	REGULAR	OVERTIME	X
CREW SAFETY DAYS	0		

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CDN 3422-2-011204

WELL & TRACKING		TIME ACTIVITY	REMARKS	LOGGING	STANDARD MILE & LOG	TIME	NO SERVICE	REPAIR NO	CUT OFF LOG & USE	DEV SURVEY	WIRELINE LOGS	RUN LOG & LOGGING	SHUT IN LOGGING	SHUT IN S.O.P	TEST S.O.P	SHUT IN TEST	FLARE BACK	SHUT IN CURRENT	THUNDER	SP. WORK	SAFETY MEETING	TOTAL H	DATE	TIME	WELL	DAY	WELL
NOON		7.00					0.25			0.50											0.25	8.00					
DAY		7.00					0.25			0.50											0.25	8.00					
EVE		7.25								0.75												8.00					
TOTAL		21.25					0.50			1.75											0.50	24.00					

WELL NAME & NO.		YEAR	MONTH	DAY
519. VIRON FT LIARD 2K-29 SURFACE		2002	2	23
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
FIELD MANAGER		WELL NO.		
DAVE KENNEDY		58		
RICHARD F.		FIRE SAFETY (MIS)		
N.W.T.		2488		
CAMP	X	Y	IN	

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LICENCE NO. WELL NAME & NO.

SD189 CHEVRON FT LIARD 2K-29 SURFACE

OPERATOR CONTRACTOR

CHEVRON CANADA RESOURCES

AKITA DRILLING LTD.

2K-29

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

SIGNATURE OF CONTRACTOR'S REP. MANAGER

MIKE BRYSON

DAVE KENNEDY

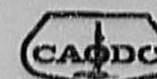
- DAILY CHECKS**
1. Daily Well Intake Inspection
 2. Detailed Inspection - Pressure (Using Check List)
 3. PHS Sign Printed & Ready/23
 4. Well Level 1.8 Meters (Diagram Printed)
 5. Flow Line Status
 6. BOP (Cable Performed)
 7. Visually Inspect BOP, Flow Line & Discharge Line
 8. BOP (Cable Performed)
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YEAR 2003 MONTH 2 DAY 21

CONDUCTOR
SIDE RC
K-55
51
727.35
6.73
734.00

MASS 224.4
GRADE 59.53
NO. OF JOINTS 51
TOTAL LENGTH 727.35
KB TO CAS HEAD 6.73
SET AT (ft) 734.00

PASON DATAHUB
AAIA 58
CDN 3422-2-011204



NO.	ITEM	QTY	UNIT	PRICE	TOTAL
1	DOG SUB	0.17	SIZE	222.3	
2	MOTOR	172	7.84	ADIC CODE	5 3 7
3	FLOAT SUB	170	0.97	MANUFACTURER	SMITH
4	UBHO TAP	126	0.96	TYPE	F3H
5	NMDC	126	18.16	SERIAL NO.	MM3425
6	H.W.D.P.	220.78			
7	JAR	185	9.82	14.3	14.3
8	H.W.D.P.	74.26			
9	ACCELERATOR	162	9.93	14.3	
10	H.W.D.P.	37.54			
B.H.A. + 380.53m					
DEPTH IN					2748.00
TOTAL M DRILLED					
TOTAL HRS RUN					
CUTTING STRUCTURE					
HOLE CONDITION					
KELLY DOWN					11.94
TOTAL					2746.53
WT. OF D.C.					25
WT. OF STRING					95

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NO.		LENGTH		INT. RECORD		DAY TOUR		MUD TYPE		WATER BASED		X		OIL BASED		FROM		TO		D-R		RPM		WOB		FROM		TO		PLANNED		CODE		DETAILS OF OPERATIONS IN SEQUENCE & REMARKS	
1		DOG SUB		0.17		F3H		222.3		TME		1800				2748.00										850		815		0.25		21		SAFETY MTG. ON PRESSURE TESTING.	
2		MOTOR		170		7.84		ADC CODE		5		3		7												815		845		0.50		18		TEST LOWER KELLY COCK, INSIDE B.O.P. 1400KPA LOW 34500 HIGH .5 MIN EACH TEST.	
3		FLOAT SUB		170		0.97		MANUFACTURER		SMITH																								TEST UPPER KELLY COCK. 1400 LOW .16000 HIGH .5 MINUTES EACH TEST	
4		UBHO TAP		126		0.96		TYPE		F3H																845		1000		1.25		22		PICK UP DIRECTIONAL TOOLS.	
5		NMDC		126		18.16		SERIAL NO.		MM3425																1000		1200		2.00		6		TRIP IN HOLE. PICKED UP NEW JARS, ACCELERATOR & DOG SUB.	
6		H.W.D.P.		220.78																						1200		1215		0.25		20		TEST MWD TOOL.	
7		JAR		185		9.88		14.3		14.3																1215		1600		3.75		6		TRIP IN HOLE. FLOW CHECK @ 1300m, 2040m, 2450m.	
8		H.W.D.P.		74.26				DEPTH OUT																											
9		ACCELERATOR		162		9.76		DEPTH IN		2746.00																									
10		H.W.D.P.		37.54				TOTAL M DRILLED																											
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BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (m)		PULL-IN BOTTOM (	
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WELL NAME & NO.
CHEVRON FT LIARD 2K-29 SURFACE
YEAR 2003 MONTH 2 DAY 21
OPERATOR
CHEVRON CANADA RESOURCES
CONTRACTOR
AKITA DRILLING LTD.
NO. OF JOINTS 51
TOTAL LENGTH 727.35
KB TO CAS HEAD 6.73
SET AT (ft) 734.00
PASON DATAHUB
AAIA 58
CDN 3422-2-011204

MORNING TOUR			0	800	THAMES	
CREW	SOC INS. NO.	NAME	HRS	YES	NO	
DRILLER		ALLAN LICKOCH	8.00			AL
DERRICK HAND		JERRY FOLEY	8.00			JF
MOTOR HAND		VIRGIL NANAQUAWETUNG	8.00			VN
FLOOR HAND		MOISE PUNCH	8.00			MP
FLOOR HAND		JOHNATHAN CARLICK	8.00			JC
				</		

2184					
DAY TOUR		B00	1600	DURIES	
CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	12.00		GP
DERRICK HAND		JUSTIN AMYOTTE	12.00		JA
MOTOR HAND		JESSY LESSARD	12.00		JL
FLOOR HAND		STEVE McLAUGHLIN	12.00		SM
FLOOR HAND		NATHAN SURINAK	12.00		NS
LEASE HAND		JERRY ESOPENKO	12.00		JE

EVENING TOUR						1600	2400	HOURS		
CREW	SOC. INS. NO.	NAME		HRS	YES	NO				
DRILLER		ALLAN LICKOCH		4.00		AL				
DERRICK HAND		JERRY FOLEY		4.00		JF				
MOTOR HAND		VIRGIL NANAQUAWETUNG				VN				
FLOOR HAND		MOISE PUNCH		4.00		MP				
FLOOR HAND		JOHNATHAN CARLICK		4.00		JC				
DATE SIGNATURE							WEEK END	DEPT	W	OFFICE

WELL NAME & NO
SD:99 CHEVRON FT LIARD 2K-3 SURFACE

OPERATOR
CHEVRON CANADA RESOURCES

CONTRACTOR
AKITA DRILLING LTD.

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE
MIKE DRYSON

SIGNATURE OF CONTRACTOR'S REP MANAGER
DAVE KENNEDY

DAILY CHECKS									
1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31
32	32	32	32	32	32	32	32	32	32
33	33	33	33	33	33	33	33	33	33
34	34	34	34	34	34	34	34	34	34
35	35	35	35	35	35	35	35	35	35
36	36	36	36	36	36	36	36	36	36
37	37	37	37	37	37	37	37	37	37
38	38	38	38	38	38	38	38	38	38
39	39	39	39	39	39	39	39	39	39
40	40	40	40	40	40	40	40	40	40
41	41	41	41	41	41	41	41	41	41
42	42	42	42	42	42	42	42	42	42
43	43	43	43	43	43	43	43	43	43
44	44	44	44	44	44	44	44	44	44
45	45	45	45	45	45	45	45	45	45
46	46	46	46	46	46	46	46	46	46
47	47	47	47	47	47	47	47	47	47
48	48	48	48	48	48	48	48	48	48
49	49	49	49	49	49	49	49	49	49
50	50	50	50	50	50	50	50	50	50
51	51	51	51	51	51	51	51	51	51
52	52	52	52	52	52	52	52	52	52
53	53	53	53	53	53	53	53	53	53
54	54	54	54	54	54	54	54	54	54
55	55	55	55	55	55	55	55	55	55
56	56	56	56	56	56	56	56	56	56
57	57	57	57	57	57	57	57	57	57
58	58	58	58	58	58	58	58	58	58
59	59	59	59	59	59	59	59	59	59
60	60	60	60	60	60	60	60	60	60
61	61	61	61	61	61	61	61	61	61
62	62	62	62	62	62	62	62	62	62
63	63	63	63	63	63	63	63	63	63
64	64	64	64	64	64	64	64	64	64
65	65	65	65	65	65	65	65	65	65
66	66	66	66	66	66	66	66	66	66
67	67	67	67	67	67	67	67	67	67
68	68	68	68	68	68	68	68	68	68
69	69	69	69	69	69	69	69	69	69
70	70	70	70	70	70	70	70	70	70
71	71	71	71	71	71	71	71	71	71
72	72	72	72	72	72	72	72	72	72
73	73	73	73	73	73	73	73	73	73
74	74	74	74	74	74	74	74	74	74
75	75	75	75	75	75	75	75	75	75
76	76	76	76	76	76	76	76	76	76
77	77	77	77	77	77	77	77	77	77
78	78	78	78	78	78	78	78	78	78
79	79	79	79	79	79	79	79	79	79
80	80	80	80	80	80	80	80	80	80
81	81	81	81	81	81	81	81	81	81
82	82	82	82	82	82	82	82	82	82
83	83	83	83	83	83	83	83	83	83
84	84	84	84	84	84	84	84	84	84
85	85	85	85	85	85	85	85	85	85
86	86	86	86	86	86	86	86	86	86
87	87	87	87	87	87	87	87	87	87
88	88	88	88	88	88	88	88	88	88
89	89	89	89	89	89	89	89	89	89
90	90	90	90	90	90	90	90	90	90
91	91	91	91	91	91	91	91	91	91
92	92	92	92	92	92	92	92	92	92
93	93	93	93	93	93	93	93	93	93
94	94	94	94	94	94	94	94	94	94
95	95	95	95	95	95	95	95	95	95
96	96	96	96	96	96	96	96	96	96
97	97	97	97	97	97	97	97	97	97
98	98	98	98	98	98	98	98	98	98
99	99	99	99	99	99	99	99	99	99
100	100	100	100	100	100	100	100	100	100

PASON DATAHUE

AREA 58



CON 34227 011204

NO.	DESCRIPTION	UNIT	QTY	REMARKS
1	DOGS	170	7.84	
2	MOTOR	170	0.97	
3	FLOAT SUB	170	0.97	
4	UBHO TWP	170	0.97	
5	NMOC	170	0.97	
6	H.W.D.P.	170	0.97	
7	JAR	170	0.97	
8	H.W.D.P.	170	0.97	
9	ACCELERATOR	170	0.97	
10	H.W.D.P.	170	0.97	

MORNING TOUR									
1	DOGS	170	7.84						
2	MOTOR	170	0.97						
3	FLOAT SUB	170	0.97						
4	UBHO TWP	170	0.97						
5	NMOC	170	0.97						
6	H.W.D.P.	170	0.97						
7	JAR	170	0.97						
8	H.W.D.P.	170	0.97						
9	ACCELERATOR	170	0.97						
10	H.W.D.P.	170	0.97						

DAY TOUR									
1	DOGS	170	7.84						
2	MOTOR	170	0.97						
3	FLOAT SUB	170	0.97						
4	UBHO TWP	170	0.97						
5	NMOC	170	0.97						
6	H.W.D.P.	170	0.97						
7	JAR	170	0.97						
8	H.W.D.P.	170	0.97						
9	ACCELERATOR	170	0.97						
10	H.W.D.P.	170	0.97						

EVENING TOUR									
1	DOGS	170	7.84						
2	MOTOR	170	0.97						
3	FLOAT SUB	170	0.97						
4	UBHO TWP	170	0.97						
5	NMOC	170	0.97						
6	H.W.D.P.	170	0.97						
7	JAR	170	0.97						
8	H.W.D.P.	170	0.97						
9	ACCELERATOR	170	0.97						
10	H.W.D.P.	170	0.97						

MORNING TOUR									
1	DOGS	170	7.84						
2	MOTOR	170	0.97						
3	FLOAT SUB	170	0.97						
4	UBHO TWP	170	0.97						
5	NMOC	170	0.97						
6	H.W.D.P.	170	0.97						
7	JAR	170	0.97						
8	H.W.D.P.	170	0.97						
9	ACCELERATOR	170	0.97						
10	H.W.D.P.	170	0.97						

DAY TOUR									
1	DOGS	170	7.84						
2	MOTOR	170	0.97						
3	FLOAT SUB	170	0.97						
4	UBHO TWP	170	0.97						
5	NMOC	170	0.97						
6	H.W.D.P.	170	0.97						
7	JAR	170	0.97						
8	H.W.D.P.	170	0.97						
9	ACCELERATOR	170	0.97						
10	H.W.D.P.	170	0.97						

EVENING TOUR		1600	2400	BLANKS	
CHW	SJC MS. NO.	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	4.00		AL
DERRICK HAND		JERRY FOLEY	4.00		JF
MOTOR HAND		VIRGIL NANAQUAWETUNG	4.00		VN
FLOOR HAND		MOISE PUNCH	4.00		MP
FLOOR HAND		JOHNATHAN CARLICK	4.00		JC



CON 3422-2-C11204

[illegible]

WELL NAME & NO.		YEAR	MONTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	2	17
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
NO. BRANCHER		HST NO.		
DAVE LAUCK		58		
PROVINCE		HST BSMY DAYS		
N.W.T.		2100		
LAMP				
☒ YES ☐ NO				

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		LENGTH		BIT RECORD		EVENING TOUR		MUD TYPE		WATER BASED		X OIL BASED		FROM		TO		D.R.C		RPM		WOB		FROM		TO		SLIPPER TIME		CODE		DETAILS OF OPERATIONS IN SEQUENCE & REMARKS	
1	WT	Q.D.	0.28	BIT NO	47			TIME	1700	2100	2300	2455.00	2528.00	D	7.0	15	1800	1815	0.25	21	SAFETY MTG.												
1	DOG SUB		0.17	SIZE	222.3			DENSITY (G/CM3)	1080	1080	1055						1815	2030	4.25	2	DRILL 222mm. HOLE FROM 2485m. TO 2509m.												
1	MOTOR	170	7.84	WDC CODE	5 1 7			FUNNEL VISCOSITY	62	64	64						2030	2045	0.25	7	RIG SERVICE. HOLE BOTTOM PIPE RAMS & SEC'LS. CHECKED RSPF.												
1	FLOAT SUB	170	0.97	MANUFACTURER	REED			FLUID LOSS (CM3)									2045	2330	2.75	2	CRILL 222mm. HOLE FROM 2509m. TO 2528m												
1	UBHO "M"	126	0.98	TYPE	TT61X-M			pH									2330	2400	0.50	10	DEV. SURVEY (accumulated survey times)												
1	NMDC	120	18.16	SERIAL NO	U17873			pH M3	79.90	78.00	72.30						2400																
1	H.W.D.P.	220.78																															
1	JAR	185	9.82	ETS	14.3	14.3		MUD MATERIALS ADDED		SOLIDS CONTROL		CIRCULATION PRESSURE KPa		PUMP NO. 1		PUMP NO. 2																	
1	H.W.D.P.	74.26						PRODUCT	AMOUNT	UNIT	DESILTER		REDUCED PUMP SPEED																				
1	ACCELERATOR	182	9.93								HOURS RUN	INTAKE DENSITY (KG/CM3)	OVER FLOW DENSITY	UNDER FLOW DENSITY	3600	55	2509																
1	H.W.D.P.	37.54																															
				DEPTH OUT																													
				DEPTH IN				2405.00																									
				TOTAL M DRILLED				123.00																									
				TOTAL HRS RUN				22.25																									
				CUTTINGS STRUCTURE																													
				R. T. MED. LUG. BAG. GAGE. EDC. REASON PULLED. TOTAL RUN MPH																													
				HOURS RUN				INTAKE DENSITY (KG/CM3)				OVER FLOW DENSITY				UNDER FLOW DENSITY																	
				4.00				1080				1260				1510																	
				CENTRIFUGE																													
				HOURS RUN				INTAKE DENSITY (KG/CM3)				OVER FLOW DENSITY				UNDER FLOW DENSITY																	
				2478.00				36.25				332.9																					
				2495.00				36.97				332.6																					
				DEPTH (M)				DEVIATION																									
				2478.00				36.25				332.9																					
				2495.00				36.97				332.6																					
				DEVIATION SURVEYS																													
				HOURS RUN				INTAKE DENSITY (KG/CM3)				OVER FLOW DENSITY				UNDER FLOW DENSITY																	
				4.00				1080				1260				1510																	
				CENTRIFUGE																													
				HOURS RUN				INTAKE DENSITY (KG/CM3)				OVER FLOW DENSITY				UNDER FLOW DENSITY																	
				2.00				1080				1080				1445																	
				DRILLER SIGNATURE				GARY PATRICK																									
				HRS RUN				SLIPPER TIME				STACK TEMP				MAXIMUM EXPERIENCED HOOK LOAD				SAFETY TOPIC				MADP									
				6.00				10.0				290				104				CONNECTIONS				5163									

[illegible]

LICENCE NO. SDL99 WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE OPERATOR CHEVRON CANADA RESOURCES CONTRACTOR AKITA DRILLING LTD. SURFACE LOCATION 2K-29 SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN SIGNATURE OF CONTRACTOR'S RIG MANAGER DAVE LAUCK

NO.	GROUP & TEAMWORK	DRILL ACTUAL	REAMING	CORING	CONC. MUD & SPEC	THPS	RIG SERVICE	REPAIR	CUT OFF	DEV. SURVEY	WYRE LINE LOGS	RUN CDS & ELEMENT	SWAP ON CEMENT	NEUTRAL UP & D.P.	TEST & S.P.	DRILLER TEST	PLUG BACK	ROCKET CEMENT	FINISH	ON WORK	SAFETY MEETING	CLEAN SHAKERS	TOTALS	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219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CDN M22-2-011204

	GROUP & TEAMWORK	DRAWL ACTUAL	HEAVING	CORING	COTED MUD & CIRC	TURNS	RIG SERVICE	REPAIR IN)	CUT OFF DRILL LINE	DEV SURVEY	WIRELINE LOGS	RUN C&G & CEMENT	WAIT ON CEMENT	APPLE UP B.O.P.	TEST B.O.P.	CHILSTEN TEST	PLUG BACK	SQUEEZE CEMENT	PUMPING	DR. WORK	SAFETY MEETING	Handle Tools	TOTALS	MORN	DAY	EYE
MORN		7.25								0.50											0.25		8.00			
DAY		0.50			0.75	6.00	0.25														0.25	0.25	8.00			
EVE		5.00			0.50	1.75	0.25			0.50													6.00			
TOTAL		12.75			1.25	7.75	0.50			1.00											0.50	0.25	24.00			

MJ's S/C = 13.298
Total Megacore = 958,020
TOP DRIVE Hrs TODAY = 14.0
TOP DRIVE Hrs THIS WELL = 337.75

WELL NAME & NO				YEAR	MONTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE				2003	2	14
OPERATOR				CONTRACTOR		
CHEVRON CANADA RESOURCES				AKITA DRILLING LTD.		
RIG MANAGER				RIG NO		
DAVE L LUICK				56		
RIG TYPE				RIG CAPACITY DAYS		
N.W.T.				217Z		
CAMP						
☐ X ☐ YES ☐ NO						

[illegible][illegible]

		LENGTH		BIT RECORD		DAY TOUR		MUD RECORD		WATER FILLED		OIL FILLED		DETAILS OF OPERATIONS IN SEQUENCE & REMARKS																
NO.	BIT	O.D.	I.D.	BIT NO.	#5	#6	MUD TYPE	TIME	WATER BASED	X	OIL BASED	FROM	TO	D-R-C	RPM	WOB	FROM	TO	RAISED TIME	CODE										
1	DOG SUB	0.17		SIZE	222.0	222.3						2129.00	2136.00	D	30	15	800	815	0.25	21	Pre-Tour Safety Meeting									
1	MOTOR	170	7.84	MDC CODE	5 3 7	5 1 7	DENSITY (KG/M ³)		950								815	845	0.50	2	Drill 222mm Hole from 2129m to 2136m									
1	FLOAT SUB	170	0.97				FUNNEL VISCOSITY		56								845	930	0.75	5	Circ. Bottoms Up (now check)									
1	UBHO TMR	126	0.98	MANUFACTURER	HUGHES	HUGHES	FLUID LOSS (cc/s)										930	1400	4.50	6	P.O.H. Flow Check @ 5kts./30secs./MWDP & Out of Hole									
2	NMOC	126	18.16	TYPE	MX-S28	MX-S20H	pH										1400	1415	0.25	7	RIG SERVICE Function Blind Rams & soc. c/s									
24	H.W.D.P.		220.78	SERIAL NO.	L862BA3	5006041	P.V.L.		79.50								1415	1430	0.25	22	Change Bit / Change MWD Tool & Test									
2	H.W.D.P.		74.26	JETS	14.2	14.2	14.2	14.2	MU J MATERIALS ADDED		SOLIDS CONTROL		CIRCULATION PRESSURE MPa	PUMP NO. 1 LINER SIZE SPS	PUMP NO. 2 LINER SIZE SPM		1430	1600	1.50	6	R.I.H. to 780m Flow Check / fill pipe									
2	ACCELERATOR	162	9.93		14.2	14.2			PRODUCT	AMOUNT	UNIT	DESILER		8300	152.0	0	152.0	110												
2	H.W.D.P.		37.34	DEPTH OUT	2136.00		BARITE	22	gms			REDUCED PUMP SPEED		2250	0	2098	0	50				Trip Record								
	B.H.A = 380 #ft			DEPTH IN	1688.00	2136.00			HOURS RUN	INTAKE DENSITY (KG/M ³)	OVER FLOW DENSITY	UNDER FLOW DENSITY	DEVIATION SURVEYS									CAL = 11.25m°								
				TOTAL DRILLED	448.00								DEPTH (M)			DEVIATION	DIRECTION				MEA = 11.54m°									
				TOTAL HRS RUN	64.75								CENTRIFUGE									DIFF = .29m°								
				CUTTING STRUCTURE						HOURS RUN	INTAKE DENSITY (KG/M ³)	OVER FLOW DENSITY	UNDER FLOW DENSITY																	
				T1	T2	MDC LOC	BRG GAGE	LOC CLOC	REASON PAUSED	TOTAL RUN MIN																				
52	D.P.	STANDIS	1775.05	A	B	B1	H	F	3.80	CZ	TD	14.21																		
	D.P.	SANGLES		HOLE CONDITION																										
KELLY DOWN		-19.54		HOLE DRAG	10000up 8000dn																									
TOTAL		2136.00		TORQUE AT BOTTOM	13000																									
WT. OF D.C.	25			PULL ON BOTTOM (lb)	82																									
WT. OF STRANG	0.00																													
												DRILLER'S SIGNATURE		HRS RUN	BOILER PSI	STACK TEMP	MAXIMUM EXPERIENCED HC-PC LOAD	SAFETY TOPIC		MACP										
												ALLAN LICKOCH		8.00	10.5	220	100	Trio		6120										

[illegible]

NO.	ITEM	LENGTH	EVENING TOUR										DETAILS OF OPERATIONS IN SEQUENCE & REMARKS									
			BIT NO	PS	MUD TYPE	TIME	WATER BASED	X	OIL BASED	FROM	TO	D-F-C	RPM	WOB	FROM	TO	SLIPPERY TIME	CODE				
1	DOG SUB	0.24	222.3			1830	2200	2450	2136.00	2185.00	17	30	15	1600	1745	1.75	6	R.I.H from 780m to 2100m (Fill Pipe Every 700m)				
2	MOTOR	170	WDC CODE	5 1	DENSITY (KG/M3)	950	950	961						1745	1815	0.50	5	1"sh Down From 2100m to 2136m (One Meter Of Fill)				
3	FLOAT SUB	170	MANUFACTURER	HUGHES	FUNNEL VISCOSITY	56	61	56						1815	2015	2.00	2	Drill 222mm Hole from 2136m to 2156m				
4	UBHO TAP	126	TYPE	MD-S20H	FLUID LOSS (cm3)									2015	2030	0.25	7	RIG SERVICE, CHANGED OUT SENSOR ON STANDPIPE FOR MANIFOLD GAUGE				
5	MSDC	126	SERIAL NO	5006011	PH									2030	2330	3.00	2	DRILL 222mm HOLE @ 2156m to 2185m				
6	H.W.D.P.	220	P.V.I.			87.30	79.60	80.00						2330	2400	0.50	10	DEV. SURVEY (accumulated time)				
7	JAR	185	MUD MATERIALS ADDED			SOLIDS CONTROL			CIRCULATION PRESSURE MPa	PUMP NO. 1	PUMP NO. 2	2400										
8	H.W.D.P.	74.26	PRODUCT	AMOUNT	UNIT				10000	152.0	0	152.0	111									
9	ACCELERATOR	162							REDUCED PUMP SPEED			2300	0	50	0	2156						
10	H.W.D.P.	37.54							DEVIATION SURVEYS													
B.H.A. = 380.53m			CUTTING STRUCTURE			CENTRIFUGE			DEPTH (M)		DEVIATION		DIRECTION									
			1. To MDC LOC BNG GAGE COC REASON PULLED TOTAL RUN MPH	HOURS RUN	INTAKE DENSITY (KG/M3)	OVER FLOW DENSITY	UNDER FLOW DENSITY	2112.36	38.72	328.2												
									2133.02		38.48		330.3									
									2133.02		38.48		330.3									
									2.52.04		38.28		330.5									

EVENING TOUR		1600	2400	SHAFTS	
CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	4.00		SA
ASSIST DRILLER		DANIEL ALONSO	12.00		DA
DERRICK HAND		PATRICK BONNETROUGE	6.00		PB
MOTOR HAND		JESSY LESSARD	4.00		JL
FLOOR HAND		DARREN HAZENBERG	4.00		DH
FLOOR HAND		JASON MCKENZIE	4.00		JM
DERRICK HAND		CLARKE STARRE	4.00		CS
RATE SCHEDULE		REGULAR	REPAIR	X	INVERT
		CREW SAFETY DAYS			
		2177			

SDI.99 CHEVRON FT LIARD 2K-29 SURFACE AKITA DRILLING LTD. 2K-29 CHEVRON CANADA RESOURCES AKITA DRILLING LTD. PAUL GOUIN DAVE LAUCK

PASON DATAHUB A385 58 CAADC CDN 3422-2-011204

Table with 15 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

Table with 15 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

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Table with 10 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

Table with 10 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

Table with 10 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

Table with 10 columns: NO., LENGTH, BIT, O.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, SLIPPER, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

SD199 CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
DAVE LAUCK
PAUL GOUIN

PASON DATAHUB
AKR 58



CDN 3422-2-011204

Table with 15 columns: RIGUP & STANDDOWN, DRILL ACTUAL, REAMING, CORING, CORING MUD & CONC, TRIPS, NO. SERVICE, REPAIR, CUT OFF, DRY SURVEY, TYPE, RUN CSD, WAIT ON CEMENT, RIG UP, TEST, DRILL TEST, FLUID BACK, SQUEEZE CEMENT, FISHING, DR. WORK, SAFETY, METERS, TOTALS, NO. OF SCREENS, NO. OF JOINTS, TOTAL LENGTH, KB TO CSD HEAD, SET AT (m).

MORNING TOUR table with columns: NO., LENGTH, BIT, O.D., I.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, ELAPSED TIME, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

DAY TOUR table with columns: NO., LENGTH, BIT, O.D., I.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, ELAPSED TIME, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

EVENING TOUR table with columns: NO., LENGTH, BIT, O.D., I.D., SIZE, BIT NO., MUD TYPE, WATER BASED, OIL BASED, FROM, TO, D-R-C, RPM, WOB, FROM, TO, ELAPSED TIME, CODE, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS.

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
DAVE LAUCK
N.W.T.

MORNING TOUR table with columns: CREW, SOC. INS. NO., NAME, HRS, YES, NO, INJURIES.

DAY TOUR table with columns: CREW, SOC. INS. NO., NAME, HRS, YES, NO, INJURIES.

EVENING TOUR table with columns: CREW, SOC. INS. NO., NAME, HRS, YES, NO, INJURIES.

License No: 5DL99, Well Name: CHEVRON FT LIARD 2K-29 SURFACE, Operator: CHEVRON CANADA RESOURCES, Contractor: AKITA DRILLING LTD., Location: 2K-29, Signature of Operator's Representative: PAUL GOUIN, Signature of Contractor's Manager: DAVE LAUCK.

PASON DATAHUB, AREA 55, CD# 3422-2 011204, CAADC logo.

Table with 15 columns: NO, GROUP, DRILL, REMARKS, LOG, TIME, TRIPS, RIG, PUMP, DEPTH, SURVEY, RUN, CEMENT, WASH, TEST, DRY, TOTAL. Rows include data for 12.25, 3.75, 6.25, 2.25, 1.75, 2.75, 1.50, 5.00, 1.50, 0.50, 0.25, 0.25, 1.00, 0.25, 0.50, 1.00.

MORNING TOUR, MUD RECORD, METERS DRILLED, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS. Includes data for motor, float sub, UBO, NMO, HWD, JAR, HWD, ACCELERATOR, HWD, BHA, DEPTH, TOTAL M DRILLED, TOTAL HRS RUN, CUTTING STRUCTURE, HOLE CONDITION, DRILLER SIGNATURE, RATE SCHEDULE, CREW SAFETY DAYS.

MORNING TOUR, CREW, SOC INS. NO., NAME, HRS, YES, NO. Includes data for SCOTT LOWEN, PATRICK BONNETROUGE, JESSY LESSARD, DARREN HAZENBERG, JASON MCKENZIE.

DAY TOUR, MUD RECORD, METERS DRILLED, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS. Includes data for motor, float sub, UBO, NMO, HWD, JAR, HWD, ACCELERATOR, HWD, BHA, DEPTH, TOTAL M DRILLED, TOTAL HRS RUN, CUTTING STRUCTURE, HOLE CONDITION, DRILLER SIGNATURE, RATE SCHEDULE, CREW SAFETY DAYS.

DAY TOUR, CREW, SOC INS. NO., NAME, HRS, YES, NO. Includes data for ALLAN LICKOCH, DANIEL ALONSO, JERRY FOLEY, VIRGIL NANAQUAWETUNG, MOISE PUNCH, JOHNATHAN CARLICK, FABIAN KLONDIKE.

EVENING TOUR, MUD RECORD, METERS DRILLED, DETAILS OF OPERATIONS IN SEQUENCE & REMARKS. Includes data for motor, float sub, UBO, NMO, HWD, JAR, HWD, ACCELERATOR, HWD, BHA, DEPTH, TOTAL M DRILLED, TOTAL HRS RUN, CUTTING STRUCTURE, HOLE CONDITION, DRILLER SIGNATURE, RATE SCHEDULE, CREW SAFETY DAYS.

EVENING TOUR, CREW, SOC INS. NO., NAME, HRS, YES, NO. Includes data for SCOTT LOWEN, PATRICK BONNETROUGE, JESSY LESSARD, DARREN HAZENBERG, JASON MCKENZIE.

VEHICLE MAKE & NO.		YEAR	MONTH	DAY
CHEVROLET LT LARD 2K-29 SURFACE		2003	2	4
OPERATION		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
REG. NUMBER		REG. NO.		
DAVE LAUCK		58		
PROVINCE		REG. SAFETY DAYS		
N.W.T.		2171		
CAMP	☒ YES	☐ NO		

MORNING TOUR		0	800	HOURS	
CREW	SOC BUS INC.	NAME	HRS	YES	NO
DRI LER		GARY PATRICK	8.00		GP
DERRICK HAND		KEVIN VANDENBRAND	8.00		KV
MOTOR HAND		JESSY LESSARD	8.00		JL
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		SCOTT ROBSON	8.00		SR
LEASE HAND		JERRY ESOPENKO	8.00		JE
RATE SCHEDULE		RECURAR		REPAIR	X INVERT
CREW SAFETY DAYS					
2171					

DAY TOUR		800	1600	PLUMBER	
CREW	BOC INS. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SA
DEPRICK HAND		PATRICK BONNETROUGE	12.00		PS
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		DARREN HAZENBERG	12.00		DM
FLOOR HAND		jason mckenzie	12.00		JM
LEASE HAND		JERRY FOLEY	12.00		JF
DATE SCHEDULE		REGULAR	REPAIR	X	WVERT
CREW SAFETY DAYS					
2171					

[illegible]

LICENCE NO: 8DL99 WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE OPERATOR: CHEVRON CANADA RESOURCES CONTRACTOR: AKITA DRILLING LTD. SURFACE LOCATION: 2K-29 SIGNATURE OF OPERATOR'S REPRESENTATIVE: PAUL GOUIN SIGNATURE OF CONTRACTOR'S RIG MANAGER: DAVE LAUCK

NO.	WELL NAME & NO.	YEAR	MONTH	DAY	CONDUCTOR	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CSG HEAD	SET AT (m)
1	CHEVRON FT LIARD 2K-29 SURFACE	2003	2	7	CONDUCTOR	K-55	51	727.35	6.73	734.00

NO.	WELL NAME & NO.	YEAR	MONTH	DAY	CONDUCTOR	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CSG HEAD	SET AT (m)
1	CHEVRON FT LIARD 2K-29 SURFACE	2003	2	7	CONDUCTOR	K-55	51	727.35	6.73	734.00

NO.	WELL NAME & NO.	YEAR	MONTH	DAY	CONDUCTOR	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CSG HEAD	SET AT (m)
1	CHEVRON FT LIARD 2K-29 SURFACE	2003	2	7	CONDUCTOR	K-55	51	727.35	6.73	734.00

NO.	WELL NAME & NO.	YEAR	MONTH	DAY	CONDUCTOR	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CSG HEAD	SET AT (m)
1	CHEVRON FT LIARD 2K-29 SURFACE	2003	2	7	CONDUCTOR	K-55	51	727.35	6.73	734.00

PASON DATAHUB
AKA 58

CON 3422-2-011204



WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE YEAR: 2003 MONTH: 2 DAY: 7 OPERATOR: CHEVRON CANADA RESOURCES CONTRACTOR: AKITA DRILLING LTD. RIG MANAGER: DAVE LAUCK RIG NO: 58 RIG SAFETY DAYS: 2170

CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		GP
DERRICK HAND		KEVIN VANDENBRAND	8.00		KV
MOTOR HAND		JESSY LESSARD	8.00		JL
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
FLOOR HAND		SCOTT ROBSON	8.00		SR
LEASE HAND		JERRY ESOPENKO	8.00		JE

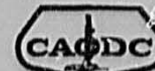
RATE SCHEDULE	REGULAR	REPAIR	X	INVERT
CREW SAFETY DAYS				

CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	13.00		SL
DERRICK HAND		PATRICK BONNETROUGG	13.00		PB
MOTOR HAND		CAMILLE KOOTENAY	13.00		CK
FLOOR HAND		JARREN HAZENBERG	13.00		JH
FLOOR HAND		JASON MCKENZIE	13.00		JM
LEASE HAND		JERRY FOLEY	13.00		JF

RATE SCHEDULE	REGULAR	REPAIR	X	INVERT
CREW SAFETY DAYS				

CREW	SOC INS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	4.00		GP
DERRICK HAND		KEVIN VANDENBRAND	4.00		KV
MOTOR HAND		JESSY LESSARD	4.00		JL
FLOOR HAND		STEVE McLAUGHLIN	4.00		SM
FLOOR HAND		SCOTT ROBSON	4.00		SR
LEASE HAND		JERRY ESOPENKO	4.00		JE

RATE SCHEDULE	REGULAR	REPAIR	X	INVERT
CREW SAFETY DAYS				



CON 3422-2-011204

	REGUP & YEARBOOK	DRILL ACTUAL	REMAINING	CORING	COND MUD & CONC	TIME #	NO SERVICE	REPAIR NO	CUT OFF CHD LINE	DEV SURVEY	WIRELINE LOSS	RUN CDS & CEMENT	SHUT ON CEMENT	MPPLE UP S.O.P	TEST S.O.P	CHILLSTIM TEST	PLUG BACK	SQUEEZE CEMENT	FINISHING	DIR. WORK	SAFETY MEETING	LAYDOWN PAPER UP PPS				TOTALS	NO TYPE 2 DIELECTRIC SCREEN CHANGED	TYPE FLC		Total Megajoules 938,355	MORPH	DAY	EVE	
MORPH															8.00											8.00		X	YES	NO	Accumulated Megajoules 11,162			
DAY						3.25									3.00						0.25	1.50				8.00	110	TOP	110	TOP				
EVE																					0.25	2.00	5.75			8.00	110	MIDDLE	110	MIDDLE				
TOTAL						3.25									11.00						0.50	3.50	7.75			24.00	110	BOTTOM	110	BOTTOM				

WELL NAME & NO.		YEAR	MONTH	DAY
CHEVRON FT LIARD 2K-29 SURFACE		2003	2	6
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
PES MANAGER		PES NO		
DAVE LAUCK		58		
PES NO		NOT SAFETY DAYS		
N.W.T.		21/0		
CAMP	☒ YES	☐ NO		

[illegible]

MORNING TOUR		0	800	INJURY	
CREW	SOC INS NO	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		GP
DERRICK HAND		KEVIN VANDENGRAND	8.00		KV
MOTOR HAND		JESSY LESSARD	8.00		JL
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM
LEASE HAND		JERRY ESOPENKO	8.00		JE

RATE SCHEDULE	☐	REGULAR	☐	REPAIR	☒	INVERT
CREW SAFETY DAYS						
2169						

[illegible]

DAY TOUR		800	1600	INJURY	
CREW	SOC INS NO	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SAI
DERRICK HAND		PATRICK BONNETROUGE	12.00		FB
MOTOR HAND		CAMILLE KOOTENAY	12.00		OK
FLOOR HAND		DARREN HAZENBERG	12.00		OH
FLOOR HAND		JASON MCKENZIE	12.00		IN
LEASE HAND		JERRY FOLEY	12.00		IF

RATE SCHEDULE	☐	REGULAR	☐	REPAIR	☒	INVEST
		CREW SAFETY DAYS				
		2100				

NO.		LENGTH		EVENING TOUR										TIME										DOWNHOLE LOG													
BIT NO.		O.D.		MUD TYPE		WATER BASED		OIL BASED		FROM		TO		D.R.C.		RPM		WOB		FROM		TO		BLADES		TIME		DETAILS OF OPERATIONS IN SEQUENCE & REMARKS									
				SIZE		DENSITY (G/CM ³)				738.00										1800		1800		2.00		22		LAY DOWN DRILL COLLARS									
				IADC CODE		FUNNEL VISCOSITY														1800		2000		2.00		23		PICK UP PIPE & RACK IN DERRICK									
				MANUFACTURER		FLUID LOSS (H/HR)														2000		2015		0.25		21		SAFETY MTG. ON PICKING UP PIPE									
				TYPE		PH														2015		2400		3.75		23		PICK UP PIPE & RACK IN DERRICK									
				SERIAL NO.																2400																	
				JTS																																	
				DEPTH OUT																																	
				DEPTH IN																																	
				TOTAL W DRILLED																																	
				TOTAL HRS RUN																																	
				CUTTING STRUCTURE																																	
				T		T ₂		MDC		LOC		SAG		GAGE		CCC		REASON		TOTAL																	
				D.P.		STANDS																															
				D.P.		SINGLES																															
				HOLE CONDITION																																	
				HOLE DRAG																																	
				TOTAL																																	
				WT. OF D.C.																																	
				WT. OF STRING																																	
				HOLE DRAG																																	
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				TOTAL																																	
				WT. OF D.C.																																	
				WT. OF STRING																																	
				HOLE DRAG																																	
				TOTAL																																	

EVENING TOUR		1600	2400
CREW	SOC INS. NO.	NAME	HRS
DRILLER		GARY PATRICK	1.00
DERRICK HAND		KEVIN VANDEBRAND	4.00
MOTOR HAND		JESSY LESSARD	4.00
FLOOR HAND		STEVE McLAUGHLIN	4.00
FLOOR HAND		SCOTT ROBSON	4.00
LEASE HAND		JERRY ESOPENKO	4.00

RATE SCHEDULE	☐	REGULAR	☐	REPAIR	☒	INVERT
CREW SAFETY DAYS						
2169						



CDN 3422-2-011204

[illegible]

WELL NAME & P.I.		YEAR	MONTH	DAY
CHEVRON FT LARD 2K-29 SURFACE		2003	1	5
OPERATOR CHEVRON CANADA RESOURCES		CONTRACTOR AKITA DRILLING LTD.		
REG NUMBER DAVE LAUCK		REG NO 58		
PRODUCTION N.W.T.		WELL SAFETY CLASS 2: NO		
CAMP		YES ☒ NO ☐		

MORNING TOUR		0	800	SUMMER	
CREW	BOC BPS. NO.	NAME	HRS	YES	NO
DRILLER		GARY PATRICK	8.00		NP
DERRICK HAND		KEVIN VANDENBRAND	8.00		KV
MOTOR HAND		JESSY LESSARD	8.00		JA
FLOOR HAND		STEVE McLAUGHLIN	8.00		SM

RATE SCHEDULE	X	REGULAR		REPAIR		INVENT
		CREW SAFETY DAYS				
		2160				

[illegible][illegible]

RATE SCHEDULE	X	REGULAR	REPAIR	INVERT
CREW SAFETY DAYS				
2168				

		LENGTH		EVENING TOUR										DETAILS OF OPERATIONS IN SEQUENCE & REMARKS									
BIT	O.D.	HT NO.	MUD TYPE	☐ WATER BASED	☐ OIL BASED	FROM	TO	D-R-C	RPM	WOB	PROP.	TO	BLANK TIME	CODE									
		S/E	TIME			735:00										CCKT. PI SSURE TEST MANIFOLD VALVES. TEST UPPER & LOWER CHOKES LINE, UPPER & LOWER CHOKES LINE VALVES, BLIND RAMS, HCR VALVE ALL TESTS LOWS= 1400 kPa HIGH= 34000 kPa FOR 10 MINUTES EACH TEST. ANNUALY TESTED TO 1400 kPa LOW 17500 kPa HIGH FOR 10 MINUTES EACH TEST. CASING TESTED 1500 kPa LOW 15000 kPa HIGH FOR 10 MINUTES EACH							
		HDC C/S	(DENSITY (KG/M ³))																				
		MANUFACTURER	PUMPING VISCOSITY																				
		TYPE	FUNNEL LOSS (ml/min)																				
		SPECIAL NO.	PH																				
		RTG		ICAD MATERIALS ADDED			SOLIDS CONTROL			CIRCULATION PRESSURE MPa		PUMP NO. 1		PUMP NO. 2									
		DEPT - LOG P		PRODUCT	MARKANT	UNIT					LINE SIZE	RPM	R/CZ	R/CZ	MPM								
		DEPTH-M		water	NO	m ³					152 G		152 G										
		TOTAL M DRILLED					DESLTER			REDUCED ROCK SPEED													
		TOTAL HRS RUN					WEIGHT RUN	INTAKE DENSITY (KG/L)	OVER FLOW DENSITY	UNDER FLOW DENSITY	0 0 0												
		CUTTING STRUCTURE					CENTRIFUGE			DEVIATION SURVAYS													
		T	TS	MBC	LCC	BAG	GAP	DOX	FEASIBLE	TOTAL RPS	DEPTH (M)						DEVIATION		DIRECTION				
		D.P.	STANDS				WEIGHT RUN	INTAKE DENSITY (KG/L)	OVER FLOW DENSITY	UNDER FLOW DENSITY													
		D.P.	SINGLES				HOLE CORRELATION																
KELLY DOWN							WEIGHT RUN	INTAKE DENSITY (KG/L)	OVER FLOW DENSITY	UNDER FLOW DENSITY													
TOTAL							TORQUE AT BOTTOM																
WT OF D.C							ALL ON BOTTOM (N/A)																
WT OF STRING																							
										DRILLER SIGNATURE		WPR RUN		CYLINDER		TRACK TIME		MAXIMUM EXPERIENCED HOOD LOAD		SAFETY TOPIC		MACP	
										GARY PATRICK		8.00		10.0		290				PRESSURE TEST BOP			

[illegible]



CDN 3422-2-011204

GROUP & TEAMWORK	DRILL ACTUAL	NEARBY	CORING	COND MTD & CONC	TRIP'S	ING SERVICE	REPAIR ASD	CUT OFF (GAL) LINE	DEY SURVEY	WYELINE LOSS	RUN CIG & COMPT	WAT ON CEMENT	WPR F UP B.O.P	TEST B.O.P	GRILLSTEN TEST	PLUG BACK	RIKHEZE CEMENT	FISHING OR WORK	SAFETY MEAS	INSTALL BOMBUT COLLAR/DEVERTER			TOTAL LB	AS TYPE	TYPE	Total Megajoules 934.765	MORN	DAY	EVE	
MORN										7.50									0.50				8.00	SCREENS CHANGED	YES	NO	Accumulated Megajoules 9.572			
DAY										1.75	3.25								0.25	2.50	0.25		8.00	TOP	TOP					
EVE												2.25							0.25	0.50	3.50	1.50	8.00	MIDDLE	MIDDLE					
TOTAL										9.25	3.25	2.25							1.00	0.50	6.00	1.75	24.00	BOTTOM	BOTTOM					

WELL NAME & NO		YEAR	MONTH	DAY
CHEVRON FT LIND 2K-29 SURFACE		2003	2	4
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
FIELD MANAGER		WELL NO.		
DAVE LAUCK		58		
FINANCIAL		WELL DAYS		
N.W.T.		2167		
CAMP		☒ YES ☐ NO		

[illegible][illegible][illegible]

DAY TOUR		800	1600	INJURY	
CREW	BOC INS. NO.	NAME	HRS	YES	NO
DRILLER		SCOTT LOWEN	12.00		SA
DERRICK HAND		PATRICK BONNETROUGE	2.00		FB
MOTOR HAND		CAMILLE KOOTENAY	12.00		CH
FLOOR HAND		DARREN HAZENBERG	12.00		DR
FLOOR HAND		JASON MCKENZIE	12.00		JM
LEASE HAND		JERRY FOLEY	12.00		JF
RATE SCHEDULE		X	REGULAR		REPAIR
					INVERT
CREW SAFETY DAYS					
2167					

[illegible][illegible]

LOGBOOK NO. 2003 MONTH 2 DAY 3
WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

PASON DATAHUB
Area 56



CDN 3422-2-011204

TIME	DEPTH (m)	DRILLER	LOGGERS	TIME	DEPTH (m)	DRILLER	LOGGERS
08:00	1.75	2.75	0.25	14:00	0.75	0.50	2.50
TOTAL	3.25	2.75	0.25	14.00	0.75	0.50	2.50

MORNING TOUR

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DATE 2003 MONTH 2 DAY 3

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DAY TOUR

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DATE 2003 MONTH 2 DAY 3

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DAY TOUR

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DATE 2003 MONTH 2 DAY 3

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

EVENING TOUR

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DATE 2003 MONTH 2 DAY 3

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

EVENING TOUR

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

DATE 2003 MONTH 2 DAY 3

WELL NAME & NO. CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR AKITA DRILLING LTD.
OPERATOR CHEVRON CANADA RESOURCES
SPECIAL LOCATION 2K-29
SIGNATURE OF OPERATOR'S REPRESENTATIVE PAUL GOVIN
SIGNATURE OF CONTRACTOR'S REP. MANAGER DAVE LAUCK

PASON DATAHUB
Asia SE
CDN 3472-2-011204

The logo for CAODC (Central Asia Office of Defense Cooperation) is located in the top right corner. It features the acronym "CAODC" in a bold, sans-serif font, with a stylized globe or sphere integrated behind the letters. The logo is enclosed within a hexagonal border.

WELL NAME & NO.		YEAR	MONTH	DAY
CHEVRON FT LARD 2K-29 SURFACE		2003	2	2
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		AKITA DRILLING LTD.		
P&G MANAGER		P&G NO.		
DAVE LAUCK		68		
PROVINCE		P&G SAFETY DAYS		
N.W.T.		2100		
CAMP	☒ YES	☐ NO		

[illegible][illegible]

EVENING TOUR		1600	2400	INJURIES	
CREW	SOC INS NO	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	4.00		AL
DERRICK HAND		JERRY FOLEY	4.00		JF
MOTOR HAND		VIRGIL NANAQUAWETUNG			VN
FLOOR HAND		MOISE PUNCH	4.00		MP
FLOOR HAND		JOHNATHAN CARLICK	4.00		JC
RATE SCHEDULE	X	REGULAR		REPAIR	
		CREW SAFETY DAYS			
		11			

GROUP & TEAMWORK	DRILL ACT	REMARKS	CONV. MTD & CMT	TIME	NO. WORK	REPAIR NO.	CUT OFF CORD LINE	DEV. SUPPLY	PIPELINE LOSS	RUN LOSS & REMARK	WALT ON TEMENT	SUPPLY UP S.D.P	TEST S.D.P	DRILLERS TEST	PLUG IN S	BARRELS CEMENT	PAVING	JOB WORK	SAFETY MEETING	PLAIN CHECK	TOTALS	NO. TYPE I SCHEDULE	TYPE I/C	Total Megapules \$53,688	MON	TUE	WED	THU	FRI	SAT	SUN
MOON	6.00		0.50		0.25			1.00											0.25		8.00	NO	NO	Accumulated Megapules 6.675							
DAY	6.75		0.25		0.25			0.50											0.25		8.00	NO	NO								
EVE				3.00	4.50														0.25	0.25	8.00	NO	NO								
TOTAL	12.75		3.75	4.50	0.50			1.50											0.75	0.25	24.00	NO	NO								

WELL NAME & NO.	YEAR	MONTH	DAY
CHEVRON FT LIAUD 2K-25 SURFACE	2003	2	1
OPERATOR	CONTRACT FIRM		
CHEVRON CANADA RESOURCES	AKITA DRILLING LTD		
FIELD MANAGER	REC NO.		
DAVE LAUCK	58		
PRODUCTION	PROD DATE	DATE	
N.W.T.	2164		

[illegible]

MORNING TOUR		0	\$00	NAMES	
CREW	BOC NO. NO.	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	1.00		AL
DERRICK HAND		JERRY FOLEY	1.00		JF
MOTOR HAND		VIGIL NANAQUAWETUNG	1.00		VN
FLOOR HAND		MOISE PUNCH	1.00		MP
FLOOR HAND		JOHNATHAN CARLUCK	1.00		JC

RATE SCHEDULE				X	REGULAR		REPAIR		INVERT
CREW SAFETY DAYS						10			

		LENGTH		BIT NO		DAY TOUR		MUD TYPE		X	WATER BASED		OIL BASED		FROM	TO	D.R.C	RPM	WOB	FROM	TO	ELAPSED TIME	CODES	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS	
1	BIT	0.0	0.34	BIT NO	2A			TIME	800	1200	1500	615.00	731.00	D	40	15				800	815	0.25	21	SAFETY MTG	
1	MOTOR	186	7.20	SIZE	311.0			DENSITY (KG/M3)	1145	1165	1175									815	1500	6.75	2	DRILL 311mm. HOLE FROM 815m. TO	
1	X.D	186	0.53	WDC CODE				FUNNEL VISCOSITY	79	88	78									1500	1515	0.25	7	RIG SERVICE	
1	X.D	171	0.92					F.LUID LOSS (cm/3)												1515	1545	0.50	10	ACCUMULATED SURVEY TIME	
1	FLOAT SUB	170	0.97	MANUFACTURER	WESTERN			PH	8.0	8.0	8.5									1545	1600	0.25	5	CIRCULATE HOLE CLEAN PRIOR TO WIPER TRIP	
1	UBHD TAMP	172	0.96	TYPE	H/TOCKP			PVT mD	77.30	75.20	74.60									1600					
1	HMDC	126	0.99	SERIAL NO	M15570																				
1	HMDC	126	0.17																						
1	X.D	170	0.87	ETS	15.9	15.9		MUD MATERIALS ADDED																	
17	D.C	179	157.74					PRODUCT	AMOUNT	UNIT															
1	JAR	179	0.81	DEPTH OUT	731.00			CAUSTIC	1	SK															
1	D.C	179	0.97																						
1	X.D	186	1.10	DEPTH IN	276.00																				
1	H.W.D.P	127	64.73	TOTAL M DRILLED	455.00																				
1	ACCELERATOR	162	0.93	TOTAL HRS RUN	26.25																				
1	H.W.D.P	127	37.84																						
				CUTTINGS STRUCTURE																					
				T1	T2	MED	LOC	WAG	SALE	OGG	REASON	PAULEY	TOTAL	RUN	MIN										
14	D.P	STANDS		HOLE CONDITION																					
1	D.P	SINGLES	412.38																						
				HOLE DRAG		5300		dan UP & DOWN		SLIDE															
				TORQUE AT BOTTOM		9000																			
				FEET ON BOTTOM IN																					
				HOURS RUN		8.00		INTAKE DENSITY (KG/M3)		1175		OVER FLOW DENSITY		1160		2090									
				DEPTH (M)		509.80		29.85		330.1															
				DEVIATION		619.70		31.90		330.9															
				DIRECTION		636.30		33.92		331.1															
						558.80		35.38		330.3															

DAY TOUR		800	1600	INJURIES	
CREW	DOC INS. NO.	NAME	HRS	YRS	DO
DRIILLER		GARY PATRICK	12.00		GP
DERRICK HAND		KEVIN VANDENBRAND	12.00		KV
DERRICK HAND		PATRICK BONNETTROLGG	12.00		PB
MOTOR HAND		CAMILLE KOOTENAY	12.00		CK
FLOOR HAND		STEVE McLAUGHLIN	12.00		SM
FLOOR HAND		DARREN HAZENBERG	12.00		DH

RATE SCHEDULE		X	REGULAR		REPAIR	C	INVERT
		CREW SAFETY DAYS					
		2164					

WELL		DEPTH	DATE	TIME	MUD TYPE		WATER BASED		OIL BASED		FROM	TO	2-4-C	RPM	WOB	FROM	TO	SLIP-SEW	CODE	DETAILS OF OPERATIONS IN SEQUENCE & REMARKS	
1	MOTOR	0.0	0.34	BIT NO.	2A																
2	X.C.	180	0.53	SIZE	311.0						2200	731.00				1800	1900	3.00	6		FLOW CHECK/WIPER TRIP OUT OF HOLE FLOW CHECK @ 600m, 200m, OUT OF HOLE.
3	X.C.	171	0.9C	MDC CODE												1900					TIGHT @ 622m, 481m, 470m.
4	FLOAT SUB	170	0.97	MANUFACTURER	WESTERN											1900	1915	0.25	22		FLOW CHECK.
5	URHO TMF	177	0.98	TYPE	HTOCKP											1915	1930	0.25	21		Pre-Tour Safety Meeting
6	K3ADC	128	0.88	SERIAL NO.	M15670											1930	2100	1.50	6		Run In Hole Flow Check & Fill Pipe @ 322m (Bridge @ 468m)
7	NACG	128	3.17													2100	2400	3.00	6		Circ & Wash In Hole From 474m to 632m
8	X.C.	170	0.87													2400					
9	D.C.	175	157.74	ETS	15.9	15.9	MUD MATERIALS ADDED		SOLIDS CONTROL		CIRCULATION PRESSURE		PUMP NO. 1		PUMP NO. 2						
10	D.C.	175	157.74		15.9		PRODUCT	AMOUNT	UNIT				14100	152.0	85	152.0	85				
11	JAR	175	0.81	DETH-OUT	731.00								REDUCED PUMP SPEED								
12	D.C.	175	0.97										HOURS RUN		INTAKE DENSITY (KG/M3)	OVER FLOW DENSITY	UNDER FLOW DENSITY				
13	X.C.	164	1.10	DEPTH IN	278.00																
14	H.V.P.P.	127	04.73	TOTAL M DRILLED	455.00																
15	H.V.G.F.	103	0.93	TOTAL HRS RUN	26.25																
16	H.V.G.F.	127	07.74																		
CUTTING STRUCTURE																					
17	D.P.	STANDS																			
18	D.P.	SINGLES	412.38	HOLE CONDITION																	
19	KELLY DOWN			HOLE DRAG	5000 up & dn																
20	TOTAL		731.97	TORQUE AT BOTTOM	48.00																
21	WT. OF D.C.		63	FILL ON BOTTOM IN	C.00																
22	QTY. OF STRUNG		66																		
CENTRIFUGE																					
23				HOURS RUN	INTAKE DENSITY (KG/M3)	OVER FLOW DENSITY	UNDER FLOW DENSITY														
24				4.00	1200	1190	2140														
DEVIATION SURVEYS																					
25				DEPTH (M)	DEVIATION	DIRECTION															
TRIP RECORD MEAS=8.10, CAL=8.96, DIFF=1.12m3 STRAP=732.23m, TALL=731.97m, DIF=0.26m3																					
NOTES: Checked, Crown Sewer, radline Clamp, Deadline Anchor Down drill-biters once Used 6,56.9 Meters of fuel today Fuel of 2400 Hrs 1.7 TON																					
DRILLER SIGNATURE																					
26				HRS RUN	BOILER	STAGE TEMP	MAXIMUM ENGINE/MECH HOOK LOAD	SAFETY TOPIC		WACP											
27				8.00	10.5	205	85	Wiper Trip													

EVENING TOUR		1600	2400	SQUIPES	
CREW	LOC RES. NO.	NAME	HRS	YES	NO
DRILLER		ALLAN LICKOCH	4.00		AL
DERRIK HAND		JERRY FOLEY	4.00		JF
MOTOR HAND		VIRGIL NANAQUAWETUNG			VN
FLOOR HAND		MOISE PUNCH	4.00		MP
FLOOR HAND		JOHNATHAN CARLICK	4.00		JC

RATE SCHEDULE				X	REGULAR		REPAIR		INVOIT
				CREW SAFETY DAYS					
				10					

WELL NAME & NO

SOL99 **CHEVRON FT LIARD 2K-29 SURFACE**

OPERATOR **CHEVRON CANADA RESOURCES** CONTRACTOR **AKITA DRILLING LTD.**

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

PAUL GOUIN

AKITA DRILLING LTD.

2K-29

SIGNATURE OF CONTRACTOR'S REP. MANAGER

DAVE LAUCK

DAILY CHECKS

1. Daily Walk Around Inspection
2. Drilling Inspection - (Using Check List)
3. Hoist Rigged & Ready to Operate
4. Well Control & Back Suction Pump
5. Flow Line & Wellhead
6. BOP Tests Performed
7. Hoist Rigged & Ready to Operate
8. Rig Site Health & Safety Meeting (if required)
9. CADC Rig State Inspection Checklist (if required)
10. Block Inspection before Raising of Lifting
11. Lower Block Checked
12. Hoist Line Checked

YEAR 2003 MONTH 1 DAY 31

WELL NO. 158
WELL TYPE: **TEMPERATURE**
WELL DEPTH: 127
WELL DIRECTION: 127
WELL LOCATION: 127

CONDUCTOR

WELL NO. 158
WELL TYPE: **TEMPERATURE**
WELL DEPTH: 127
WELL DIRECTION: 127
WELL LOCATION: 127

WELL NO. 158

WELL TYPE: **TEMPERATURE**
WELL DEPTH: 127
WELL DIRECTION: 127
WELL LOCATION: 127

PASON DATAHUB

AKITA 58
CDN 3472-2-011204



WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION	WELL NO.	WELL TYPE	WELL DEPTH	WELL DIRECTION	WELL LOCATION
158	TEMPERATURE	127	127	127	158	TEMPERATURE	127	127	127

LICENCE NO. WELL NAME & NO.

SDLP9 CHEVRON FT LIARD 2K-29 SURFACE

CHEVRON CANADA RESOURCES

2K-29

SIGNATURE OF OPERATOR'S REPRESENTATIVE

paul goun

AKITA DRILLING LTD.

2K-29

SIGNATURE OF CONTRACTOR'S RIG MANAGER

DAVE LAUCK

- DAILY CHECKS
1. Daily Well Around Inspection
 2. Drilled Inspection Weekly (Using Check List)
 3. All Signs Posted & Required
 4. Well Access & Block Diagram Posted
 5. Flow Line Stated
 6. 30' Lids Pinned
 7. 10' Lids Pinned Both Flow Line & Drilling Line
 8. No 30' Health & Safety Meeting (Lunchtime)
 9. CAUTION Rig Safe Inspection (See 1st) (Lunchtime)
 10. Well Inspection before Running or Lowering
 11. Check Tower Checks
 12. Well Site Checks

TEMPERATURE

CURRENT CONDITIONS

WIND DIRECTION

WIND SPEED

DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
2003	08	CONDUCTOR					20.00

PAEON DATAHUB

CDN 3472-2-01204



NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

NO.	WELL NAME	WELL NO.	DATE	TIME	DRILLER	GRAB	NO. OF JOINTS	TOTAL LENGTH	KB TO CING HEAD	BIT AT (IN)
1	SDLP9	2003	08	08	CONDUCTOR					20.00

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00
WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

PASON DATAHUB
Akita 58
CON 3422-2-01204

NO.	DEPTH (m)	TIME (min)	WOB (kN)	RPM	DRILLING TIME (min)	WOB (kN)	RPM	DRILLING TIME (min)	WOB (kN)	RPM	DRILLING TIME (min)
1	5.50	2.00	0.25	0.50	0.25	1.50	0.25	1.50	0.25	1.50	0.25
2	2.00	0.25	0.25	0.50	0.25	1.50	0.25	1.50	0.25	1.50	0.25
3	1.25	0.25	0.25	0.50	0.25	1.50	0.25	1.50	0.25	1.50	0.25
4	0.75	0.25	0.25	0.50	0.25	1.50	0.25	1.50	0.25	1.50	0.25

MORNING TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

MORNING TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

DAY TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

DAY TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

EVENING TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

EVENING TOUR

WELL NAME & NO: CHEVRON FT LIARD 2K-29 SURFACE
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00

WELL NAME & NO: 2K-29
CONTRACTOR: AKITA DRILLING LTD.
DATE: 2003 MONTH 1 DAY 28
CONDUCTOR: [Name]
TOTAL LENGTH: 20.00
SET AT (m): 20.00



CDN 3422-2-0/11204

[illegible]

WELL NAME & NO		YEAR	MONTH	DAY
CHEVRON FT LAR 26-29 SURFACE		2003	1	25
OPERATOR		CONTRACTOR		
CHEVRON CANADA RESOURCES		HUKTA DRILLING LTD.		
RIG NAME/NO		RIG NO		
DAVE LAUCK		56		
PROVIDED BY		RIG SAFETY DATA		
H.W.T.		Class ☒ YES ☐ NO		

[illegible][illegible][illegible]

DAY TOUR		300	1600	PLANNING
CREW	BOC TNS NO.	NAME	HRS	YES
DRILLER		GARY PATRICK	12.00	
DERRICK HAND		KEVIN VANDENBRAND	12.00	
DERRICK HAND		PATRICK BONNETROUGE	12.00	
MOTOR HAND		CAMILLE KOOTENAY	12.00	
FLOOR HAND		ST'VE McLAUGHLIN	12.00	
FLOOR HAND		DARREN HAZENBERG	12.00	
RATE SCHEDULE		X	REGULAR	
			REPAIR	
			INVERT	
CREW SAFETY DAYS				

NO.		ST		O.D.		LENGTH		B.T. NO.		MUD TYPE		☐ WATER BASED ☐ OIL BASED		FROM		TO		D-R-C		RPM		WOB		FROM		TO		RATED TIME		CODE		DETAILS OF OPERATIONS IN SEQUENCE & REMARKS			
										TIME																1800		1800		2.00		23		WELD FLANGE ONTO CONDUCTOR PIPE	
										DENSITY (KG/M3)																1800		2000		2.00		23		NIPPLE UP DIVERTER	
										FUNNEL VISCOSITY																2000		2015		0.25		21		Pre-Job Safety Meeting	
										FLUID LOSS (CM/3)																2015		2400		3.75		23		Weld Flow Tee On Diverter Riser	
										PH																2400									
																																</			

[illegible]

CON 3422-2-011204

WELL NAME & NO.		YEAR	SOLIDS	DAY
CHYRON FT LIARD 2K-39 SURFACE		2003	1	24
OPERATOR		CONTRACTOR		
CHEYRON CANADA RESOURCES		ANVA DRILLING LTD.		
POI MEMBERS		PHONE NO.		
DAVE LAUCK		58		
PRODUCER		HSE SAFETY DAYS		
N.W.T.		2		

MORNING TOUR		0	800	INAPPROPRIATE
CREW	SOCIAL NO.	NAME	HRS	VER
DRILLER		ALLAN LICKOCH	8.00	AL
DERRICK HAND		JERRY FOLEY	8.00	JF
MOTOR HAND		VIRGIL MANAQUAWETUNG	8.00	VM
FLOOR HAND		MOISE PUNCH	8.00	MP
FLOOR HAND		JOHNATHAN CARLICK	8.00	JC

RATE SCHEDULE	Y	REGULAR	SEMI	INVERT
CREW SAFETY DATA				

2

[illegible][illegible]

**ADDITIONAL
INFORMATION**

SEISMIC SECTION

OVERSIZED

DOCUMENT

FILMED

ON

35mm

STRUCTURE MAP

OVERSIZED

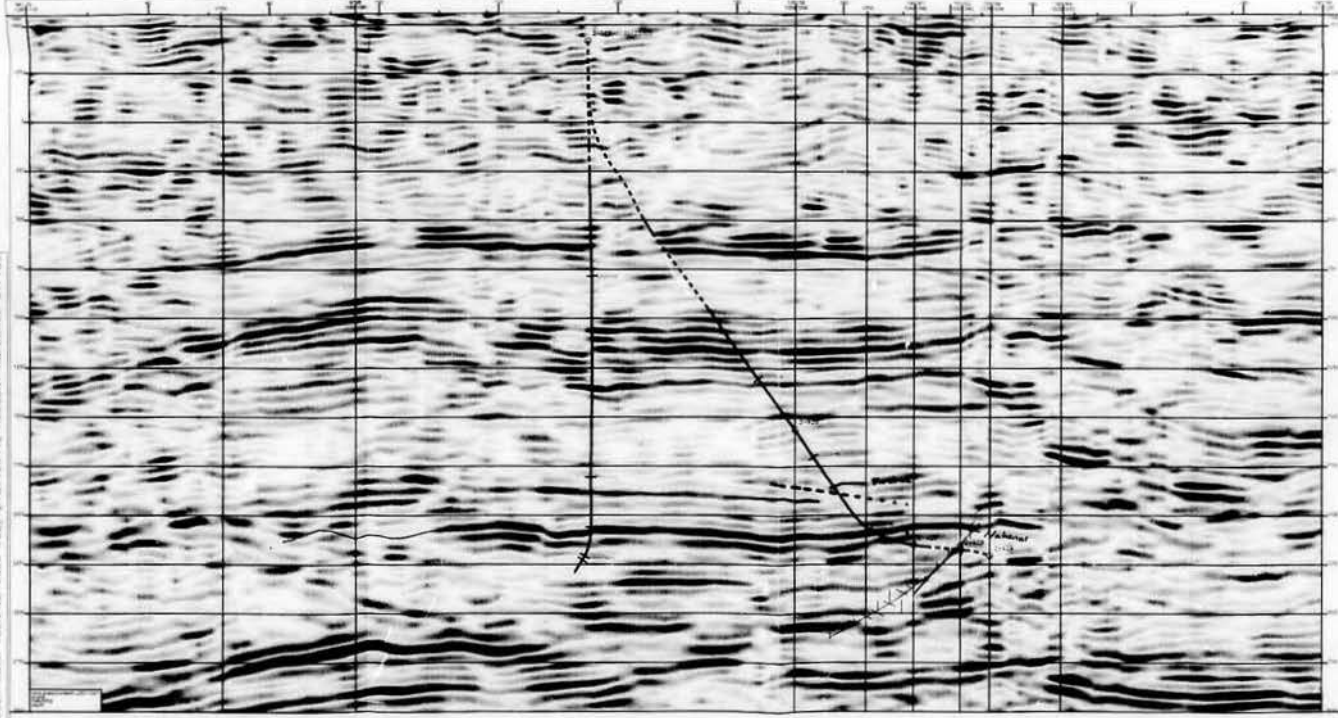
DOCUMENT

FILMED

ON

35mm

08/19/03 COLO 27-Feb-2003 08:52
 USER=ADMIN JOURNAL=colo_JOB#gid.19644 ACCOUNT=PAFFRON SITE=US

[illegible]

Type: `Integer`
 Line: 184, 185
 Definition: `24, 32, 48, 64, 96, 128, 160, 192, 224, 256`
 Description: `24, 32, 48, 64, 96, 128, 160, 192, 224, 256`
 Type: `Integer`
 Line: 184, 185
 Definition: `24, 32, 48, 64, 96, 128, 160, 192, 224, 256`
 Description: `24, 32, 48, 64, 96, 128, 160, 192, 224, 256`

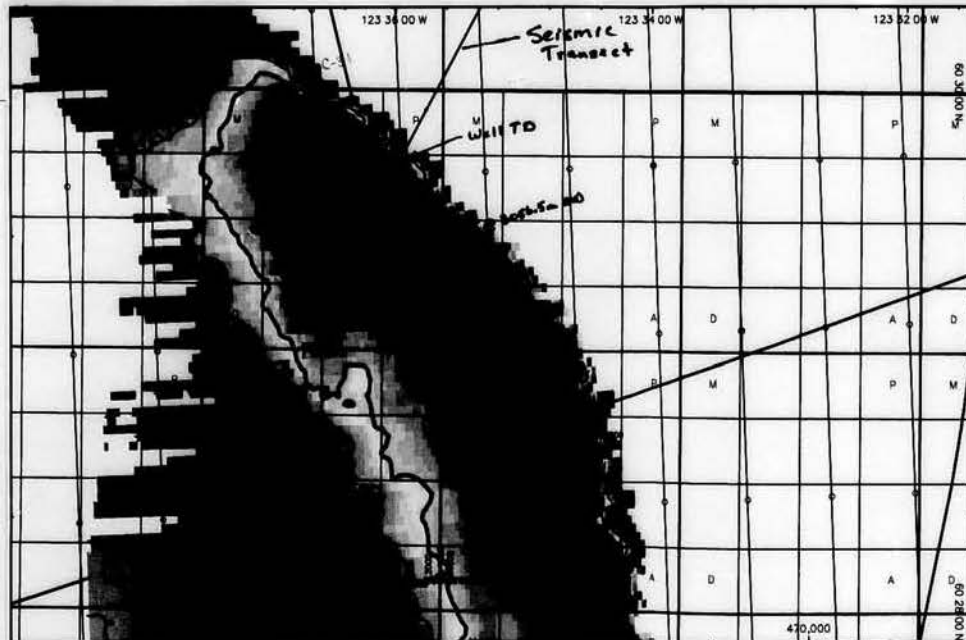
001 100 000 21 Feb 2003 06:52
 001 100 000 21 Feb 2003 06:52
 001 100 000 21 Feb 2003 06:52

END OF PLOT FOR: CACO

Phone: 5376, ROCA925

AT: 1056

EXPLORE AND PROTECT
MAR 06 2003



Project name : fort_liaid_kr

Map name : Default map - wjan

Map type :

Surface name : Z/_Nahanni_shifted_coc

Description : Shifted -274m to Tie Prog at 140

Datum :

Projection : Universal Transverse Mercator Zone 10

Zone : 10

Spheroid : Clarke 1866

Units : Meters

Prepared by :

Plot creation date : February 27, 2003 09:30 AM



Scale 1 : 25000



job7941.coc
USER=coc JOBNAME=coc JOB# pid 197016 ACCOUNT=RWTCR08 mirius

job7941.coc
USER=coc JOBNAME=coc JOB# pid 197016 ACCOUNT=RWTCR08 mirius